

RADIO TODAY

15885

\$1 Yearly

Caldwell-Clements, Inc., 480 Lexington Ave.

New York City

Modernization

- start now!
- "Modernize All Listeners' Sets"
- get 'em ready for political excitement on the air

Radio Trade

- sees big Spring, selling new sets, servicing old jobs

Service Tips

- latest circuits
- repairing midgets
- selling antennas
- business methods

Auto Radio

- reaching owners
- record start
- 1,600,000 auto-sets

Public Address

- extra profits from local political jobs

Finer Broadcasts

- use them to push better receivers
- how to "sell up"

RADIO Will Elect the Next President

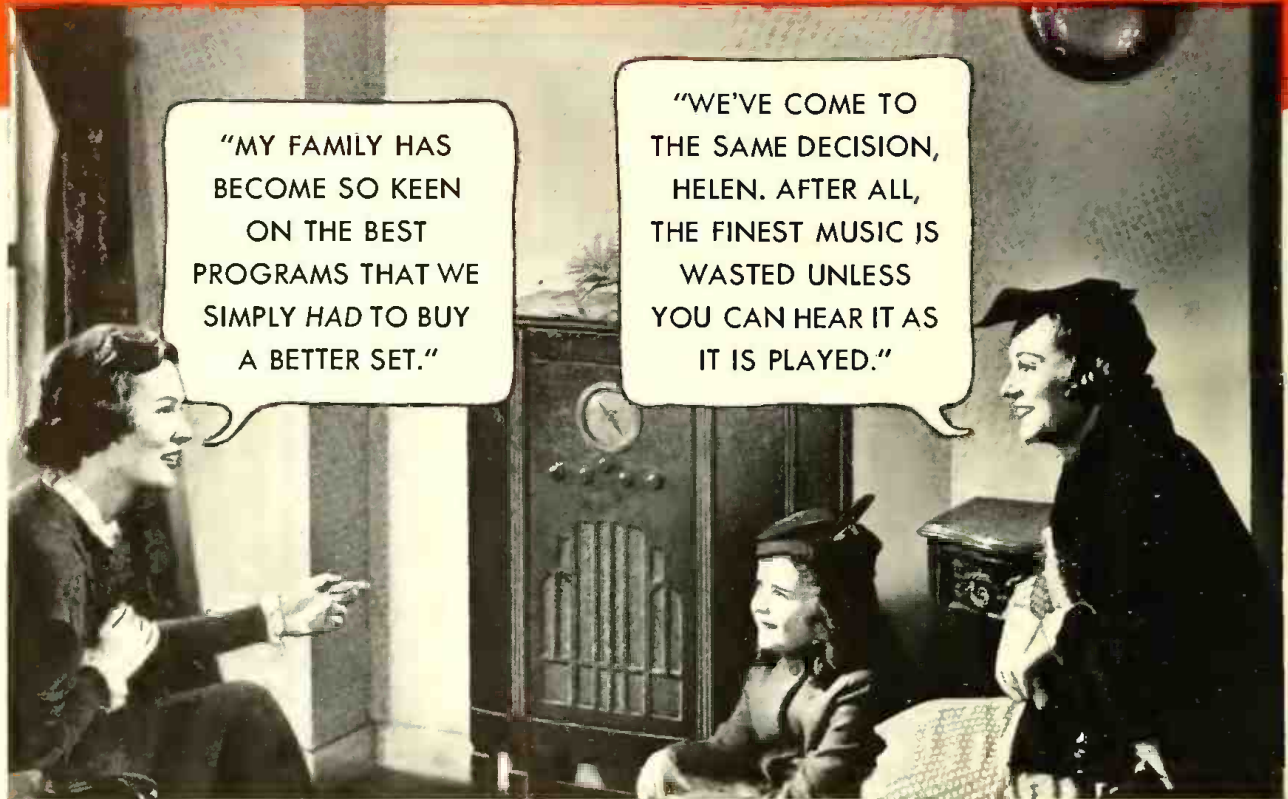
MARCH

• 1936 •



It's a proved fact—

*that talking up the finer radio programs helps
to sell the finer sets!*



"MY FAMILY HAS
BECOME SO KEEN
ON THE BEST
PROGRAMS THAT WE
SIMPLY HAD TO BUY
A BETTER SET."

"WE'VE COME TO
THE SAME DECISION,
HELEN. AFTER ALL,
THE FINEST MUSIC IS
WASTED UNLESS
YOU CAN HEAR IT AS
IT IS PLAYED."

National Broadcasting Company's fine programs are a great sales asset

In the stiff competition for the better type of radio set business today, dealers are always searching for a new hook-up with the consumer's interest. And wise dealers are finding an extremely profitable one in NBC's splendid and widely-popular programs.

In the course of every sales talk, there comes an interval when everything seems to have been covered. Tone, features, finish, price — that's all over. And with a sale hanging in the balance, *that's* the time to mention the really fine programs — programs with which the prospect is already familiar.

Programs which come over the famous NBC networks are consistently good — customers know this as well as the dealers themselves. Mention of them strikes, in countless cases, a subtle yet powerful sales keynote which aids materially in the final decision.

Tell your customers this: "The finest programs are no better than their reception — give them the best you can possibly afford!"

The broadcasting system and the interests of the 15,000 dealers who contact and sell four to five million listeners a year are closely bound together. Use National Broadcasting Company programs to demonstrate receivers, and swing your sales to a better type of instrument!

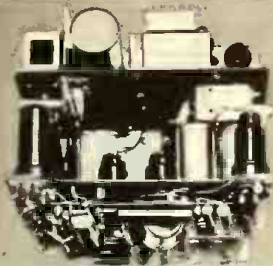
NATIONAL BROADCASTING COMPANY, INC.

A Radio Corporation of America Service

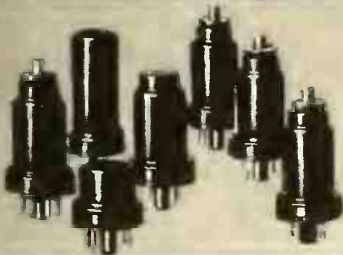
NEW YORK • WASHINGTON • CHICAGO • SAN FRANCISCO

AMERICAN-BOSCH *Skylark* CAR-RADIO

*Your Toughest Competition
Can't Touch this Combination*



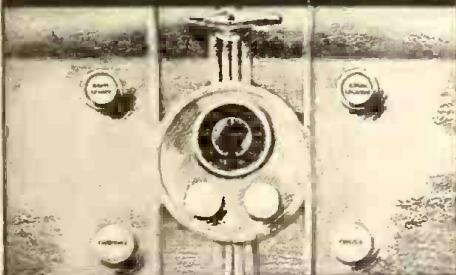
DOUBLE-WINGED CHASSIS



METAL TUBES

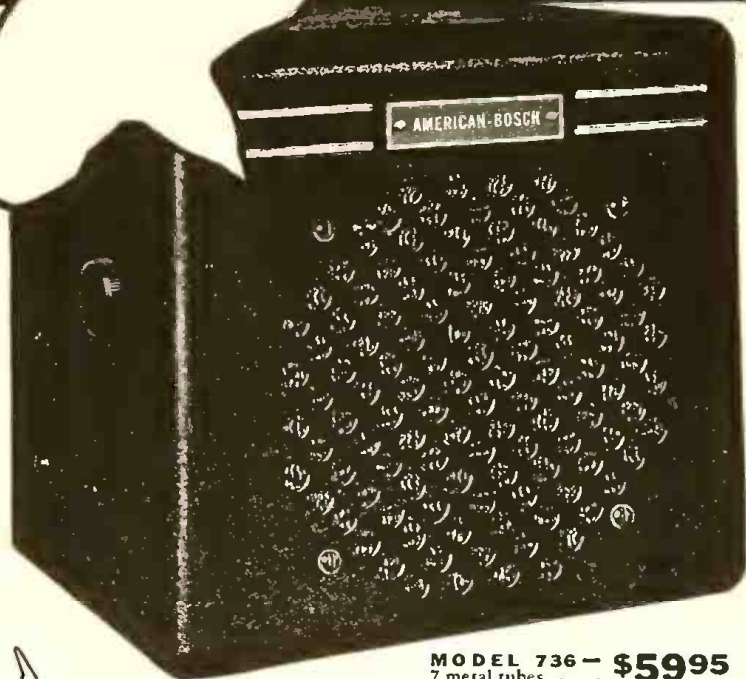


**HEADER, BULKHEAD OR
SELF-CONTAINED SPEAKER**



**CUSTOM STYLED PANEL MOUNTINGS
TO FIT 1935 OR 1936 CARS**

*Springs 3 new
selling ideas for Dealers!*



MODEL 736 - \$59.95
7 metal tubes . . .
Other models, \$39.95 up to \$67.95.

Selling idea #1: A new car-radio with a wing shaped chassis that achieves as much for car-radio as the CentrOmatic Unit did for American-Bosch Home Radio. Enriches its tone. Greatly reduces the wiring. Eliminates numberless soldered connections and shortens those that remain.

Selling idea #2: This year, the toughest nut that dealers have to crack is the matter of control panel mountings. American-Bosch has the answer . . . an attractive display kit containing panel mountings for every car on the road . . . at an investment that's hardly worth mentioning.

Selling idea #3: Be prepared for anything the customer wants and you'll never lose a sale. Does the customer want glass tubes or metal tubes? American-Bosch has it. Does the customer want the inbuilt speaker, overhead speaker or bulkhead speaker? American-Bosch has it. Does the customer want steering post control, under dash control or a panel mounting to match and harmonize with his car? With American-Bosch you can give him what he wants . . . with the minimum inventory.

*Exceptional displays and advertising material . . .
write or wire for complete story.*

UNITED AMERICAN BOSCH CORPORATION
SPRINGFIELD, MASS. NEW YORK CHICAGO DETROIT

ZENITH AUTO RADIO

SALES SOAR!

BREAK ALL-TIME RECORDS!



New Safety Features on "America's Safest Auto Radio" Give Zenith Dealers Big Selling Advantage—Hundreds of Dealers Doubling Their Auto Radio Sales



● *North, East, West, South*—from every section of the country comes the amazing news that dealer sales of Zenith Auto Radios are soaring to new heights, breaking all-time records! Dealers report doubled, tripled—yes, even quadrupled sales! They say the new Zenith, "America's Safest Auto Radio," is the easiest auto radio in the world to sell. Easy to understand why. Because Zenith has eight sensational safety features including: a dial light that goes on only while dialing . . . lighted pointer . . . big, black safety dial . . . true vision turn-table tuning . . . true dial reading from any angle. Never any glare to blind the driver. The line is complete . . . the prices are right . . . and the Zenith Auto Radio sells *fast!* Don't miss this opportunity to handle this great auto radio line. See your Zenith distributor now . . . become a Zenith dealer!

Beautiful INSTRUMENT PANEL MOUNTINGS

...to Match all Cars

Car owners are proud of the beautiful panel mountings Zenith provides for their cars. Another feature that makes the Zenith easy to sell.

ZENITH RADIO CORPORATION

3620 Iron Street, Chicago, Illinois



DISTRIBUTORS

ALABAMA

R. P. McDavid & Co., Inc.
2104 First Avenue
Birmingham

ARIZONA

Tidmarsh Engineering Co.
P. O. Box 2425
Tucson

ARKANSAS

The Mills Morris Company
Little Rock

CALIFORNIA

Ray Thomas, Inc.
1224 S. Hope Street
Los Angeles

Thompson & Holmes, Ltd.
2701 Sixteenth Street
San Francisco

COLORADO

Intermountain Appliance
Co.
1508 Cleveland Place
Denver

CONNECTICUT

Northeastern Radio, Inc.
181 Ann Street
Hartford

Plymouth Electric Co.
401 Chapel Street
New Haven

FLORIDA

Peaslee-Gaulbert Corp.
220 East 14th Street
Jacksonville

GEORGIA

Peaslee-Gaulbert Corp.
550 Glenn Street
Atlanta

ILLINOIS

Zenith Radio Dist. Co.
680 North Michigan Blvd.
Chicago

INDIANA

Rodefeld Company
96 West Main St.
Richmond

5 W. North Street
Indianapolis

Walker Electric Supply Co.
817 Ohio Street
Terre Haute

Wayne Hardware Company
Fort Wayne

IOWA

A. A. Schneiderhahn Co.
Des Moines

123 W. Third Street
Davenport

KANSAS

The S. A. Long Electric Co.
146 No. Market St.
Wichita

KENTUCKY

The Ferguson Co.
10th & Broadway
Paducah

The Otis-Hidden Company
529-35 W. Main Street
Louisville

LOUISIANA

Monroe Hardware Co.
204 N. Third Street
Monroe

C. T. Patterson Co., Inc.
800 S. Peters Street
New Orleans

MAINE

R. B. Dunning & Co.
54 Broad Street
Bangor

Radio Service Laboratory
34 Free Street
Portland

MARYLAND

Baltimore Gas Light Co.
111-113 E. Lombard St.
Baltimore

MASSACHUSETTS

Northeastern Radio, Inc.
281 Columbus Avenue
Boston

MICHIGAN

Republic Supply Corp.
421 Beaubien Street
Detroit

Soo Hardware Company
Sault Ste. Marie

Soo-Marquette Hdwe. Co.
Marquette

J. A. White Dist. Co.
219 Ottawa Ave. NW
Grand Rapids

MINNESOTA

Reinhard Bros. Co., Inc.
Minneapolis

MISSOURI

Electric Lamp & Supply Co.,
Inc.
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St. Louis

Federal Distributing Co.
2004 Grand Ave.
Kansas City

MONTANA

Midland Implement Co.
Billings
Great Falls

NEBRASKA

Major Appliance Co.
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Omaha

NEW HAMPSHIRE

John B. Varick Co.
809 Elm Street
Manchester

NEW JERSEY

B & O Radio, Inc.
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Newark

NEW YORK

Colen-Gruhn Co., Inc.
387 Fourth Avenue
New York City

Onondaga Auto Supply Co.
353 E. Onondaga Street
Syracuse

Joseph Strauss Co., Inc.
25 High Street
Buffalo

NORTH CAROLINA

Southern Bearings & Parts
Co.
315 N. College St.
Charlotte

NORTH DAKOTA

Reinhard Bros. Co., Inc.
Minot

OHIO

Appliance Distributing Co.
(Div. of Tracy-Wells)
165 N. Ludlow St.
Columbus

Arnold Wholesale Corp.
5209 Detroit Avenue
Cleveland

V. J. McGranahan Dist. Co.
135-17th Street
Toledo

Tafel Refrigerator Co.
530 Walnut St.
Cincinnati

OKLAHOMA

Peaslee-Gaulbert Corp.
203 Compress Street
Oklahoma City

OREGON

Electrical Distributing Inc.,
404 N. W. Tenth Street
Portland

PENNSYLVANIA

Trilling & Montague
24th & Walnut Streets
Philadelphia, Pa.

Adams & Lackawanna Sts.
Scranton

J. A. Williams Company
401-433 Amberson Ave.
Pittsburgh

RHODE ISLAND

Ballau, Johnson & Nichols
128 Dorrance Street
Providence

SOUTH DAKOTA

Reinhard Bros. Co., Inc.
Aberdeen

TENNESSEE

Braid Electric Co.
143 Eighth Ave. North
Nashville

The Mills-Morris Co.
171-175 S. Dudley Street
Memphis

East Tennessee Electric Co.
612 E. Depot Avenue
Knoxville

TEXAS

Momsen-Dunegan-Ryan
& Company
El Paso

Peaslee-Gaulbert Corp.
Atlanta & Logan Streets
Dallas

152 S. Adams Street
San Antonio

2150 Winter Street
Houston

UTAH

Flint Distributing Co.
253 E. Third South Street
Salt Lake City

VIRGINIA

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405 S. Jefferson Street
Roanoke

R. F. Trant, Inc.
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Brown-Johnston Co.
118-20 N. Lincoln Street
Spokane

Seattle Hardware Co.
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Seattle

WEST VIRGINIA

Eskew, Smith & Cannon
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Persinger Supply Co.
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John Pritzlaff Hdwe. Co.
333 N. Plankinton Ave.
Milwaukee

WYOMING

Lauer Auto Supply Co.
Riverton

Get More Big-Set Sales

.... by tying up with

THE RADIO INSTITUTE OF THE AUDIBLE ARTS



PATRON MEMBER

DECALCOMANIA
WINDOW SEALS

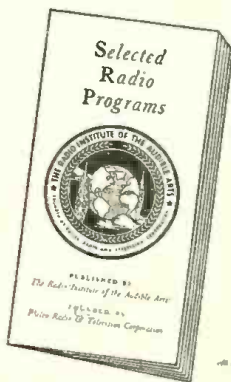
• Philco dealers have always been the leaders in unit sales of \$100 and up! And, with The Radio Institute of the Audible Arts emphasizing fine programs and creating a real desire for fine tone, the big-set market is becoming greater and greater! Thousands of Philco dealers are cashing-in on this market . . . they are making extra profits by following through on the activities of the R.I.A.A.

It's so easy to identify your store with the R.I.A.A. and get a bigger share of the big-set market! Simply use the material which the Institute has made available. Become a part of this great movement now!

Your Philco distributor will gladly show you samples of the promotion material illustrated here. Ask him how you can obtain a supply . . . and learn how YOU can get more BIG-SET SALES through the R.I.A.A.



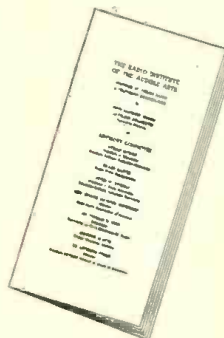
COUNTER
STANDS



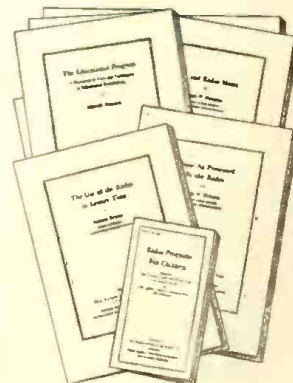
MONTHLY
PROGRAM
GUIDES



PROGRAM
WINDOW
STREAMERS



DIRECT MAIL
FOLDERS



BOOKLETS AND
MANUALS

PHILCO RADIO & TELEVISION CORPORATION

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 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. 3

GENERAL BUSINESS UP; PRESAGES RADIO BUYING

★ With the business index holding at 94 per cent and edging upwards, a strong background for lively radio buying is already manifest for the first half of 1936.

Employment promises are good, with steel output at 56 per cent of capacity, compared with 48 per cent last year; carloadings at the highest level since the depression started.

Electric power production is at a new high; automobile manufacture has dropped back somewhat due to its early start last Fall.

General retail buying started up with new activity as the bad weather lifted.

FIELD DAYS FOR I. R. S. M., MARCH 27-29

★ Gala announcements from the Hotel Sherman in Chicago promise great excitement for the 1936 National Radio Trade Show and the Fourth Annual National Convention of the Institute of Radio Service Men, March 27 to 29. Advices from Ken Hatheway, prime mover of the Institute, indicate that record floor space will be needed for display and lecture facilities, and an important group of hotel rooms for demonstration purposes.

Edgar C. Arnold, Institute President, will open the sessions at 2 p.m. on Mar. 27. Exhibiting manufacturers have planned special company meeting; the entire radio trade has been invited to attend the show, and sales managers, service men, distributors, etc., from all parts of the country are expected to be on hand.

An automobile trailer, fitted up as a traveling radio-service shop and laboratory, will be one of the features of the show.

Cover photograph by Wide World.

VOTES—AND RADIOS— FOR EVERYBODY

Politics is in the air—and in the blood of every member of the family. Both father and mother have votes to cast—possibly on opposite sides—so each needs a personal radio for personal political listening. The youngsters have their favorites in politics as well as entertainment. And the older generation finds that politics is the greatest game on earth.

And what a breathless spectacle of politics awaits the American public as 1936 progresses. First the sessions of Congress; then the great political conventions; then the speeches of the candidates, national and local; and finally the election itself.

To each great event, the broadcasters move a chair right up to the sidelines, for your prospect! They have taken all the trouble and expense to set up the show; your job is to keep your customers in touch—sell the sets and collect the money.

Republican convention begins June 9; Democratic, June 23.

SIX MILLION SETS IN 1935

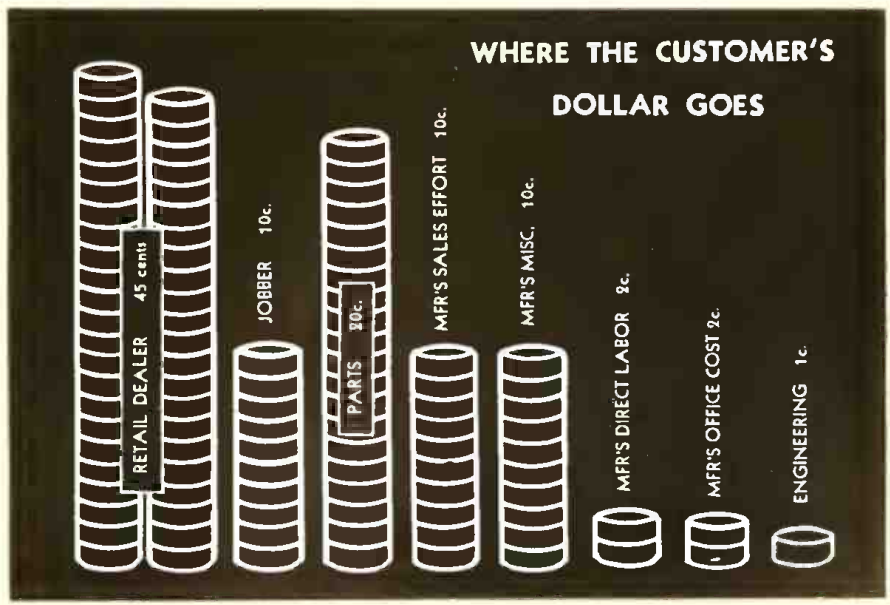
★ Official license-bureau figures at last reveal the record radio sales made during 1935. More than six million sets were sold, an all-time high that exceeded even RADIO TODAY's conservative estimate of 5,700,000 sets. Other estimates made around Jan. 1, were as low as 5,375,000 sets.

Following are the 1935 totals by quarters, and computed retail values based upon factory selling prices equalling 42 per cent of retail prices:

1935	Units	Retail Value
1st quarter	1,155,438	\$ 56,600,000
2nd quarter	1,074,909	49,600,000
3rd quarter	1,528,684	81,000,000
4th quarter	2,267,000	117,100,000
Total	6,026,000	\$304,300,000

For the preceding year 4,540,199 radio sets were reported sold. This indicates that 1935's increase over 1934 was about one and a half million sets, or 33 per cent.

The unit value per set went up 7½ per cent in 1935, over 1934—from about \$46.90 per set, to \$50.50 per set, both retail.





Philco's J. M. Skinner and Larry E. Gubb look on as their 7,000,000th set rolls off production line and gets OK of Philadelphia's mayor, S. Davis Wilson.

SHIFT IN AIR BILLS— POLITICS STRONG

★ That mystifying matter of audience preference in air entertainment gets an occasional check. NBC has made an analysis of sponsored program content for one month, and when it is compared with an analysis of the same period last year, a trend in advertiser and listener choice shows up instantly.

Most notable jumps in amounts of broadcast time were found in operettas, classical music, and current topics. Latter item includes news and sports and probably registers the strong listener interest in politics at the moment, although part of the pick-up may be due to the fact that Lowell Thomas' talks were switched to that classification since last year.

Musical group as a whole, which also includes opera, semi-classical, light, and dance, declined in importance. Women's programs, juvenile features, novelty, and drama were on the increase.

NOW IT'S THE FOUR R'S

★ Readin', 'ritin', 'rith-metic, and radio is the new schedule for the modern classroom, now that broadcasts are being assigned as a definite part of the course of study.

New York public schools, beginning late last month, made arrangements for required listening among high school seniors, adding the NBC feature, America's Town Meetings,

to the official homework requirements. Two seniors from each of the 43 high schools in New York will attend the actual broadcasts in Town Hall on Thursday nights and will take sufficient notes to enable them to conduct similar meetings among their own student groups.

New York school system is the first complete one to OK radio listening as an item formally required as a part of the curriculum.

ONE QUARTER BROADCAST STATIONS PRESS-OWNED

★ Sharp rises in all fields of activity relating to radio broadcasting are noted in the new 1936 Year Book edition of *Broadcasting Magazine*, which discloses that broadcasters of all classes sold a total of \$87,523,848 worth of "time on the air" during the last year, a gain of 20 per cent over 1934.

The 316-page Year Book also discloses that nearly one-fourth of the broadcasting stations in the United States are now owned by or corporately affiliated with newspapers, which have been particularly active in recent months in seeking to acquire radio properties.

According to the report, the revenues of radio stations totaling \$87,523,848 showed gains in the following classifications: national network advertising, \$50,067,686, a gain of 13 per cent over 1934; regional networks, \$1,110,739, a gain of 54.7 per cent; national non-network adver-

tising, \$17,063,688, a gain of 26 per cent, and local advertising, \$19,281,735, a gain of 26 per cent.

MAY WINE

★ Armed with an enthusiastic letter from the White House, Secretary C. M. Tremaine of the National Music Week Committee, reports to *RADIO TODAY* that this year's event will be important to the radio business. Date for Music Week this time is May 3 to 9.

Observance of the Week promises to have a great bearing on what goes on the air during the period. During the 7-day celebration last year, one network alone carried more than 60 special features. Chairman of the National Music Week Committee is none other than David Sarnoff, RCA chief.

CASE OF THE COLD FEET

★ Somewhere in New York City is a disconsolate radio serviceman who would enjoy having a wife, and recently took steps to get one. He presented his case to the directors of the "Husbands and Wives" program on WOR: said that he was 24 and sober, had his own radio shop, and didn't know many girls on account of being busy fixing people's radios. Heart-tearing appeal for a frau was to air Feb. 19.

The item seemed to deserve some



Hazeltine, L. A., of neutrodyne fame, is new president Institute of Radio Engineers



Ed Cohan, CBS tech chief, is again in Europe, looking up bright ideas.

special publicity and the altar-minded radio man began to wonder whether there were not some less spectacular method of locating a mate. In the end, he withdrew from the whole business. Last reports have him brooding, cold-footed, over his work bench, no wife, no grocery bills.

NEW AIR BLANKET

★ "In the heart of America," say the announcements from Samuel Insull's office in Chicago, a new network called the Affiliated Broadcasting Company is ready with coverage information and time rates. In general, the ABC web will cover Wisconsin, Illinois and Indiana, and has some 15 stations in those states signed up.

In a recent letter from Mr. Insull to RADIO TODAY, the progress of the network was reported on; headquarters are in Radio Tower, Civic Opera Bldg., Chicago. Web was recently chartered by the State of Illinois with a capital of \$100,000, and it makes its appeal as a blanket of the "fertile North Middlewest Market."

LADY ESTHER, SALES-GAL

★ Sensational success story of a manufacturer who decided to use broadcast time almost exclusively in advertising is the account which the Lady Esther Company is able to give itself after five years of air ads.

Esther face powder jumped from

fifteenth place to first place in sales among popular brands; company sold 1 per cent of all face powder in 1932 and in 1934 the figure zoomed to 17 per cent. Appropriation by the firm for radio facilities and talent went from \$6,000 to \$1,000,000, and the company saw that 96 per cent of its advertising went into broadcasting.

Small wonder that Lady Esther is now about the fourth biggest spender on the air, with Wayne King on CBS and Lady Esther Serenade on NBC.

AIR GREETINGS

★ Friendly and refreshing device for welcoming new families to the city of Peoria, Ill., has been worked out by Station WMBD, of that city, with program director Clair Hull credited for the stunt. Station calls the local Retail Merchants Association every day and gets the names of newcomers, who are then called personally and asked for the dope on themselves. Data is then used in a special broadcast, and the gesture appears to make for good will no end.

TUNE IN, AND HAVE AN ALIBI

★ From the Chicago criminal courts comes the curious report of how radio listening may be accepted as an alibi. Floyd Bond, 19-year-old negro, was convicted of robbery and got a one to ten-year sentence, although he insisted that he was listening to the program,

"One Man's Family" at the time of the crime. He mentioned such an impressive number of details that the authorities checked with the author of the NBC radio serial and were convinced that he actually was at home with his radio.

Bond was positively identified by the woman whose purse he was accused of snatching, but his interest in "One Man's Family" saved him from prison.

75,711,000 TUBES IN YEAR

★ Returns from radio-tube manufacturers for the final quarter of 1935, just compiled, indicate the record character of radio sales during the year, far exceeding even the most optimistic expert opinions.

Nearly 25½ million tubes were made during the October-December period, a 25 per cent increase over the corresponding period for 1934. Tube sales for the year totalled 75,711,309 units, at a manufacturer's selling price of \$26,464,197.

Following are the figures for the two years:

	1935	Tubes	Value
Jan.-Mar.	15,247,456		\$ 5,266,500
Apr.-June	14,454,219		4,563,800
July-Sept.	20,559,634		7,365,897
Oct.-Dec.	25,450,000		9,268,000
Total	75,711,309		\$26,464,197
	1934		
Jan.-Mar.	13,664,063		\$ 5,369,678
Apr.-June	11,400,000		3,900,000
July-Sept.	12,200,577		4,472,389
Oct.-Dec.	20,000,000		7,300,000
Total	57,264,640		\$21,042,067



Radios and phonograph amplifiers for the blind. J. O. Kleber lays out models for 500 PWA workers, under auspices Blind Foundation. The pretty girl, heard on many "talking books," is herself sightless.

"MODERNIZE" LISTENERS' SETS

- fix up old ones — or better yet, sell 'em new 1936 receivers
- explain about politics and other features all along the dial
- foreign programs, aircraft, police, overseas news reports

★ ERECT and equal to the needs of 1936!

We should be able to describe our 25,500,000 sets in that fashion.

But the fact is that *three out of every four* present listeners' jobs need to be modernized. In one way or another, they are *not ready* for the big political and world events ahead this Spring and Summer.

Thousands of sets are running on worn-out tubes, which should be replaced at once, to get good reception.

Antennas are in bad shape (probably they never were right in the first place). But even the best antenna installations suffer from winter ice and winds, and need overhauling.

Noisy reception conditions need to be eliminated, so that local electrical interference and clicks will be cut out.

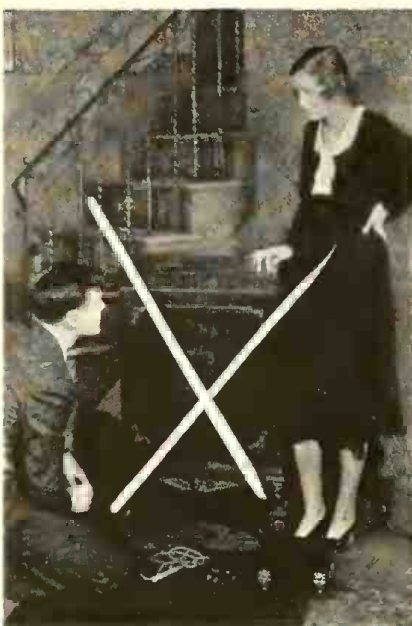
And then the sets themselves need to be modernized. There are many things that the serviceman can do to bring an old set up to date. He can install a cathode-ray tube for accurate tuning. He can put in a phonograph attachment. He can overhaul the set and replace faulty resistors, condensers, transformers, etc.

Sell a new set

But the best advice to be given the customer in most cases will be to "*get a new set.*" — a modern all-wave receiver reaching down into the ultra-high frequencies, and bringing in all the additional entertainment that fills the kilocycles all along the dial.

For the radio listener has had a new deal.

The "forgotten man" at the tuning dials now has new riches of broadcasting poured nightly across the ether at him. Yet he probably is un-



"No shortwave—poor tone—old-style cabinet—noisy—not a super. Better get a new set, madam."

conscious of a large part of these new services that have been opened up to him. Too often "nobody has told him" about the shining new vistas stretching beyond the broadcast band. It is for the radio listener to go a'hunting once more for new worlds to tap. For him echoes anew the paraphrased maxim of Holy Writ: "Tune-in and ye shall find; turn your wave-change switch and new worlds shall be opened up unto you."

Most radio men themselves are sadly unfamiliar with the new stretches of entertainment and information that fill the kilocycles and megacycles all the way to the ultra-high frequency channels down to 5 meters and beyond.

It is time then that radio dealers, distributors, manufacturers, and servicemen got a clear understanding of the many points on the modern radio dial at which interesting programs can be picked up. The chart on these pages will help explain the location of broadcast entertainment all up and down the radio spectrum.

Guide listeners

And when the radio dealer, salesman, or serviceman understands how to tune in on all these supplementary programs outside the standard broadcast band, let him use this information as a friendly guide to the public. For here is a new and powerful selling tool to interest the layman in modern radios and finer radios. The radio listener will want to own a set that brings in as much as possible of the fascinating spectrum that stretches across these two pages.

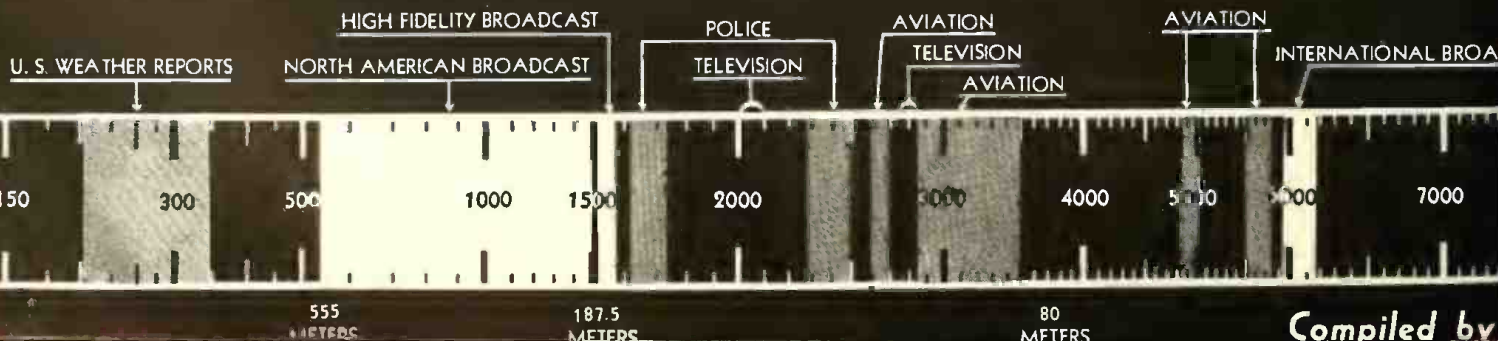
Here for the first time have been assembled in one continuous range of wavelengths all the radio bands on which entertainment and interesting features of one kind or another can be tuned in, as one progresses successively "up frequency" or "down wavelength."

In the long waves, above the broadcasting band, there are the United States weather reports. These channels correspond to the "long-wave broadcasting" band used in Europe, but never adopted in North America.

High-fidelity stations

Then below the regular broadcast band of 550 kc. to 1,500 kc., as we have known it for the past fifteen years, lies the new "high-fidelity" broadcast addendum (1,500-1,600 kc.)

There's fascinating entertainment all along the whole radio spectrum.



in which several high-fidelity broadcast stations now operate on channels 20 kc. wide, double the usual 10 kc. separation between stations in the regular broadcast band. This means that these high-fidelity broadcasters can send out music up to 10,000 cycles without interference from adjoining channels. Already music-lovers are flocking to these high-fidelity stations.

The two police bands are always filled with interesting drama. Here the listener can tap in on news in the making; follow the first alarms of crimes and fires, and get advance peeks into the police news of half the continent.

Aviation channels also offer new thrills for the grounded listener. At a turn of his dial he can listen in on conversations between pilots and flying fields far away, hear reports of weather aloft, and eaves-drop on the dispatchers' instructions to the ships flying the line in regular service.

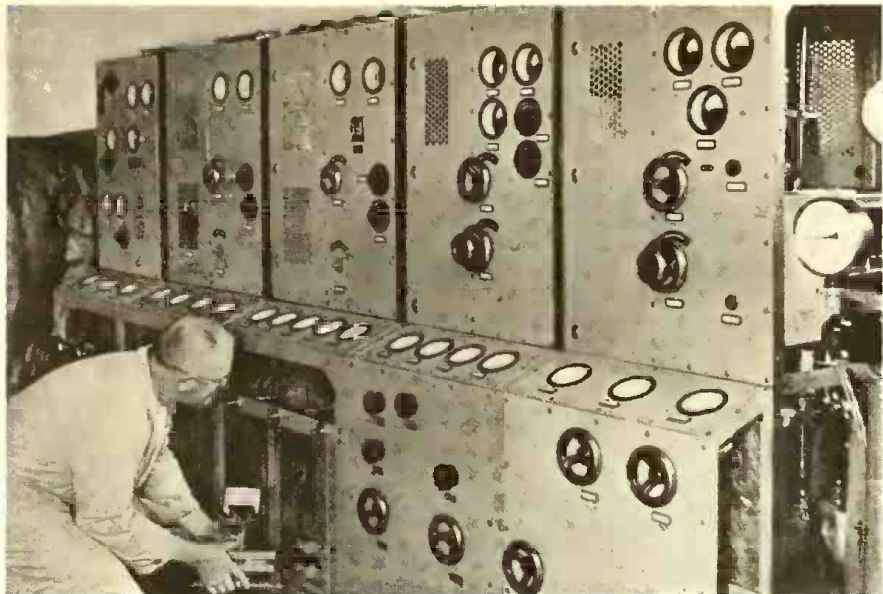
International broadcasts

The international broadcasts always offer rich entertainment. Music of great European orchestras usually comes through in surpassing quality and volume. Speeches by the statesmen who are making modern history abroad, can be listened to directly. News of world events is being continuously sent out on these channels. Last month's RADIO TODAY presented a time-table of the principal news broadcasts originating in Europe and other parts of the world.

In sales territories having large foreign-language populations, these international broadcasts open up new merchandising appeals for short-wave sets. Foreign-born citizens who still enjoy listening to the language of the fatherland, can tune in and hear speeches in their own native tongue.

Ultra-short waves

And at the extreme end of the radio spectrum, as it now is known to us, are the ultra-short waves, those newly utilized channels which are now being opened up experimentally for "local" broadcasting. Already a



A 7-meter transmitter at Berlin. This 16 kw. outfit, the world's largest ultra short-wave transmitter, has its round antenna atop the Berlin radio tower 453 ft. high.

dozen or so broadcasters, particularly newspaper publishers who missed getting wavelengths in the regular broadcast band, have installed transmitters in the ultra-short-wave region and are setting out to build programs and audiences here. Two-way police systems are also working on this band.

Listener needs help

These ultra-short waves, in the range from 7 to 9 meters (30,000 to 40,000 kc.) apparently go little beyond the horizon, and so the same channels may be used over and over again at different locations, without producing interference. Because of the wide-frequency bands available in this region of the spectrum, the full possibilities of high fidelity may be taken advantage of, and the quality of reproduction of music and speech is usually very fine.

Already a great deal of attention is being focussed on this ultra-short-wave region by broadcasters and set manufacturers, and an interesting future is assured for this part of the spectrum. A dozen home receivers, now on the market, cover this ultra-short-wave range, and others are now

being designed, so that listeners' receivers of better quality will soon probably all be equipped to pick up programs in this part of the band.

A wide variety of entertainment services are now offered to the radio listener.

But before he can enjoy them, in most cases, he will have to have the help of the radio dealer or radio serviceman—either to provide him with a new set, or to bring his old receiver up to date.

THIS "WAVELENGTH CHART"

★ This chart prepared by RADIO TODAY, shows all the points at which broadcast entertainment and news features come in on an "all-wave" receiver reaching from 100 kilocycles to 72,000 kilocycles (or 72 megacycles, from the Greek word mega meaning "million").

Radio channels are designated by either wave-lengths in meters, or frequencies in kilocycles. For any given channel the wavelength multiplied by the frequency always gives a constant figure—300,000, the speed of radio or light, measured in meters per second.

Show this wave-chart to your customers to guide them in 1936 listening

INTERNATIONAL BROADCAST

INTERNATIONAL BROADCAST

ULTRA-SHORT-WAVE
EXPERIMENTAL
BROADCAST and POLICE TELEVISION

10,000 12,000 14,000 16,000 18,000 20,000 25,000 30,000 40,000 50,000 60,000 70,000

Radio Today

19 METERS

16 METERS

13 METERS

11 METERS

9 METERS

7 METERS

5 METERS

RECEIVERS TODAY

- first new "AFC" models soon ready for market
- sets tune automatically onto nearby program

★ BY the last of April or the first of May, radio receivers of the new "automatic frequency control" type will probably be on the market. This new development makes the receiver tune automatically to any strong broadcast signal within five kilocycles of its actual dial position, and should the signal later drift, due to circuit heating or other causes, the set will automatically "follow" the signal, remaining tuned sharply on it throughout an interval of even 25 or 30 kc.

Better tone for careless tuners

Most of the leading manufacturers are experimenting with sets of this type for sale this season, although it is not yet definite whether these new sets will be "telephone-dial tuning," as was first proposed. Various methods of push-button or remote control are obviously well adapted for "a.f.c." sets, since the degree of tuning required is no longer highly accurate.

While the tuning-dial is being turned, the "a.f.c." feature will be automatically cut out, since otherwise the receiver would tend to "hang on" to some strong station — while intermediate stations, passed over by the dial, would be unheard.

Tone-quality obtained by the average casual listener is improved by the automatic tuning feature, since

the tuning cannot be other than accurate. The new sets also adjust themselves to offset their own deficiencies or lack of adjustment, an advantage in servicing. Circuits now used are considerably simplified from those described in early Institute of Radio Engineers' discussions.

For short-wave use, the new tuning method eliminates the former razor-sharp tuning required, allowing the signal to hold at full volume over a perceptible dial interval.

One drawback, however, is cited in connection with fading. If the set is tuned onto a station which at times fades almost out of hearing, the receiver may "lose the signal" on one of its disappearances, and fail to pick it up again on the back-swing.

GLOBE DATA

★ Attractive but complex job of pushing sales abroad of American radio sets goes to Pilot's S. T. Thompson, recently named chairman of the Radio Manufacturer's Association export committee. Bosch's Arthur T. Murray, RMA set division chairman, picked Mr. Thompson to succeed E. G. Hefter.

RMA recently got out the final dope for 1935 on the export biz, and found a new peak in dollar volume for radio apparatus exported from the U. S. during the year. Sales

abroad mounted to \$25,454,138, compared with \$24,856,592 for 1934. Report includes the statement, based on Dept. of Commerce figures: "New modern short-wave sets apparently figure in the 1935 increase in receiving set exports to \$15,472,291, as compared with \$15,338,143 worth of sets exported in 1934, while the number of units in set exports decreased from 612,084 in 1934 to 589,209 in 1935."

800,000 SETS IN JANUARY?

★ Sharp-eyed tax collectors from the U. S. Dept. of Internal Revenue have managed to get themselves \$601,144.68 for the month of January, 1936, from the 5 per cent excise levy on the radio manufacturers. Last year for the same month they gathered up only \$398,177.40, so the year started off with a 51 per cent increase in this respect.

From the 1935 figures, it can be computed that some 800,000 radio sets were made during the first month of this year; whereupon we rush to print with the sentence, "well begun is half done" and whatever other adages apply to fine starts.

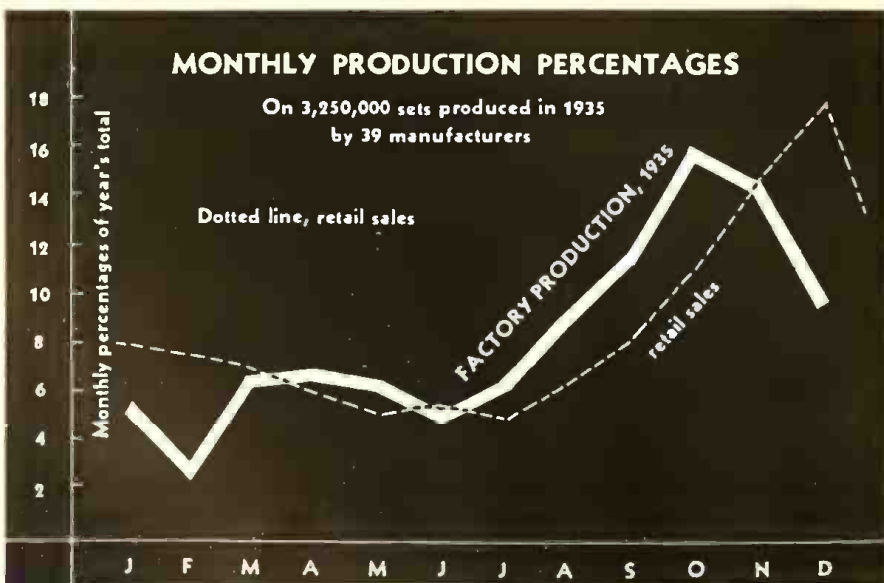
PICK-UP, CANADIAN STYLE

★ Slightly frosted, but nevertheless encouraging, come the figures on radio set sales in Canada for 1935. Radio Manufacturer's Association got them through the Canadian RMA: units sold during the year were 190,248, compared with 168,833 for 1934. Totals seem modest compared with the U. S. 1935 six million, but Canada has only about one-tenth as many people.

Sales of battery sets in the Dominion totaled 39,073; in U. S. there were 550,000 sold in 1935. The Canadians bought 13,433 auto radios during the period, while Americans were buying 1,200,000.

NATIONAL SERVICEMEN'S WEEK

★ The National Radio Service Association has voted to set aside the fourth week in May of each year as "Radio Servicemen's Week," to familiarize the public with the work of all radio men and all radio men's associations. Information as to how other branches of the radio industry may participate and derive benefits can be obtained from the National Radio Service Association, 714 Anico Bldg., Galveston, Texas.





HOME SERVICE, PLUS

Six tips for servicemen, from the talking picture series, "As a Matter of Fact," created for RCA by AudiVision, Inc.

- (1) Phone for appointment; arrive on time
- (2) Display test equipment; mention neighbors' jobs
- (3) Show patron tube tests; compare new tubes
- (4) Ask for dust pan; brush out chassis
- (5) Destroy old tubes — summarize your job
- (6) Recommend new antenna; call back later



AUTOMOBILE RADIO

- metal tubes introduced; sets go left side
- noise eliminated; installation speeded up

★ RECENT additions to this year's line of auto radios indicate that numerous manufacturers of auto sets are going to utilize the metal-tube publicity of the past six months as one of their talking points.

RCA has just announced three models—a five-tube and two six-tube models, employing two and three metal tubes, respectively. All of them use the powertron synchronous vibrator-rectifier, which means that the sets are equivalent to those employing an additional tube in the form of a rectifier. Custom-type instrument panel controls are available for most cars.

Metal tubes

Compactness is one of the features of the Admiral set manufactured by Continental Radio and Television Corp.; it is only an eight-inch cube. For high efficiency, it employs an iron-core antenna coupling coil. In addition to the usual plate and filament filters there is a vibrator hash filter. Other features are single hole mounting and single connection for battery, and the usual line of custom type panel controls are available.

Among other manufacturers employing metal tubes are Allied Radio (Knight), Atwater Kent, Belmont, Fada, Galvin (Motorola), General Electric, Noblitt-Sparks (Arvin), United American-Bosch, United Motors and Westinghouse.

Elimination of suppressors in the

ignition system will aid in selling the new sets, for there is no reason now why an auto radio should reduce the gasoline mileage and make starting more difficult on cold mornings. Noise from the ignition is made negligible by means of filters in the power-supply leads and the antenna system—incidentally the names coined to describe these filters will impress any car-owner.

This year has witnessed a change in the position of the chassis from the right to the left-hand side to allow for the use of a car heater. This feature will find approval with those drivers who use their cars all-year long.

Installation simplified

Several makes of sets are designed for mounting behind the instrument panel. A small panel fitting flush with and below the instrument board carries the controls. This type of construction presents a neat appearance and is low in cost since the flexible cable controls are eliminated. Both Halson and DeWald have recently announced this type of set.

With single-hole and universal mountings installation is greatly simplified. MacAdams Equipment Co., Inc., of New York City have found that the average time for a 1936 first-class installation is on the order of a couple of hours or less.



Radio's continued importance to the taxi biz — Parmelee System is brightening New York's streets with a fleet of 2,000 radio-equipped cabs like this. Chosen set is Motorola, with its "magic Eliminode"; all controls are in the rear seat.

SAD TRUTH

★ For dealers who are inclined to growl about lack of fresh sales opportunities, there is this item: a group of New Yorkers, one night in Times Square, had to search all over the place to locate a receiver.

Group was composed of the members of the cast of a new Broadway play, "Love On the Dole." After the final curtain they wanted to hear what the WOR radio dramatic critic, Bide Dudley, had to say about the performance. There was no radio back stage; they rushed across the street to a restaurant—still no radio. They began stopping taxis, but the cabs didn't seem to be radio-equipped. Finally, however, they found a taxi which had a receiver, so they paid the driver \$2 to listen to the feature they wanted.

TELEVISION TESTS BEGIN

★ Experimental television will be a reality in the New York area next month. A new RCA television transmitter is now being made ready on top of the lofty Empire State tower, 1,250 ft. above Fifth Avenue, being linked by short-wave radio with the television studio in NBC headquarters, RCA Building, Radio City.

Some fifty test television receivers are now being finished up for the use of officials and engineers of the Radio Corporation, and will be distributed around New York City and surrounding territory for experimental reception and study of the programs sent out from the Empire State television transmitter.

This program carries further the plan announced some months ago by David Sarnoff, president RCA, who now reports to RCA stockholders:

"This does not mean that regular television service is at hand. It will be necessary to coordinate a number of important elements before television on a regular basis of service can be established. For example, it will have to be determined how far the transmitter can send good television pictures; also with what consistency and regularity pictures may be transmitted with the system in its present state of development.

"It is, however, evident that, regardless of progress in this direction, the present system of sound broadcasting remains the fundamental service of radio communication to the home."

SELLING PUBLIC ADDRESS

- PA service dealers go after political jobs by the series
- locate prospects from officials, caretakers, news stories, etc,

★ VOICE after bellowing voice will need to be amplified as the politicians mount their respective stumps to convince people that somebody should be voted for.

Whatever madness they blurt out, whatever racket they represent, they have to pay, in the end, for the "public address" service. There's where radio servicemen and radio dealers step in for extra profit.

"Of course there'll be a big pick-up in this business during this year's Presidential campaign," said one dealer, "And we're getting ready for it." And a well known PA expert in Chicago remarks brightly that "the surface hasn't been scratched."

Tips in brief

Some merchandisers of public address service have exhibited a great deal of originality in locating prospects, establishing the rules of the game, and plugging their particular service.

It seems that when a client is serviced with a PA system, the dealer can often get from him the names of other possibilities in the same field. That is, if you fix up the amplification lay-out for a lecture given at a local factory (usually they are given for the harassed employees at some unearthly hour in the morning) you can often pick up the names of other factories where the same thing is likely to occur.

Notices in local newspapers, stories dealing with coming political events, will tip off the dealer, in many cases, on jobs which will require PA systems. To watch for these closely often means that alert dealers get the jump on others. Names of sponsors are usually included in the stories.

Caretakers in municipal buildings, if dealers will cultivate them (fix their home set a time or two) sometimes know in advance when an event has been scheduled.

In cases where sponsors of meetings must get a permit from the city officials, those fellows may be able to tell you what's coming up, before the items reach the newspapers.

PA jobs at county fairs, or at similar events, may be signed up if the dealer will make the suggestion that the service can be made to pay for

itself. This can be done by the Fair committee's selling time to local advertisers — time on the amplifier just as the broadcasters sell time on their stations. Holders of fairs, it seems, are one class of prospects who are eternally eager to avoid extra expense.

Gilt-edged jobs

Wherever possible, particularly in cases where the first experience with a client has come off without a hitch, the suggestion may be made that the dealer would enjoy having a contract for a series of events like the first one. It has been pointed out that when any sort of a series is involved, the dealer should of course make a special effort to get and hold the client for the whole works. Special agreements can be drawn up in such cases which will be mutually welcome.

If a dealer has on his prospect lists some meeting-holders who are doubtful, for some reason, about the merits of the service, these may be invited to attend events staged by other clients. In that way the prospect gets a demonstration under actual working conditions. Of course this is only possible where the needs of the clients are quite similar.

When it's necessary to use extra

salesmanship on reluctant prospects who are inclined to shop about, it appears that it is not wise to talk price at the top of your lungs. In this service, cheapness is pretty well identified with distorted voices, tinny sounds, and awkward failures. It seems wiser to use a tone which indicates that if the client wants a decent job, he'll have to pay for it.

Explain simply

If a technical explanation of the apparatus is to be used as part of a sales talk, it should be remembered that many of the high-sounding details mean practically nothing to most clients. Dealers have more luck with an outline of technical features when they are presented only in terms of performance.

Gadgets which from their very names may mean everything to sound engineers, often will not register at all on PA patrons unless they are able to gather that their beloved Mr. So-and-So, who is scheduled to delight thousands of listeners at Convention Hall on Friday night, will be heard by all those unhappy persons in the back row.

A somewhat unexpected angle on the PA business, too, is that patrons often look to the dealer to supply a person who can do part of the announcing. This is particularly true in smaller towns, and the demand can easily be taken care of by the dealer if he will simply send along an engineer who has a fairly civilized notion of what the English language is like.



When you put on a public-address job, invite "prospects" for future services to be present and test excellence of reproduction.

PROFITS vs. EXPENSES



★ The chart at the left, based on Dun & Bradstreet's survey of expense factors among 184 radio dealers, reveals dramatically what expenditures need to be watched closely if a retail radio business is to operate at a profit. Factors are given in per cent of net sales. Compiled in 1935, these summaries cover operations during the previous year.

Each percentage in the chart should be read as the full height of the corresponding graph from the base-line. Thus the total cost of operation is the sum of the several graphs in each group; in the left-hand example it amounts to about 30 per cent, for the 82 cash dealers it averaged 36 per cent, 24 installment dealers 47 per cent, and for 23 cash dealers 56 per cent.

Dealers are classified as "installment" or "cash" merchants, according to where the greater sales volume fell. Accompanying tables are copyrighted by Dun & Bradstreet.

COMPLETE REPORTS FROM 137 RADIO DEALERS WHO OPERATED AT A PROFIT

Operating averages of the 82 cash dealers

ANALYSIS OF NET SALES							ANALYSIS OF OVERHEAD							
Net Sales Group	Number of Concerns	Net Profit %	Total Over-head Expense %	Gross Profit %	Cost of Goods Sold %	Mark-Up %	Inventory Ratio (Times)	Salaries, Owners, or Officers %	Employees' Salaries %	Rent %	Advertising %	Light, Heat and Gas %	Taxes %	All Other Expense %
50,000 to 100,000	3	3.93	27.90	31.83	68.17	46.73	11.23	6.65	9.60	1.70	1.90	0.57	0.30	8.40
25,000 to 50,000	7	7.07	26.70	32.83	67.17	49.00	10.13	8.40	8.65	1.83	2.28	0.80	0.34	5.53
10,000 to 25,000	15	8.53	41.41	49.72	50.28	98.88	9.48	14.38	10.40	3.71	1.74	1.58	0.61	6.79
5,000 to 10,000	19	14.08	42.84	55.28	44.72	123.61	7.79	16.40	8.62	4.45	1.94	1.72	0.67	5.81
2,500 to 5,000	21	18.78	34.98	52.70	47.30	110.77	5.00	15.19	6.67	4.90	1.70	2.33	1.09	6.00
Under \$2,500	17	13.85	34.82	46.72	53.28	87.68	5.84	15.08	9.20	4.86	2.34	2.13	0.88	5.78

Operating averages of the 55 installment dealers

ANALYSIS OF NET SALES							ANALYSIS OF OVERHEAD							
Net Sales Group	Number of Concerns	Net Profit %	Total Over-head Expense %	Gross Profit %	Cost of Goods Sold %	Mark-Up %	Inventory Ratio (Times)	Salaries, Owners, or Officers %	Employees' Salaries %	Rent %	Advertising %	Light, Heat and Gas %	Taxes %	All Other Expense %
50,000 to 100,000	4	6.33	28.63	34.95	65.05	53.71	7.38	3.10	12.65	1.87	1.87	0.98	0.83	7.95
25,000 to 50,000	11	5.81	32.71	39.85	60.15	68.50	10.06	9.83	9.40	3.40	2.76	1.09	1.01	7.28
10,000 to 25,000	24	12.18	27.04	39.89	60.11	66.29	7.57	10.17	7.92	2.95	1.72	1.23	0.82	5.10
5,000 to 10,000	13	8.01	33.14	40.45	57.55	70.30	5.75	15.17	8.89	3.13	1.79	1.36	0.77	3.93
2,500 to 5,000	3	15.45	31.77	46.70	53.30	87.78	3.05	16.00	4.10	1.73	1.40	1.10	0.85	5.13
Under \$2,500														

COMPLETE REPORTS FROM 47 RADIO DEALERS WHO OPERATED AT A LOSS

Operating averages of the 23 cash dealers

ANALYSIS OF NET SALES							ANALYSIS OF OVERHEAD							
Net Sales Group	Number of Concerns	Net Loss %	Total Over-head Expense %	Gross Profit %	Cost of Goods Sold %	Mark-Up %	Inventory Ratio (Times)	Salaries, Owners, or Officers %	Employees' Salaries %	Rent %	Advertising %	Light, Heat and Gas %	Taxes %	All Other Expense %
50,000 to 100,000	2	4.60	51.00	46.40	53.60	86.85	9.00	5.95	21.45	2.00	2.90	1.00	0.55	13.10
25,000 to 50,000	1	33.20	33.20				2.30		18.20	5.10	2.70	0.90	1.10	5.20
10,000 to 25,000	2	9.20	66.80	57.40	42.60	135.00	8.45	24.20	23.30	2.55	5.30	2.10		8.40
5,000 to 10,000	7	8.23	54.69	45.50	54.50	83.48	4.52	17.58	13.12	6.84	2.23	1.76	0.40	9.03
2,500 to 5,000	4	10.18	49.63	39.60	60.40	65.56	6.40	25.00		9.90	2.80	3.70	1.00	6.48
Under \$2,500	7	13.55	62.40	46.48	53.53	86.82	4.70	27.05	17.30	6.53	4.20	3.90	0.98	7.55

Operating averages of the 24 installment dealers

ANALYSIS OF NET SALES							ANALYSIS OF OVERHEAD							
Net Sales Group	Number of Concerns	Net Loss %	Total Over-head Expense %	Gross Profit %	Cost of Goods Sold %	Mark-Up %	Inventory Ratio (Times)	Salaries, Owners, or Officers %	Employees' Salaries %	Rent %	Advertising %	Light, Heat and Gas %	Taxes %	All Other Expense %
50,000 to 100,000	2	0.50	22.70	22.20	77.80	28.60	10.50	5.60	3.80	1.50	3.00	0.80		6.00
25,000 to 50,000	2	4.60	41.60	37.00	63.00	58.60	5.10	13.00	9.60	9.10	1.80	1.80		6.30
10,000 to 25,000	6	5.53	46.03	40.50	59.50	69.73	5.73	9.20	11.40	6.96	3.70	1.05	0.23	12.30
5,000 to 10,000	4	13.13	56.07	40.75	59.25	68.85	5.26	18.40	12.75	8.55	4.10	1.87	0.70	10.46
2,500 to 5,000	6	6.42	53.62	46.45	52.55	88.32	6.20	20.60	18.70	6.80	1.88	1.90	1.37	4.23
Under \$2,500	4	7.80	51.80	42.30	56.70	74.58	8.30	20.17	12.04	6.50	1.00	1.10	0.50	10.00

WHAT GOES WRONG WITH RADIO SETS—AND WHY

Note that similar symptoms may result from many different defects

ANTENNA GROUND LIGHTNING ARRESTER

NO SHORT WAVE
INTERMITTENT RECEPTION
POOR RECEPTION
LACK OF VOLUME
EXCESSIVE NOISE

I-F WAVE TRAP

CODE INTERFERENCE
INTERMITTENT RECEPTION

RADIO FREQUENCY COILS INTERMEDIATE COILS

INTERMITTENT RECEPTION
POOR SELECTIVITY
LACK OF SENSITIVITY
POOR FIDELITY
FADING

TUNING CONDENSERS

NOISY RECEPTION
DEAD SPOTS
INTERMITTENT RECEPTION
MICROPHONIC HOWLS
CALIBRATION OF DIAL
FADING

RADIO CABINET

RESONANCE
TINNY SOUNDS
RUMBLES

ALIGNMENT OF STAGES

LACK OF SENSITIVITY
POOR TONE QUALITY
OSCILLATION
CODE INTERFERENCE
CALIBRATION OF DIAL
POOR SELECTIVITY

AUDIO TRANSFORMERS

NOISY RECEPTION
NO RECEPTION
REDUCED VOLUME
INTERMITTENT RECEPTION
POOR TONE QUALITY

FILTER CONDENSERS

EXCESS HUM
NO RECEPTION
INTERMITTENT RECEPTION

TUBES

NO RECEPTION
DISTORTION
HUM
LACK OF SENSITIVITY
MICROPHONICS
INTERMITTENT RECEPTION
FADING
NOISY RECEPTION
OSCILLATION

SPEAKER

DISTORTION
TINNY SOUNDS
SCRATCHING & GRATING
EXCESSIVE HUM
INTERMITTENT RECEPTION
NO RECEPTION

BY PASS CONDENSERS

OSCILLATION
POOR TONE QUALITY
INTERMITTENT RECEPTION
FADING
LOSS OF VOLUME
HUM
NOISY RECEPTION
NO RECEPTION

OSCILLATOR

LACK OF SENSITIVITY
EXCESSIVE HISS
DISTORTION
ERRATIC OPERATION
DEAD SPOTS ON SHORT WAVE
FREQUENCY INSTABILITY
INTERMITTENT OPERATION

POWER TRANSFORMER

NO RECEPTION
INTERMITTENT RECEPTION
EXCESS NOISE
EXCESS HUM

LINE CORD & PLUG

INTERMITTENT RECEPTION
NO RECEPTION
NOISY RECEPTION

HOUSE WIRING

INTERMITTENT RECEPTION
NO RECEPTION
NOISY RECEPTION

PIPES IN HOUSE

INTERMITTENT RECEPTION
NOISY RECEPTION

ATMOSPHERIC CONDITIONS

FADING
NOISY RECEPTION
DISTORTION
LACK OF SHORT
WAVE RECEPTION

WAVE CHANGE SWITCH

LOSS OF VOLUME ON SHORT WAVE
INTERMITTENT OPERATION
NO RECEPTION
NOISY RECEPTION
SHORT WAVE DEAD SPOTS
FADING
LOSS OF VOLUME
AVC NOT FUNCTIONING

RESISTORS

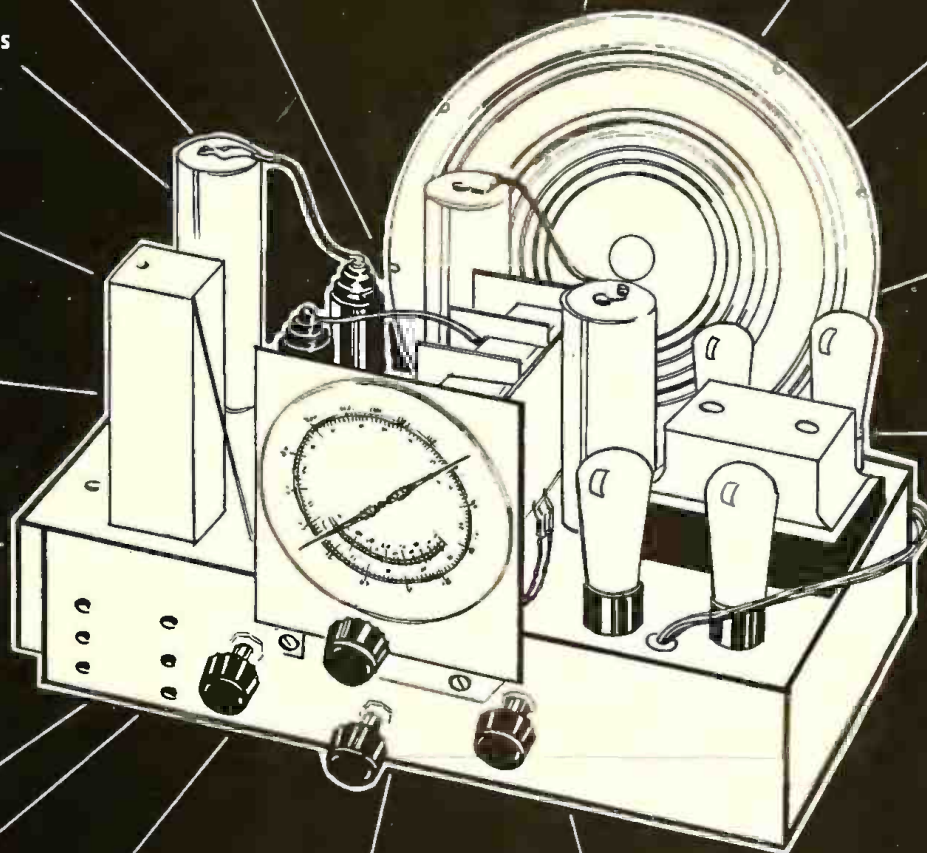
INTERMITTENT RECEPTION
DISTORTION
FADING
NO RECEPTION

VOLUME CONTROL TONE CONTROL

NOISY RECEPTION
NO CONTROL OF VOLUME
NO CONTROL OF TONE
INTERMITTENT RECEPTION
NO RECEPTION
LOSS OF SENSITIVITY
OSCILLATION

LOCAL MACHINERY AND APPLIANCES

NOISY RECEPTION
CLICKS



Based on experience records of service organizations handling more than 100,000 sets annually

Compiled by
Radio Today

USE FINE PROGRAMS TO "SELL UP" SETS

- dealers find broadcasts aid in pushing quality receivers
- radio men cite need for daytime concerts to demonstrate sets
- political fanfare now a sharp tonic for listener activity

★ BRISTLING with awakened sales power, radio dealers have waded heartily into the new interest in broadcast features as a device for selling more and finer sets.

Set manufacturers and studio mentors recently have begun to use direct and pointed methods to help the dealer get across the argument that program features are such that they positively must not be missed or distorted. Happily at the moment the broadcasters are presenting such a long and important list of these features that the dealer is fortified with sales angles of genuine value.

Work to do

Program-conscious dealers, however, are not without their problems as they go to work on the new campaign. They know that politics ranks high in listener interest at the moment, but they are forced to face the fact that reception advantages of 1936 models, in point of tone reproduction, are not as important as if they were talking about Philharmonic concerts.

Further, dealers have to search all over the dial for quality programs during store hours to use for demonstration purposes, unless they have a schedule for home demonstration in the evening.

Then too, program tastes are mysterious and there is no accounting for them; dealers find that comedy fans worship Eddie Cantor but loathe other comedians which superficially seem very similar.

Personal reports

Dealers have picked up plenty of important cues on selling programs and report them at the top of their voices. At the Broadway Range Co., Yonkers, N. Y., for instance, it was noticed that people do buy better sets for the opera season. There is the feeling, too, at this shop that women are not so interested in politics as the men are, and they need to be given encouragement as voters in the coming election.

At the W. H. Chalmers Music House there is the belief that popular orchestras on the air will stand talking up—popular interest in such music is enormous, say these radio

men, and deserves an accent. View of this dealer is also that the public resents the notion that radio is unthinkably cluttered with advertising.

Big-name parade

Radio men at the Orange Furniture Co., Orange, N. J., report that there is such a thing as the radio public being spoiled with an elaborate progression of big-time stars; in such cases it is better to emphasize the novelties on the air, or to use short-wave as a talking point. Observation at this store is that the majority of folks are program-wise from reading the newspapers, so that to remind them that Rosa Ponselle now sings regularly on the air is by no means news to them—they have to be told why the program is generally too interesting and too fine to be missed.

In St. Louis, the big Stix, Baer & Fuller store uses an ad line that may be adapted to radio programs in which topflight stars are featured. During an important sport series, the store said in its ad: "Have your radio renewed for the ball games and other sport features."

Local appeals

Goldberg Sport Shop, Orange, N. J., takes the position that types of programs, rather than specific ones, should be talked up. Opinion there is also that program values may be presented with a station classification, using the glittering standards of the national webs as a background.

Inquiry among dealers reveals further that particular types of pro-

grams have special pulls in certain areas. Certain radio serials, to illustrate, have a huge following in Jewish communities and may be used to sell more and better sets to Jews if they are told about the feature in detail.

If local stations would go in for a community type of broadcasting, say more dealers, and make their airings a sort of house organ for the locality, more sets could be sold to that great group of persons who are very easily convinced that radio is certainly in position to scoop the newspapers right and left.

Star ballyhoo

At the Finley Furniture Shops, radio men look to the screen as an important publicizer of radio stars. This may mean that there is a powerful sales idea in hook-ups with local movie schedules. Attractive picture displays of radio-movie stars are an off-shot of this notion.

Timely suggestion from the Goran Radio Co., Yonkers, N. Y., is that the frequent appearances of important artists as guest stars on air bills leads to a general mixing up of musical levels and often gives listeners a taste of quality performances which they otherwise would not have tuned in on. That is, an opera star often appears as a guest on a program which features a popular orchestra, and the swing music fan thus gets a sample of higher-brow stuff.

Programs for men

L. S. Donaldson Co., Minneapolis, Minn., use announcements of sport events in their ads, neatly featuring the line, "If you can't be there in person, do the next best thing and be on the sidelines with a 1936 radio."

There exists the idea, at the L. A. Danielson Co., Yonkers, N. Y., that men do most of the buying of sets. Program appeal under such circumstances needs a deft adaptation; the dealer needs to remember that the gentleman of the house likes his sports, and there is new evidence for the conclusion that he likes his mystery and crime serials.

Every attempt should be made to interest the man of the house in a serial or a series of some sort, because if he looks to his receiver for spectacular prize fights only, he cannot be classed as a regular listener and his interest is spasmodic.

1936 WINNERS

(Radio poll by N. Y. World-Telegram of 239 radio editors)

Favorite program.....Jack Benny
Comedian.....Jack Benny
Popular songstress.....Kate Smith
Male popular singer.....Bing Crosby
Dance orchestra.....Guy Lombardo
Classical singer.....L. Tibbett
Conductor.....Stokowski
Drama.....WABC Theater
Sport announcer.....Ted Husing
News commentator....Edwin C. Hill
Outstanding new star....Bob Burns

PROGRAM DYNAMITE



TRANSCRIBED TALENT, ready to go to work for radio dealers in sponsored programs on local stations. These artists come from three different program services to which broadcasters may subscribe: World Broadcasting System and NBC in New York, Standard Radio in Hollywood.

Above (right) is Jeanne Dunne, Standard's popular soprano. Above (left), the famous Jimmy Allen, a WBS star. Above (center) Madeline Stern, another favorite from WBS. Below (left) are "Sons of the Pioneers," Standard artists. Below (right) is Carol Deis, from NBC's Thesaurus.

SELLING "COMBINATIONS"

★ **SCATTERED** around through the mailing lists of record dealers are names which should be underlined.

They are the people who can afford to have flexibility in their musical menus, or the folks to whom various moods are so important that they are willing to pay for equipment to satisfy them. Usually they are the genuinely serious music lovers, not necessarily the people "in the money."

This group of prospects will never be happy until they have a good radio-phonograph combination. Often they are unhappy with an old radio set and an outmoded phonograph in separate corners of the room, but they are not able to say just why. That's where the dealer comes in.

Sales angles involved

They may be told by sellers of combinations that (1) they may now hear their favorite music reproduced with all the ease and excitement and quality of the original performance, that (2) if they wish to hear special or unusual musical instruments for some unexpected reason, they may do so daily and at their convenience, that (3) they may hear their best-loved compositions over and over at their leisure, that (4) their preference for one artist or one group of



Johnny Green, playing for Brunswick's "Follow the Fleet" discs with the inimitable Fred Astaire.

artists can at last have full swing in their homes, that (5) the musical needs of all members of the family can be taken care of on short notice, and that (6) they will have the chance to hear the performances of artists who are no longer active but still are regarded as having come through with epic recordings.

Dealers might remember that when this type of person wants the things listed above, he wants them passionately. Lively demonstrations in the home or in the shop will prove that.

A device

"Josef, at fourteen, gave Rosina, aged seven, a piano lesson one day and kissed her when the lesson was over because she was cute and played so well.

"She slapped his face for his impertinence at the time and then, ten years later, married him. They are a stunning piano team, and their concerts always pack the house."

So runs the story of Josef and Rosina Lhevinne, the renowned pianists. And when a record manufacturer recently announced a new disc by the two artists, the story above was included in the descriptive notes sent to the distributors.

Point is, if record salesmen would pick up such colorful stories about the great artists, they might find it a valuable addition to their sales talks. They are easy to remember and it is very likely that the customer will get the idea that the salesman is an inspired expert.

Confidence game

Such an idea has struck various salesmen as a sort of superficial back-chat which has no place in serious selling. But patrons report that they are impressed by the device, and immediately felt a considerable confidence in the salesman. And if dealers can gain confidence, they are of course in position to suggest titles with some hope of being taken seriously.

In any case, the use of this method is a step toward more intelligent selling of masterworks by dealers who do not happen to be musically minded. Salesmen will be able to determine instantly whether the customer appears to be interested.

Some dealers botch the merchandising of high-class records because

the salesmen on the floor don't know the first thing about it—it really requires a decent knowledge of the masters to get by with it. However, under the circumstances this fall, salesmen can easily and quickly educate themselves by a careful and intelligent perusal of musical catalogues and the mass of current lists which are now available. Some of the executives in the field believe that the added business would justify adding an extra salesman—a specialist who has the low-down on what's new in records.

Appearance of new and improved models in radio-phonograph combinations is obviously influencing the record demand, in cases where the specifications get around to the public in clarified and dramatic form. Features of the new models, which will mean a great deal to the lovers of recorded music, include larger dynamic speakers, increased power output, automatic tone compensation, tone control, and wide range audio amplifiers.

Best selling records, March

BRUNSWICK

Brenkin' In A Pair of Shoes—Fox trot. **I Hope Gabriel Likes My Music**—Fox trot. VC by Jack Teagarden. Both with Frankie Trumbauer and his orchestra—7613.

I'd Rather Lead A Band—Fox trot. From the RKO picture, "Follow The Fleet," with vocal and tap dancing by Fred Astaire. **I'm Building Up To An Awful Let-down**—Fox trot. Vocal by Fred Astaire. Both with Johnny Green and his orchestra—7610.

I'm Putting All My Eggs In One Basket—Fox trot. Vocal by Fred Astaire. **We Saw the Sea**—Fox trot. Vocal by Fred Astaire with quartette. Both from the RKO picture, "Follow the Fleet," both with Johnny Green and his orchestra—7609.

DECCA

Let's Face The Music and Dance—Fox trot with VC, from the RKO picture, "Follow the Fleet." **It's Been So Long**—Fox trot with VC, from the picture, "The Great Ziegfeld." Both with Ted Fiorita and his orchestra—697.

Misty Islands in the Highlands—Fox trot. **The Wheel of the Wagon Is Broken**—Fox trot. Both with VC and both with Jan Garber and his orchestra—717.

Life Begins When You're In Love—Fox trot. From the Columbia picture, "The Music Goes 'Round and Around." **No Greater Love**—Fox trot with VC. Both with Isham Jones and his orchestra—704.

VICTOR

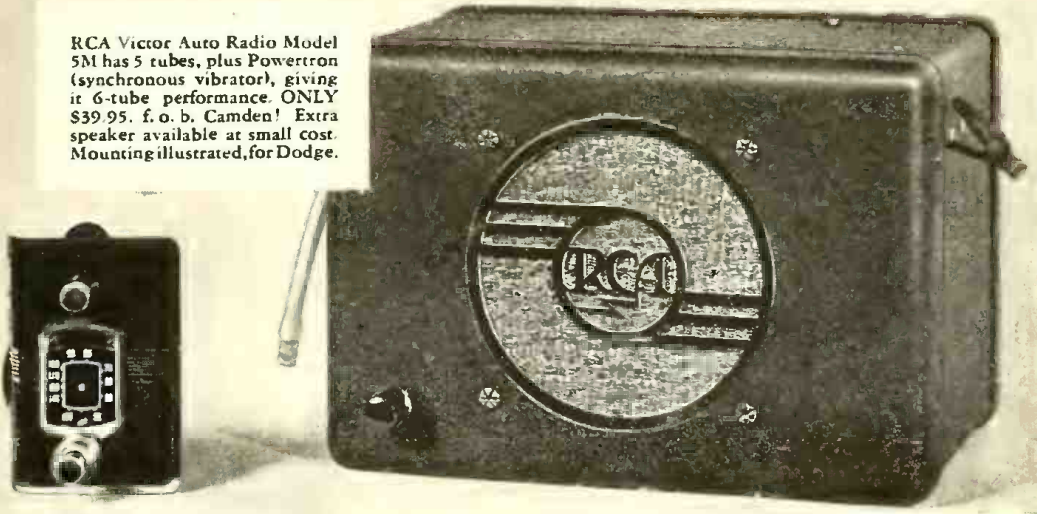
It's Been So Long—Fox trot. **Goody Goody**—Fox trot. Both with Benny Goodman and his orchestra—25245.

I'm Gettin' Sentimental Over You—Fox trot. **I've Got A Note**—Fox trot. Both with Tommy Dorsey and his orchestra—25236.

I've Got My Fingers Crossed—Fox trot. **Spreadin' Rhythm AROUND**—Fox trot. Both with "Fats" Waller and his rhythm—25211.

CUSTOM BUILT STYLE AT ATTRACTIVE PRICES!
Three NEW RCA Victor Auto Radios

RCA Victor Auto Radio Model 5M has 5 tubes, plus Powertron (synchronous vibrator), giving it 6-tube performance. ONLY \$39.95. f. o. b. Camden! Extra speaker available at small cost. Mounting illustrated, for Dodge.



THIS year in auto radio RCA Victor sets the style pace by offering 20 different custom-built panel mountings, harmonizing with the instrument boards of 1935-1936 cars. You get a complete kit of mountings on a new and liberal plan. With one exception, each can be installed on the dash without drilling or filing; just bolt it in where the car manufacturer has provided for it! And **PRICES!** \$39.95, \$49.95, \$54.95 for 5 and 6 tube sets, each using a synchronous vibrator (Powertron) which makes them the equivalent of 6 and 7 tube radios using rectifier tubes... It's a great line, with Metal Tubes, extra speakers, many other features. Get the details from your nearest RCA Victor distributor.

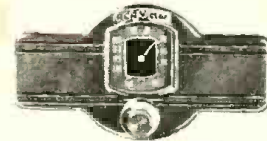
Ask about NEW RCA auto antenna for both running boards - easy installation, remarkable signal pickup



Ford mounting



Plymouth Mounting



Chevrolet mounting



DeSoto mounting

• Get money-making ideas at RCA Service Meetings, held monthly. Ask your local distributor for these dates.



RCA Victor

RCA Manufacturing Co., Inc. •
 Camden, N. J.
 A Service of Radio Corporation of America

THE RADIO "DEALER'S DIGEST"

Condensed accounts of sales ideas used to hike volume

SERVICEMEN GATHER TIPS

★ One of the best sources for prospects is the radio service department. Gilchrist Company, Evansville, Ind., uses government permit return postcards which are distributed about the store, in the radio department, and in boxes in the elevators with the sign, "Take One." For a 50-cent fee the store offers to inspect the radio, test tubes, realign stations and check the aerial. Customer merely signs his name and address and drops it in the mailbox or leaves it at the store. This opens a lot of normally closed doors for the sale of new sets.

COUNTS ON TRAFFIC

★ Alert suggestion from L. S. Donaldson Co., Minneapolis, is that for promotion of radio sales in department stores, sets should be arranged so that full advantage can be taken of store traffic which is normal and not necessarily radio-buying. Rather than stunts, says sales manager J. H. Keenan, department stores should keep this in mind and concentrate on a strong, even, and year-round ad campaign. Donaldson's

feature their ads with unusually large photos of receivers, and recently have included sport announcements suggesting that "If you can't be there in person, do the next best thing and be on the sidelines with a new 1936 receiver."

ALLOWANCES SUCCESSFULLY CUT

★ One dealer on Flushing, Long Island, N. Y., goes easy on spectacular trade-in allowances and gets away with it. R. Genkins, at Michaels Bros., says that his salesmen take it for granted that the store's patrons know something about the theories of good business; prospects at Michaels are appealed to on that basis. Genkins points out that patrons will very easily become skeptical about the flashy offers made elsewhere, if they are encouraged a little, and if they are handled in a fashion which indicates that the salesman gives them credit for a certain amount of good sense.

Another important aspect of set selling at this point, according to Genkins, is that "the man is the mechanic of the family" and with all the late engineering developments in radio reception, this angle becomes more important.

ENSEMBLE SELLING

★ A car set sold to every customer who buys a house set is the goal of the radio salesman at the Western Auto Supply, Kansas City, Mo.

Large percentage of customers buying both sets is due to displaying a car radio just outside of the entrance of the store, placing house and car sets in adjacent displays in the store, and ensemble selling.

Passersby are attracted by the music of an automobile radio that is mounted on an inclined wooden rack. The dial and the box are both in full view and are held in place by means of steel braces. The wire is run through a small opening in the rack and grounded behind. In colorful letters is the advice to "Enjoy Your Favorite Radio Program While You Ride."

"This outside display and the coupling of car set with house sets in store displays aids greatly in ensemble selling," says J. L. Bryant, manager.

DEALER "SPOTS" DISPLAYS

★ Simple business-building device for radio dealers is in use at Weston Radio, Inc., Jamaica, Long Island, N. Y. Store keeps on friendly terms with leading merchants in town, and if the latter does not handle radio sets themselves, Weston gets them to display one of his featured sets. Department stores and furniture companies are good places to "spot" the sets, but it can be done in any shop, including butcher shops and grocery stores.

L. Horn, Weston manager, prefers to get them into places where a great number of women shoppers will be attracted. Salesfolk of the chosen stores do not act as radio salesmen, but simply refer the prospect to the Weston company. If a sale results, a small commission goes to the salesman who sent the customer to Weston's.

Horn, who believes that the sales volume at his store is up to the 1927 level, always has one of his salesmen call on the shoppers who come to his store but leave without buying. Floor man gets the name and address before the customer leaves the store.

(To page 22)



Come-hither window display, featuring records and radios, created by the Rudolph Wurlitzer Co., New York. Moving strip behind the record twirled various pictures of artists into view, attracting scores of passersby.

Admiral AUTO RADIO ...

"SALES" THE PROFIT SEAS

IN 8" CUBE PACKED WITH SUPER PERFORMANCE



\$39⁵⁰
LIST
TWIN SPEAKER
\$6⁵⁰

with METAL TUBES



The most compact 6-tube Auto Radio ever built... fits any car... leaves plenty of room for largest hot water heater.



Newly developed Antenna Circuit permits automatic adjustment to roof type, running board or under car aerial.



The first auto radio built according to accepted principles of automotive construction. Withstands road shock and vibration.

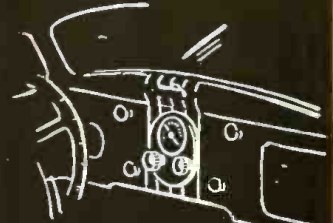


Dealers!

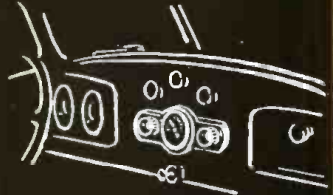
Bring your profit ship home with Admiral Auto Radios. Priced for swift sailing at a liberal profit. Write or wire for details and discounts.

FITS ALL CARS

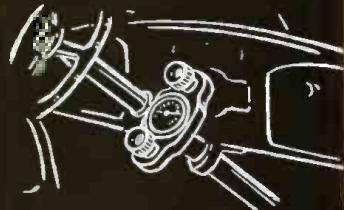
Central Mountings Match All Instrument Panels



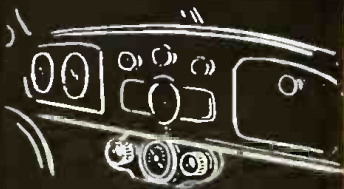
FORD—DASH MOUNTING



CHEVROLET OR PONTIAC—DASH MOUNTING



STEERING WHEEL MOUNTING



SUB-DASH MOUNTING
all with Illuminated Airplane Dial



Full 6½" DYNAMIC SPEAKER

Mounted at predetermined angle to eliminate resonance and undesirable microphonics. Gives home-radio tone quality.

NO OTHER AUTO RADIO HAS ALL THESE OUTSTANDING FEATURES

Finest Reception

because of one stage of R. F. preceeding first detector . . . rubber mounted 3-gang condenser . . . new iron core antenno coil . . . 175 K. C. double-tuned I. F. transformers . . . 1 microvolt sensitivity . . . 10 K. C. selectivity.

Noiseless Operation

because of new R. F. filament and plate filters . . . special vibrator "hash" filter . . . perfected motor noise filter . . . transformer hum eliminated by exclusive double shield diode transformer...double-shielded and impregnated power transformer.

Easy to Install

because of sturdy single hole mounting . . . mounts in any one of four positions . . . exclusive directional projection speaker . . . only 1 bottery connection . . . only 1 aerial connection . . . jock provided for overhead or rear "twin speaker."



TWIN SPEAKERS

Your opportunity for additional service and profits. Easy to install in roof of car above windshield or in back of front seat. Just plug into secondary jack on set.

CONTINENTAL RADIO & TELEVISION CORP.

325 W. HURON STREET CHICAGO



A sales stunt—that of signing bonus payees in advance for radio sets—must have worked for the Krug Music House, Yonkers, N. Y. Anyway, here are Mr. and Ms. A. M. Krug vacationing in Florida.

SELLING IN SNOW

★ Snowbound condition of Nebraska folk gave Glen Clark, of the Paramount Radio Co., Omaha, an idea for making extra sales. He hustled about to the families who were cut off from news and entertainment and offered them full contact with the outside world through radio. Surprising how readily people buy receivers under such circumstances.

SALES CLOSER

★ When a prospect has a job, is getting along in the world, and still won't buy, what's holding him back?

H. M. Greene, manager of the radio department for Henderson & Company, Terre Haute, Ind., delved deep into psychology to find the answer. It came up classified under Fear—Fear of emergencies.

"We call it Henderson's Radio Club," Mr. Green explained. "Anyone paying \$5 extra above the price of his radio gets the following proposition:

1. Installation of all-wave aerial.
2. One year radio service.
3. Tubes guaranteed a year.
4. Guarantee of radio against defective parts or workmanship.

5. One year replacement guarantee for fire, especially in home.

6. Instant replacement of radio tubes damaged by electrical disturbance in the home.

7. In event of death unpaid balance is cancelled, radio becomes heir's property.

8. Special protection in case of sickness or unemployment.

9. Privilege of exchanging radio for different models within 30 days of original purchase.

10. Foreign broadcast radio book.

LICENSES WITH AUTO SETS

★ Offer of a free city license to every customer who purchased a car radio within a certain length of time increased the volume of the more expensive car radio sales at the Household Utilities, Kansas City, Mo., so that the cost of the license was more than covered.

"In this promotion only one \$29.50 radio was sold, the others hovering around the \$49.50 mark," says Gordon Buck, manager. "This free license simplified trading-up because the customer felt that the money he had saved might as well be invested in better merchandise."

Additional business for the service department is obtained also, for a complete record of all radios sold is kept and is referred to for service jobs. Both new customers, as well as repeat customers who traded in their old radio or a new radio were secured.

A month has been found the most satisfactory period of time to hold the contest, for this length allows everyone who is interested to take advantage of it.

SERVICEMEN GET CASH

★ Turning service calls into profitable cash sales of new radio sets is helping the United Radio & Refrigeration Service, Baltimore, Md., increase its volume. This concern is converting a number of its service calls, averaging better than one out of every five, into sales of new radio sets, with the average sale amounting to \$36. As all sales are cash propositions, this business is all the more welcome.

In responding to service calls, members of this firm note that, in a number of cases the sets are quite old, obsolete in comparison with the modern 1936 sets. They point out the wisdom and saving of money for the customer by buying a new receiver instead of paying a repair bill now and perhaps another in a short time, etc. In many cases the customers see the logic of the United men, and instead of having their sets repaired as originally intended, purchase new ones.

CUSTOMERS SELL AGAIN

★ Lawrie Bros., Erie, Pa., have thought up a new sales stunt. Customers are asked to come in and select any set. The chosen receiver is delivered free of charge to the home, with the request from Lawrie's that it be shown and played for the prospect's friends. Names of the friends are to be sent to the store, and if any of them turn out to be sales, the one who sent them gets full credit.

In this way, a radio may be paid for with as few as three sales to friends, and a year is granted to pay in this manner. Offer is limited to 50 persons working at one time.



The pick of the parade—this eye-catching float was built by McMichael & Son, radio dealers of Shenandoah, Iowa, for a local street show.

Look!

Four new sets for Spring
that sell on sight... with

NEW ARROW-LIGHT TUNING • NEW RAINBOW DIAL

WATCH your customers walk right up to these new Atwater Kent models when they see them! It's the *new* Rainbow Dial—soft colors give the new sets more eye appeal, make the dials easier to read. *New* Arrow-Light Tuning—finds stations easier, accurately. Just follow the arrow to the station you want. See the four new models pictured below.

THIS SPRING THEY'LL BE TALKING ABOUT ATWATER KENT

ATWATER KENT MFG. COMPANY

A. Atwater Kent, Pres.

PHILA., PA.



COMING!

THE *new* ATWATER
KENT MOTOR CAR
RADIO

MODEL 676 (at top)—Six-metal-tube console with New Arrow-Light Tuning and New Rainbow Dial, including Atwater Kent's newest feature—the Fan-Spread Station Spacer. **\$69.90** f. o. b. factory.

MODEL 456 (next to top)—This smart compact cabinet houses the same chassis as the console above. Phonoposts are standard equipment. **\$49.90** f. o. b. factory.

MODEL 535 (next to bottom)—A five-tube console with metal tubes that goes from store to home as quick as any set you'll sell. New Arrow-Light Tuning and New Rainbow Dial. **\$54.50** f. o. b. factory.

MODEL 725 (at bottom)—Here's a five-tube compact that's bound to play an important part in your spring sales. Improved short-wave reception. It's a natural. **\$39.90** f. o. b. factory.

Prices slightly higher in South and West.

BATTERY MODELS Similar in appearance to illustration at right, is the 5-tube, 2-volt battery model **515Q** with short-wave band—one of the new Atwater Kent battery receivers for Spring sales. **\$39.90** without batteries f. o. b. factory.

ATWATER KENT

THE RADIO WITH *Control-Room Reception*

SERVICING MIDGET RECEIVERS

By F. L. SPRAYBERRY

★ TO be consistently successful in radio servicing in the long run, the serviceman must be able to adapt his work to the many conditions imposed upon him as the trade moves forward.

The repair of the midget receiver does not present a new problem, as similar trends have been witnessed in other fields.

The selling price of midget receivers is gauged on a large production scale. This psychologically leads the purchaser in the belief that the ratio of investment to repair should be somewhat the same as for any other set, or in fact, any commodity. Now it is the business of the serviceman to point out to his trade the fact that the purchase price of the receiver has not relation to the cost of repair whatever. If servicing could be done in a "belt conveyor" or automatic manner with all units similar, the cost of repairs might well be gauged on a production basis and in this way be made roughly proportional to the original price of the receiver. However, this is not, and cannot be the case.

Higher ratio of service charges

The serviceman cannot reduce the value of his time simply because of the low investment of the user of the receiver. This low investment is no saving to the serviceman (usually it is an expense) and certainly midget jobs are not made any easier to service than others. On the other hand, a costly receiver is no basis on which to make unearned profits. A legitimate profit should be made on all service jobs; and unless a profit can be made, do not take the job—drop it—let the other fellow take a loss if he must. A simple cost accounting system will enable any serviceman to determine what he must charge to continue in business.

Since the serviceman cannot well afford to refuse midget jobs consistently he must find some way to handle such jobs which will be satisfactory to the customer and yet will be in keeping with good business.

If we look at the problem more specifically, we can find several points in favor of the serviceman in connection with this work. In the first place, midget circuits are less complex, having on the average fewer

parts and tubes than others. For this reason, stage-by-stage testing, complete continuity testing will consume less time. Secondly, more time is saved when the receiver must be removed to the shop for testing, as no dismantling of the receiver in the home is needed.

There is another important point which the serviceman can make favorable to him if he knows how. This lies in the fact that the very strict size limitations which the manufacturers have imposed upon themselves, as well as cost limitations, have served to standardize the parts and circuits to a considerable degree. The greater the degree of standardization, the simpler becomes the servicing problem as will be testified by any serviceman.

Circuits less complex

With even meagre practicing experience, the serviceman will find troubles which are characteristic of a large number of midget receivers of different makes and models. Moreover there are recurrent symptoms which may be readily identified as failure of certain units in a great many makes and models.* In this way it is possible to service such sets in a very short time, thus maintaining the same hourly rate for all radio work.

Where it has been determined that the cost of repair will approximate the cost of the receiver (before the repair is well underway) the customer should be advised to this effect before going on with repairs. This situation cannot be overcome, and the customer who has gambled with cut-rate goods must simply realize that he has received all of his value from the set in question.

In the general case it does not pay to replace a speaker, a power trans-

former, a set of coils or a tuning gang in the lowest-priced midget receivers. Fortunately these units give a minimum of trouble. The majority of trouble will be found in power resistor units, undersize resistors, filter and by-pass condensers. Replacements of this nature are inexpensive, and if the defective parts can be located definitely and quickly, such work can be made an additional business advantage.

Because of the congestion of parts, the possibility of high-voltage shorts are increased. Excessive emission of the rectifiers used in these sets usually means failure of the tube. The filter condensers also are subject to considerable trouble.

Voltage analysis

An analyzer method of servicing is not generally recommended because of the time required and the space limitations in the receiver chassis. A voltage analysis at the socket terminals and a resistance continuity test will usually point to the trouble quickly.

The mechanical structure of such sets is rather frail as a rule with single point or otherwise incomplete mounting of parts. This makes loose rivets and intermittent connections more prevalent than in the larger console receivers.

The emission of the "signal carrying tubes" being low for AC-DC models, tube replacements are not needed as often in larger models.

Because of the similarity of circuits, the symptoms of defects will be more uniform, and the source of trouble may be identified more easily. Circuit adjustments are less in number and can be handled more quickly for this reason and even more so because of their independent nature. One less adjustment for this reason may cut the time in half.

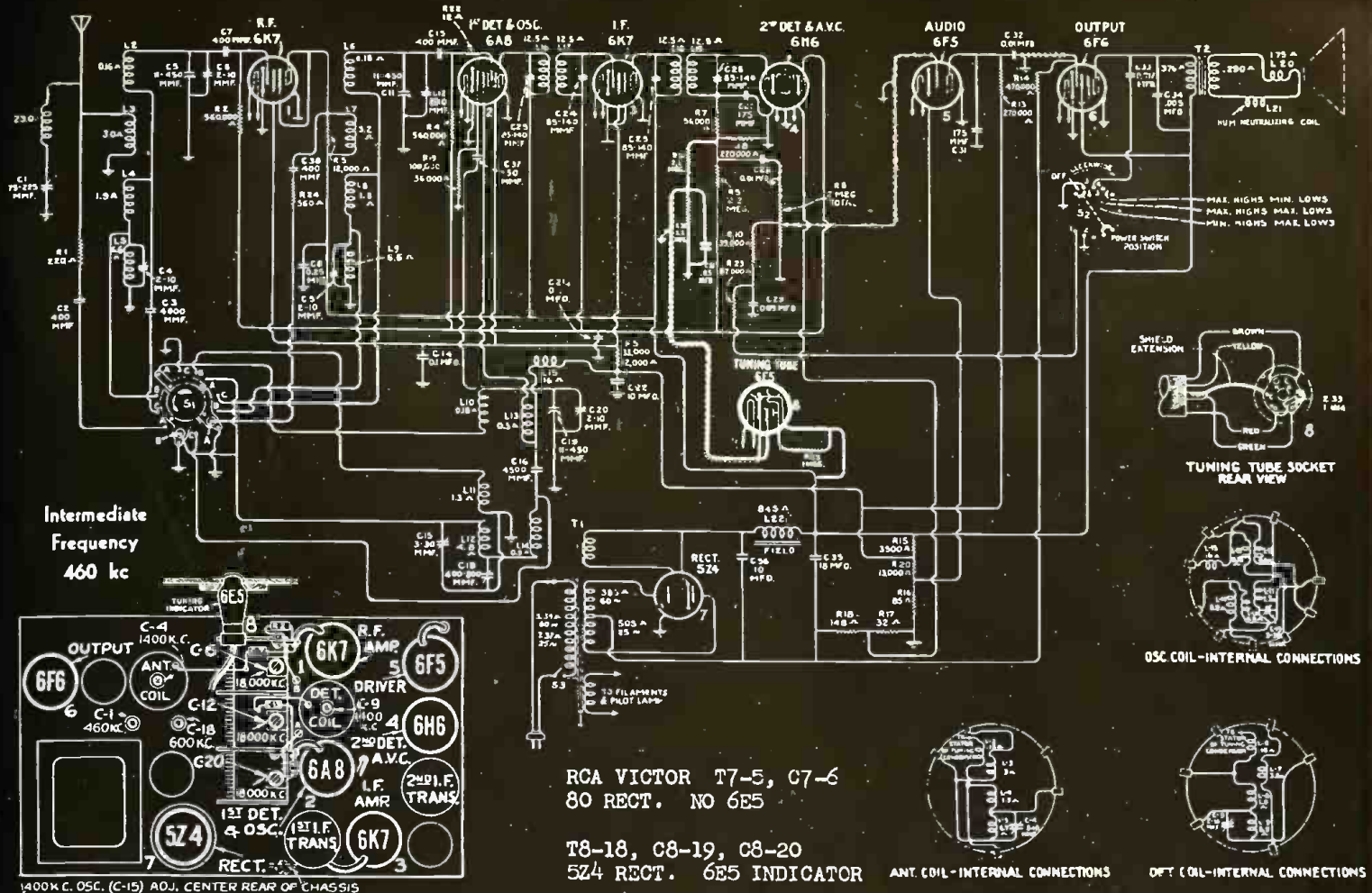
There is perhaps the most need for frequent adjustment in such receivers because of the fragile construction, mounting methods, and ineffective heat insulation. This presents a tangible means for the serviceman to convince his customer that the up-keep on midget sets will be more as compared to the original cost than for others.

*Servicemen—send in your experiences on service problems to "Radio Today." Data will be compiled and published in future issues—Editor.

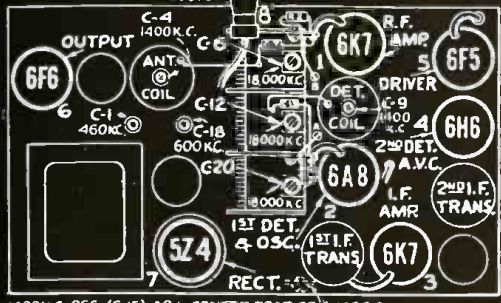
How to handle unprofitable set-repair jobs.

Explaining prices to the customer.

Adapt methods to fit situations.



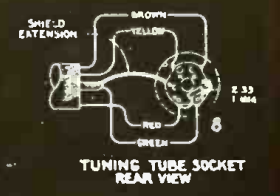
Intermediate Frequency 460 kc



1400K.C. OSC. (C-15) ADJ. CENTER REAR OF CHASSIS

RCA VICTOR T7-5, C7-6
80 RECT. NO 6E5

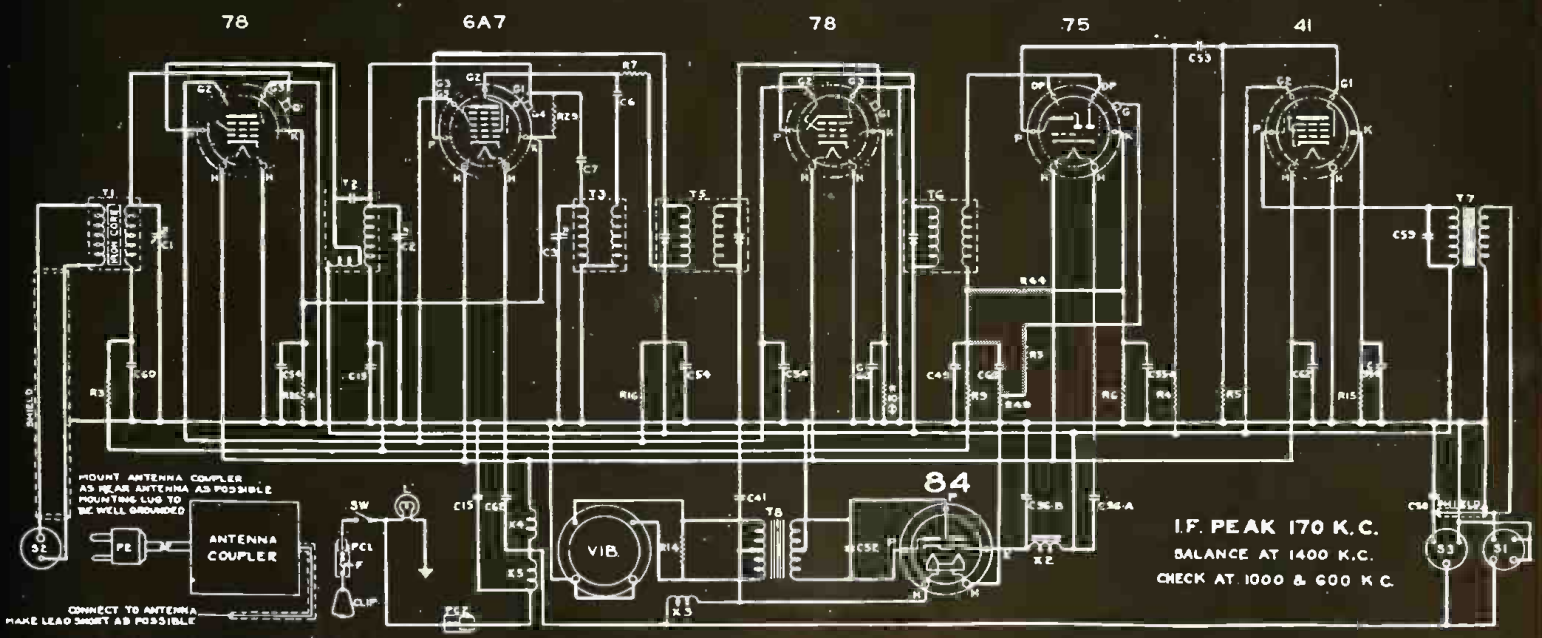
T8-18, C8-19, C8-20
5Z4 RECT. 6E5 INDICATOR



OSC. COIL - INTERNAL CONNECTIONS



ARVIN AUTO RADIO MODEL 18



I.F. PEAK 170 K.C.
BALANCE AT 1400 K.C.
CHECK AT 1000 & 600 K.C.

* MAY BE VARIED FROM 250A TO 500A TO CONTROL SENSITIVITY
 † MAY BE VARIED FROM 400A TO 3000A TO CONTROL SENSITIVITY

RESISTORS				CONDENSERS					
R	OHMS	R	OHMS	C	CAP'Y	VOL.	C	CAP'Y	VOL.
3	100M	14	200	1	3	GANG	52	.01	1200
4	200M	15	500	2	VARIABLE		53	.01	600
5	500M	16	50M	3			54	.15	400
6	5M	26	600	6	.002	600	55A	12.0	25
7	20M	29	50M	7	.0001	600	55B	12.0	25
9	1MEG	44	150M	15	.05	160	56A	4.0	350
10	500	45	500M	41	1.0	15	56B	12.0	350
				49	.0005	600	59	.01	400
				50	.005	600	60	.05	160
							62	.5	15

ARVIN MODEL 18 SOCKET VOLTAGES									
TUBE	HEATER	CATHODE	SUPP GRID	SCREEN GRID	PLATE	OSC GRID	ANODE GRID	DIODE PLATES	
78	6.3	3.5	0	90	195	—	—	—	
6A7	6.3	3.5	—	90	195	*2-5,f	120	—	
78	6.3	2.3	0	90	195	—	—	—	
75	6.3	1.6	—	—	110	—	—	1.9*	
41	6.3	14.5	—	195	192	—	—	—	
84	6.3	200	—	—	215	—	—	—	

*Measured with vacuum tube voltmeter #Measured at 1500 KC

LOUDSPEAKERS TODAY

- new permanent-magnet reproducers for battery sets
- aluminum-steel alloys light, compact, permanent

★ THE advent of new magnetic materials and new forms of speaker construction have resulted in marked improvements in radio reproducing equipment.

New magnetic alloys have been particularly responsible for recent permanent-magnet speakers which are especially valuable for battery-operated receivers.

Early permanent-magnet speakers were bulky, heavy and cumbersome. The new alloys permit compact construction, and the permanence of the magnetic field is assured.

Several of these new permanent-magnet speakers are now on the market and others are being made ready for commercial introduction.

High flux densities

How the research engineers of the Continental Motors Corporation, Detroit, Mich., developed both a new material and a novel magnetic circuit for their Perm-O-Flux speaker. is explained by Chief Engineer I. B. Serge:

"This new magnetic alloy material, composed of aluminum, nickel, cobalt and iron, has proved to be the most powerful yet known to metallurgical science," writes Mr. Serge. "Use of this material in Perm-O-Flux permanent-magnet dynamic speakers has permitted lighter construction, materially increased efficiency, and superior tone quality.

"In the electro-dynamic type of speaker, a minimum flux density of 10,000 lines per square centimeter has been considered necessary for proper operation to meet present-day requirements of the trade. Flux density of the Perm-O-Flux dynamic speakers varies from 10,000 to 14,000 lines per square centimeter.

"The accompanying chart shows the relation of the dimension ratio and residual magnetism for different types of magnetic material. The dimension ratio is represented by the ratio of length and diameter. This magnetic steel, having greater coercive forces, makes possible the use of smaller and lighter magnets.

"The permanency of the new magnetic alloy is quite unusual due to its micro-structure. This steel structure is stable, and there is no magnetic variation, even though the

structure be subjected to temperatures up to approximately 600° C.

"A novel design of the voice coil with double suspension, on which patents are pending, insures continuous and trouble-free operation. The speaker has a permanent flux density in the gap, requiring no outside energy for field excitation, thereby reducing battery drain—a very important item on all automobile and farm sets."

Quartz-silicate ribbon

Engineers of the Cinaudagraph Corporation, Stamford, Conn., headed by Sherman Reese Hoyt, secretary and director, point out that "the heart of a speaker is its voice coil. This coil must faithfully transform a complex electrical impulse into mechanical motion, including all its complex variations, without distortion and with a minimum of loss. To overcome present imperfections, a special quartz-silicate ribbon has been developed. Quartz, being extremely dense and non-elastic, when formed into a voice coil having a wall thickness of approximately 0.002 in. and an overall thickness, including voice coil, of only .006 in., weighs

but a fraction of the conventional-type voice coil.

"To overcome spurious tones a new diaphragm has been developed by Cinaudagraph engineers. This cone diaphragm has no voice-coil orifice, thereby preventing air circulation or 'breathing' around the voice coil at low notes, and also improving its efficiency at both the extreme high and low frequencies. It also prevents the infiltration of dirt to working parts. The voice coil fits snugly into a special recess on the cone, which allows for maximum coupling area.

"The Cinaudagraph speaker requires no electro-magnetic excitation. High magnetic densities, with small light-weight field structures are attained with the permanent-magnet alloy Nipermag."

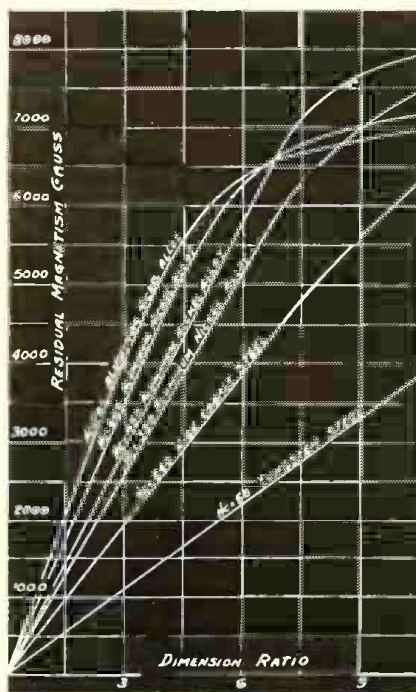
D. H. Wright, president of Wright-Decoster, Inc., St. Paul, Minn., points out that not only were the old-type permanent-magnet speakers very large, requiring deep cabinets or prohibitive space in radio housings, but they did not have any such sensitivity as do the new Nokoil speakers using Alnico magnets manufactured from aluminum, nickel and cobalt steel.

Compares commercial market

The Jensen Radio Manufacturing Company, Chicago, has been making permanent-magnet speakers since 1931, but recently has gone into production of speakers using the new magnetic alloys. Peter L. Jensen points out that there are few limitations for the new speaker, although it faces cost competition with the energized type in the standard AC receiver. On the other hand, a certain amount of hum is always present from rectified alternating current, which is altogether eliminated in the magnet type.

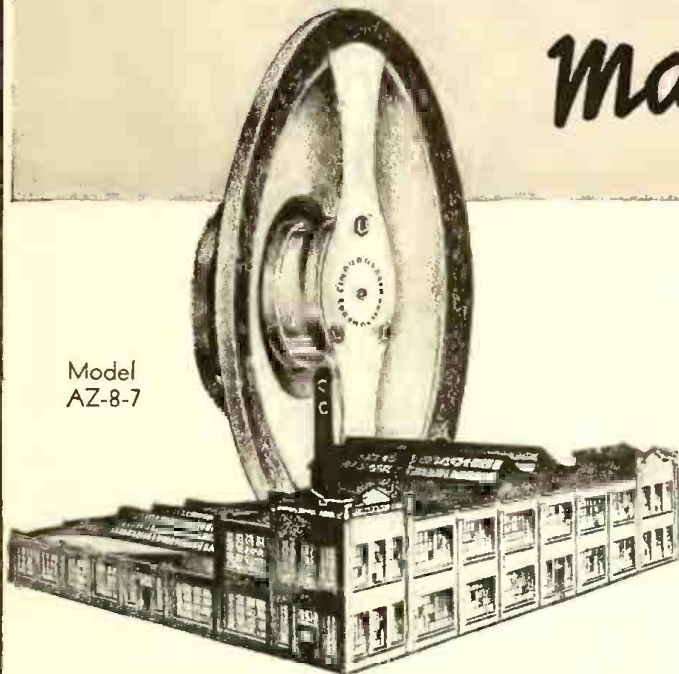
J. R. Scanlan, general sales manager, Utah Radio Products Company, Chicago, reports that his company will be in production on all sizes of magnet speakers from 6 in. to 12 in. by April 1. He comments that the general level of the selling price on this new type of speaker will be higher than the present electro-dynamics. This will more or less limit the market, for the immediate future, although as the steel companies reduce their prices, this market will broaden considerably, believes Mr. Scanlan.

L. Golder, Rola Company, Cleveland, Ohio, reports that new permanent-magnet speakers in 6 in. and 8 in. sizes are being developed in the Rola laboratories, but date when they will be ready cannot yet be announced.



Mr. Serge charts improved magnetic qualities of aluminum-nickel alloys.

The CINAUDAGRAPH Magic Magnet^{*} SPEAKER



Model
AZ-8-7

TODAY, there is a "Magic Magnet" Speaker. A group of engineers dared visualize it. They worked over it in the Cinaudagraph laboratories. For suspense-packed months, they combed the earth for materials; contrived new ones; tested all. They refused to be hurried. Now they give the "trade" the Cinaudagraph "Magic Magnet" Speaker.

THIS Speaker offers in combination five basic developments you never saw or heard of before—"Nipermag", the "Magic Magnet" alloy; Polyfibrous Cone Construction; Interlaced Spider Device; Quartz Silicate Voice Coil; the Infinite Baffle. With these, with many other developments, such as shallow cone construction, 18" models, simplicity of construction—the "Magic Magnet" Speaker sets absolutely the highest standard in speaker performance.

UNDER one roof, in one of the largest, most modern speaker plants in the world, our chief concern is to produce a splendidly engineered speaker, superbly built. For this reason, all parts required in the assembly of the speaker are completely manufactured by the Cinaudagraph Corporation. For this reason, cost of production is reduced. And for this reason we can give you the "Magic Magnet" Speaker at a remarkably low price.

Complete details on the 8, 10, 12, and 18 inch models will be supplied on request.

CINAUDAGRAPH CORPORATION

SPEAKER DIVISION—DEPT T
STAMFORD CONN., U.S.A.

* "Nipermag"—the "Magic Magnet", used exclusively in Cinaudagraph Speakers, should not be confused with other permanent magnet alloys now available on the American market. It is an exclusive Cinaudagraph product.

DESTINED TO REVOLUTIONIZE CONVENTIONAL SPEAKER CONCEPTS

In every detail of its design, its construction, its materials, the "Magic Magnet" Speaker is new.

● It's New in Cone Construction

A new polyfibrous material, developed and manufactured by Cinaudagraph exclusively, is presented for the first time in the "Magic Magnet" Speaker. Constructed so as to present a varying density of composition, this cone will transmit voice coil oscillations with uncanny fidelity. Shallow construction makes it particularly suitable for auto radios. Will fit into the smallest space conveniently. Overall speaker depth $2\frac{3}{8}$ " for model AZ-8-7.

● It's New in Magnetic Material

"Nipermag"—a permanent magnet alloy presented for the first time in American speakers by Cinaudagraph engineers, has been and is being used extensively with great success in Europe. The use of "Nipermag" reduces the battery consumption of your auto radio, eliminates fire hazards and makes humless reproduction possible in any application. It is the ideal speaker for farm receivers.

● It's New in Voice Coil Construction

A core of quartz silicate, a non-elastic, extremely dense mineral, is used in the construction of the voice coil. The advantages of this voice coil are its ability to transmit frequencies without losses or deviations and its ability to operate under adverse climatic and temperature conditions.

● It's New in Spider Construction

A centering device, an exclusive Cinaudagraph development, consisting of an interlaced net, the extreme flexibility of which makes a really low note obtainable.

● It's New in Baffle Construction

The Cinaudagraph "Magic Magnet" Speaker is designed to operate within an Infinite Baffle. This Infinite Baffle absorbs rear radiation, and allows only true, undistorted tones to emanate from the front of the speaker.

These five major engineering improvements contribute largely to the attainment of an extraordinarily flat frequency response of from 30 to 15,000 cycles. Extreme flexibility of the polyfibrous cone makes possible the production of speakers to individual frequency requirements.

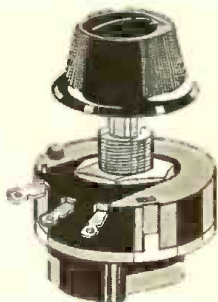


The New 1936 Centralab Volume Control Guide

is off the press . . . more listings . . . way ahead . . . and up to the minute including 1935 data never before shown. All listings "checked and double-checked" and will be found extremely accurate.

Keep abreast with this new Guide . . . and keep abreast with CENTRALAB Volume Controls and Fixed Resistors for ALL replacement jobs. Get a FREE copy from your jobber.

NEW! Up-to-the-minute



Centralab Radiohm

Centralab smoothness results from the patented Centralab non-rubbing contact whereby a strip of polished metal rocks on the resistor so that the only rubbing action is between an oilless wood bearing and the polished metal.

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

Centralab

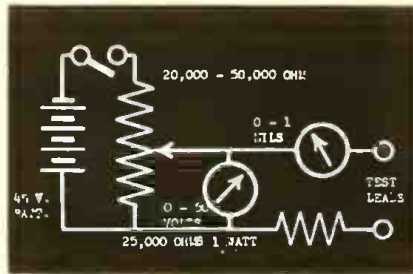
Milwaukee, Wis.

VOLUME CONTROLS
FIXED RESISTORS
SOUND PROJECTION CONTROLS
WAVE CHANGE SWITCHES

SERVICING NEW CIRCUITS

CURRENTLESS VOLTMETER

★ Measurement of voltage in high-resistance circuits such as AVC and the like is ordinarily meaningless because the voltmeter alters the original voltage. Vacuum tube voltmeter is one solution to the problem but they are rather expensive.



Circuit shown in accompanying diagram is for a device that will permit the measurement of voltages up to 45 volts (voltage of battery) without drawing any current from the circuit. In engineering circles the device is known as a potentiometer.

The potentiometer shown should be a linearly wire-wound one from 20M to 100M ohms—exact value not important. International Resistance Co. have a resistance indicator that is a potentiometer—if you have one, it can be used. The meters can be those you already have.

In operation the test leads are clipped across the voltage to be measured—the tap on the potentiometer is varied until the current in the milliammeter reads zero. When the current is zero, the voltage in the circuit is equal to the voltage read on the voltmeter—that is why no current flows. Of course, it is necessary to

consider polarity of the meters and the test leads. Positive terminals should be connected to positive voltages.

RCA VICTOR T7-5, C7-6, T8-18, C8-19, C8-20

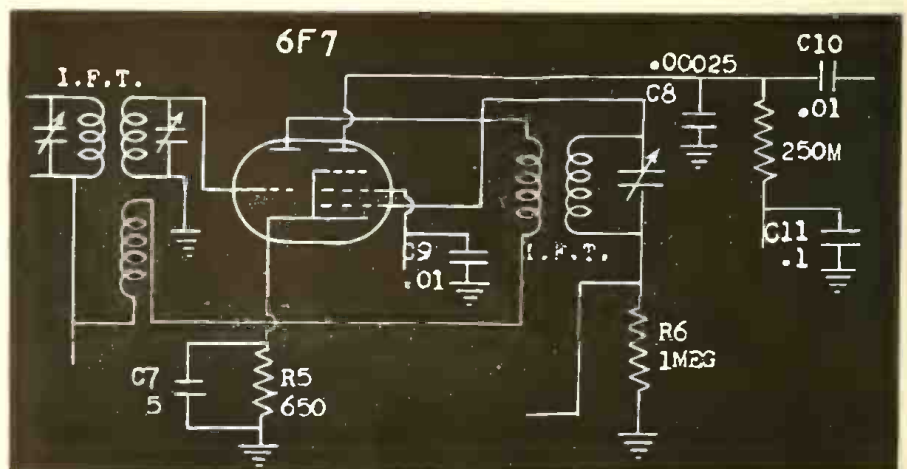
★ Newest 8-tube addition to RCA's magic eye line is similar to last fall's 7 tube model, except that an eighth tube in the form of the 6E5 tuning indicator has been added. The diagram of the set on page 25 shows the wiring and the values of the parts for the 8 tube model. The additional circuits required for the 6E5 are shown in heavy lines—eliminate those circuits and the chassis is the same as the 7-tube one including the position of component parts and the trimmer condensers.

EMERSON 19 AND 109 I. F. CIRCUITS

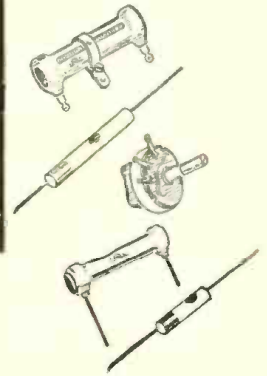
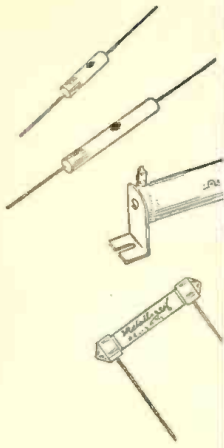
★ Comparison of the circuit diagram for Emerson's new 109 with that of the 19 shows them to be the same. The i-f. stage and second detector circuits deserve special attention. The triode section of a 6F7 is employed as an i-f amplifier while the pentode section is utilized as the second detector resistance coupled to the output tube.

I-f. detector section of the circuit is redrawn to show the circuit more clearly. Note that the plate circuit of the triode amplifier is coupled inductively to its grid by means of a third winding on the i-f. transformer. This coupling is so phased and adjusted that feedback is sufficiently neutralized to prevent oscillation.

(To page 35)



I.F. amplifier of Emerson models 19 and 109 peaked at 456 kilocycles.



The FOUNTAINHEAD of RESISTOR DEVELOPMENT

Here in spacious, centrally located quarters, on the top floor of this huge building, is a new and greater IRC . . .

With new, modern labor-saving devices and equipment . . . highly efficient and economical straightline production . . . unique facilities for research, development work, manufacturing and shipping . . .

All in ample daylight quarters . . . all on one floor a city block long by half a block wide . . . all devoted *exclusively* to a furtherance of the work that has made IRC Resistors and Volume Controls famous throughout the world.

INTERNATIONAL
RESISTANCE CO.



401 NORTH BROAD ST.
PHILADELPHIA • PA.



EXECUTIVE—President Ernest Searing (center); Vice-President and General Manager Fred D. Williams (left); and Chief Engineer Jesse Marsten discuss the many new IRC developments.



SALES—Meanwhile, (left to right) W. H. Knowles (Radio Manufacturing Division); Dan J. Fairbanks (Jobber Division); and Harry Ehle (Industrial Division) are planning for a big year. WATCH IRC IN 1936!

MULTI-RANGE METER COMBINATIONS—Compiled by Radio Today

Model No.	Net price	AC volts	DC volts	DG mills	DC ohms	Cap'y ranges In mfd.	Sensitivity ohms/volt AC DC	Scale length inches	Accuracy AC DC	Range Selection method	Fused meter	Dimensions	Wt. In lbs.
85	\$24.95	0/15/150/750	0/15/150/750	0/1.5/15/150	0/100/20M/2meg		NS NS	NS NS	NS NS	RSW NS	NS	8 1/4 x 5 1/4 x 4 1/4	NS
CLOUGH-BREngle CO., 1134 W. Austin Ave., Chicago, Ill.													
4780	\$19.80												
4955	24.60	0/10/50/250/500/1000	0/10/50/250/500/1000	0/1/10/50/250	0/10M/1meg/10meg		1000 1000	2 3	2 1	PTJ PTJ	No No	3 1/4 x 3 3/4 x 6 1/4 4 1/2 x 7 x 3 1/4	3 1/2 3 1/2
HICKOK ELECTRICAL INSTRUMENT CO., 10516 Dupont Ave., Cleveland, Ohio													
412	\$9.85			0/1	0/500/500M		1000	1 1/2	2	PTJ	No	5 x 3 x 2	NS
JACKSON ELECTRICAL INSTRUMENT CO., 430 Kiser St., Dayton, Ohio													
025		0/10/50/100/300/1000	0/10/30/100/300/1000	0/1/10/100	0/150/15M/1 1/2meg		NS NS	NS NS	NS NS	RSW NS	NS	7 x 5 1/4 x 6 1/4	4 1/2
PHILCO RADIO & TELEVISION CO., Tioga & C Sts., Philadelphia, Pa.													
RADIO CITY PRODUCTS CO., (Dependable) 88 Park Pl., New York City													
403A	\$13.95		0/5/50/250/750	0/5/50	0/2M/200M/2meg		2000	2.1	2	RSW	No	8 x 5 x 3	3/4
404	16.95		0/5/50/250/750	0/2.5/50/250	0/2M/200M/2meg		2000	2.4	2	RSW	No	8 1/2 x 6 x 4	4
405A	9.95		0/2.5/25/125/750	0/2.5/125	0/1M/100M		400	1.8	2	PTJ	No	3 1/2 x 7 1/2 x 4	1 1/4
406	18.95		0/5/50/250/750	0/5/50/250	0/2M/200M/2meg		1700	2.4	NS	RSW	No	8 1/2 x 6 x 4	4 1/4
410	22.50		0/5/10/50/250/1000	0/5/5/10/50/250	0/2M/200M/2meg/20meg	0/01/1/1/5/25	1000 2000	3.5	2	RSW	No	4 1/2 x 6 x 9 1/4	4 1/4
421	25.85		0/5/20/80/160				1300	3.5	2	RSW	No	4 x 1 1/2 x 6 1/2	3
RADIO PRODUCTS CO., (Dayrad) 125 Sunrise Pl., Dayton, Ohio													
56	\$33.50	0/5/25/125/500/1250	0/5/25/125/500/1250	0/5/25/125/500/1250	0/3M/30M/300M/3meg		1000 1000	3 1/4	NS 2	RSW	No	6 x 8 1/4 x 3 1/4	9
SHALLCROSS MFG. CO., 700 MacDade Blvd., Collingdale, Pa.													
611	\$50.00	0/5/25/100/250/1000	0/5/25/100/250/1000	0/1/10/100/1000	0/500/5M/50M/5meg	0/1/1/1/10	1000	2.4	5 2	RSW	Yes	10 x 9 1/2 x 5 1/4	11
638	21.00		0/10/100/500/1000		2.5 to 3meg AC	.005 to 10	1000	2.4	5	RSW	No	7 1/4 x 5 x 5	4
686	32.00	0/10/50/125/500/1000					1000	2.4	5	RSW	No	7 1/4 x 5 x 5	6
TRIPLITT ELECTRICAL INSTRUMENT CO., 122 Main St., Bluffton, Ohio													
1200	\$21.67	0/10/50/250/500/1000	0/10/50/250/500/1000	0/1/10/50/250	0/1500/1.5meg/3meg		2000	NS	NS	RSW	NS	NS	NS
1125	20.00	0/15/150/750	0/15/150/750	0/1.5/15/150	0/1500/1.5meg/3meg		2000	NS	NS	RSW	NS	NS	NS
TRIUMPH MFG. CO., 4017 W. Lake St., Chicago, Ill.													
300	\$19.95	0/10/100/1000	0/10/100/1000	0/50/500	0/1M/1meg/10meg		NS NS	NS NS	NS NS	RSW NS	NS	7 x 4 1/2 x 3 1/4	NS
WESTINGHOUSE ELECTRIC & MFG. CO., East Pittsburgh, Pa.													
PX-25					0/1M/50M/1meg		1000	2.4	2	TSG	No	7 x 4 x 3 1/4	3
PX-26					0/1M/100M/1meg		1000	2.4	2	RSW	No	7 x 4 x 3 1/4	3
PX-27		0/15/150	0/15/150	0/1/10/100	0/200/1M/100M/1meg		1000	2.4	2	RSW	No	7 x 4 x 3 1/4	3
PX-37					0/200/1M/10M/100M/1meg		1000	2.4	2	RSW	No	7 x 4 x 3 1/4	3
WESTON ELECTRICAL INSTRUMENT CORP., 614 Freelinghuysen Ave., Newark, N. J.													
564-3A	\$22.50		0/3/30/300/600		0/1M/100M		1000	2 3/4	2	PTJ	No	2 3/4 x 3 3/4 x 5 1/4	1 3/4
564-3B	26.63		0/3/30/300/600		0/1M/100M/1meg		1000	2 3/4	2	PTJ	No	2 3/4 x 3 3/4 x 5 1/4	1 3/4
571	22.50	0/1.5/15/150/150	0/2.5/25/250/1000		0/200/1M/10M/100M/1meg		4000 constant	2 3/4	5	RSW	No	5 1/2 x 3 3/4 x 3	1 1/4
663	45.00		0/2.5/10/100/250/500/1000	0/1.5/25/100			1000	2 3/4	2	PTJ-RSW	No	4 x 5 1/2 x 8 1/4	4 1/2
664	41.25	0/4/8/40/200/400/800					1000	2 3/4	2	PTJ-RSW	No	8 1/4 x 5 1/2 x 4	4 1/2
665-1	52.50	0/1/2.5/5/10/25/50/100	0/1/2.5/5/10/25/50/100	{0/1/2.5/5/10/25/50/100}	0/1M/10M/100M/1meg	0/02/1/2/20/200	1000	2 3/4	5	PTJ-RSW	No	4 x 5 1/2 x 8 1/4	4 1/2
665-2	48.75	0/100/250/500/1000	{100/250/500/1000}	{100/250/500/1000}	0/1M/10M/100M/1meg	0/10	1000	2 3/4	5	PTJ	No	4 x 5 1/2 x 8 1/4	5
687	15.00	0/2/10/50					1000	2 3/4	5	PTJ	No	5 x 3 x 2	1 1/4
689-1E	14.63				0/5M/50M		1000	2 3/4	2	BP	No	2 x 3 x 5	1
689-1F	18.75				0/10/1M		1000	2 3/4	2	BP	No	2 x 3 x 5	1
695-3A	27.00	{0/1.5/6/15/60/150}					2667	2 3/4	5	RSW	No	5 1/2 x 3 3/4 x 3 1/4	1 1/4
695-3B	30.38	{-8 to 32db}					1333	2 3/4	5	RSW	No	5 1/2 x 3 3/4 x 3 1/4	1 1/4
780	29.25	0/1.2/3/6/8/12/16					infinite	2 3/4	2	PTJ	No	5 1/2 x 3 3/4 x 2 1/4	1 1/4
669	45.63	0/1.2/3/6/8/12/16					infinite	2 3/4	2	RSW	No	8 1/4 x 5 1/2 x 5 1/4	6 1/2

NS—Information not supplied. PTJ—Pin tip jacks. RSW—Rotary switches. BP—Binding posts. TSG—Toggle Switches. . . . Heading does not apply. The accompanying tabulations have been compiled from information furnished by the manufacturers whose apparatus is described.

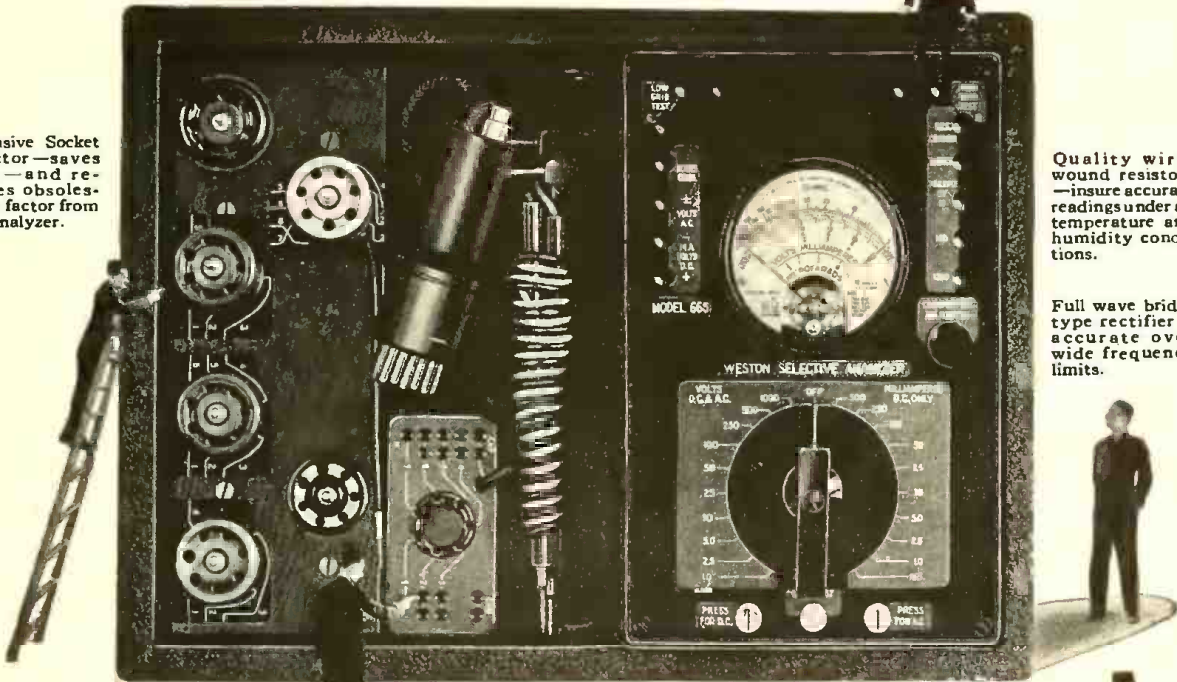
"WESTON Instruments put more money in my pocket"



"My '665' Analyzer has served me for almost three years (since it was first introduced) and it's good for years to come. I don't have to buy a new analyzer for the metal tubes. That saves me a good sum. And it's the most dependable instrument. Look how WESTON designs and builds."

The world-famed WESTON 301 Meter — sensitive and sturdy—stands the gaff and remains accurate.

Exclusive Socket Selector—saves time—and removes obsolescence factor from the analyzer.



Quality wire-wound resistors—insure accurate readings under all temperature and humidity conditions.

Full wave bridge type rectifier—accurate over wide frequency limits.

Exclusive open-circuiting pin jacks—permit quick insertion of meter for current measurements, without disturbing circuit.

And this name WESTON is on instruments used in laboratories the world over . . . the finest procurable.

The above statement from a WESTON owner merely confirms the reports from users everywhere. WESTON Instruments cost far less because they are built to serve for years. They don't have to be replaced for every tube or circuit change. And they maintain

their dependability through years of steady, profitable service. One sure way to *save more* and *earn more* is to use WESTON'S for every need. Send for the WESTON Radio Bulletin . . . Weston Electrical Instrument Corporation, 597 Frelinghuysen Ave., Newark, N. J.

WESTON

Radio Instruments

BE SURE TO SEE
WESTON RADIO INSTRUMENTS
BOOTH 22
I. R. S. M. CONVENTION
CHICAGO, MARCH 27-29

RADIO TUBE TESTERS — Compiled by Radio Today

Model No	Net price	Meter calibration	Scale length	Fused meter	Line volts adj't	Line volt reading	Power source	Test principle	No. of controls	No. of sockets	Short tests	Leakage tests	Style	Dimensions	Wt in lbs.
APPARATUS DESIGN CO., INC., (Confidence), Little Rock, Ark.															
36	\$39.50	English	3 1/2	No	TT	Yes	110 AC (25-60c.)	Mod Mu	3	5	Yes	Yes	Port.	18 1/2 x 12 1/2 x 7	14
BURTON-ROGERS CO., 755 Boylston St., Boston, Mass.															
20	\$31.50	English	2	No	TT	Yes	110 AC	Mu	3	6	Yes	Yes	Port.	12 x 12 x 5	10
21	34.00	English	2	No	TT	Yes	110-25 cy	Mu	3	6	Yes	Yes	Port.	12 x 12 x 5	10
HICKOK ELECTRICAL INSTRUMENT CO., 10516 Dupont Ave., Cleveland, Ohio															
47	\$84.00 90.00	{ 0/2500 mhohos 0/50 mils English 0/3M/6M mhohos }	2'	Yes*	SR	Yes	110 AC	Dy Mu-Gas	3	3	Yes	Yes	Port	3 x 12 1/4 x 6 1/2	17
49	54.00	English	3 1/4	Yes*	SR	Yes	110 AC	Dy Mu-Gas	3	16	Yes	Yes	{ Ctr. Port.	12 x 1 1/2 x 12 1/2	14
3500	{ 46.50 45.00 }	English	2 3/4	Yes*	SR	Yes	110 AC	Mu-Gas	3	14	Yes	Yes	{ Ctr. Port.	6 x 16 x 13	15
3800	36.00	English	2	Yes*	SR	Yes	110 AC	Emission	3	10	Yes	Yes	{ Ctr. Port.	12 x 16 x 12	12
4303-W	150.00	{ 0/2500 mhohos 0/50 mils }	3 3/4	Yes*	SR	Yes	110 AC	Dy Mu-Gas	3	12	Yes	Yes	Port.	11 x 11 1/2 x 14	12
* Primary fuse only. † 3 meters in unit.															
JACKSON ELECTRICAL INSTRUMENT CO., 430 Kiser St., Dayton, Ohio															
427A	\$28.40	English	2 1/4	No	TT	Yes	110 AC	Mod Mu	3	6	Yes	Yes	Port.	5 x 11 x 10	10
435A	39.50	English	2 3/4	No	TT	Yes	110 AC	Mod Mu	3	6	Yes	Yes	Port.	6 x 12 3/4 x 12 3/4	14
J-M-P. MFG. CO., (Chekatube) 3048 N. 34th St., Milwaukee, Wis.															
C111	\$ 25.63	English	2 1/2	No	TT	Yes	110 AC	Power	3	5	Yes	Yes	Port.	11 x 10 x 6	10
C111 DL	32.30	English	3 1/2	No	TT	Yes	110 AC	Power	3	5	Yes	Yes	Ctr.	10 x 16 x 8	18
L & L ELECTRIC CO., 332 Madison Ave., Memphis, Tenn.															
ABC	\$34.90	English	3 1/2	No	TT	Yes	110 AC (25-60 cy)	Emission	3	5	Yes	Yes	Port.	14 x 9 1/4 x 5	12
MILLION RADIO & TELEVISION LAB., 361 W. Superior St., Chicago, Ill.															
CT	\$ 8.45	Neon light	.....	Yes	TT	None	110 AC	Emission	4	6	Yes	Yes	Port.	7 x 7 x 3	4
CT	9.45	Neon light	.....	Yes	TT	None	220 AC	Emission	4	6	Yes	Yes	Port.	7 x 7 x 3	4
CT	10.95	Neon light	.....	Yes	TT	None	110-25 cy	Emission	4	6	Yes	Yes	Port.	7 x 7 x 3	4
TA	.....	English	2	Yes	SR	Yes	110 AC	Emission	4	6	Yes	Yes	Part of TA analyzer		
PRECISION APPARATUS CORP., (Electronometer), 821 E. New York Ave., Brooklyn, N. Y.															
500	\$39.50	English	4	Yes	SR	Yes	110 AC	Emission	3	6	Yes	Yes	{ Ctr. Port.	6 x 12 3/4 x 11 1/2 6 1/2 x 18 x 11 1/2 12 x 22 1/2 x 5	11 17 13
RADIO CITY PRODUCTS CO., (Dependable), 88 Park Pl., New York City															
305C	\$21.95	English	3.5	No	SR	Yes	110-220 AC	Emission	4	5	Yes	Yes	Ctr.	6 1/2 x 9 1/2 x 13 3/4	6 1/2
305P	24.50	English	3.5	No	SR	Yes	110-220 AC	Emission	4	5	Yes	Yes	Port.	7 1/2 x 11 1/2 x 14	9
305DL	26.50	English	3.5	No	SR	Yes	25-60 cy.	Emission	4	5	Yes	Yes	Ctr.	8 1/2 x 16 1/2 x 22 1/4	10 1/2
RADIO PRODUCTS CO., (Dayrad), 125 Sunrise Pl., Dayton, Ohio															
20	\$31.75	English	3 1/4	No	TT	Yes	110 AC	{ modified emission }	3	6	Yes	Yes	Port.	12 x 11 x 5 1/2	9
22	31.75	English	3 3/4	No	TT	Yes	110 AC	{ emission }	3	6	Yes	Yes	Ctr.	12 x 11 x 5 1/2	14
27	24.75	English	2	No	TT	Yes	110 AC	{ power }	3	6	Yes	Yes	Port.	12 x 11 x 5 1/2	9
28	59.60	English	3 3/4	No	TT	Yes	110 AC	Dy Mu	6	12	Yes	Yes	Ctr.	20 x 18 x 5 1/2	22
READRITE METER WORKS, 126 E. College Ave., Bluffton, Ohio															
430	\$17.96	English	NS	NS	NS	Yes	110 AC	NS	3	5	Yes	Yes	Ctr.-Port.	NS	10
431	14.41	NS	NS	NS	NS	Yes	110 AC	NS	3	5	Yes	Yes	Ctr.-Port.	NS	10
SUPREME INSTRUMENTS CO., Howard St., Greenwood, Miss.															
89 Std	\$34.95	English	3	No	TT	Yes	110 AC	Emission	3-4	5	Yes	Yes	Port.	5 1/2 x 11 1/2 x 12 1/2	13
89 DL	45.95	English	3	No	TT	Yes	110 AC	Emission	3-4	5	Yes	Yes	Port.	5 1/2 x 11 1/2 x 12 1/2	15
89	45.95	English	3	No	TT	Yes	110 AC	Emission	3-4	5	Yes	Yes	Ctr.	15 x 23 x 15	22
89 DL	45.95	English	3	No	TT	Yes	110 AC	Emission	3-4	5	Yes	Yes	Ctr.	5 1/2 x 13 1/4 x 12	15
TEFFT RADIO CO., Plymouth, Mich.															
150	\$13.50	0-15 Chart	1	Yes	TT	No	110 AC	Emission	2-3	8	Yes	Yes	Port.-Ctr.	3 x 7 x 7	5
175	21.00	English	1	No	TT	Yes	110 AC	Power-Mod-Mu	3	8	Yes	Yes	Port.-Ctr.	3 x 12 x 7	12
TRIPLETT ELECTRICAL INSTRUMENT CO., 122 Main St., Bluffton, Ohio															
1210A	\$20.00	English	NS	NS	NS	NS	110 AC	Emission	3	4	Yes	Yes	Ctr.	NS	18
1310	30.00	English	NS	NS	NS	NS	110 AC	Emission	4	4	Yes	Yes	Ctr.-Port.	NS	22
1500	36.67	English	NS	NS	NS	NS	110 AC	Power	4	8	Yes	Yes	Ctr.-Port.	NS	22
1501	46.67	English	NS	NS	NS	NS	110 AC	Power	4	8	Yes	Yes	Ctr.-Port.	NS	28
TRIUMPH MFG. CO., 4017 W. Lake St., Chicago, Ill.															
400	\$34.95	English	NS	NS	Special	Yes	110 AC	Dy Mu	4	6	Yes	Yes	Ctr.	10 1/2 x 15 x 10 1/2	15
420	29.94	English	NS	NS	TT	Yes	110 AC	NS	4	NS	Yes	Yes	Ctr.-Port.	NS	NS
EARL WEBBER CO., 1217 Washington Blvd., Chicago, Ill.															
30	\$31.95	English	2 1/4	No	TT	Yes	110 AC	Power	3	6	Yes	Yes	Port.-Ctr.	5 1/2 x 12 x 13	6
30A	.....	English	2 1/4	No	TT	Yes	110 AC	Power	3	6	Yes	Yes	Part of 30A analyzer		
NEW	.....	English	4 1/4	No	TT	Yes	110 AC	Emission	4	6	Yes	Yes	Part of NEW analyzer		
WESTON ELECTRICAL INSTRUMENT CORP., 614 Frelinghuysen Ave., Newark, N. J.															
770	{ \$39.75 44.25 }	English	2 3/4	No	Special	Yes	110 AC	Emission	6-13	8	Yes	Yes	{ Ctr. Port.	6 x 9 1/2 x 11 1/4 7 1/2 x 10 1/2 x 13 1/2	8 13
681	73.88	English	6 1/2	No	Special	Yes	110 AC	Mod Mu	5-7	25	Yes	Yes	Counter	16 x 11 1/4 x 14	25

NS—Information not supplied. SR—Series resistor adjustment. TT—tapped transformer adjustment. Mu—mutual, Dy Mu—Dynamic mutual. Mod Mu—Modified mutual. Ctr—Counter. Port.—Portable.

We greased the wheels for Check-Up



SEE THE NEW RCA SOUND
FILM AND YOU'LL SEE THEM
GO AROUND AND AROUND

THE RCA Radio Check-Up Campaign isn't just an advertising man's brainstorm. It grew out of a need . . . 3856 dealers asked us for it. Then—we didn't stop at putting the idea on paper—we greased the wheels for Check-Up to make it go around and around . . . grind out profits for every dealer.

See the new RCA Sound-Film entitled "As A Matter of Fact" and you'll see how Check-Up works for you the easiest possible way. This film takes the Check-Up Campaign out of RCA headquarters and right into every dealer's shop—your shop—your customer's home. It is packed full of sales tips worth real money to you . . . shows you how to put them over—clearly, simply.

The Check-Up Film is now being shown by RCA Radio Tube distributors. Ask your distributor for the next date and GO!



Radio Tubes

RCA Manufacturing Co., Inc., Camden, N. J.
A Service of the Radio Corporation of America

RADIO SET ANALYZERS—Compiled by Radio Today

Model No.	Net price	AC volts	DC volts	DC. mile	No. of mtrs.	DC ohms	Cap'y ranges in mfd.	Sensitivity ohms/volt AC	Scale length inches	Accuracy AC DC	Fused meter	Circuit analyses performed	Method of analysis	Provision for testing tubes
30	\$34.75	0/15/150/1500	0/7.5/15/75/150/750	0/7.5/15/75/150/750	1	BURTON-ROGERS CO., 755 Boylston St., Boston, Mass.	.....	500	1000	2% 2%	No	PTP-CUR	RSW	.....
85	\$24.95	0/15/150/750	0/15/150/750	0/15/15/750	1	CLOUGH-BRENLE CO., 1134 W. Austin Ave., Chicago, Ill.	.....	NS	NS	3% 2%	NS	PTP-CUR	RSW	.....
4800	\$57.00	0/10/50/250/500/1000	0/10/50/250/500/1000	0/15/50/250	1	HICKOK ELECTRICAL INSTRUMENT CO., 10516 Dupont Ave., Cleveland, Ohio	0/02/2/2/20	1000	1000	2% 1%	No	PIT-CUR	PTL	.....
4953	81.00	0/8/40/160/800	0/3/30/300/600	0/3/30/300	2	HICKOK ELECTRICAL INSTRUMENT CO., 10516 Dupont Ave., Cleveland, Ohio	0/10/300/300M	25	1333	1% 1%	No	NS	NS	Type 47 tube tester
Statik Tester	150.00	0/8/40/160/800	0/20/200/500/1000	0/20/200/200	2*		0/3M/300M/30meg	25	1666	1% 1%	No	PIT	NS	
5200	11.70	Multi-selector unit	.....	.....	.....	.....	.....	.....	.....	.....	.....	PTP-CUR	PTL	.....
* 2 Additional meters in tube tester section.														
TA VM	\$26.95 19.95	NS 0/30/300/600	0/10/50/500 0/30/300/600	0/10/100/10,000 0/10/100	1	MILLION RADIO & TELEVISION LAB., 361 W. Superior St., Chicago, Ill.	.....	NS NS NS	1000 1000 1000	NS 2% 2%	Yes No	PTP PTP	PTL PTL	TA tube tester
829	\$44.95	0/4/8/16/160/800	0/5/10/100/500/1000	0/10/100/500	2	PRECISION APPARATUS CORP., 821 E. New York Ave., Brooklyn, N. Y.	0/10/250M/2.5meg	10	1000	2 2	No	PTP-CUR	RSW	Port-Panel
6413	\$24.50	.....	0/5/50/250/750	0/5/50	1	RADIO CITY PRODUCTS CO., (Dependable), 88 Park Pl., New York City	0/2M/200M/2meg	2000	2.1	.....	No	PTP-CUR	RSW-PTL	.....
6416	28.95	.....	0/5/50/250/750	0/5/5/50/250	1		0/2M/200M/2meg	2000	2.25	.....	No	PTP-CUR	RSW-PTL	.....
6423	21.95	.....	0/5/50/250/750	0/5/50	1		0/2M/200M/2meg	2000	2.1	.....	No	PTP	RSW	.....
7000	38.50	0/5/10/50/250/1000	0/5/10/50/250/1000	0/5/5/10/50/250	1		0/2M/200M/2meg	1000	2000	3.5	2	No	PTP-CUR	RSW-PBS
501	9.95	Selector unit only	.....	.....	0	.....	.....	.....	.....	.....	.....	PTP	RSW	.....
502	7.85	Selector unit only	.....	.....	0	.....	.....	.....	.....	.....	.....	PTP	RSW	.....
54	\$49.50	0/5/25/125/500/1250	0/5/25/125/500/1250	0/5/25/125/500/1250	1	RADIO PRODUCTS CO., (Dayrat), 125 Sunrise Pl., Dayton, Ohio	0/30M/300M/3meg	1000	1000	3% 2	No	PTP-CUR	RSW	.....
58	37.50	{ 0/5/25/125/250/500/- 1250	{ 0/5/25/125/250/500/- 1250	{ 0/5/25/125/250/500/- 1250	1	0/3M/3meg	.....	1000	1000	3% 2	No	PTP	PTL	{ Tube test from set
710	\$16.50	0/10/140/700	0/20/60/300/600	0/15/150	3	READRITE METER WORKS, 126 E. College Ave., Bluffton, Ohio	.....	NS	NS	NS	NS	PIT-CUR	PTL	.....
710A	22.20	0/10/140/700	0/20/200/300/600	0/15/150	3	0/300M	.....	NS	NS	NS	NS	PIT-CUR	PTL	.....
720A	13.00	0/10/25/150/750	0/15/150/300/600	0/15/150	2	.....	.....	NS	NS	NS	NS	PIT-CUR	PTL	.....
730A	18.60	0/10/25/150/750	0/15/150/300/600	0/15/150	2	.....	.....	NS	NS	NS	NS	PIT-CUR	PTL	.....
611-A	\$58.60	0/5/25/100/250/1000	0/5/25/100/250/1000	0/1/10/100/1000	1	SHALLCROSS MFG. CO., 700 MacDade Blvd., Collingsdale, Pa.	0/500/5M/50M/5meg	1000	1000	2.4 5 2	Yes	PTP-CUR	PTL	.....
339 Sld	\$29.95	0/5/125/500/1250	0/5/125/500/1250	0/5/125	1	SUPREME INSTRUMENT CO., Howard St., Greenwood, Miss.	0/2M/200M	1000	1000	3 5 2	No	PTP-CUR	PTL	{ Tube test from set
339DL	39.95	0/5/25/125/500/1250	0/5/25/125/500/1250	0/5/25/125/500/1250	1	{ 0/2M/200M/200M/- 2meg/20meg	{ 0/5/12.5 5/12.5	1000	1000	5 2	No	PTP-CUR	PTL	{ Tube test from set
385	77.95	0/5/25/125/500/1250	0/5/25/125/500/1250	0/5/25/125/500/1250	1*	{ 0/200/2M/20M/- 200M/2meg/20meg	{ 0/5/12.5/1.25/2.5/- 5/12.5	1000	1000	5 2	No	PTP-CUR	PTL	89D tube tester
491	89.95	{ 0/5/25/125/500/1250 -10/10/410/420/300db.	{ 0/5/25/125/500/1250 { 0/1.25/12.5/125/500	{ 0/1.25/12.5/125/500 { 0/0.125/1.25/12.5/125/500	1	{ 0/10M/100M/- 1meg/10meg	{ 0/0.125/1.25/12.5/125/500	5000	5000	5 2	No	PTP-CUR	RSW	{ Tube tests from set
* Additional meter in tube tester section.														
135	\$10.50	Selective unit only.	.....	.....	.....	TEFFT RADIO CO., Plymouth, Mich.	.....	.....	.....	.....	.....	PTP-CUR	RSW	.....
1166A	\$11.00	Selector unit only.	See Triplet under MULTI-METER section for suitable measuring instruments.	0/15/15/150/750	1	TRIPLETT ELECTRICAL INSTRUMENT CO., 122 Main St., Bluffton, Ohio	.....	2000	2000	NS	NS	PTP-CUR	PTL	.....
1181	37.60	0/5/15/150/750	0/5/15/150/750	0/15/15/150	1	0/1500/1.5meg/3meg	.....	2000	2000	NS	NS	PTP-CUR	PTL	.....
1220A	8.33	Selector unit only.	.....	.....	.....	.....	.....	.....	.....	.....	.....	PTP-CUR	PTL	.....
30A	\$36.95	0/2.5/10/25/500/1000	0/10/100/1000	0/50	1	EARL WEBBER CO., 1217 Washington Blvd., Chicago, Ill.	.....	1000	1000	2% ..	No	PTP	RSW-PTL	30A tube tester
NEW		{ 0/2.5/10/25/500/1000 1000	{ 0/2.5/10/25/500/1000 1000	{ 0/2.5/10/25/500/1000 1M/10M	1	{ 0/100M/1meg 0/1M/10meg	.....	200	1000	4% 2%	No	PTP	RSW-PTL	{ New tube tester
66-1B	\$14.25	Selector unit only—see Weston under MULTI-METER section for suitable measuring instruments.	.....	.....	.....	WESTON ELECTRICAL INSTRUMENT CORP., 614 Frelinghuysen Ave., Newark, N. J.	.....	1000	1000	2% 5	No	PTP-CUR	PTL	.....
698-1B	37.50	0/7.5/15/150/750	0/7.5/15/150/750	0/7.5/75	1	0/5M/500M	.....	1000	1000	2% 5	No	PTP-CUR	PTL	.....
PTP—Point-to-point. CUR—Tube currents. RSW—Rotary switches. PTL—Pin-tip leads. PBS—Push button switches. NS—Information not supplied.														

The accompanying tabulations have been compiled from information furnished to the editors of RADIO TODAY by the manufacturers whose apparatus is described.

SERVICE NOTES

(From page 28)

The intermediate amplifier of the set is peaked 456 kc.: alignment of the r-f. circuits should take place at 1,425 kc.

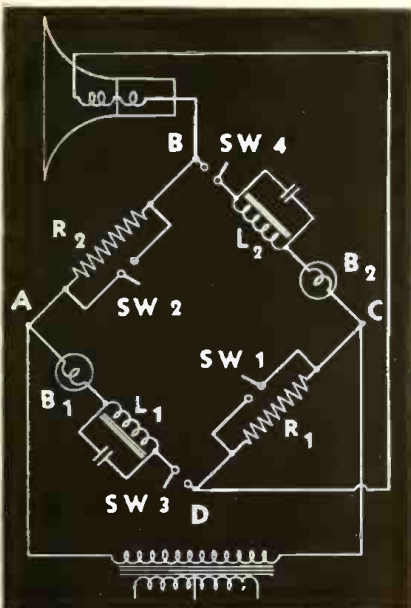
CROSLY AUTO EXPRESSIONATOR

★ Again the familiar Wheatstone bridge circuit turns up in a radio set—this time Crosley is using it in its auto expressionator circuit, which is an automatic volume expander and tone compensator combined.

This circuit serves to increase the loud passages and diminish the low ones. The inductance-capacitance combination shown is the tone-compensator section which boosts the bass response of the set at low values of volume.

In the Wheatstone bridge if a voltage is applied to opposite points—in this case A and C—no voltage will exist across the other terminals (B and D) when the bridge is balanced. In Crosley's application the bridge is always slightly out of balance because the resistors R1 and R2 are somewhat less than the old resistance of the bulbs. SW3 and SW4 are closed for expressionator operation.

At most frequencies the impedance of L1 and L2 are so low that they may be considered to be short circuited. The expressionator bulbs, B1 and B2, have filaments of such a nature that when the current (power



Volume range expander

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• It's half again as big as the old one. A new index. New appendix. It's improved in a dozen different ways. Here are a few of the subjects covered by this valuable book:

1. A 50% increase in contents.
2. 141 tube types will be listed with important circuit application information given on each type.
3. Characteristics on all types will be the very latest. In other words, our book will be up to date including all the standard types of metal tubes.
4. A section on circuits has been increased to include 13 typical radio receiver and amplifier circuits which show proper use of the most popular types of tubes now being employed.
5. Curve data on ballast tubes for battery sets.
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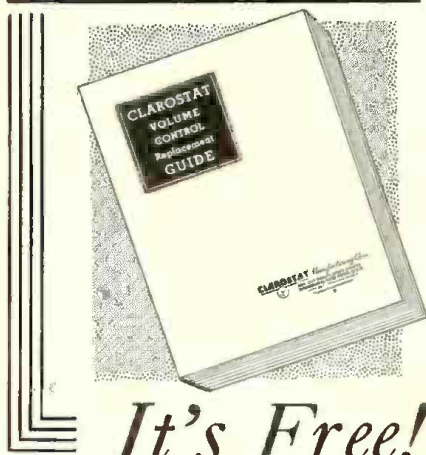
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BIG 80-page CLAROSTAT Volume Control Replacement Guide, just issued. • Lists all makes and types of sets, with volume control replacements. • Also much practical data on controls, circuits, tapers, installation hints, etc. • Too good to talk about. See it for yourself!

Send for Copy! Drop us post-card or letter requesting of Guide No. 2. Meanwhile, see your jobber for those Clarostat volume controls for any replacement job.

CLAROSTAT



MANUFACTURING CO.
Incorporated
245 North Sixth St.
Brooklyn, N. Y.

SERVICE NOTES

output of the set) in them increases, their resistance increases extremely fast.

At low values of output a small amount of the total power from the output transformer is delivered to the speaker. As the power increases the bridge becomes more and more unbalanced and a greater portion of the power is delivered to the speaker.

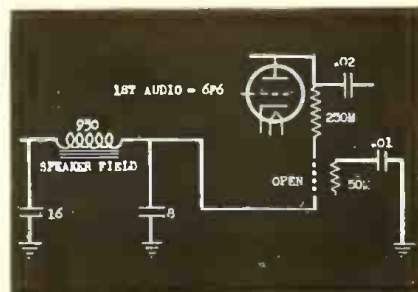
At frequencies around 40 cycles the combination of L and C resonate producing a high impedance—this high impedance at low volumes has the same effect upon the low frequencies (only) as an increase in the resistance of the bulbs has on all frequencies. In other words the bridge is thrown out of balance for low frequencies and a larger portion low frequency power is delivered to the loudspeaker. Thus, automatic tone compensation for low frequencies at low volume levels is obtained as well as automatic volume expansion.

When the auto expressionator is not desired SW1 and SW2 are closed and SW3 and SW4 are opened. Should any of the parts in the circuit become defective the set can be operated with the expressionator in the "off" position—the switches are ganged together.

If the bulbs need to be replaced identical ones should be used since the filament has special characteristics. At high volume levels the bulbs will become illuminated.

HUM IN G-E A-65'S

★ Excessive hum in the General Electric A-65 receiver can usually be corrected by making the additions indicated in the diagram shown herewith. Lead between plate coupling resistor and plate supply is opened and a 50,000 ohm resistor inserted. By-pass resistor with a .01 or larger condenser.



The increase in voltage drop is negligible. The additional elements serve as a capacitance-resistance filter circuit thereby reducing the AC ripple



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JACKSON MODEL 412 MULTI-RANGE DC METER

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present in the DC voltage applied to the plate of the first audio stage. This same circuit can be applied to other receivers with resistance coupling.

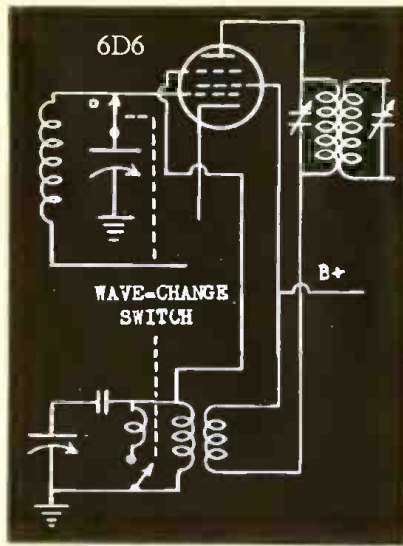
ARVIN MODELS 18 & 28

★ Service diagram of Arvin model 18 shown on page 25 is practically the same as that for the model 28—main difference is that the model 28 has a condenser-variable resistor combination (tone control) across the primary of the output transformer. Also control grid return of 78 i-f. amplifier is to mid-point of R44 diode load resistance instead of to ground. Cathode and plate voltages in the model 28 are some 10 to 15 per cent greater.

KADETTE 66 AND 666 BAND-SWITCHING CIRCUITS

★ In the models 66 and 666, Kadette employs an unusually simple circuit for short-wave reception. In the short-wave position an inductance is shunted across the oscillator coil to reduce the effective inductance, and tuning condenser in the grid section of the 6D6 first detector is removed—the coil alone serves to make the stage broadly resonant over the short-wave band.

On the broadcast band the manufacturer recommends alignment at 1400, 1000, and 600 in the order named. Intermediate frequency is 448 kc. Note that the plate supply for 6D6 detector-oscillator first feeds through the oscillator tickler coil.

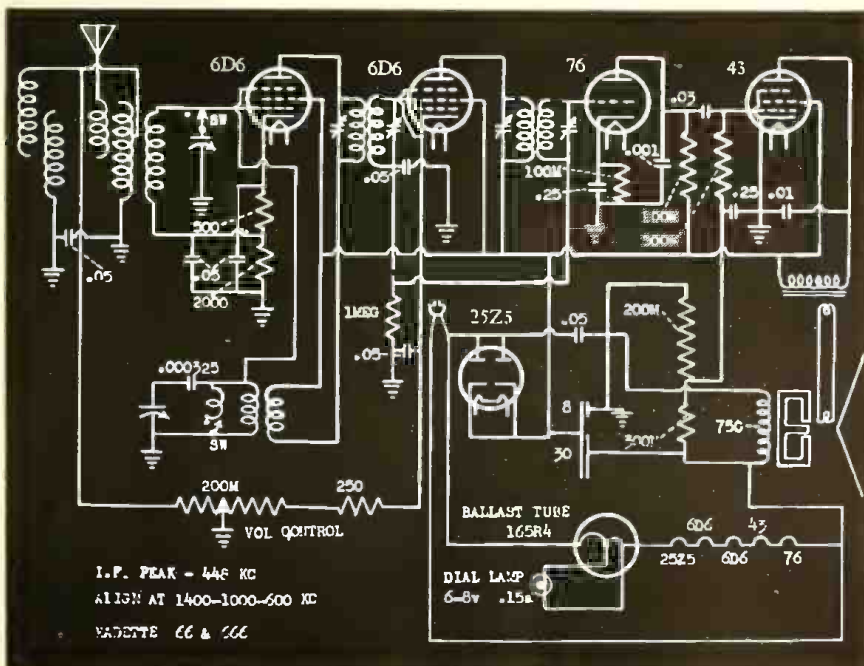


Wave-change circuit in Kadette 66.

VOLUME CONTROL REPLACEMENT GUIDES

★ Clarostat Mfg. Co., 285 N. 6th St., Brooklyn, have issued a replacement guide for volume and tone controls. All available service data and manufacturers' orders during past ten years have gone into making this large-sized 80-page manual. Available to servicemen from Clarostat by writing on business letterhead.

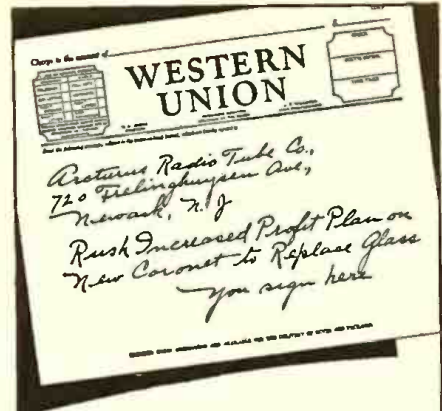
★ New and revamped edition of a Replacement Volume Control Manual and Service Guide, 159 pages long, has been released by Yaxley Mfg. Div. of P. R. Mallory & Co., Inc., Indianapolis. Servicemen and technicians may obtain a copy of this 1936 booklet by addressing the company, which has spent two years in preparing it.



I. P. PEAK - 448 KC
ALIGN AT 1400-1000-600 KC
KADETTE 66 & 666

DIAL LAMP
6-8v .15a

Wiring circuit of Kadette's new model 66 and 666 table compacts



PICK up the phone. It will pay you to send the above wire immediately. We'll have full details of the new 'CORONET' METAL TUBE for replacing glass tubes in your hands by return mail. 'CORONETS' will put your TUBE SALES on a paying basis! Here's a *perfected* Metal Tube which will modernize and rejuvenate glass tube sets made during the past 5 years—the tube 25 million radio owners have been looking for. Send that wire TODAY! Don't let the other fellow beat you to it. Get in on this easy, highly profitable replacement business *right at the start*. The volume is BIG—the margin **GENEROUS**. Competition is **NIL**—for Arcturus, and *only Arcturus OFFERS* your customers a metal tube for their glass tube radios. Act now! Send that wire! Get full particulars of this unusual opportunity to increase your profits in 1936!

These 'CORONET' TUBES	
replace glass tubes of the same type number:	
2A6 'Coronet'	
24	"
27	"
51 (35)	"
55	"
56	"
57	"
58	"
75	"
77	"
78	"
80	"
85	"

Also 'CORONETS' for the new metal tube sets.

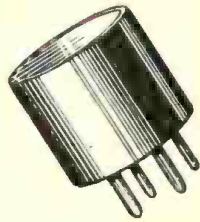
At the Show

See Arcturus at the I.R.S.M. Convention, Chicago, Mar. 27, 28 and 29.



**ARCTURUS
'CORONET'
METAL TUBES**
ARCTURUS RADIO TUBE CO.
NEWARK, N. J.

CONVERSION RESISTOR PLUG



Converts 2-volt dry battery sets into "Air Cell" Receivers

TWO-VOLT receivers equipped with ballast tubes for dry "A" battery operation now can be converted into "Air Cell" Receivers by means of a simple, inexpensive conversion resistor plug. Simply remove the ballast tube, plug in the conversion resistor plug in the ballast tube socket, and the receiver is ready for Eveready Air Cell Battery operation. Unlike the ballast tube which it replaces, the conversion resistor plug is inexpensive and it does not wear out. On a 2-volt dry battery set drawing 6/10 ampere "A" current, the cheapest dry "A" pack will give about 320 hours of service for a cost of \$3.20, or 1c per hour. On the same receiver, with a conversion resistor plug, the Air Cell Battery will give at least 1000 hours of service, *over three times as much*, for a cost of only \$5.95, or less than 6/10c per hour. In the life of one Air Cell Battery costing \$5.95, three dry "A" packs, costing \$9.60 would be used. Changing to Air Cell Battery operation not only saves money, it does away with the bother of frequent "A" battery purchases, and it eliminates the weakening reception which takes place as the dry "A" pack's voltage runs down.

Conversion resistor plugs are made and sold by most resistor manufacturers. Only seven types required to convert over 50 different makes and models of ballast tube receivers. Send the coupon for data sheet giving complete information.

SEND FOR FREE DATA SHEET

NATIONAL CARBON CO., INC., P. O. Box 600, Grand Central Station, New York, N. Y.
Please send me the Conversion Resistor Plug Data Sheet.

Name _____

Street _____

City _____ State _____ (RT3)

**NATHANIEL
BALDWIN
CONTROLLED RESONANCE
SPEAKERS**

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

CONSOLIDATED RADIO PRODUCTS CO., 361 W. SUPERIOR ST., CHICAGO
200 BROADWAY, NEW YORK, N. Y.

WHOLESALE

★ Brown-Dorrance Electric Co., Pittsburgh, have been named by Stewart-Warner Corp. as distributors for radios and refrigerators. An Akron, Ohio, branch, under the direction of R. L. Balch, will be maintained by Brown-Dorrance.

★ Chanslor & Lyons Stores, of San Francisco and Los Angeles, Crosley distributors in California, finished last month a series of dealer meetings in those cities and in Fresno and Sacramento. More than 700 dealers attended the four meetings, according to the reports of Paul W. Bialkowsky, Crosley's district manager for the Pacific coast.

★ The Front Co., Wheeling, West Virginia, has been selected by Stewart-Warner Corp. as distributors in that territory for radios and refrigerators. S. S. Front is president of the West Virginia company and A. K. Clifford is sales manager.

★ Corona Radio and Television Corp., Chicago, has issued a list of sales representatives of the Corona line: Kraft Distributing Co., 17 W. 17th St., New York City; W. E. Daw, 164 Oliver St., Boston; M. J. Wilkoff, 587 S. Negley Ave., Pittsburgh; Marvin Ressler, 8324 Woodward Ave., Detroit; J. Rosenthal, 420 N. Sacramento Blvd., Chicago; R. T. Boylen, Finance Bldg., Kansas City, Mo., and J. Leo Jolley, Miami, Okla.

★ Colen-Gruhn Co., Inc., New York distributor for Zenith home and auto sets, RCA tubes and Leonard refrigerators, has three new sales representatives: Edward Dimin, M. C. Craddick and F. E. Landau.

★ Atwater Kent Mfg. Co. has announced as a new distributor the Graybar Electric Co., Inc., Seattle, Wash.

★ True & Blanchard, Inc., Newport, Vermont, distributors of Fairbanks-Morse radios, refrigerators, washers and ironers, recently held a 2-day open house for their dealers; on third day the display was opened to the public.

★ W. E. Titus Radio Corp., Crosley distributors of Oklahoma City, Okla., have a new sales manager in the person of Herndon Thomas, who has been with a Crosley distributor in the East for several years.

★ John O. Olsen, Pittsburgh, recently appointed Ken-Rad representative in western Maryland and northern West Virginia, has been given the additional territory of western Pennsylvania. New area includes Pittsburgh, Altoona, Johnstown, and other key distributing points west of Wilkes-Barré.

★ Marshall-Wells Co., Crosley distributors of Spokane, Wash., were hosts to the 3-day meeting of the Inland Empire Hardware Association last month. Paul W. Bialkowsky, Crosley's Pacific Coast manager, was on the program, along with the Marshall-Wells chief, Seth Marshall, and J. T. Elson, also of the Spokane company.

**AT
LAST**

110V+6V

COMBINATION

MOBILE SOUND SYSTEMS



20 WATT UNDISTORTED OUTPUT MODEL M420

- INCLUDES
- PHONOGRAPH TURNTABLE AND PICKUP MOUNTED ON AMPLIFIER.
 - HAND TYPE OVAL DIAPHRAGM CRYSTAL MICROPHONE.
 - TWO 12" PERMANENT MAGNET SPEAKERS.
 - WORKS ON 110 V., A.C. or 6 V., D.C.



Fully Licensed
Strict Dealer Policy
Time Payment Plan

MODEL
M420

IDEAL FOR RENTALS

Here for the first time WEBSTER-CHICAGO offers the satisfactory solution to combination 6 Volt and 110 Volt operation. This is ideal for rentals BECAUSE all requirements are answered with one system. Adequate volume for large indoor or out of doors installations. Use of phonograph turntable as part of amplifier reduces bulk. Price surprisingly low. Write for details. See your jobber. FREE "A Short Course in Sound Engineering." Webster-Chicago is now preparing a limited edition on the above. Every sound man; jobber, dealer, service man will want one of these up-to-date pamphlets covering engineering and sales details. If you wish one, send in your name. Printing will be limited to those desiring this information.

THE WEBSTER COMPANY

3825 W. Lake St., Chicago, Ill. Section M9

TRADE NEWS

★ P. V. Galvin, president of Galvin Manufacturing Corp., Chicago, Ill., manufacturer of Motorola auto-radio sets, attended recently several interesting meetings sponsored by Motorola jobbers in various cities, including a meeting at the Hotel Edison, New York, Feb. 26, sponsored by the York Automotive Distributing Co.; a dinner held at the Detroit-Leland Hotel in Detroit Feb. 15, and a two-day meeting held Feb. 12 and 13 at the Hotel Graemere by the Jackson Distributing Company, Chicago. Each of these meetings drew a far greater attendance than in 1935 and the new Motorola 1936 auto-radio line was enthusiastically received by the dealers present. The high note of the meeting was the introduction of the Magic Eliminode, an exclusive Motorola feature, which won the approval of the dealers because of its distinctive merits and simplicity.

★ Sayre M. Ramsdell, Philco's vice-president, has announced sailing dates for the three cruises to Havana arranged for winning dealers in sales contests sponsored by the company. All trips will be made on the S.S. Monarch of Bermuda on May 15 to 22, May 24 to 31, and June 1 to 8.

★ A traveling caravan recently completed a journey of several thou-

sand miles in behalf of the new Zenith auto-radio line. E. A. Tracey, vice-president in charge of sales of the Zenith Radio Corp., headed this "caravan," which included in its itinerary Chicago, Pittsburgh, New York and Atlanta. Zenith jobbers from various parts of the country assembled at these cities in order to become thoroughly acquainted with the distinctive merits of the 1936 Zenith auto radio line. Each meeting proved an outstanding success and orders received far exceeded Mr. Tracey's expectations.

★ Matthew Deforest, well known in radio and engineering circles, has joined the engineering staff of the Triumph Manufacturing Co., Chicago, manufacturer of analyzers and testers.

★ R. B. Smith, general manager of Consolidated Radio Products Co., Chicago, Ill., manufacturer of loud-speaker products, announced recently the appointment of Carrington H. Stone, formerly connected with the Stewart-Warner Corp., as export manager of the company, making his headquarters at the factory, 365 W. Superior St., Chicago, Ill.

★ A. B. Dicus, for many years advertising manager of the Stewart-Warner Corp. and more recently associated with Blackett, Sample and Hummert, Inc., has joined the advertising agency of Hays, MacFarland & Co., 333 North Michigan Ave., Chicago, Ill., as account executive. This agency was recently appointed to handle all the advertising activities of the Stewart-Warner Corp. and Mr. Dicus, who is thoroughly familiar with Stewart-Warner merchandising policies, will work in close cooperation with this organization as well as its jobbers and dealers.

★ Lee McCanne, secretary and newly appointed radio sales manager of the Stromberg-Carlson Telephone Mfg. Co., reports that sales of radio sets by the company have shown an increase of 184% in units sold since the 1933 low point, as against an industry average of only 53%. Stromberg's dollar volume during the same period has increased 37%.

★ Platt Music Co., Los Angeles music store chain, with branches in Hollywood, is headed back to the position it occupied before its affairs came under the jurisdiction of the local courts. Plan for reorganization submitted by trustee E. S. Steel was accepted by the local Federal court.

★ Fada Radio & Electric Co., Long Island City, N. Y., has announced a new Midwest sales manager in the person of Joseph Gerl, who will have headquarters in Chicago and cover surrounding territory.

★ Newly formed Atlas Sound Corp., 1451 Thirty-ninth St., Brooklyn, has already increased its factory facilities at that address. Company is headed by Robert C. Reinhardt, president, and Carl L. Blumenthal, secretary and treasurer; both were formerly associated with the Macy Engineering Co. Atlas Co. produces sound reproducing equipment.

(To page 45)



"Quick, Watson, the HARDWARE!"

The problem is solved. We can get most anything we need at FEDERAL. They're noted for their large stocks, prompt service and quick delivery."



MACHINE SCREWS & NUTS
TUBULAR RIVETS
EYELETS
EYELET LUGS
SPADE LUGS

SOLDERING LUGS
BRASS WASHERS
STEEL WASHERS
FIBRE WASHERS
LOCKWASHERS

METAL TAPPING SCREWS
SPEAKER MOUNTING SCREWS
ESCUTCHEON SCREWS
WOOD SCREWS
RUBBER GROMMETS

Complete stocks for mfrs. of sets, speakers, sound equipment and parts

FEDERAL SALES CO., 26 S. Jefferson, CHICAGO

**WANTED 20,000 AUTHORIZED
RADIO SERVICE MEN**

TO INSTALL WINCHARGERS

Millions will be paid authorized service men this year for installing Winchargers, the wind-driven battery charger that enables farmers to operate their radios for 50c per year. Wincharger is new, beneficial and profitable to the service man. Each installation charge varies from \$5.00 to \$15.00, plus material. Tens of thousands of these units are already in use — more being installed every day. Get your share of this profitable business right now — write for your service manual today.



WINCHARGER CORPORATION

Manufacturers of 52-volt Equipment Since 1927
2700 HAWKEYE DRIVE SIOUX CITY, IOWA

NEW THINGS FROM THE MANUFACTURERS

AUTOMATIC BALLAST TUBE

★ Universal type ballast tube for AC-DC sets. Model DUR 4-5 for standard 4 and 5 tube sets. DUR 6 for 6 tube sets. May be used with sets using from zero to four 6.3 volt dial lamps of 150 or 250 mil rating. Ballast automatically adjusts itself so that tube will work at normal voltage even if pilot light burns out. Mounted in metal container on octal base. Duresite tubes interchangeable with many standard types. World Bestes Corp., 52 Courtlandt St., Paterson, N. J. — RADIO TODAY

TWO-BAND TABLE RECEIVER



★ Seven-tube skip band AC-DC superheterodyne—range, 550 to 1,600, 5,500 to 15,500 kc. Two-color large airplane type tuning dial with reversed figures on black background. Two gang ball-bearing condenser with planetary vernier drive. Coils impregnated against moisture. Ballast tube compensates for line voltage variations. Dynamic speaker 5-in. diameter—driven by 43 pentode. Kadette model 77—list \$26.95. International Radio Corp., Ann Arbor, Mich.—RADIO TODAY

AUTO RADIO CONTROL

★ Remote controls for auto radios embodying "wrist-watch" finger control—full-vision airplane dial. Escutcheon plates to match dash finish of 1935-6 cars. Various gearing ratios fit controls to any type of radio. Kay Products of America, 1001 Bedford Ave., Brooklyn, N. Y.—RADIO TODAY

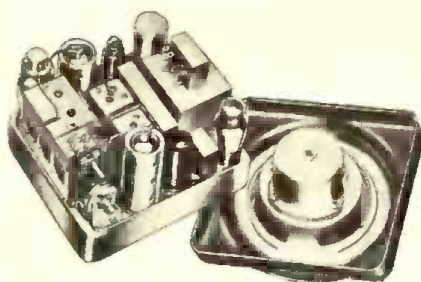
RECORDING MACHINE



★ Machine for recording on aluminum blanks up to 12 inches at either 78 or 33 1/3 r.p.m. Professional cutting head—response, 30 to 8,000 cycles—impedances, 15, 50, 200, 400

ohms. Balanced and weighted turntable provided with removable lead screw cutting 98 lines per inch. Volume indicator, volume control, and on-off switch. Operates on 110 AC, 50-60 cycles. New Model 12—list \$74. Universal Microphone Co., Ltd., Inglewood, Calif.—RADIO TODAY

COMPACT AUTO SET



★ Six-tube auto radio—8 x 8 x 8 inches. Metal and glass tubes—preselector r-f. stage. One microvolt sensitivity—10 kc. selectivity. Auto noise and vibrator hash filters. Single hole mounting—single battery connection—single aerial connection. Dash, sub-dash, steering column mountings—6 1/2-inch dynamic speaker. Admiral model U6—list \$39.50. Continental Radio & Television Corp., 325 W. Huron St., Chicago, Ill.—RADIO TODAY

FARM RADIOS



★ Latest addition to Fada's line are a 2-volt, 6-volt, 32-volt battery chassis. Dual-wave—535-1740, 5700-18500 kc. R-f. preselector—total of 12 tuned circuits. Metal tubes in 6-volt model. Class B output of 1.9 and 3 watts respectively in 2 and 6 volt sets. Dual ratio tuning—automatic volume control—phono jack—variable tone control. Permo-dynamic speaker—10 inch diameter in console models—8 inch in table types. Model 163C—6 volt (illustrated)—list \$94.95. Fada Radio & Electric Co., 30-20 Thomson Ave., Long Island City, N. Y.—RADIO TODAY

ALL-WAVE ANTENNA

★ Factory-assembled all-wave antenna for use with any set. Doublet construction—19 feet one side—49 feet other side. Supplied with 75 feet of transmission cable and hermetically-sealed junction box. Works efficiently on short-wave bands—reduces local noise pick-up. Model RK-40—list \$5.50. RCA Mfg. Co., Front and Cooper Sts., Camden, N. J.—RADIO TODAY

LOW-COST AC-DC RADIO



★ Five-tube AC-DC TRF table set—540-1650 kc.—Full-vision illuminated dial. Litz-wire coils—dynamic speaker. Pentode output—metal ballast tube—capacitive line filter. Cabinet of Syroco-wood. Model 118—list \$14.95. Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York City—RADIO TODAY

TYPE 950 TUBE

★ Battery (2 volt) type output pentode with filament consumption about one-half of that of type 33. Plate and screen currents are also somewhat lower as is the power output. Type 950. Ken-Rad Corp., Owensboro, Ky.—RADIO TODAY

PORTABLE P. A. SYSTEM

★ Portable amplifier system with dual-speed 12-in. turntable with crystal pick-up. Two position mixer for phono and crystal mike inputs. Four stage amplifier with 12 watt A prime output—97 db. gain. Amplifier power consumption—80 watts at 110 AC. Fabricoid covered carrying case—23 x 17 1/2 x 9 inches. Lafayette model 530-P—net \$57.50. Wholesale Radio Service Co., 100 Sixth Ave., New York City—RADIO TODAY



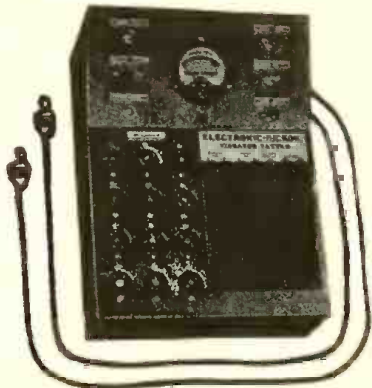
NEW THINGS

(From page 41)

METAL-TUBE AUTO RADIO

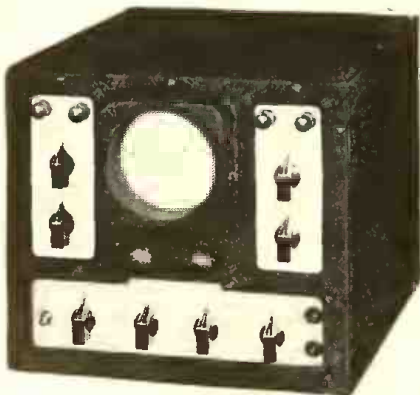
★ Superheterodyne auto receiver employing six metal tubes. Has iron-core antenna coil for high and low-capacity antennas. Tone control—power output of 4 watts feeds 6½-inch electro-dynamic speaker. Open-face dial with large indicating needle. Careful shielding and filtering eliminate need of suppressors. Non-polarized and fused. Size—7¾ x 8¾ x 7¾. Model N-60—list \$49.95. General Electric Co., 1285 Boston Ave., Bridgeport, Conn.—RADIO TODAY

VIBRATOR TESTER



★ Tester for checking operation of auto and farm radio vibrators. English reading scale indicates condition of unit and efficiency. Indicator shows presence of excessive r-f. interference. Checks condenser and rectifier tube. Blank sockets protect against obsolescence—operates from 6-volt battery. Electronic-Hickok—price \$19. Electronic Laboratories, Inc., 122 W. New York St., Indianapolis, Ind.—RADIO TODAY

CATHODE RAY OSCILLOGRAPH



★ Oscillograph for radio servicing—three-inch tube. Built-in sweep frequency has fundamental range from 10-20,000 cycles. Amplifier range 15-100,000 cycles—sensitivity with amplifier 1.1 volts per inch—without amplifier—43 volts per inch. Calibration for screen. Size—9 x 10 x 16½ inches. Weight 29 lbs. Net \$79.50. Jackson Electrical Instruments Co., 430 Kiser St., Dayton, Ohio—RADIO TODAY

AC-DC TABLE SETS



★ Six-tube AC-DC superhet—dual wave, 535-4000 kc. Airplane type duo color dial. Power output of 1 watt—modernistic walnut cabinet. Model 616—list \$25.95.

TRF receiver with 5 tubes (illustrated)—range, 535-4300 kc. Dynamic speaker—full-vision dial—walnut cabinet. Model 515—list \$21.50. Both models have ballast tube. Pierce-Airo, Inc. (DeWald), 510 Sixth Ave., New York City—RADIO TODAY

SHADOW TUNING METER

★ A shadowgraph tuning meter kit for any set with AVC has been introduced by Philco. Kit contains bracket, by-pass condenser, bezel, and meter. Simple installation requires cutting small hole in panel. Meter is connected in plate lead of i-f. tubes. Adjustment for various currents. Philco Radio & Television Corp., Tioga & C Sts., Philadelphia, Pa.—RADIO TODAY

MASTER ANTENNA SYSTEM



★ Antenna system for multiple operation of sets in apartment houses and hotels. Doublet aerial with transmission line and receiver couplers. Conduit or exposed wiring with suitable fixtures. Effective for broadcast and short-wave reception. One aerial with transmission line will feed up to 25 sets. Technical Appliance Corp., 17 E. 16th St., New York City—RADIO TODAY

WASHER-CHARGER

★ Battery charger that is driven by gas engine in washing machine. Battery can be charged while running washing machine or separately. Fits Briggs-Stratton and Maytag washers. Will deliver 10 amperes to 6-volt battery. Flexible drive shaft connects to washing machine. Generator has protective cut-out. List \$29.95. Midwest-Timmermann Co., Dubuque, Iowa—RADIO TODAY

CRYSTAL SPHERICAL AND LAPEL MICROPHONES

★ Lapel type microphone employing crystal soundcell principle—extremely small, weighs less than one ounce. Internal cushioning and exterior rubber jacket insure quiet operation—output level of minus 72 db.—model BL1.

Spherical mike with non-directional characteristics and wide frequency range—designed for public address use and general pick-up. Output level of minus 66 db.—model BR 2 S. Brush Development Co., E. 40th St., Cleveland—RADIO TODAY

SYNCHRONOUS VIBRATOR AUTO RADIOS



★ Three new auto radios employing synchronous vibrator-rectifier for maximum efficiency—metal and glass tubes. Deluxe model—6 tubes—separate 8-inch speaker. Acoustic equalizer for improved tone quality—output of 9 watts—variable tone control. Quadruple ignition noise filters. Single stud mounting. Size—7 x 10 x 7¼ inches. Model 6M2—list \$54.95.

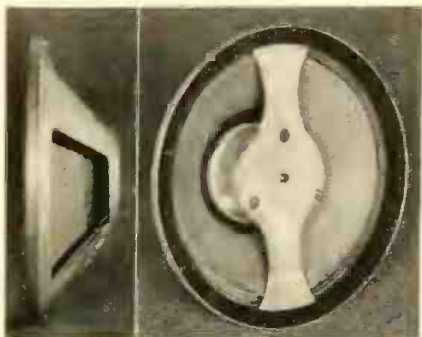
Other models: 5M 5T single unit, \$39.95; 6M 6T single unit, \$49.95. RCA Mfg. Co., Front & Cooper Sts., Camden, N. J.—RADIO TODAY

2-VOLT BATTERY SETS



★ Five-tube battery chassis designed for air cell operation. Arrow-light tuning and rainbow dial—automatic volume control—three-position tone control. Available in table (515-Q) and console (485-QT) models. Atwater Kent Mfg. Co., 4700 Wissahickon Ave., Philadelphia, Pa.—RADIO TODAY

COMPACT PERMO-DYNAMIC SPEAKER



★ Dynamic speaker employing Nipermag alloy magnetic structure for light-weight and high-flux density. Inverted construction provides extreme compactness—voice coil and field magnet in front of cone. Quartz silicate ribbon voice coil. Elimination of electrical excitation does away with hum. Model AZ 8-7 illustrated. Available in diameters of 8, 10, 12, and 18 inches and in high-fidelity types. Cinaudograph Corp., 110 Davenport St., Stamford, Conn.—**RADIO TODAY**

AC-DC MULTIMETER

★ Combination meter employing five-inch fan type movement—useful for point-to-point set testing. AC and DC ranges of 0/15/150/750 volts. DC current—0/1.5/15/150 mils. DC ohms—0/100/20M/2megs. All ranges available at binding posts through a rotary selective switch. Size—8½ x 5½ x 4½ inches. Model 85 Unimeter—net \$24.95. Clough-Brengle Co., 1134 W. Austin Ave., Chicago, Ill.—**RADIO TODAY**

HIGH-FIDELITY SETS



★ Twenty-tube high-fidelity console and phono combination. Superhet circuit for normal reception, separate TRF circuit for hi-fi. Coverage of 140-410, 540-41,000 kc. in 5 bands. Sets have slide rule tuning, permaliners, etc.—two 11-inch dynamic speakers. Model A-205 console—list \$600. A-208 combination list \$750 (illustrated) with automatic record changer—nine 10-inch records. Operation from 105 to 130 volt line. General Electric Co., 1285 Boston Ave., Bridgeport, Conn.—**RADIO TODAY**

LOW-COST CARBON MIKES

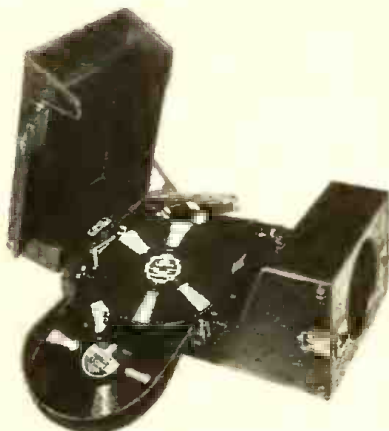
★ Double-button carbon mikes designed for use with low-cost public address installations. Model 3B for spring suspension in standard

ring—3-inch cast frame with protective grill. Weight ½ pound—list \$5.50. Model 10B a convertible hand microphone which is adaptable for stand mounting. Equipped with 6 feet of 3-wire conductor—weight ¾ pound. List \$10. Shure Bros., 215 W. Huron St., Chicago, Ill.—**RADIO TODAY**

MICROPHONE SHOCK ABSORBER

★ Shock absorber designed for use between stand and the mike ring. Standard threads allow use with any stand. Made of chromium plated brass. Cushioning element of live rubber—no loose parts. Floor vibration noise and other interference practically eliminated. American Phenolic Corp., 500 S. Throop St., Chicago, Ill.—**RADIO TODAY**

PORTABLE RADIO PHONOGRAPHS



★ Line of AC and AC-DC portable radio-phonograph combinations. Model 600 (illustrated) has automatic record changer—plays eight 10-inch records. Superhet radio with 7 tubes—AVC—tone control—full-vision dial. Push-pull output stage feeds 8-inch dynamic speaker—80 to 6000 cycle reproduction. Designed for 110 AC operation. List \$125. Other models from \$79.50. Harris Mfg. Co., 2422 E. 7th St., Los Angeles, Calif.—**RADIO TODAY**

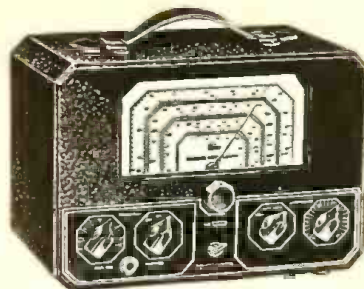
PERMANENT-MAGNETIC DYNAMIC SPEAKERS



★ Permo-dynamic speaker employing Alnico magnetic alloy to produce a high flux density. Nokoil speakers are compact in size and need no exciting power. Six-inch reproducer weighs 1.95 pounds—8-inch 2.10 pounds. List—model 700-6", \$7—760-8", \$7.60. Wright-DeCoster, Inc., 2235 University Ave., St. Paul, Minn.—**RADIO TODAY**

ALL-WAVE TEST OSCILLATOR

★ Battery operated oscillator with 90 to 60,000 kc. range calibrated on large dial. Accuracy on I.F.

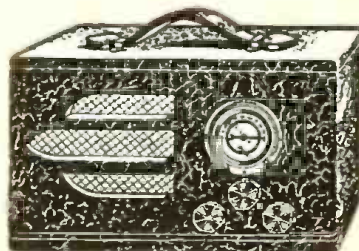


and broadcast bands is one-half per cent. Audio modulation of 400 cycles at 35 per cent. Jack for frequency modulation. Three step ladder type attenuator with vernier. Housed in one-piece cast aluminum casing. Model 20—list \$29.95 without batteries but with dummy antenna, tubes. Earl Webber Co., 1217 Washington Blvd., Chicago, Ill.—**RADIO TODAY**

VARIABLE-MU CATHODE RAY EYE

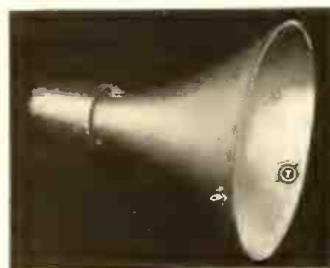
★ New type cathode ray tuning indicator with a triode section that has a variable mu. Permits an appreciable movement of the tuning shadow on weak signals—yet prevents overload on strong signals. Type 6G5. National Union Radio Corp., 570 Lexington Ave., New York City—**RADIO TODAY**

110 AC AND 6-VOLT RECEIVER



★ Portable six tube set for operation on either 110 AC lines or from 6 volt storage battery. Full-vision vernier dial provides easy tuning. For use in automobile, vacationing, traveling. Housed in a leatherette case. Auto-lectric model 6. Automatic Bee-Less Radio, 3005 13th Ave. S., Minneapolis, Minn.—**RADIO TODAY**

EXPONENTIAL HORN



★ Scientifically designed exponential horn for use with a special cone type trumpet unit for PA work. Constructed of fabricated acoustic material—weatherproof and waterproof. An improved type of speaker for replacement in receivers has also been developed. Oxford-Tartak Radio Corp., 915 W. Van Buren St., Chicago, Ill.—**RADIO TODAY**

**NEW CROSLY
SAVAMAID
FOOT-CONTROL IRONER**
(Model 60)

Handles everything from laciest frills to heaviest garments in a minimum of time. No personal instructions needed, it's so simple. As effective as most expensive ironer. Just guide the garment through . . . it comes out with perfect satiny sheen. A marvel to demonstrate.



\$49⁹⁵



\$49⁹⁵

With Pump \$59.95

THE CROSLY SAVAMAID
(Model 61)

A high-grade washing machine, standard in design and features. Heavy pressed-steel chassis, tub vitreous-porcelain-enamelled inside and out. Mounted on rubber. Latest type Lovell wringer. Oilless bearings, enclosed transmission. Smart two-tone appearance.



\$99⁹⁵

**THE CROSLY
SAVAMAID
SPE-DRY**
(Model 64)

Improved spinner-type washer. You can wash, blue, rinse, dry right in the washer itself. Possible, even, to do a complete washing without wetting the hands. More than a washing machine . . . a complete new method and routine for washing that enables the housewife to cut the thirteen tiresome things she now does when washing clothes to five simple things. Highest quality, handsome appearance. A crowd collector when demonstrating.

(Prices slightly higher in South and West)

CROSLY

**FIRST in Radio Value
FIRST in Refrigerator Value**

**Now FIRST in Home Laundry
Equipment Value!**

More than a million and a half washing machines will be sold during 1936. Home laundry equipment is a tremendous business, one that has suffered less from unfavorable conditions than any other home utility. Crosley now enters this field with a sensational line of washing machines and ironers, containing features that lift them clear out of competition . . . priced to meet all comers; styled for today. Models to meet every purse and viewpoint.

This decision gives to Crosley dealers a new contact with their market, a new opportunity for year-round

profit, a new point of interest to bring people to the store, a new possibility for increased sales of Crosley radios and Shelvadors, as well as home laundry equipment, a new kind of crowd-collecting store demonstration.

Match washing machines or ironer against anything, and you will realize that, from now on, your customers need not pay high prices for the best laundry equipment that can be made.

Savamaid Models 61, 62, 63 equipped with gas engine assembly at additional cost.



\$69⁹⁵

WITH PUMP \$79.95

\$79⁹⁵

WITH PUMP \$89.

Standard (Model 62)
De Luxe (Model 63)

THE CROSLY SAVAMAID
(Models 62 and 63)

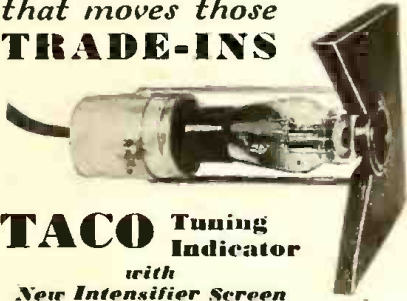
Featuring the sensational Crosley VELVE-TOUCH wringer that insures full wringing action even when clothes are hunched. No careful feeding necessary. So resilient you can run a long chain through it; so safe it won't break a glass eye-dropper; so positive in action that it leaves no saturated spots. The most interesting demonstration imaginable. Washer has special Mid-zone agitation. Highest quality throughout.

THE CROSLY RADIO CORPORATION

POWEL CROSLY, Jr., President

CINCINNATI

The New Gadget that moves those TRADE-INS



TACO Tuning Indicator with New Intensifier Screen

- ★ Cash in on popularity of electron-eye tuning in modern radio sets.
- ★ Install this tuning indicator in any A.V.C. set, new or old.
- ★ Provides for visual, razor-sharp tuning for maximum sensitivity, selectivity, fidelity.
- ★ Sells for only \$1.50 list (less 6E5 tube). Easily installed.

DATA Send for descriptive bulletin as well as display material on this fast-selling tuning indicator. Meanwhile, ask your jobber for demonstration.



TECHNICAL APPLIANCE CORP.
Pioneers in Noiseless Antenna Systems
17 East 16th St., New York City

WRIGHT DECOSTER

Port-A-Case



Model 1440

Port-A-Case complete with large Model 790—10-inch Wright-DeCoster Speaker—

FOR ONLY \$14.40 LIST

Our low prices for the different model Port-A-Cases, complete with speakers, enables users of Wright-DeCoster Reproducers to obtain this handsome, strongly built Port-A-Case at a price far below what a much inferior Case would cost.

There is plenty of room in the Port-A-Case for a small Wright-DeCoster field supply and any medium sized amplifier.

Write for catalog giving full description and our astonishing prices for the Port-A-Case complete with the different 12-inch Speakers.

Buy through Wright-DeCoster distributors. They are always anxious to cooperate.

WRIGHT DECOSTER, Inc.
2265 University Ave. St. Paul, Minn.
Export Dept.—M. Simons & Son Co., New York
Cable Address: "Simontrice"
Canadian Office, Wright-DeCoster, Inc., Guelph, Ont.

TRADE NEWS

(From page 40)

★ The Webster Company, 3825 W. Lake St., Chicago, has completed negotiations for a license to manufacture sound systems under patents of Electrical Research Products, Inc., subsidiary of Western Electric Company, Inc., and American Telephone and Telegraph Company. The Webster Company now manufactures a complete line of public-address systems, sound equipment and accessories.

Webster-Chicago announces satisfactory solution to combination 6 Volt DC-110 Volt AC operation in its new Model MP-420. Changing from one supply to the other is simplicity itself. Simply pull out 6-volt plug pack and plug in 110-volt pack. Can be purchased with either pack or both. Desirable for sound systems when conditions may vary. Adequate volume for large indoor or out-of-doors installations serving 5,000 to 10,000 people. System includes high-grade Webster phone pickup and electric-phonograph turntable.

★ Louis J. Chatten has rejoined his former associate, Frank Andrea, in the capacity of general sales manager of F. A. D. Andrea, Inc., makers of Andrea radios. Company operates exclusively in the export field, and Mr. Chatten is now sailing around Cuha and Mexico on the S.S. Oriente, developing Andrea distribution in those areas.

★ Announcement has been made by the General Electric Co., Bridgeport, Conn., of the appointments of H. W. Bennett and C. W. Griffin as district radio managers, with headquarters at Minneapolis and Los Angeles, respectively, and of R. A. Bucscher and John Klenke as district radio representatives, with headquarters at Cincinnati and Portland, Ore., respectively.

★ Dan R. McKinnon, who has been with the Stewart-Warner Corp. for the last 5 years, has been appointed western sales representative for the Emerson Radio and Phonograph Corp., New York City. McKinnon's headquarters will be in Chicago; Emerson dealer and jobber activity in surrounding states will receive his attention.

★ Pioneer Radio & Sound Equipment Co., Wichita, Kan., recently had exceptional success with a special display featuring Arcturus tubes, exhibited at a local huilders' show and also at the Annual Southwest Farm and Tractor Show. Display was an elaborate diorama on the Century of Progress in miniature, depicting the light of the star Arcturus opening the fair.

★ J. W. Kennedy, executive of the Stromberg-Carlson Telephone Mfg. Co., Rochester, N. Y., has been advanced to the post of sales promotion manager. Kennedy was formerly merchandise manager; A. O. Stigberg now takes that position.

(To page 45)

C-D CONDENSERS



For BROADCASTING

For 100% reliability and uninterrupted operation specify and install Cornell-Dubilier capacitors.

There is a C-D condenser for every circuit requirement

**MICA • ELECTROLYTIC
DYKANOL • PAPER**

Write today for descriptive catalog material. Industrial and transmitting catalog 127 now available.

CORNELL-DUBILIER
CORPORATION

4360 BRONX BOULEVARD
NEW YORK

THE
SPOT
TO



**SAVE
MONEY!**

Just Off the Press! . . .

THE Radolek New 1936 Profit Guide is the most complete Radio Parts Catalog ever published. Completely revised—right up to the minute, bringing you everything in Radio—at the right prices. Every page brings you extra profits! Contains over 10,000 Individual Radio Repair Parts—hundreds of new items—a complete new selection of Receivers, Amplifiers, Tools, Tubes, Books and Instruments. Everything you need—always in stock . . . ready for prompt shipment to you. You need this Big Radio Parts Catalog—it's FREE. Send for it.

RADOLEK

MAIL THIS COUPON!

RADOLEK—590 W. Randolph—Chicago
Send The Radolek Profit Guide Free.

Name

Address

Service man? Dealer? Experimenter?

FOR RADIO-REFRIGERATOR DEALERS

- manufacturers to startle industry with new promotional plans
- consumers with modest incomes regarded as big buyers this year
- dealers turn to spot broadcasting as plug for 1936 features

★ **THERE'S** an air of fine excitement about the current activity among radio-refrigerator dealers.

Makers of "boxes" have fixed up their plots and plans for the coming season; elaborate campaigns, unexpected stunts, and new advertising appeals are outlined, and the gossip is that sales for 1936 will run nearly to 2,000,000.

7,670,000 refrigerators in use

The Norge refrigerator organization has recently completed a survey of the number of electric refrigerators in use, and arrives at a total figure for the United States of 7,670,000. Other estimates of the number of electric refrigerators have placed the present total somewhere in the vicinity of seven and a quarter millions.

Compared with the above, following are the numbers of other facilities in American homes, as of the beginning of 1936:

Bath tubs (and showers)	16,000,000
Washing machines	10,000,000
Vacuum cleaners	10,000,000
Telephones	11,000,000
Home radios	25,500,000
Auto radios	3,000,000
Total radios	28,500,000

High points of market

Much of the 1936 promotional activity will be aimed at consumers of the small income brackets, for a number of reasons. Activity in rural electrification, the Supreme Court's recent encouragement of the TVA, payment of the bonus, and continued progress of federal housing plans will all tend to make refrigerators an attractive buy for folks with modest incomes.

To reach this group and others, several leading refrigerator manufacturers have announced that they will spend from 30 to 100 per cent more on advertising their boxes during 1936. It seems likely that much of this campaign will be aimed at

those who live in compact homes, and will emphasize the sort of ice box features which are appropriate.

Spot broadcasting

No small part of the money spent for plugging "boxes" in 1936 will be for spot broadcasting. Recent statement from the National Association of Broadcasters lists "household equipment dealers, principally electrical appliances" among those cited for "significant increases in retail broadcast advertising." Gross time sales for this group of retailers in 1935 were 57 per cent over their expenditures in 1934.

★ **Harry G. Sparks**, general manager of the Sparks-Withington Co., Jackson, Mich., has issued the announcement that Sparton All-Feature refrigerators are now protected by a 5-year warranty bond. Protection is optional to the purchasers of 1936 models, and is offered for five dollars above the list price. Sparton's one-year guarantee still applies to those who do not accept this offer.

★ In Milwaukee last month, Westinghouse dealers of Wisconsin and Michigan held a meeting with **H. M. Butzloff**, Westinghouse sales manager for the northwestern area, heading the activity.

GE HOTPOINT REFRIGERATORS



★ With Standard, DeLuxe and Thrifttype, Hotpoint has a total of 12 models in the 1936 line. DeLuxe models have distinctive styling, V-type door. Finished with Glyptal-baked enamel and all-porcelain cabinets.

Features include sliding shelves, temperature control, defroster, foot pedal door opener, stainless steel super-freezer, interior light. Hotpoint Refrigerator Division, General Electric Co., Nela Park, Cleveland, Ohio—**RADIO TODAY.**

NEW FRIGIDAIRE MODELS

★ Line for this year includes 16 models, headlined with the "Meter Miser," food-safety indicator, sliding shelves, automatic interior light, automatic reset defroster, automatic tray release, Dulux exterior finish, touch latch door opener.

Master models: 7-36, 7.24 cu. ft., 59 3/16" x 31 1/8" x 25 1/16"; 6-36, 6.24 cu. ft., 58 3/16" x 29 11/16" x 25"; 5-36, 5.1 cu. ft., 54 9/16" x 28 1/16" x 25"; 4-36, 4.1 cu. ft., 50 3/16" x 24 3/16" x 25".

Super models: 9-36, 9.1 cu. ft., 60 3/16" x 32 1/4" x 27 9/16". Four other supers, 7-36, 6-36, 5-36, and 4-36 have the same specifications as Masters having the same numbers.

Model D3-36: 3.1 cu. ft., 44 5/16" x 22 5/8" x 22 7/16".

Koldchest: 2.1 cu. ft., 36" x 23 13/16" x 20 7/16".

WP models: 12-36, 12.1 cu. ft., 63 11/16" x 30 7/16"; 15-36, 15.1 cu. ft., 64" x 46 3/4" x 30 7/16"; 18-36, 18.3 cu. ft., 71 7/16" x 46 3/4" x 29 3/8".

DeLuxe Models: Premier, 10 cu. ft., 63 11/16" x 38 1/8" x 30 7/16"; 15-36, 15.1 cu. ft., 64" x 46 3/4" x 30 7/16"; 18-36, 18.3 cu. ft., 71 7/16" x 46 3/4" x 29 3/8".

★ **H. E. Richardson**, Crosley's general sales manager, has announced detailed plans for the company's 5-year protection plan on all Shelvador refrigerators, optional at an added charge of five dollars to the suggested list price. Guarantee applies to both open and sealed type compressor units, and is retroactive to 1936 models already sold.

★ **Stern & Co., Inc.**, Grunow refrigerator distributor of Hartford, Conn., held an open house last month for dealers interested in the 1936 Grunow models. **Francis E. Stern** presided at the showing.

★ **Frank Hiter**, vice-president and sales manager of Stewart-Warner, has made the announcement that purchasers of the company's 1936 refrigerators may, by the payment of five dollars in addition to the regular selling price, obtain four years of protection in addition to the one-year period covered in the standard guarantee. Offer is retroactive to include sales of 1936 models already made.

★ When the \$100,000 modernization project at the Fairbanks-Morse plant in Indianapolis, Ind., is complete, the home appliance division of the company will be moved there.

★ **Howard E. Blood**, president, Norge division, Borg-Warner Corp., has called attention to a new extended protection plan on Rollator refrigerators, in effect since Mar. 1. Besides the company's regular one-year warranty covering parts and service, Norge now provides a 5-year warranty on important mechanical parts, together with a 10-year warranty on the Rollator compression unit.



DEALERS OFF TO A BIG HEAD START FOR 1936!

HOTPOINT ELECTRIC REFRIGERATOR dealers are away to a head start this year. January—with unusually cold weather—was a big month. Sales were 209 per cent of the same month last year. February sales moved along at increased pace. Now watch March and the rest of the year! With a most comprehensive advertising

campaign—and a complete line of 12 models—Hotpoint dealers are selling to families of all incomes. New deluxe models with distinctive styling and convenience features have quick sales appeal. Standard models at lower prices. Thrift-type Refrigerators for homes of low income. Easy time payment extension plan gives you good display for small investment. Write for complete franchise details. Hotpoint Refrigerator Division, Appliance and Merchandise Department, Section RT3, Nela Park, Cleveland, Ohio.

Hotpoint
MANUFACTURED BY GENERAL ELECTRIC

ELECTRIC REFRIGERATORS

TRADE NEWS

(From page 45)

★ B. Abrams, president of the Emerson Radio and Phonograph Corp., New York City, announced this week the augmenting of his engineering staff by the appointment of Dorman D. Israel as chief engineer of the company. Mr. Israel is widely known in engineering circles, having been formerly chief radio engineer of the Crosley Radio Corp.

★ Harold W. Harwell, vice-president and director of the Cinagraph Corp., Stamford, Conn., has announced that the company's newly equipped plant will start supplying speakers to the radio industry at the rate of 5,000 per day, starting about Mar. 15.

Other officers of the new corporation are John S. Hoyt, president and director; Howard C. Seaman, treasurer and director; Sherman R. Hoyt, secretary and director; Lionel B. Cornwell, research and engineering head, and D. P. O'Brien, sales director.

★ H. C. Semmel, for the past 8 years a representative of either RCA or the General Electric Supply Co., is the new buyer and merchandise manager of the electrical appliance division of the H. C. Kahn & Son department stores, Philadelphia. Kahn Co. has branches at Norristown and at Chester, Pa.

★ Ronald S. Wise is now director of sales for the Masterworks division of the Columbia Phonograph Co., Inc., with temporary headquarters in New York City. Prior to his connection with the Columbia Co., Wise was with RCA-Victor for 7 years.

★ Group of some 20 retail furniture stores have formed a company called the Associated Buyers' Corp., Inc., organized for the purpose of syndicated buying, merchandising, advertising and promotions, etc. Headquarters are at the Hadley Co. Furniture Stores, 1330 Main St., Springfield, Mass., under the management of W. L. Robertson. President is Alvin Lindenborg; vice-president, Fred Dreifus; treasurer, Ruben E. Arouheim.

★ WOR's sales manager, Walter J. Neff, has resigned and will organize a radio station representative and consultant bureau in New York City. Mr. Neff has been with WOR for 8 years, during which period he established himself as a widely appreciated expert in the field.

★ Oxford-Tartak Radio Corp., makers of Oxford speakers and accessories, have moved to new and enlarged quarters at 915 W. Van Buren St., Chicago.

★ Henry C. Forster, vet expert in the speaker biz, announces the organization of Radio Speakers, Inc., 1338 S. Michigan Ave., Chicago, to manufacture permanent dynamic and electro dynamic speakers.

★ E. H. Vogel, whose connection with the radio division of the General Electric Co., was announced some time ago, has now been named sales manager of the division, according to R. J. Cordiner, manager. Previous to his GE connection, Mr. Vogel spent 6 years with the RCA Mfg. Co.

★ Reiss Advertising Agency, formerly located at 67 W. 44th St., New York City, has a new address in Manhattan: 1270 Sixth Ave.

★ Edgar H. Felix Co., which specializes in field intensity surveys, coverage determinations, allocation studies, and location investigations, has a new home at 32 Rockland Place, New Rochelle, N. Y. New quarters will give the concern better facilities for coordinating offices, laboratories, shops, and recording sites.

★ Newly formed Associated Cinema Studios, Hollywood, headed by Mark L. Gerstle, recently bought Freeman Lang's sound studios of that city. Interesting to radio dealers is the fact that the new studios will operate transcription labs for radio production.

★ Going to 5,000 watts, WHN celebrated its new position among independent stations in the Metropolitan area with an elaborate, week-long schedule of inaugural features. With the new wattage, WHN coverage is announced as including, besides the Atlantic seaboard, States of Connecticut, Rhode Island, Maine, New Hampshire, New York, New Jersey, Pennsylvania, Maryland, Virginia and both Carolinas. L. K. Sidney is WHN's managing director.

Mayor LaGuardia opened the ceremonies and also on the program were salutes from Washington, featuring Anning S. Prall of the FCC, governors and senators galore. Festive week had the form of an open house at WHN studios, with Lou Little, Jack Dempsey, Grover Whalen, Ed Sullivan, Mark Hellinger, Will Hays, Ted Husing, Governor Lehman and others among the guests.

★ Radio Booster Club, composed of manufacturers' agents of radio, held a meeting last month at Los Angeles for the southern California section and elected officers: J. J. Perlmut, president; Lew E. Sperry, vice-president; Harry A. Lasure, secretary and treasurer. Directors elected include these officers and in addition J. T. Hill and Glen Shaver.

★ Howard F. Smith is now the director for the entire Eastern sales area of the Universal Microphone Co., Inglewood, Cal. His territory includes New England and New York state; offices are at 259 West 14th St., New York City. Mr. Smith plans to maintain a complete factory stock in New York City, as well as an advisory service for clients.

★ Gardiner Metal Co., makers of Flux-Filled solders, have appointed David M. Kasson & Co., 264 Canal St., New York City, their eastern representative. Kasson Co. will warehouse a stock of solder, and contact radio set and accessory manufacturers and general industrial trade.

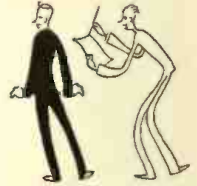


A HOT IDEA

I'm A Funny DUCK I Guess . . . And I Run A RADIO Store, Too . . . But, Anyway, When HE Came in to See Me . . . And Said, Would I Write A Column . . . About Why I FEATURE G-E RADIO.

. . . . I Said, "I DON'T" . . . And I Don't, But I SELL Them Sometimes . . .

So He Said, "Well Write SOMETHING Anyway" . . . And I Said "WHY Should I" . . . And The Fellow Got



A Little SORE I Guess . . . But After He Left . . . I Got To THINKIN' . . . And I Went in the Back and CHECKED up for Six Months . . . And I Was THAT Surprised To Find G-E Radio



Sales Were a Close SECOND in My DOLLAR Volume And I HADN'T Realized It . . . Because I'd Been So Busy CONCEN-TRATIN' On A Set That Showed Up in FOURTH Place



. . . That I Never Gave G-E Much of a THOUGHT . . . Then I Got To Figurin' How Much MORE I MIGHT Have Made . . . If I Had Put The BANDMASTER Out in FRONT.



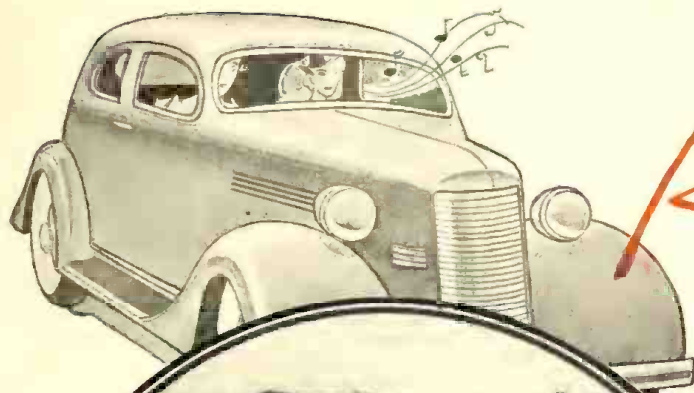
And I Called up the G-E FELLOW . . . And Said, I Was SORRY . . . And I Had A HOT Idea For His COLUMN And Was Going to WRITE About It . . . And I Told

Him What It Was . . . Then He LAUGHED And Said, "It Looks Like We're BOTH Going to Make MORE Money From Now on" . . . And You KNOW . . . I Think He's RIGHT Enough!

IN THE TALL GRASS, TOO . . .

"IT'S G-E RADIO"

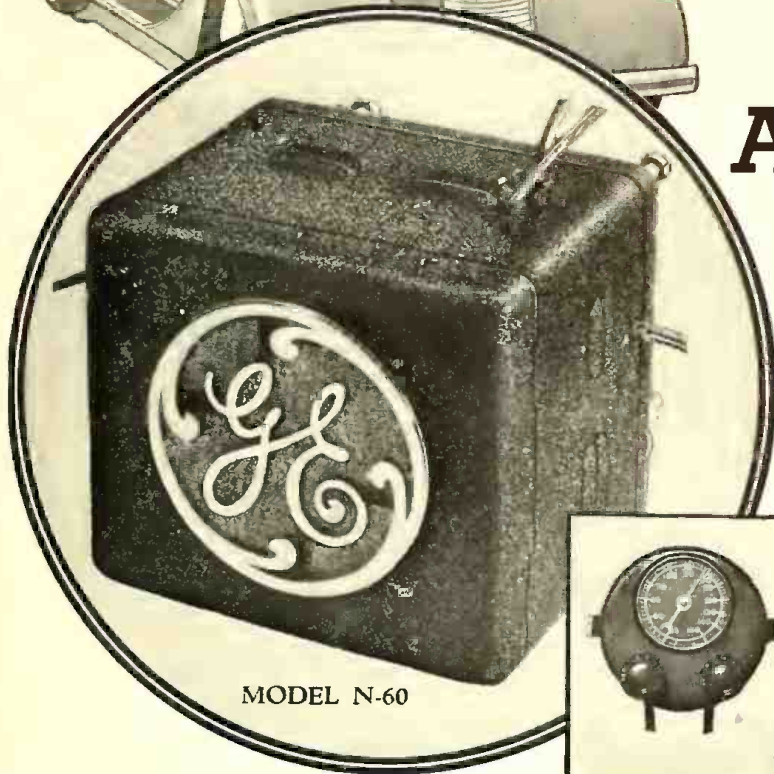
..... GENERAL ELECTRIC



Announces

**A New
Sensational
ALL METAL-TUBE
AUTO RADIO**

*Outstanding in Engineering . . .
in Design . . . in Sales Appeal*



MODEL N-60

**SOME OF THE
OUTSTANDING
FEATURES**

6 METAL TUBES
AUTOMATIC VOLUME CONTROL
6½-INCH DYNAMIC SPEAKER
CONTINUOUS TONE CONTROL
4 WATTS OUTPUT
STEERING POST OR INSTRUMENT
PANEL CONTROL
EASILY INSTALLED IN ANY CAR
List Price \$49.95

OVER 19 MILLION CAR OWNERS NEED AUTO RADIO

This new General Electric Auto Radio will put new life into your spring and summer radio business. It opens up an enormous market full of sales and profit possibilities. If you

want to ride the highway of profits — if you want to get your share of sales opportunities — get the details of the new G-E Auto Radio today! It's a real sales and profit leader.

Ask Your G-E Radio Distributor for Complete Information

GENERAL  ELECTRIC

THE ORIGINAL METAL-TUBE RADIO

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

"Thanks A Million"

**YOUR KIND COOPERATION and
ORDERS HAVE PUT the 1936
MOTOROLA OVER with a BANG!**



Motorola has Again Taken America by Storm

Dealers all over the country have responded heartily to the new 1936 Motorola—flooding our factory with orders. These profit-wise men are cashing in on the marvelous reputation Motorola has earned with car owners. Motorola *must* be good to merit such enthusiastic acceptance.

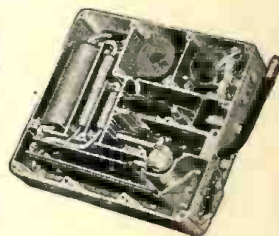
**4 STAR MODELS
Meet Every Demand**

**FEATURES that Make
EASY SALES-BIG PROFITS**



Revolutionary improvements that insure outstanding listening quality and performance. Motorola's unrivalled features insure your profits and make selling easy.

MATCHES THE DASH OF ALL CARS
Fits Perfectly and Harmoniously . . . Overhead Ear-Level Speakers Where Required.



**ONLY MOTOROLA
HAS THE "MAGIC ELIMINODE"**
Newly Improved . . . This Patented Feature Guarantees Motor-Noise-Free Reception . . . Positively NO SPARK PLUG SUPPRESSORS.

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.

★ **MODEL "50"—6 TUBES**

Big Value Single Unit. Full Dynamic Built-in Speaker. 3-gang Tuning Condenser. Automatic Volume Control. List Complete. . . \$39.95

★ **MODEL "60"—6 TUBES
6" EXTERNAL SPEAKER**

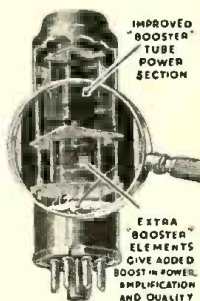
Supreme performance at a popular price. Uses 6-B-5 "Booster" High Power Output Tube. 6" Full Dynamic Speaker. Automatic Volume Control. Tone Control. List Complete. . . \$49.95
With Optional 8" Speaker, List \$54.95

★ **MODEL "80"—8 TUBES
8" EXTERNAL SPEAKER**

Metal and Double Sealed Metal-Clad Tubes. Perfected Automatic Volume Control. Full Variable Tone Control. Uses 6-N-6 "Booster" High Power Output Tubes. List Complete. \$67.50

★ **"GOLDEN VOICE" MOTOROLA
10 ALL-METAL TUBES
10" "GOLDEN VOICE" SPEAKER**

The most remarkable auto radio ever built. Perfected Delayed Action Automatic Volume Control. Full Variable Tone Control. Sensitivity Control. Breath-taking life-like radio reception. Complete. . . \$89.50



NEW "BOOSTER" TUBES FOR SUPER POWER

A basic development embodying new principle in circuit design that boosts power, amplification and quality.

ADJUSTABLE ANTENNA SYSTEM

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

INSTALLS ON "JIFFY" MOUNTING BRACKET

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

**Tie-In with Motorola Leadership
Learn About the New 1936**

Motorola
America's Finest **AUTO RADIO**

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