

# RADIO TODAY



In every room — in every home —  
Make this a Radio Christmas!

**NOVEMBER**

Caldwell-Clements, Inc., N.Y.

*Nationally advertised to  
33,500,000 Christmas Readers*

IN THE GREATEST CHRISTMAS PROMOTION  
IN GENERAL ELECTRIC RADIO HISTORY



*For the Practical Person  
with a Sentimental Side!*

**GET SET FOR TREMENDOUS G-E  
RADIO CHRISTMAS BUSINESS**

This season General Electric Radio dealers will share in a bumper crop of Christmas sales.

G-E MEANS BUSINESS! Here's convincing proof. A gigantic concentrated barrage of G-E Christmas advertising in ten leading magazines will reach 33,500,000 readers. Every ad in full color—smashing 4-color spreads—sales-compelling 4-color pages. Can you afford—can any radio dealer afford not to line up—and stock up—with G-E Radio, NOW!

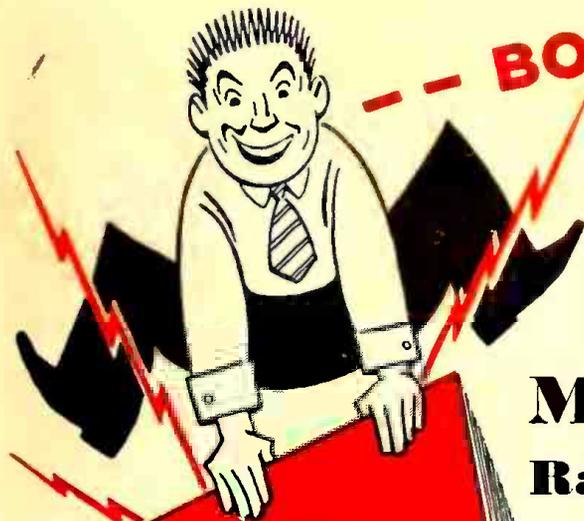
Get in touch with your G-E Radio distributor without delay.

**G-E LEADS WITH THESE  
SALES-MAKING FEATURES:**

- **THE G-E BEAM-A-SCOPE**  
No aerial—no ground wires. Reduces local static interference.
- **KEYBOARD TOUCH TUNING**  
Easy. Accurate. Lightning Fast! Your program at the touch of a key.
- **G-E TIME TUNING**  
Pick your programs on five different stations for 24 hours ahead—the G-E Automatic Program Pre-Selector does the rest. No re-tuning. No re-dialing.

**GENERAL  ELECTRIC**

 **RADIO**



**--- BOY, DID I GET A JOLT!**  
to find all this swell!

**NEW information in the  
SECOND (1938) edition of the  
MALLORY-YAXLEY  
Radio Service Encyclopedia**

**ALL BRAND NEW**  
... you won't find it  
in the **FIRST EDITION**

Even if you own a copy of the First Edition MYE you haven't seen anything until you've seen the Second Edition. It has 336 pages against 200...analyzes 17,000 receivers (5000 more than the First Edition)... packed from cover to cover with substantiated data that you have never even hoped could be brought between the covers of one book... *much information that has never been available anywhere before.*

Mallory-Yaxley has invested over \$100,000.00 to make this the book of books for radio service men. You can't begin to appreciate what it's like or how much bigger and better it is than the First Edition until you've actually gone through it.

Your distributor still has a limited supply available. Don't be disappointed!  
Be sure to get your copy today.

- AUTOMATIC FREQUENCY and ALIGNMENT**  
up-to-date including Triple Detection
- AUDIO DEGENERATION**  
... circuits and how they work
- AUTOMATIC TUNING**  
... all push button circuits covered
- 'SCOPE PICTURES**  
... fully explaining vibrator operation
- COMPLETE TUBE CHART**  
arranged numerically and alphabetically
- AUDIO DISTRIBUTION**  
With multiple speaker installation, impedance matching and volume control
- NUMBER of each type of tube in every receiver**

• You'll pay for it with the time you save on one job

**P. R. MALLORY & CO., Inc.**  
INDIANAPOLIS INDIANA  
Cable Address—Pelmallo

Use **MALLORY** REPLACEMENT CONDENSERS...VIBRATORS

Use **YAXLEY** REPLACEMENT VOLUME CONTROLS

# 345,000 People Go to Work ...When Radio Throws the Switch



*The RCA Victor Family has many long-time members. Above is Group Supervisor Bessie Purnell, who has been with Victor for 32 of its 40 years.*



*8,000 American radio operators on ships and ashore handle hundreds of thousands of radio messages that help business and guard lives and property. Leaders in these activities are R. C. A. Communications, Inc., and Radiomarine Corporation of America, members of the family of RCA.*



*NBC engineer Arthur V. Giammatteo throws a switch at Radio City that means entertainment for millions . . . employment for thousands.*

**T**O MOST AMERICANS today radio is entertainment, news, and education . . . the greatest show on earth. But to 345,000 workers and their families . . . a total of some 1,380,000 men, women and children . . . radio is even more than a show, it is a living. Where only a few years ago radio jobs were non-existent, now 700 odd radio stations and 500 and more factories create tens of thousands of jobs.

### *Radio a Boon to Thousands in Wholesale and Retail Businesses*

About 25,000 are connected with wholesale establishments handling

radio merchandise. Retail radio merchants account for 56,000 and salesmen, service men, and others engaged in radio sales and service number 150,000.

For retailers and wholesalers as well as for the 19,000 members of its own organization, the Radio Corporation of America works aggressively to bring ever increasing prosperity by constantly improving the services radio gives the public. America has come to recognize the advantages in going "RCA ALL THE WAY." As a result . . . there is an ever richer field of opportunity for merchants who go RCA All The Way, too.

*Listen to the "Magic Key of RCA" every Sunday, 2 to 3 P. M., E. S. T., on the NBC Blue Network.*



## RADIO CORPORATION OF AMERICA

RADIO CITY, N. Y.

RCA MANUFACTURING CO., INC.	RCA INSTITUTES, INC.	R. C. A. COMMUNICATIONS, INC.
RADIOMARINE CORPORATION OF AMERICA	NATIONAL BROADCASTING COMPANY	

# Emerson

**WORLD'S BIGGEST SELLING LITTLE RADIO**



**EMERSON "Little Miracle"  
—Model AX-235**

With  
"MIRACLE TONE CHAMBER"  
—Wide Selection of Gem-like  
Colors. 5-tube AC-DC Super-  
heterodyne. (7-tube perform-  
ance.) American Broadcasts  
and Police Calls . . . Electro  
Dynamic Speaker . . . Auto-  
matic Volume Control . . . Built-  
in Antenna . . . Plastic cabi-  
nets of gem-like beauty.

**\$17<sup>95</sup>**

## Out in Front as the IDEAL GIFT

**It Fairly Radiates the Holiday Spirit —  
it Stops the Crowds and Gets Them In!**

STYLE—SIZE—COLOR—PERFORMANCE—QUALITY—PRICE—what  
a line-up for magnetic Holiday display and irresistible buying inducement!  
More sales for CASH—quick action over the counter—with a new 1939  
Emerson model for every purpose and every purse! Here are the dramatic  
ANSWERS to what YOU should do NOW to pile up the biggest sales records  
in history. Make no mistake about it—EMERSON is America's "No. 1"  
Holiday feature.



**EMERSON Model AX-221  
Combination Radio-Phonograph  
With "MIRACLE TONE CHAMBER"**

5-Tube AC Superheterodyne. (7-tube  
performance). American Broad-  
casts and Police Calls . . . 6½"  
Permanent Magnet Dynamic  
Speaker . . . Automatic Volume  
Control . . . Built-in Antenna.  
PHONOGRAPH: Self-Starting  
Constant Speed Motor . . . Crys-  
tal Pick-up . . . Tone Control. Plays  
10" and 12"  
records. Hand-  
rubbed walnut  
finish cabinet.

**\$44<sup>95</sup>**



**EMERSON "Little Miracle"—Model AX-212  
With "MIRACLE TONE CHAMBER"**

5-Tube AC-DC Superheterodyne. (7-Tube perform-  
ance.) American Broadcasts and Police Calls . . .  
Electro Dynamic Speaker . . . Automatic Volume Control . . . Built-in Antenna. Hand-rubbed figured butt  
walnut cabinet or figured maple.

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

**69 New 1939 Emerson Models—\$9.95 to \$219.95.  
Ask Your Distributor for Christmas Display Materials.**

**EMERSON RADIO AND PHONOGRAPH CORPORATION • 111 Eighth Avenue • New York, N. Y.**

*"World's Largest Maker of Small Radios"*



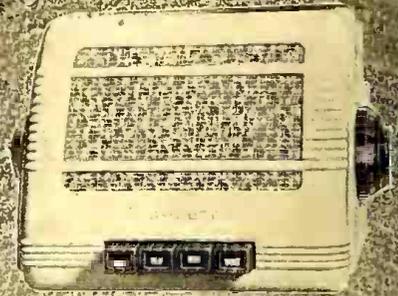
# CROSLEY IS DEFINITELY the CHRISTMAS Volume Line!

## The VANITY



PUSH BUTTON Radio at the market's lowest price. Knobs on end permit manual tuning also. Brown moulded case permits two playing positions. A volume seller when properly promoted. It has a wide Christmas appeal at its incredibly low price.

**\$9.99\***



## Super SEXTETTE

PUSH BUTTON, SUPERHETERODYNE, AC-DC, 6 TUBE (including ballast) with 5-inch dynamic speaker. A real achievement of Crosley engineers. Brown moulded cabinet of walnut finish. Introduces large vertical gold etched dial which is tuned by knob and push buttons are mounted on the top. Also in red and ivory at slightly higher price.

**\$14.99\***



## Super VANITY

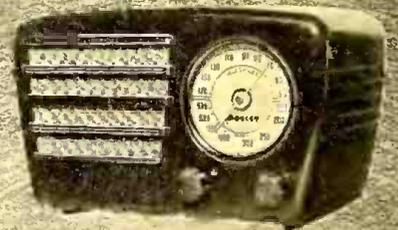
5-TUBE SUPERHETERODYNE! Astonishing radio reception and volume at an incredibly low price. Push buttons and knob tuning. It, too, has a wide Christmas appeal. It's compact — it's efficient! In ivory it's \$13.99.

**\$12.99\***

## The SIXER

6 TUBE, 2 BAND, PUSH BUTTON, SUPERHETERODYNE, the sensational Crosley "Fiver" to which engineers have added another tube, developed more efficiency and housed in a beautifully moulded brown modern plastic cabinet. It is the season's sensation if sales are any indication. In red and ivory at slightly higher prices than brown, which is

**\$19.99\***



\*Prices F. O. B. Cincinnati (subject to change).

**TABLE MODELS, \$8.99 to \$39.95**  
**CONSOLE MODELS, \$49.95 to \$99.50**  
**COMBINATION MODELS (Phono-graph and Radio), \$24.95 to \$59.95**

**YOU'RE There WITH A**

# CROSLEY

**THE CROSLEY RADIO CORPORATION, CINCINNATI**

**POWEL CROSLEY, Jr., President**

**Home of WLW—"the Nation's Station"**

## The TROUPER

5 TUBE (including ballast) AC-DC with beam power output and electro-dynamic speaker. Brown plastic case. Illuminated dial. Requires no ground. Easily carried when travelling. Only 8 inches long. Sensitive and sharp and surprising in resonant volume —truly a mighty mite of radio. In Ivory at \$9.99.

**\$8.99\***

American Airlines, Inc.  
**GIANT FLAGSHIPS**  
Fly with  
**RAYTHEON TUBES!**



With radio beams to mark the air lanes clearly . . . two-way radio communication between plane and ground . . . and precision instruments to guide the pilots, commercial air transportation has now become one of the safest, most dependable ways to travel.

Weather is reported—arrivals, departures and the very courses planes fly are directed by radio.

For this important work, American Airlines, Inc. use RAYTHEON radio tubes! A weak or inefficient tube has no place in a fleet-winged Flagship. And American knows the reputation RAYTHEONS have for sturdiness and longevity—and for perfect, dependable performance under all conditions.

Successful Dealers and Servicemen—those who are in business to stay are finding that RAYTHEON tubes are their insurance of the best—for permanent tube profits. And a wise investment. Yet they cost no more than the second-best tube!



**RAYTHEON**

NEWTON, MASS. • NEW YORK • CHICAGO • SAN FRANCISCO • ATLANTA

**"WORLD'S LARGEST EXCLUSIVE RADIO TUBE MANUFACTURERS"**  
November, 1938

*Only*  
**PHONOGRAPH WITH PHILCO**  
HAS THE  
**SEMI-AUTOMATIC  
REPRODUCER**



← SETS ITSELF! REPEATS ITSELF!

← NO TONE ARM! 100% TRACKING!

← PLAYS 10" AND 12" RECORDS!

**NO MORE SCRATCHED RECORDS! NO "HUNTING" FOR THE GROOVE! A CHILD CAN START OR REPEAT RECORDS!**

Here's the really selling-feature for low-priced phonographs, and only PHONOGRAPH WITH PHILCO has it! The Semi-Automatic Reproducer permits you to make a real demonstration to your prospects . . . gives you a sales advantage that "clicks" every time! Just place a ten-inch or twelve-inch record on the turn table and close the lid! The record plays instantly . . . automatically!

And . . . lift the lid slightly and close it, and the record repeats itself . . . automatically! No more hunting for the first groove . . . no more scratches. PHONOGRAPH WITH PHILCO Semi-Automatic Reproducer *automatically* sets the needle in the starting groove when you close the lid. 100% perfect tracking! Full-range crystal pick-up. And all Semi-Automatic models equipped with self-starting motors!

**PHONOGRAPH WITH PHILCO—SEE YOUR PHILCO DISTRIBUTOR**



*Build Store Traffic  
with*

# PHILCO TUBES

**E**VERY radio dealer is anxious to increase his store traffic . . . because the more people he gets into his store, the greater his opportunity for making new-set sales. And one of the easiest ways to build store traffic is by featuring and pushing Philco Tubes. Here's why:

The greatest name in radio today . . . the name that comes first to most every mind . . . is PHILCO. And right now, due to the tremendous interest in Philco's sensational Mystery Control, that name is greater than ever before . . . on the tongues of millions and millions of people. As a result more and more people, who need new tubes, are asking for Philco Tubes . . . patronizing the store that sells them.

Cash-in on this public preference for Philco Tubes . . . a preference that not only brings you steady tube sales and profits, but paves the way for even more profitable Philco Radio sales!

..CA

*The Easiest Tubes in the World to Sell*



HARRY BOYD BROWN  
National Merchandising  
Manager of Philco

## The Public Tells Us . . . "Philco has set a new vogue in radio furniture . . . Spinets!"

**I**N our 1939 Philco announcements to the trade we told you two things. First, that Philco Mystery Control would be the most sensational store-traffic puller the radio industry has ever known. Second, we told you that the new Philco "Spinets" cabinets would start a new trend in radio furniture design.

Both predictions have come true, as Philco dealers in every section of the country can testify. And if it were not for the tremendous interest caused by Philco Mystery Control, the public's reception of the new Philco Spinets cabinets would easily be the Big News of radio for 1939.

Nothing in radio history has won such instant and overwhelming approval from the women of America as this new Philco cabinet design. It is exactly what the younger generation in particular has been demanding.

Home decoration experts and the retail furniture industry everywhere pronounce it the one and complete reply to the demand for a radio cabinet that would look well—*not only on the dealer's floor, but also in the customer's home.*

For years, America's homemakers have yearned for radio furniture that would blend and harmonize with the settings of their rooms—for cabinets that would not stick out like a sore thumb and smother and dwarf the other furnishings of the room.

In short, the American women have demanded a new deal in radio cabinets that would permit them to take pride in their home furnishings. And dealer and public alike agree that it is here in the new Spinets Type of radio created by Philco for 1939.

The latest thing in radio cabinet design—furniture of distinguished simplicity—a new vogue, a new style trend that is rapidly doing away with the old type, bulky, bulging, box-like kind of cabinet.

Some places it is called "Spinets"; other places "Period"; somewhere else "Modern"; but everywhere it is called the most beautiful, the most distinctive and artistic radio cabinet ever designed. A radio style development that will obsolete old-fashioned radios by the hundreds of thousands.

And the radio dealers of America are taking the fullest advantage of the rapid public trend toward this new "Spinets" styling in radio. Artistic window displays by the many thousands—beautiful floor displays exclusively "Spinets" type radio models—also direct mail—also newspaper advertising. And most important of all, the retail salesman is adding to the momentum of this style movement with that selling power he alone possesses.

*Harry Boyd Brown*

# PHILCO

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New York, N. Y.

MEMBER AUDIT BUREAU OF CIRCULATIONS

**TRUSTWORTHY UPTREND**

The signs of the times are solidly, stoutly okay. Nothing seems to bother the business recovery which got invincibly under way this Fall.

American industry put 729,000 workers back on the job, in September as compared with August, according to figures from the National Industrial Conference Board, and employment further increased in October. The auto factories are involved in more-than-seasonal activity, and steel operations are setting peaks for the year.

And for radio, there's the extra asset of Christmas, coming up. Holiday shopping has a traditional tempo unequalled by any other period of the year. Every radio store should be a nest of buyers, from now on.

**PORTABLES IN PROFUSION**

With the new battery portables winning unexpected demand, designers are trying to see in what additional ways the 1.4-volt dry-cell receiver can be applied. One direction is that of combining the portable and the car radio, in the belief that a convenient battery portable on the front seat would serve many of the purposes of an installed auto-radio, and still would be available for use in hotel or camp at the end of the journey. Making the portable compact and oblong, to fit on the seat between the two front-seat occupants, is a plan adopted by one designer.

Meanwhile engineers are trying to cut down the size of the portable by reducing battery capacity and weight. Most of the weight of present portables is attributable to battery capacity enough to run the set for many months. Cut this battery capacity to a few days, and provide for easy cell replacement, and the portable can be shaved to dimensions of a real everyday convenience. Sets no bigger than a prayer-book, will fulfill the

"pocket-radio" of the future. Such sets, each with a built-in headphone, would become the incessant companions of millions if we go through any more European war crises.

Here, in the pocket-radio, is one of the last remaining frontiers for mass radio sales, and already in several laboratories work is being speeded to capture this "pocket" market.

**RADIO SALES ANTICIPATE BUSINESS UPTURN?**

Over the past four years, radio seems to have revealed itself as an advance harbinger of the general business situation.

Back in 1935, before general business turned up, radio had already enjoyed a vigorous come-back. Radio continued to boom throughout 1936, while general business caught up with it. The "1937 recession" began for radio, however, in April, 1937, nearly

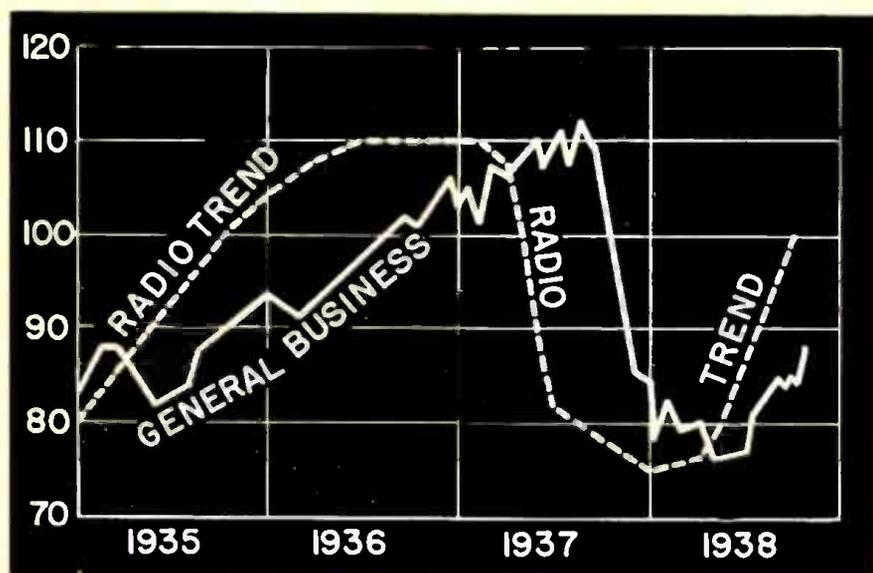
four months before the collapse of general business in September, 1937.

And now in the Fall of 1938, although general business shows some recovery, radio manufacturing in many divisions equals or exceeds the volume of a year ago.

Chart below reproduces the "business index" of the *New York Times*, as the measure of general business, while the radio trend has been sketched in to show how radio not only anticipated general recovery in 1935, but also anticipated the toboggan-slide of the Fall recession by an interval of several months. At present, as the chart shows, radio has climbed pretty well out of the 1937-38 morass, although general business has recovered only 35 per cent of its 1937 losses.

Thus with three different movements of the business index, radio has "called the turn" *four to six months ahead* of the corresponding movement of general business.

**RADIO AS AN ADVANCE INDEX OF GENERAL BUSINESS**



Three times, now, radio has anticipated future changes in the general business industry. Note that radio recovery preceded the business upturns of both 1935 and 1938—while radio's own 1937 "recession" began four months ahead of the general 1937 downslide!

## WAGES-HOURS LAW SEEN AS PRICE STABILIZER

Operation of the new Wages and Hours Law has proved to have little effect in the radio industry, except to provide beneficial minimums which will aid in bringing up the labor costs of a few low-priced producers. In this way the new law is expected to have a good effect in stabilizing labor costs and, in turn, the price schedules of the industry as a whole.

Labor rates in radio-parts manufacturing plants in the Eastern market have averaged from 32 cents to 42 cents per hour. In the Middle West, the corresponding figure has run from 32 cents to 37 cents. These rates are all well above the 25 cents per hour minimum provided by the new Federal law, although a few marginal manufacturers have been forced to come up "out of the basement" and keep above the "floor" imposed by the new Federal statute. The effect of this is viewed as beneficial in leveling labor costs and stabilizing product prices.

## FLASHES FROM NY STOCK EXCHANGE

There's so much interest in what goes on at the New York Stock Exchange that short-wave fans here and abroad are asking when stock quotations are broadcast. According to Exchange officials, here's the dope:

W1XK, Boston, Mass., airs the



Executives descend on Indianapolis—the RCA vice-presidents shown here are, from left, front row, Vance C. Woodcox, Thomas F. Joyce, (advertising manager) F. H. Corregan, Lewis M. Clement, and Robert Shannon. Back row, N. A. Mears, F. R. Deakins, H. C. Bonfig, Eugene W. Ritter (Harrison, N. J.), and J. M. Smith (Indianapolis).

stock reports daily at 12:25, 12:45, and at 4:45 p.m. On Saturdays, the time is 12:45 p.m. only.

W2XAF, Schenectady, N. Y., broadcasts the quotations daily at 7:30 p.m., and sister station W2XAB of that city is on the air at 12:45 p.m. on Saturdays.

## A THEME FOR RADIO MEN'S XMAS GREETINGS

In his Christmas cards to radio friends, last season, Commander E. F. McDonald, Jr., president of Zenith, pointed out that the man who sells radios is selling something more than mere merchandise; he is a benefactor to humanity who is helping to broadcast enjoyment, education, inspiration and happiness among his fellow men.

We reproduce below the text of Commander McDonald's 1937 Christmas card, as an inspiring thought for the radio industry at this time, believing that other radio men may like to incorporate a similar theme in their own 1938 greetings.

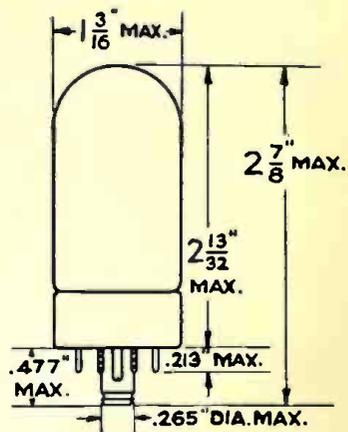
\* \* \*

Truly the secret of happiness lies in making others happy. In no business can you spread more happiness than in the radio business—for into the homes of the people the radio brings song and laughter and relief from life's burdens.

A Merry Christmas to You.

E. F. McDonald, Jr.

## NEW SETS WITH ALL-GLASS "LOCTAL" TUBES



Rumors in the radio industry indicate that a new line of radio receivers is about to appear using the new all-glass "locking" tubes which were developed "primarily for television." The new tubes are without bases, are more compact, have less inter-electrode capacity, and are expected to be cheaper when in large-scale production. Already broadcast receivers using these tubes have been produced and are on test, and announcement is expected momentarily of their readiness for the receiver-buying public.

As developed by the Hygrade-Sylvania Corporation for television video amplifiers, the new type 1231 triple-grid amplifier tube has no regular base, the lower portion of the bulb being fitted with a metallic shell providing a guide-pin of metal which makes possible locking-in action in the socket. The grid lead connects to one of the pins, permitting the use of much shorter grid leads and eliminating troublesome cap connections. The eight prongs are different from those of the present octal base and require a different kind of socket. For tube-testers and analyzers, adapters can be provided.

## BROADCASTS TO HELP YOU SELL XMAS RADIOS

Each Christmas season for many years past, the great broadcasting networks have invited RADIO TODAY's editor, O. H. Caldwell, to give their listeners an impartial review of novel features of the new radio sets available as Christmas gifts.

Again this season, early in December, Editor Caldwell will put on the air these invaluable stimulants to radio-set selling. Watch for dates in your local newspapers, and tie up with these RADIO TODAY broadcasts in your own selling of Christmas radios.

## RADIO LEGISLATION AHEAD

In advance of the meetings next January of 44 state legislatures, the RMA Legislative Committee, headed by Chairman A. H. Gardner of Buffalo, and Bond Geddes, executive vice-president, is preparing to represent the industry on much important legislation. In Congress, which also convenes in January, additional legislation is expected, with present prospects of extension of the 5 per cent radio excise tax law. This, with other nuisance taxes, would have expired June 30, 1939, but Treasury and Congressional leaders now seem disposed to continue it because of federal revenue needs. Much radio legislation, especially regarding broadcasting and merchandising, also is expected from the state legislatures.

In connection with automobile radio and also general legislation, such as state registration of trademarks, licensing of dealers, resale-price maintenance, etc., arrangements are being made for permanent organization of all automotive interests, including the RMA interest in automobile radio, for joint information.

## BRAND PREFERENCES IN AUTO RADIO

Among the things investigated in the "home inventory" which Scripps-Howard conducted among 53,124 households in 16 leading cities, was the matter of auto radio. In the composite picture, the brand preferences were, in per cent of mentions:

Philco .....	34.4
Motorola .....	10.4
Delco .....	6.4
RCA .....	4.1
True Tone .....	3.4
Zenith .....	2.5
General Electric .....	2.5
Crosley .....	2.0
Majestic .....	2.0
Silvertone .....	1.4
Arvin .....	1.2
Bosch .....	1.2
Stewart-Warner .....	1.1
All others (less than 1 per cent).....	27.1

## "SELL RADIO IDEAS"—BONFIG

"Production has been developed to such a high order today that we can actually build more of almost anything than we can consume. That brings us to the present or 'selling' era, when it becomes necessary to sell the products which we have engineered and manufactured," declared Henry C. Bonfig, commercial vice-president of RCA Manufacturing Co., talking on "Looking Ahead with



Allen B. DuMont of the DuMont Labs takes another look at his 14" television tube. His firm made the headlines again when Paramount Pictures got interested in his video work, announced plans for large-scale televising of films.

Radio" before the Electrical Association of Philadelphia.

"There is much room for improvement. Much needs to be done in the field of distribution to the public. I recognize that there is a word which has been anathema to the average radio dealer and that word is 'Canvass.' Webster says 'Canvass' means 'to seek or search,' and I wonder how many of us have learned the art of really seeking and searching for a prospective purchaser of our products. If we are honest with our-

selves and turn on the X-ray lamp truth, must we not confess that actually we do not sell our merchandise to the consumer—the consumer merely purchases from us.

"We very definitely face the necessity of taking an honest inventory of our selling organizations. I do not mean to infer that we haven't done a good job in selling. We have. The radio industry has indicated a virility and an aggressiveness that has been the envy of all. However, times change, and it becomes necessary for us to move quickly to keep pace with rapid changes. Today we have the job not only of selling our merchandise, but of selling 'ideas' which will help fill a tremendous public want and need."

## THE COVER WAS A BUST

As if the material on the cover of our October issue were not diverting enough, a series of outraged readers found the time to write in and say that we are beginning to be editorially unclean. Sorry. By using the bathtub girl the editors meant only to be (1) normal (2) interesting to some. (3) offensive to none.

RADIO TODAY was always a sheet to get down to bare essentials. In the case of the blonde, the essentials may have been *too* bare, but everybody agrees that other pages were likewise fundamental.

Although we are half sold on the idea as an artistic proposition, we doubt whether we will be mixed up publicly with further nudes. Winter coming on, and all.



GE is determined to get low-down on television news abroad; radio manager E. H. Vogel, center, sails for Europe. Others, left to right, are D. W. May, P. F. Hadlock, A. A. Brandt, Tom Erwin of Maxon, Inc., and J. F. Bahn of Rio de Janeiro.



## 'TIS THE MONTH BEFORE XMAS —

And all through the trade, the dealers are after the dough to be made!

Sure enough, a lot of the radio selling which has failed to click so far this year will click fast at Christmas time.

Prospects are particularly ripe for radio selling. Many of them have hesitated to order new models before this, and the salesmen now have some extra smart merchandise that the public never heard of before. Thousands of prospects are just begin-

ning to have a better time of it, as the winter business recovery gets further along; their spending may now break loose for sure.

Even in a normal season, radio dealers actually do 20 per cent of their annual business during the last ten days of November and the 21 pre-Christmas selling days in December. It's a high-powered period, and it represents to the retailer almost 40

Those Christmas-conscious ladies at the left are counting on complete radio-musical satisfaction, plus an important piece of smart utility furniture.

At the right, another gift bet — personal radios for everybody, including portables for gals who get around.

Below is the kind of scene that radio dealers ought to be proud of. Radio is a gift that keeps families together.



per cent of his annual profit. Figures like these ought to build a fire under every radio man. Stores are due for some juicy returns, if they will only exhibit some promotional energy.

Thus it happens that Santa Claus, the innocent guy with the whiskers who is forever the friend of all merchants, turns out this year to be the particular pal of the radio dealer.

"This year we've got merchandise

which means something to the personal comfort of our customers," one radio man points out, "And that's the kind of stuff which goes well at holiday time."

This dealer referred mostly to the new remote control and time-tuning devices which lately hit the market and dealt a blow to the down-run of the radio sales curve. The manufacturers have fixed things so that the matter of station-getting is a cinch.

These handsome devices, when they appear in windows and on the sales floors, have that note of luxury and ease which makes them more personal. The trend of radio design has moved in the best possible direction, as far as gift buying is concerned.

Any consumer who has the taste to select one of these new instruments for a gift to relative or friend, conveys the idea that he is genuinely trying to make things easier and happier for that person. Besides that, any donor likes to be identified with a gift that is styled to the limit. And the new radios certainly look like they'd been fashioned by the sharpest minds of modern industry.

New tricks in cabinetry, better design of portables, smarter values in personal sets, likewise add up to added appeal of a very tangible kind.

### More magic

The new wireless record players are another example of important Christmas merchandise which has never been available before. Imagine demonstrating one of these astonishing instruments with some room-filling and jolly Christmas music on a record! And these machines are a nice size for Yule packaging. Besides being within the price range of everybody, and being the kind of merchandise which keeps people streaming back to the store—for more records!

Phonograph-radio combinations have also been recently re-designed for lower-income groups, and represent another brand new asset for the dealer this season. In many cases where radios are used as gifts, the instru-



At the left, she's wondering how to get a GE console into her husband's sock on Christmas Eve. Or the family sock.

At the right, top, a bright spot on anybody's gift list—Brunswick's new "Tavern Table" radio, cabined in maple.

At the right, bottom, an instrument illustrating top qualities as a gift for musical families—great music via radio and records. Daughter likes the Mystery Control.

ments are bought as gifts for the whole family. Good radio reception plus the exceptionally pleasant variety of recorded music, is 100 per cent suitable for this market.

It happens that most of this new merchandise is unusually appropriate for dramatic demonstrations. To the folks who are confused anyway about having to think up a number of gifts for a number of people, a neat demonstration of radio's amazing new developments is just exactly what the public is looking for.

### Tricky trims

Apparently radio dealers are trying to get away from holiday decorations that are complicated. No Christmas trim can be a success just because there's a lot of it. Such displays are apt to be costly and look garish. They require a lot of time and thought; they are hard to keep clean.

Taking a tip from the department stores and from the utilities, many radio men now like the idea of a single Christmas tree, or just a pair of candles, or a lone bell, for unit displays. These effects, used with striking lights and merry music, will likely stop more traffic than masses of crepe paper and tinsel.

Notable among the display motifs this season will be the World's Fair

theme-design. The standard Yuletide materials often need a brand new slant, so that windows and counters will have that up-to-the-minute quality. The New York exposition's ball-and-cone, which is well passed-around now except perhaps on the Pacific Coast, is a streamlined trade-mark which may fit in here.

### Gifts on the run

Service calls are regarded as one of the main openers-up of holiday business. Along with the man on the repair job these days goes a "personal" radio, wrapped or decorated with some simple Christmas trim. If sold as a gift, the set may be left in a package at the buyer's home, to be hid until time to exchange presents. Whether or not the sale is made, the prospect begins to think about a "radio Christmas" and may even decide to look at consoles.

With the delivery of new sets, also go some personal radios as gift suggestions. In some cases, the manufacturers have already packaged several radios for this purpose, but in cases where single consoles are sold, the radio man may suggest the extras.

Where home demonstrations are staged as sales promotion for family gifts, the radio man has some extra explaining to do. The buyer of the family may be given to understand

that although the appearance of the set in the home may take the "surprise" edge off the gift, yet it can be managed so that the family gets intensely interested in whether the receiver will be kept or returned to the store. The decision to be made by the prospective donor then becomes the actual gift.

There are a lot of brisk new ideas for the dealer's direct mail advertising this year. In the first place, a red-and-green appearance of the letters should make them different from all other letters so that the main idea of radio-for-Christmas instantly gets across.

### Via the mails

To the pieces, some dealers will paste a sample of the initial-stickers which are available for those who want their initials signet-style on their receivers. This is fine for those retailers who are worried about convincing prospects that radio sets are personal enough to use as Christmas gifts.

Then there's the idea of using testimonials. These are copies of letters written presumably last year, by those who received radios for Christmas. The delight of these writers, as expressed simply and heartily to the person who was thoughtful enough to give them a set, does a fine selling job.



## CHRISTMAS RADIOS FOR EVERYBODY—

Here's how your customers' radio gift tags should read:

- For Mother's kitchen
- For Sonny's own room
- For Dad's desk
- For our fireside
- For Brother to take to college
- To play in Grandmother's bedroom
- For beside Aunt Mary's chair
- So Johnny can hear The Lone Ranger

Gift lists, left blank except for radio suggestions, are also OK if they are accompanied by pleasant invitations to call at the radio shop and settle the gift problem.

### **Special lines of action**

Another thing to remember in a mail campaign is that the persons addressed may be members of the nation-wide Christmas Club—people who are to get a part of the \$350,000,000 distributed about Dec. 1 each year. To selected groups of names, a snappy mailing on possible radio expenditures will be profitable about this time.

Announcements on when and how long the radio store is open evenings during this shopping period is also reason for a promotion piece. This may mean that extra demonstrations, at home or at the shop, are convenient and welcome. It will interest a large group of people whose business day ordinarily ends simultaneously with that of the radio man.

Finally, one of the best ways for a dealer to get himself wholeheartedly behind the idea of "radio for everybody" is to see that all the members of his own family have personal sets. Then he may note the down-to-earth details on how it works out in real household life. The idea should result in special ideas for mailings and other promotions.





One-piece stumpwood. Figured rotary—rim type. Standard striped. Quarter sliced, matched.  
Some of the types of walnut most frequently used in radio cabinets—the figured woods which help dealers sell “furniture.”

# FACING THE FURNITURE FACTS

## What radio salesmen should know about cabinet designs and woods

Every radio dealer likes to have features to sell that are really different from other receivers.

One way is to get a model that has authentic design, with appropriate woods properly finished and put together in the traditional way.

These models look special on the dealer's floor. They attract people who have money, they are not mixed up with price-cutting, and they dignify the business. In point of profit to the radio man, they pile up very well with the highly-polished, mass-produced radios which invite nothing but indifference from the folks who live in the big house on the hill.

But the radio man must know how to sell this stuff. The persons who are going to buy them are not interested in brazen price quotations and loud announcements about the number of tubes. More likely, they will quietly talk about genuine furniture

values. The radio man had better be prepared for a chat about Chippendale.

Without spending too much time and effort, radio merchants can pick up the furniture essentials. They are dealing in merchandise that is supposed to improve the modern home—they ought to have the data anyway.

### A profitable project

One of the first things to do is to absorb the dope on designs connected with the 18th century. This is the period that is the most important, commercially. This amounts to reading up on the English style-setters Queen Anne, Chippendale, Duncan Phyfe, Hepplewhite, Adam, and Sheraton; also the French leaders of that time, Louis XIV, Regency, Louis XV, Louis XVI, and Empire.

The dealer should learn to recognize these, and to detect traces of

them in designs that are not pure. He should be able to distinguish the basic characteristics and to say generally how they came about.

Trends in design that came before this period, or after, can be studied later if the business justifies it.

### Practical procedure

The suggested line of action for the average radio man also includes spending a certain amount of time at the public library, for detailed information. Some radio men have found it valuable to sketch, free hand, the basic lines connected with the most important styles.

Many of the leading radio manufacturers have several period-style cabinets in their lines. In most cases, they are careful to furnish data on the styles used; the dealer must make certain that this is clear to him, and that he can interpret it on the sales floors. He should examine the merchandise carefully and be certain that it adds up with the facts as presented by research experts. It is rumored around the trade that some of the so-called period models on the market are altogether out of proportion.

Various wood associations such as the American Walnut Manufacturers Association, at 616 S. Michigan Ave., Chicago, or the Mahogany Association, Inc., 75 E. Wacker Drive, Chicago or the Furniture World Institute, 212 Lexington Ave., New York City, are alertly interested in the subject of period furniture. They have done endless work on this matter, as well as on the subject of woods and finishes.

(Continued on page 48)

### CABINETS EXPLAINED (English Periods)

Style	Dates	Sovereign
Tudor.....	1509-1557..	Henry VIII
Elizabethan.....	1558-1603..	Elizabeth
Jacobean.....	1603-1688..	James I, Charles I, Commonwealth, Oliver Cromwell, Charles II, James II.
William and Mary.....	1688-1702..	William and Mary
Anne.....	1702-1714..	Queen Anne
Decorated Queen Anne.....	1714-1727..	George I.
Chippendale and Hepplewhite.....	1727-1760..	George II.
Adam and Sheraton.....	1760-1820..	George III.
Regency.....	1820-1830..	George IV.

# TELEVISION NEXT SPRING

## Radio trade looks forward to new "video" merchandise

The development of television, as merchandise which dealers may eventually present to the public, was given a new aspect last month. From a meeting of the Radio Manufacturers Association, RCA announced that television sets will be available for the public by next April.

Although the announcement is backed by many millions invested in experiments, the radio trade realizes that many problems still confront the new industry.

President David Sarnoff of RCA has made the following statement:

"RCA believes that the development of its television system has now reached a stage where it is practicable to supply television receivers to satisfy the demand of the public in those localities where television transmissions are now or may become available. Therefore, it is planning to manufacture a limited quantity of television receivers which it expects to market by the time the World's Fair opens. We are informed that a number of other radio manufacturers in the United States are also preparing to manufacture and sell television receivers in such areas as may be served with television programs.

### New York area first

"We are aware that many technical, artistic and financial problems still confront those who would establish an acceptable and regular public service of television programs to the home. These problems must be solved before a national service of network television programs can be made available to the public. Meanwhile, RCA, which has pioneered in the development of television, has made substantial progress, first in its research laboratories, and second, through its field tests and experimental broadcast programs. We believe that the problems confronting this difficult and complicated art can be solved only by operating experience gained from actually serving the public in their homes. Therefore, RCA proposes to take a third step in the solution of these prob-

lems by beginning a limited program service to the public from its New York television transmitter on the Empire State Building. This transmitter will serve an area having a radius of approximately fifty miles."

### Impact on the trade

Dealers and distributors immediately wanted to know "how will all this affect the sale of broadcast receivers?"

To this, George K. Throckmorton of RCA-Victor explained that receivers purchased now may be used to furnish the sound part of television, with an extra accessory providing the image reception. There is, therefore, no reason why today's radio sales should drop.

The question of what radio salesmen should tell their hesitant customers was also answered. Many of the new radios will be marked with a notice explaining that the instruments may be used as part of television reception.

Radio business men also wanted to know when they might expect television service in their areas. The reply to this is "when at least one station in your area is willing to undertake the heavy financial and other responsibilities attendant upon the establishment of a regular program service to the public."

### Factors in the field

Meanwhile, a second New York television transmitter, the Columbia Broadcasting Co.'s W2XAK on the Chrysler Building is being completed and plans to be on the air early next year.

The Allen B. Du Mont Laboratories, Upper Montclair, N. J., has been given a construction permit by FCC for a new television transmitter. Some hundred Du Mont receivers are in process of manufacture and a number have already been demonstrated in New York stores.

(Continued on page 54)



# DEMONSTRATE ANYTIME!

"Wireless players" provide programs for sets



For demonstrations when BC programs can't be had, dealer can "make his own broadcasting" with wireless record player. Photo shows this stunt in progress with Sonora's "mystic music maker" at Ludwig Bauman's 8th Ave. store, NYC.

Very often radio dealers have difficulty in finding programs suitable for demonstrating sets to prospective customers. In other instances, the dealer's location may be poor, so that it is impossible to receive broadcasts that are entirely free from noise.

The new wireless record players now give the radio dealer a miniature broadcasting station of his own, and which will work with any receiver in his store without direct connections or changeover switches.

All the dealer has to do is plug the record player in the power line and adjust its frequency to such an unused channel in the locality so as to prevent interference. Symphonies, swing, operas, or what have you, are then at the dealer's disposal—in fact the only limit on the program material is the dealer's selection of records!

## Set button for phono-channel

Radio sets to be demonstrated are then turned to the record player's frequency. Push-button sets may even have on button adjusted to the record player for instantaneous tuning.



A brand new wireless record player by Morlen Electric Co., 60 W. 15th St., NYC. Features include volume control, motor on-off switch, covered needle-cup. Walnut finish. List \$24.95.

Since no connecting wires are needed, any set will operate from the record player. Comparisons between various sets can be easily made by turning down the volume on one set while turning it up on the other.

For the better type receivers, classical music is probably the best program material since it has a wide range of notes and volume. If the volume controls are so adjusted that the better receiver will just handle the loud or fortissimo passages, then it is possible to demonstrate its power capability. Naturally a set with less power output at the same average volume level will distort on the loud passages—in this way it is possible to demonstrate the need for ample power.

## Overloading

In order to avoid overloading of the record player transmitter unit, the dealer should first determine how high he can advance the volume control on the record player without causing overload on the particular record used. This adjustment is as simple as setting a receiver's volume control.

Technically inclined dealers can use some of the frequency records that are available, for determining the approximate frequency response of various sets. Likewise, radio servicemen should be able to make good use of the wireless record players for checking the characteristics of the receivers after they have been repaired. Since the signal is picked up in the antenna circuit, such a test provides an overall check on the receiver.

The low cost of these wireless record players makes it possible for every dealer to use one for demonstrating his sets when the regular broadcasts are unsatisfactory for this purpose. Also the use of the device for demonstrations should go a long way in building up sales of the units for use in homes.



Paul S. Gay and C. M. Wilcox, who exhibited their wireless record player as far back as the Radio Trade Show in Chicago last June, initiating this now fast-selling radio adjunct.

*Created By the Sure  
Hand of Experience!*

Dealers everywhere have asked for this new version of Sparton, wrought in Midnight Blue Mirror Glass like its amazingly successful predecessor — the Sparton Bluebird model. And now it is ready for Christmas selling — a merchandising triumph that will sell at an accelerated pace as thousands are given the opportunity to appraise and appreciate its beauty and surpassing performance.

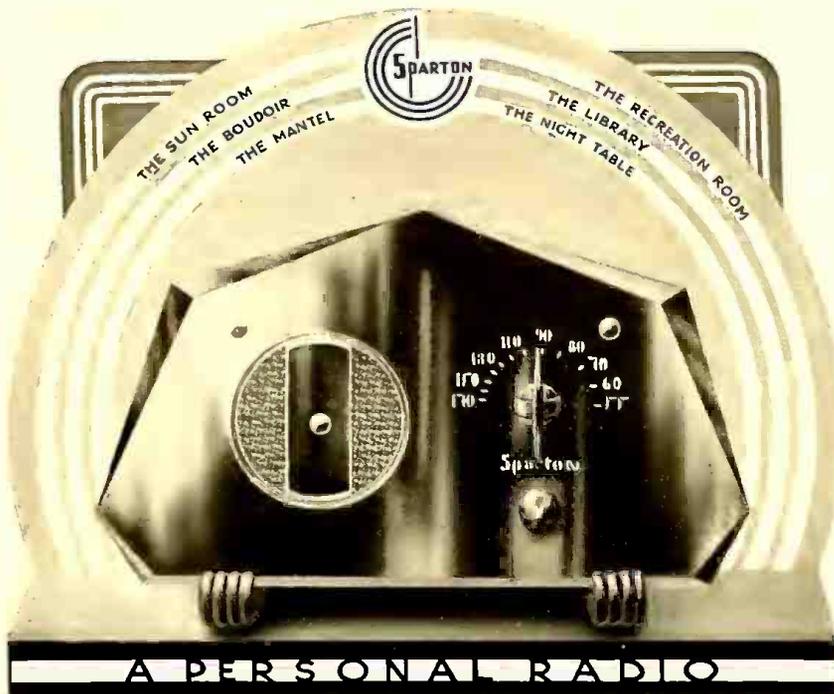
NEW  
**SPARTON**

**BLUE Mirror GLASS  
Personal Radio**

**“CYNOSURE” OF ALL EYES**

*Style Leader  
of All Radios*

Here is beveled Midnight Blue Mirror Glass modeled in a rhythmic, modern design enriched with touches of silver glints and ebony black. It is a magnificent, artistic coalition of contour and colors . . . a worthy successor to the widely accepted Sparton Bluebird Model . . . a radio thoughtfully designed to harmonize with all interiors, whether modern or traditional. Truly an original and imaginative gift whose beauty and character are too elusive to be trapped in words. It is featureful, too, with 5-tube (with ballast) AC-DC chassis and rich-tuned dynamic speaker.



**FREE  
DISPLAY**

***Priced for the Modest  
Gift Budget***

**\$18<sup>95</sup>**

The stunningly beautiful display unit shown above is given FREE to all Sparton dealers. The display lends itself to dramatic use in show window or store, and it has the power of creating sales because it glorifies the smartest radio yet to reach the market.

*Ready Now For Immediate Delivery.*

Western Prices  
Slightly Higher

**THE SPARKS-WITHINGTON COMPANY, JACKSON, MICHIGAN**

# 1939 AUTO-RADIO

**Push-button tuning universal; cowl antennas  
Simpler means of station setting; prices down**

With the New York Automobile Show again holding the nation's attention, public and trade interest is attracted by the new auto-radio facilities provided for the 1939 cars. RADIO TODAY here presents a look-behind-the-scenes of the auto-radio situation for the coming year, pointing out the new developments in car-receivers and installations, which will be of interest to radio men.

Springtime in 1938 was really the development period for present 1939 automobiles and their accessories, the biggest sales unit of which is the radio set. Last Spring, of course, a dark cloud of pessimism hung over the automotive industry, with sales way down in sympathy with the nation-wide recession. But engineering proceeded as usual. If there were going to be any auto-radio sales in connection with the 1939 car models, the manufacturers were not risking unpreparedness. High spots in this development program are herewith discussed and trends pointed out.

The antenna designer is end-man in the game of Snap-the-Whip. Automobile stylists, body designers, chassis engineers—all concentrate on the appearance, performance and low cost of the automobile. When this is

all finished, the antenna man must cudgel his brain to find a few microvolts of signal with a device that shall be heard and not seen. In 1938 he had running boards under which he could conceal his antenna, or which he could insulate so that they alone were the antenna system. But running boards on 1939 cars are either optional or rudimentary, so that there is little choice but to use some sort of cowl-mounted fish-pole. Then, too, the body men learned that the best way to avoid rattles was to eliminate possible contact between body components except at structurally needful points, and to use rubber liberally at these points. Consequently considerable ignition interference is radiated right near the antenna, so that only by some pretty clever filter and wave-trap design, coupled with complete absence of receiver chassis pickup, can there be a clear path for signals.

## Circuits

Costs had to be kept at new lows in these 1939 designs. Consequently some of the 1938 circuit tricks, conceived mainly as talking points, have been dropped in favor of the simplest means for obtaining good, honest per-

formance. This policy has given the 1939 sets more undistorted output and greater sensitivity per dollar of cost than ever before.

## Speakers

The 1938 acceptance of instrument-panel speaker location put pressure on the body designers to provide more speaker space. Consequently, 8-inch speakers have replaced 6-inch units in some cases, and auxiliary instrument-panel speakers are supplementing dash-mounted speakers in others. The policy of tailoring speaker response to the acoustic needs of particular body types has been particularly stressed. The universal use of push-button control has crowded some of the receiver components off the instrument panel, so that it has become necessary to put power supply units in the dash-speaker case, where such speakers are used, or in separate dash-mounted cases where instrument-panel speakers are employed.

## Tuning controls

Push-button control is the unbroken rule in the new sets. Some wonderful ingenuity has been displayed, and the few mechanical bugs found in the 1938 button controls have been eliminated. Direct mechanical drive from buttons to gang-condenser rotor leads in popularity, but some of the swankier sets enjoy solenoid or motor-driven condenser rotors, or single-button selection of preset fixed-tuned circuits.

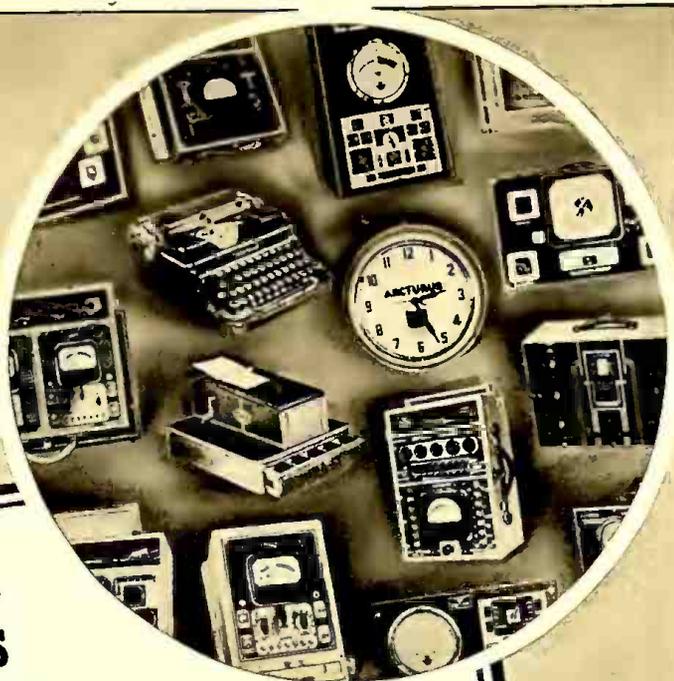
Much effort has been expended toward simplifying the task of setting up the push buttons. A year ago this was strictly a service man's job, and a thankless one, for it was an added item in installation and was never paid for separately. Most of this year's tuning systems are designed to be set up by the owner. The easiest type to set up is one wherein the tuning buttons may be pressed beyond the normal tuning stop and caused to declutch the gang condenser, after which any desired station is manually tuned. Upon releasing the button, that station is henceforth set up for that button, and its subsequent pressing will always select that channel. Frequency-drift troubles are mainly thermal in their origin, and frequency stabilization has received much consideration. One novel scheme is to seal the I.F. coils into an exhausted glass tube, forever safe from humidity effects and free from sudden temperature changes. Temperature-compensated trimmers and separate compensating condensers are likewise employed.

## THE FOOTBALL RADIO SEASON WORKS UP TO NEW INTEREST PEAK



Practically everybody is a college parent, a college alumnus, or a college student. Here's how Sales Furniture Co., Louisville, Ky., got in on the varsity football interest, by building a feature window using many-colored Stewart-Warner sets.

# More FOR YOUR MONEY!..



## with ARCTURUS TUBES and the ARCTURUS EQUIPMENT DEAL!

Seldom has any manufacturer made such tremendous forward strides in product improvement and sales volume as made by ARCTURUS during the past year.

Three things have contributed to this accomplishment:—constant research to continually improve the already high quality of ARCTURUS TUBES; a new, complete line of ARCTURUS DEALER HELPS—and the sensational ARCTURUS EQUIPMENT DEALS.

In short, ARCTURUS has adopted a sound, liberal dealer policy... a policy that gives you **MORE FOR YOUR MONEY** than ever before!

**NEWEST EQUIPMENT almost FREE!**

ARCTURUS believes modernization of service facilities is the practical way to increase every dealer's sales and service profits—and keep

them steady in good times and bad! That's why ARCTURUS is helping dealers and servicemen to obtain shop, store and test equipment—highest quality units by famous makers—at almost **NO COST!**

### START NOW—YOU CAN'T LOSE!

You, too, can take advantage of this golden opportunity—merely by selling ARCTURUS TUBES! Get the facts. Let us show you how the new ARCTURUS DEALER HELPS help you increase your regular sales... how the ARCTURUS EQUIPMENT DEAL brings you the very newest equipment—practically FREE!... and actually gives you a **TWO-WAY PROFIT!**

And remember: Only the ARCTURUS DEAL offers you all these features!... Low Down Payments... Low Tube Requirements... Tubes at Standard Prices... Immediate Delivery of the equipment you select... a wide choice of the latest models... more for your money than any other plan ever offered in the history of RADIO.

### SELL RADIO'S MOST COMPLETE LINE!

You'll profit, too, from the completeness of the ARCTURUS line! Regular Glass, Coronets, "G", Midget, Majestic, Sparton and the popular Ballast tubes—more types for more applications than any other. Hundreds of thousands of Arcturus "GT" Tubes are being used as original equipment in nationally known set lines. They're creating a huge replacement market for MIDGETS. Be prepared for this demand... **"GO ARCTURUS!"**

*Mail the Coupon!*



# "Go ARCTURUS"

## FOR GREATER PROFITS!

Arcturus  
Radio Tube  
Co., Newark,  
New Jersey.

Gentlemen:  
Send complete details of  
your Equipment Deal and  
my copy of the Arcturus  
Dealer Helps folder.

- I am a Dealer  
 I am a Serviceman

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

My Jobber is \_\_\_\_\_

T-13

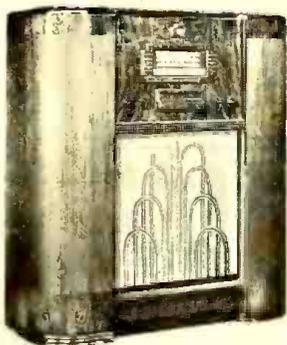
# NEW XMAS MERCHANDISE

Latest news of radio products from manufacturers

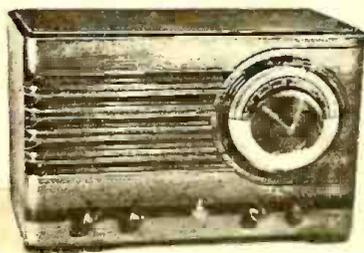


## G-E consoles

★ 7-tube AC superhet tuning 540-1,750 and 55,700-18,300 KC. 12-inch dynamic speaker. Keyboard touch-tuning with 6 keys. Cathode-ray tuning indicator. Louvre dial with individual scales. Tone monitor circuit. Model G-75.



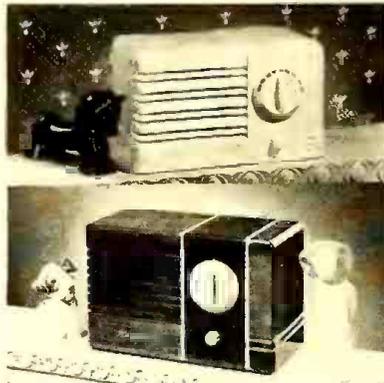
Push-button receiver with touch tuning for 6 stations. Power-line switch automatically operated by depressing station keys. 3 band operation—540 to 18,300 KC. Power output of 5 watts, 4-point tone-fidelity control. Model G-76. General Electric Co., 1285 Boston Ave., Bridgeport, Conn.—RADIO TODAY.



## Miracle dial receiver

★ 6-tube AC superheterodyne receiver with miracle tone chamber and full-vision dial. 6½-inch dynamic speaker. Dynamic-coupled

power output of 5 watts. Hand-rubbed walnut cabinet. Model BW-231—list \$39.95. Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York, N. Y.—RADIO TODAY.



## Little Nipper receivers

★ Series of low-cost receivers in plastic and wooden cabinets. 5-tube AC-superhet chassis with illuminated dial, dynamic speaker, and metal tubes. Illustrated at the top is model 9TX2 listing at \$12.95. Model 9TX3 at the bottom lists for \$14.95. RCA Mfg. Co., Front and Cooper Sts., Camden, N. J.—RADIO TODAY.



## Philco receiver

★ 6-tube receiver with push button tuning of 8 stations and manual tuning with finger tip disc controls. Spinet type furniture cabinet. Streamline dial, inclined panel, variable tone control and bass compensation. Model 36-XX—list \$79.95. Philco Radio & Television Corp., Tioga and C Sts., Philadelphia, Pa.—RADIO TODAY.

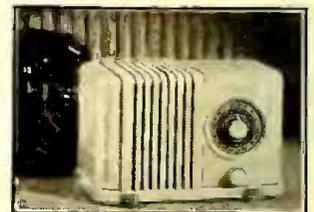
## Tube shields

★ Line of radio tube shields to fit new 1.4 volt tubes and bantam types. Goat Radio Tube Parts, Inc., 314 Dean St., Brooklyn, N. Y.—RADIO TODAY.



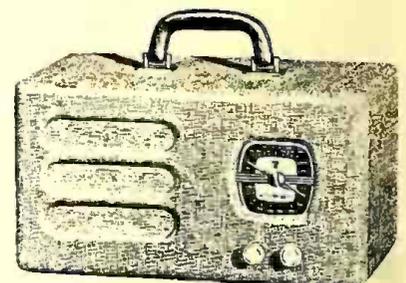
## Chairside combination

★ 8-tube superhet receiver with automatic record changer. Cathode-ray tuning eye. 12-inch speaker. Tunes broadcast and shortwave bands. AC model—list \$185. AC-DC—\$189.50. Push-button tuning for slight additional cost. Storage space for records. Portomatic Corp., 1013 Madison Ave., New York, N. Y.—RADIO TODAY.



## DeWald Bantam

★ Miniature table type receiver in plastic cabinet. Tuned radio frequency circuit. Tunes 165 to 555 meters. Illuminated dial—PM speaker. In Ivory, Red, and Blue. Model 406. Pierce-Airo, Inc., 440 Lafayette St., New York, N. Y.—RADIO TODAY.



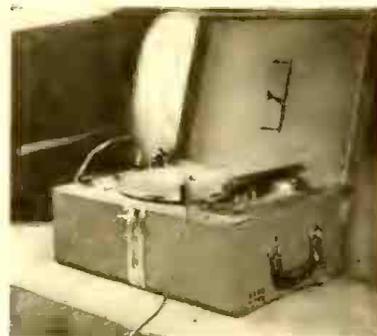
## Travelette portable radio

★ Superheterodyne, battery-operated portable set for all indoor and outdoor uses. Built-in loop used for antenna. Can be used as an auto radio. Long-life, self-contained batteries. Uses new 1½-volt tubes. Airplane cloth carrying case—weighs 17½ pounds. Mission Bell Radio Co., 833 Venice Blvd., Los Angeles, Calif.—RADIO TODAY.



### Espey record player

★ Wireless-operated record player for use with all radios. No wires to attach to radio set. Simply connect to power line circuit. Plays through radio set just like a broadcasting station does—no wiring changes needed. Crystal type pick-up and constant-speed motor. Espey Mfg. Co., Inc., 67 Irving Place, New York, N. Y.—RADIO TODAY.

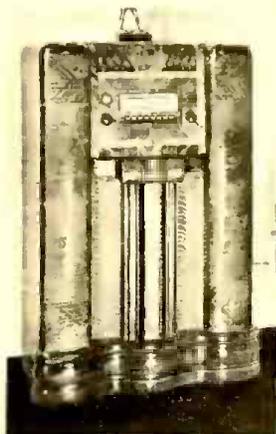


### Mobile sound system

★ 30-watt sound system for operation from storage battery or AC power line. Amplifier gain of 122 DB. System supplied with dual 12-inch PM speakers with aluminum dome baffles. Turntable for phonograph operation. Wholesale Radio Service Co., 100 Sixth Ave., New York, N. Y.—RADIO TODAY.

### Wireless record player

★ AC type wireless record player attachment for use with any radio set. Works over distances up to 20 feet. Plays records up to 12 inches. Radio set tuned to frequency of record player for phonograph operation. Allied Radio Corp., 833 W. Jackson Blvd., Chicago, Ill.—RADIO TODAY.



### RCA-Victor console

★ Low-cost console radio housed in luxurious cabinet of rare woods. Provides domestic and foreign reception. 7-tube chassis with magic eye. Push button tuning with Victrola button—straight-line dial. Variable tone control. Power output of 4½ watts. Model 97K—list \$75. RCA Mfg. Co., Front & Cooper Sts., Camden, N. J.—RADIO TODAY.

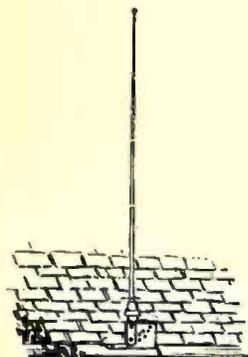


### Supreme Lab-rack

★ Service laboratory in a square foot of bench space. Units illustrated are: top, 596 resistance and capacitance substitution box; 592 multi-range meter; 594 tube tester unit utilizing good-bad meter on set tester; 593 analyzer unit at bottom which is used with the 592 multi-range meter. Push-button type of switches used in all instruments. Supreme Instruments Corp., Greenwood, Miss.—RADIO TODAY.

### Stromberg corner radios

★ Corner cabinet type sets now available in walnut. Model 350V is a large high-fidelity receiver. Model 340-W is a smaller set listing at \$125. Chassis has 9 tubes. Flash tuning with push buttons for 8 stations. Labyrinth for better tonal quality. Stromberg-Carlson Telephone & Mfg. Co., 100 Carlson Rd., Rochester, N. Y.—RADIO TODAY.



### Vertical antenna

★ Home type vertical antenna with universal bracket that permits mounting of antenna at any point on house or window. Non-directional. Cadmium plated—4 sections—extends to 12 feet. Supplied with 40 feet of lead-in wire. Model 3071RA—list \$3.50. J. F. D. Mfg. Co., 4111 Ft. Hamilton Pky., Brooklyn, N. Y.—RADIO TODAY.



### Tube tester

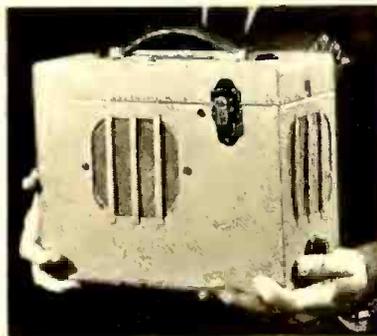
★ Dynamic mutual-conductance tube tester with multi-range meter. Push-button operation. AC-DC voltage ranges of 0/10/50/250/1000 volts. DC mils: 0/1/10/50/250/10M. Resistance ranges of 0/40/100M/1meg/10meg. Also decibel and output ranges. Model 900. Precision Apparatus Corp., 821 E. New York Ave., Brooklyn, N. Y.—RADIO TODAY.

### Ham band antenna

★ Noise-reducing antenna system designed for use on the 10, 20, 40 and 80-meter amateur bands. Size of antenna reduced from 70 to 40 feet for peaked operation on 40 meters through use of loading coils. On 10, 20, and 40 meters an average signal strength increase of 7 to 11 DB is gained when compared with untuned doublets. Type 165. Technical Appliance Corp., 17 E. 16th St., New York, N. Y.—RADIO TODAY.

### 9-inch videotron

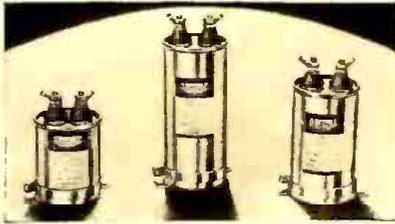
★ Cathode-ray television receiving tube with a 9-inch medium persistence screen. Ceramic-mounted gun, supported by mica springs. Produces black and white pictures. High brilliance and no defocussing at extreme of sweep. Type 2109. National Union Radio Corp., 30 State St., Newark, N. J.—RADIO TODAY.



### Portable sound system

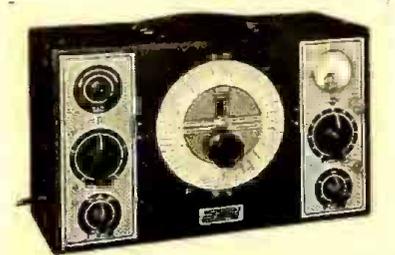
★ 5-watt sound system with 2 speakers, and microphone with 25-feet of cord. Entire unit, with gray metal carrying case weighs 15 pounds. Ballyhoo portable P.A. unit. Operadio Mfg. Co., St. Charles, Ill.—RADIO TODAY.

# MORE NEW THINGS



## Transmitting capacitors

★ High-voltage condensers for use in transmitters and television receivers. Hermetically-sealed in round aluminum containers, impregnated and filled with non-inflammable dykanol oil. TQ series available in ratings from 1 mike 600 volts to 2 mike 2,000 volts. Cornell-Dubilier Corp., S. Plainfield, N. J.—**RADIO TODAY.**



## C-B microvolter

★ Oscillator unit tuning 100 to 30,000 KC having output calibrated from 1/2 to 100,000 microvolts. Provides a yardstick of receiver performance in terms of sensitivity and gain. Lattice-wound non-inductive attenuator resistors, copper internal shielding. Model 199. Clough-Brengle Co., 2815 W. 19th St., Chicago, Ill.—**RADIO TODAY.**

THE G-E ALL-WAVE MULTICOUPLER ANTENNA SYSTEM



## Multiple antenna system

★ All-wave antenna system for apartment buildings, schools, institutions, hotels, etc. Provides noise-free reception on all wavelengths. Each antenna handles up to 20 sets—uses no tubes. Designed for installation in building during the construction. Concealed wiring using standard wiring materials. General Electric Co., 1285 Boston Ave., Bridgeport, Conn.—**RADIO TODAY.**

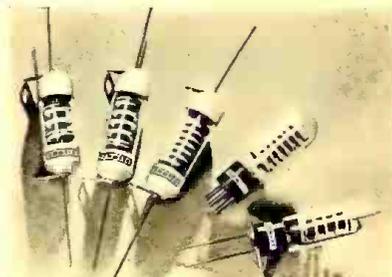
## Resistor tester

★ Test unit for checking condition of plug-in line resistors and line cord resistors used in AC-DC sets. Enclosed in a steel case. Has attractive panel carrying meter, octal socket and UX socket. Standard outlet for line cord testing. Selector switch connects to pins of sockets. Model 160. Clarostat Mfg. Co., 287 N. 6th St., Brooklyn, N. Y.—**RADIO TODAY.**



## Ball-type mike

★ Electro-dynamic microphone housed in ball-shaped satin-black metal case. Adjustable bracket makes the model directional or non-directional. Frequency response from 25 to 10,000 cycles. Output level—52 DB. High and low impedances. Model MK35—list \$34.50. Tilton Electric Corp., 15 E. 26th St., New York, N. Y.—**RADIO TODAY.**



## Hermetically sealed resistors

★ Precision type resistors in hermetically-sealed glass cylinder. Glass to metal seal provides permanent seal. Non-inductive pie-wound resistance element on porcelain spool. Ohmmages from .1 to 2,000,000. 1 per cent tolerance or closer—1 watt rating. Ohmite Mfg. Co., 4835 Flournoy St., Chicago, Ill.—**RADIO TODAY.**

## Single-button mike

★ Smallest enclosed single-button microphone. "Watch model" is designed for detectaphones, intercommunicating systems, etc. Unit can be easily concealed—also works as a lapel microphone. Model W—list \$3. Universal Microphone Co., Inglewood, Calif.—**RADIO TODAY.**



## Multiple antenna system

★ All-wave antenna system for use with 1 to 25 receivers. Designed for apartment houses and large private homes. Provides increased signal pick-up and eliminates maze of wires. Basic kit model 645—list \$5.50. Model 648 Set couplers list for \$2. Consolidated Wire & Assoc. Corp., Peoria St., Chicago, Ill.—**RADIO TODAY.**



## Insulated grid clip

★ Universal grid clip for all sizes of grid caps. Jaws specially constructed to fit cap. Rubber insulator over clip which is supplied with 10-inch lead and standard phone tip. Type 106—list 20 cents. Mueller Electric Co., 1583 E. 31st St., Cleveland, Ohio.—**RADIO TODAY.**



## Add-A-Bin

★ Neat, compact, low-cost means for storing small radio parts. Bins are sold separately and assembled by the user to fit individual needs. Bin housing may be screwed to wall or panel. Bins close automatically after use. If bin is lifted slightly when open, it will lock open. May also be removed from housing. Welded steel construction. Noggle Products Co., Ann Arbor, Mich.—**RADIO TODAY.**

# THE HANDIEST TESTER OF ALL...

# TRIPLET

ONLY  
**\$15.00**  
NET

• Engineers and experimenters pronounce this instrument the most useful tester of all for laboratory, shop or field use.



MODEL  
666  
**POCKET  
VOLT-OHM-  
MILLIAMMETER**

A complete instrument for all  
AC-DC voltage, current and re-  
sistance analyses.

Model 666 has 3 sq. Triplet Improved resistive type instruments. AC-DC Voltage Scales read: 0-10-50-250-500-1000 or 1000 Ohms per volt. DC Milliampere Scale reads: 0-1-10-50-250. Ohms Scales read: Low 2-2000 High 250,000. Resistance range can be increased by adding external batteries. Size 3 1/4" x 5 3/4" x 2 1/4". Black Moulded Case and Panel. Newly Improved Low Loss Selector Switch. Complete with Alligator Clips, Battery and Test Leads. Dealer Price, \$15.00

#### EXCLUSIVE NEW TRIPLET LOW LOSS SWITCH

Incorporated in Model 666. Uses two silvered contacts instead of one, insuring lower contact resistance. On actual breakdown test, on and off operation exceeded 10 million times without failure.

ATTRACTIVE, BLACK LEATHER CARRYING CASE, MODEL 666, IS SUPPLIED EXTRA. DEALER PRICE \$3.67

In designing testers of ultra compact size, many problems occur that do not have to be considered where more space is available. Triplet's Model 666 has stood the test of time and it is the biggest seller of its kind in this market.

**THE TRIPLET ELECTRICAL INSTRUMENT CO.**  
Bluffton, Ohio

The Triplet Electrical Instrument Co.  
1911 Harmon Dr., Bluffton, Ohio

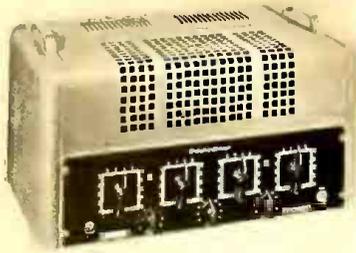
Please send me more information on  
 Model 666  Triplet Catalog.

Name .....

Address .....

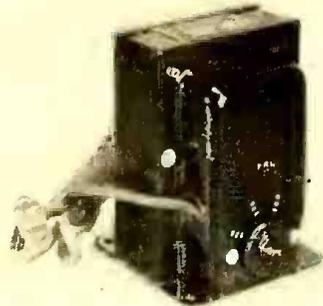
City ..... State .....

# MORE NEW THINGS



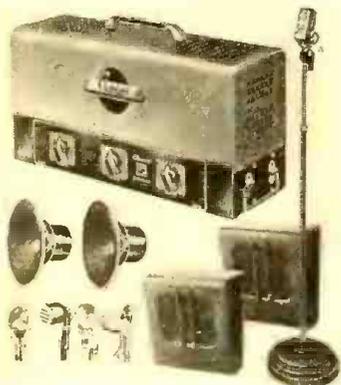
## 35-watt amplifier

★ 5-stage 12-tube amplifier with 35-watt output. Mike gain of 130 DB gain with 2 meg input impedance. Mixers handle up to 3 mikes and phonograph. Multi-stage de-generation. Model 4L35. Webster Co., 5622 Bloomingdale Ave., Chicago, Ill.—RADIO TODAY.



## Isolation transformers

★ Adjustable voltage and isolation transformers with electro-static shield between windings. Eliminates line noises and keeps radio noises off the power line. Tapped at 105, 115, 125 volts. Units available for 100, 250, 500 volt-amperes. Thordarson Electric Mfg. Co., 500 W. Huron St., Chicago, Ill.—RADIO TODAY.



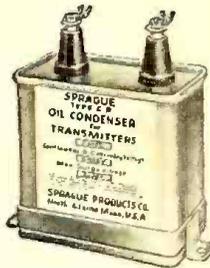
## Unified sound system

★ 24-36 watt sound system with beam-power amplifier. Uses two 12-inch speakers with wall baffles. Choice of microphones with cable. Floor stand and all accessories. C22R amplifier only—list \$42. Cla-

riation model C-440. Complete system—\$129.90. Transformer Corp. of America, 69 Wooster St., New York, N. Y.—RADIO TODAY.

## Rider Manual, Vol. IX

★ 1650-page radio service manual with circuits and servicing data on the 1938-39 receivers. Manual contains a 64-page section, "How It Works" in which the mechanical features are clearly covered. Revised index, 140 pages in itself, lists all receivers in the 9 manuals. Volume IX—net \$10. John F. Rider, Publisher, New York, N. Y.—RADIO TODAY.



## Transmitting condensers

★ Oil-filled and oil-impregnated capacitors with universal mounting bracket. Rectangular-shaped can requires minimum space. Labelled with maximum DC voltage and surge voltage. Oil has flash-point of 500° F. Type CR units. Sprague Products Co., N. Adams, Mass.—RADIO TODAY.



## Radio-dial tube tester

★ Tube tester having but 2 controls to set when checking a tube. Turn dial until tube type appears and switching of the circuits is automatically accomplished. Turn second dial to number indicated under tube type. Insert tube in socket and push test button for meter reading. Dial mechanism can be removed in 90 seconds for modernization—no wires to disconnect. Model 9-99. Stark Instruments, 418 S. Wells St., Chicago, Ill.—RADIO TODAY.

## Single-ended tubes

★ Line of amplifier tubes in which the top lead or cap has been transferred to the base. Through special inter-lead shielding and basing, the interelectrode capacitance is not increased over the older type. Tubes identified by the letter "S." Following types available: 6sJ7, 6sQ7, 6sK7, 6sP5G. Raytheon Production Corp., 420 Lexington Ave., New York, N. Y.—RADIO TODAY.



## Million sound systems

★ Line of 5, 10, 17, 35-watt sound systems and amplifiers. Prices for complete twin-speaker systems in carrying cases start at \$49.95 list. 17-watt amplifier illustrated. Million Radio & Television Labs., 685 W. Ohio St., Chicago, Ill.—RADIO TODAY.

## Arcturus tubes

★ New tubes added to the replacement line are: 6J8G, 6K8G, 6P5G, 6F5GT. New plug-in resistors (ballasts) are: BK42BG, EK42CG, BK49BG, BL49DG, BM42BG, BM55BG, L36DG, L36DJG, L49BJG, K49AG. Arcturus Radio Tube Co., Frelinghuysen Ave., Newark, N. J.—RADIO TODAY.



## Dynamic microphone

★ Moving-coil type of microphone with output of -59 DB. Frequency response flat within 4 DB from 60 to 9,000 cycles. Directional and non-directional characteristics obtained by adjusting mike unit on stand. Model 99—list \$32.50 with stand. Turner Co., Cedar Rapids, Iowa.—RADIO TODAY.

## Electrolytic condenser

★ Dry-type electrolytic capacitor in one-inch diameter can with simple ring mounting. Available in extremely high capacity values. Single and multiple section types. Hermetically sealed. Known as type B. Aerovox Corp., 70 Washington St., Brooklyn, N. Y.—RADIO TODAY.

## Television tube

★ 14-inch television tube manufactured and priced on mass-production basis for all television receivers. Full 8 x 10 inch screen image provided by this tube. Tested for deflection sensitivity, image brilliancy, positioning, and other characteristics. Allen B. DuMont Labs., Inc., Passaic, N. J.—RADIO TODAY.

# SYLVANIA

## *A Synonym For "Quality"*

In this magazine . . . all during 1938 . . . we have shown you examples of the extreme care and precision-workmanship that go into each Sylvania radio tube. And we've explained some of the tests and rules that help keep the famous "Sylvania quality" uniformly high.

Naturally, we have been able to present just a small portion of the entire Sylvania quality story. But we do hope one important fact has been made clear: *The name "SYLVANIA" stands for quality above all else . . . First, Last and Always!*

Remember this fact—let it be your guide when buying.

*Hygrade Sylvania Corp., Emporium, Pa.  
Also makers of Hygrade Lamp Bulbs.*



# KILLING JOBBER SALES

Granting extra discounts to large jobbing outlets may cost more business than manufacturers realize

Were I to sign my name to this very frank expression of opinion, I'd spend the next few weeks arguing with the salesmen and even the sales managers of a couple of dozen parts manufacturers. So it's simpler and certainly more effective for me, as a disgusted jobber, to hide behind a pen name in my corn-stepping pronouncements.

Frankly, very frankly, I'm disgusted with the radio parts jobbing business. I'm seriously considering going out of business. Of course it's always been a chiselling business at best. But during the past year or two the chiselling tactics have extended even to some of the larger and better kind of manufacturers, which is the final straw so far as I'm concerned.

However, before throwing overboard the efforts of a decade in the radio parts jobbing business, I'm in hopes that the following remarks and suggestions may possibly bring some of the parts manufacturers to their senses.

## Extra-discount evil

My squawk, and likewise that of hundreds of other small jobbers, is that certain parts manufacturers are playing up to large wholesale outlets to our detriment. In other words, the large wholesalers are often granted extra discounts which we smaller fellows don't get. Now if those extra discounts were in consideration of the handsome catalogs and elaborate showrooms and stupendous stocks carried by the large wholesalers, we might pass up the matter. After all, even though it were displaying marked partiality, we might simply assume that it wasn't any of our business. But that's not the real trouble.

Some of these large wholesalers have seen fit to pass the discounts along to our own servicemen and retailers. And that's what really hurts. That extra ten per cent, if passed along to the buyer in the trade, soon establishes a precedent. When we smaller jobbers call around and try to sell on our usual "40-off" basis, we're soon told we're out of line. Yet we need our full margin between the 40-off and our own jobber's discount, to make both ends meet these days. So we can't meet that extra discount which the favored wholesaler has won from the manufacturer and is passing on to serviceman or retailer.

Now it's surprising how those big fellows reach out. My own territory

is adjacent to a large city. I cover the outlying sections both by trucks and by a store. My trade is both with servicemen and radio stores. Until a couple of years ago, I enjoyed an excellent parts trade. But during the last two years, some of my manufacturers have seen fit to play ball with the big houses, and my trade has dropped off to a marked extent because I refused to meet the big fellow's extra discount.

Not one in a dozen I deal with ever gets down to the big city. I dare say that only a handful of my customers have actually been contacted by the big wholesalers operating in the city. Yet that extra discount news has

spread far and wide. I run across this demand almost daily.

Meanwhile, it's interesting to note how we small fellows are expected to carry such a varied stock. Take exact-duplicate parts, for instance. A jobber can sink a pile of money into just one each of a very wide assortment of parts. While we're carrying such stocks as an accommodation to our service trade, the big wholesalers are cleaning up on standard items by granting extra discounts. It simply doesn't seem right.

## Special deals

Then there's another bit of foolishness we are facing. Some manufacturers have seen fit to make their products available on special deals. The serviceman can frequently buy a test instrument or a service manual at a knocked-down price or in conjunction with the purchase of a certain amount of goods, while we cannot match such costs within our discounts. Just as soon as I find one of my lines being featured on such a "deal," I'm immediately through with it.

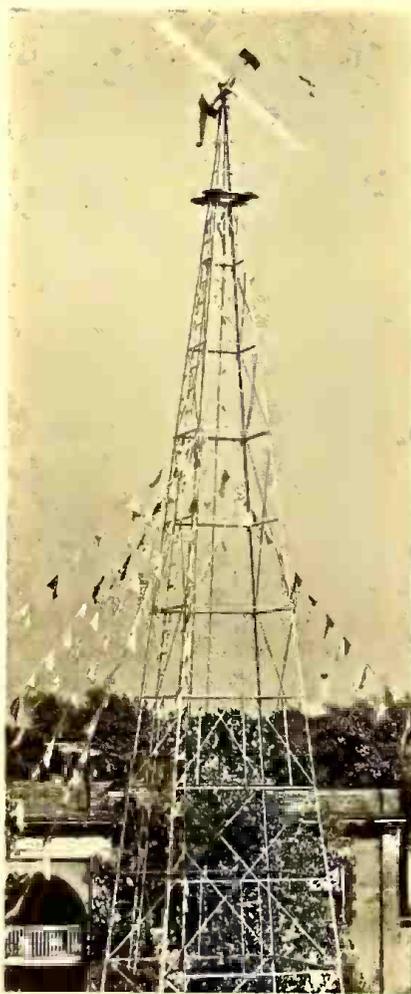
No, it isn't right. The manufacturer wants to get that volume business in big chunks through the big wholesalers. Meanwhile, he assumes that we little jobbers, carrying on in the wide open spaces, are going to keep going with a smile. But unfortunately, the big wholesalers and the deals make news in this trade, and once a lower price or longer discount is established, the fact spreads like wild-fire. We're expected to meet the same discounts and prices.

## Different brand names

If we only had other brand names to compete against, we smaller fellows could still make out a case. But when it's the exact same brand names, type numbers and so on, we cannot argue against lower prices or longer discounts. We're simply licked.

There's room for all of us in the jobbing field. The trade needs the smaller jobber with his close contact and handy stock, just as much as the big wholesaler with his large stock and explicit catalog and prompt deliveries even at a distance. But unless the discriminating discounts of today are promptly discontinued, there are going to be a lot less small jobbers around to take care of the outlying trade, I assure you.

## BIG-CITY WIND CHARGER



O. J. Herrelson, Chicago, was so sold on "power from the wind" he connected with Wincharger Corp. and this 85 ft., 1,000 watt outfit was the result.



# BUILDS A FUTURE

*for the*

## RADIO SERVICE DEALERS OF AMERICA

The modern radio tube is the heart of all electronic apparatus. Every present form of radio receiver and transmitter, sound re-enforcement and motion picture sound equipment, as well as a great many other electrical mechanisms, depend entirely upon the radio tube for proper operation.

The development and growth of the radio art and industry has, in a large measure, been dependent upon the ability of radio engineers to design radio tubes that will properly perform very definite functions.

Since the beginning of radio, RCA has spent millions of dollars in radio tube research, and in addition has concentrated its tremendous facilities upon the problem of developing and manufacturing radio tubes which must meet exacting specifications. As a result of this continued activity RCA Radio Tubes have rightfully earned a reputation for reliability and uniformity of quality which has long been the envy of the radio industry.

At some time in the future, a new electronic marvel may be serving the public—TELEVISION. Here, too, RCA has played an historic role by pioneering a potentially great art and industry. It was the knowledge of these fundamental electronic principles of the radio tube which has brought Television to its present stage of practical development.

As more radio and electronic devices come out of the laboratory and into general use, more opportunities are provided for the aggressive service dealer to increase his own activity. All of these electronic mechanisms must be properly serviced as well as sold and thus we find that the radio service dealer becomes a more important figure in the radio industry.

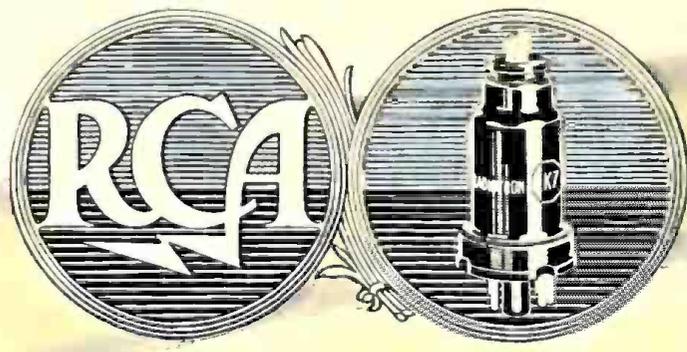
Photograph shows an RCA Television Engineer preparing a kinescope glass envelope for spraying with fluorescent material.



# Radio Tubes

FIRST IN METAL  
FOREMOST IN GLASS  
FINEST IN PERFORMANCE

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



RCA presents the "MAGIC KEY" every Sunday,  
2 to 3 P. M., E. S. T., on the NBC Blue Network.

★ MORE THAN 325 MILLION RCA RADIO TUBES

# THE QUALITY OF

# *RCA Radio Tubes*

## IS NEVER QUESTIONED

*“Quality,” says Webster’s Dictionary, “is the excellence of character.”*

SINCE the beginning of radio, RCA has spent millions of dollars on engineering research in the fields of the electronic art to create and preserve “the excellence of character” that has been built into the hundreds of products that bear the RCA trade-mark.

And so it is with RCA Radio Tubes.

The quality of RCA Radio Tubes has been accepted as standard the world over—

- . . . that's why more than 325 million RCA Radio Tubes have been purchased by radio owners.
- . . . that's why more than thirty radio manufacturers use RCA Radio Tubes as original equipment.
- . . . that's why the majority of broadcasting stations in the United States, as well as leading Foreign Stations, use RCA Radio Tubes.
- . . . that's why over 5,000 motion picture theatres use RCA Radio Tubes in their RCA Photophone Sound Equipment.
- . . . that's why RCA Radio Tubes are standard equipment in Police, Aviation, Marine and other communication apparatus.

In order to capitalize upon the tremendous public acceptance for RCA Radio Tubes, radio dealers and service men should keep an adequate stock on hand at all times. See your local RCA Radio Tube Distributor.

## HAVE BEEN PURCHASED BY RADIO OWNERS





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★ **MORE THAN 325 MILLION RCA RADIO TUBES HAVE BEEN PURCHASED BY RADIO OWNERS**

# YOUR

*with  
the*

## PURCHASE OF 250 RADIO TUBES\*



**A NEW TUBE TESTER  
MANUFACTURED AND  
GUARANTEED BY RCA**

\*Tubes purchased must have an average list value of \$1.25



No. 156

This new RCA Tube Tester offers service engineers, radio dealers, everyone selling tubes, a highly efficient unit that incorporates the experience of the world's largest radio tube manufacturer. New features include testing of 1½-volt battery tubes, magic eye tubes for brilliance, and cathode ray tubes. It is priced at a figure everyone can afford. Stock No. 156-A, Counter Type, \$37.95 net, 250 Radio Tubes. Stock No. 156, Portable Type (with cover), 275 Radio Tubes . . . net, \$39.95

### 9 OTHER ITEMS

- RCA 3" Cathode Ray Oscillograph, No. 155, Net \$63.95—450 radio tubes
- RCA 2" Cathode Oscillograph, No. 151-2, Net \$49.95—350 radio tubes
- RCA 1" Cathode Ray Oscillograph, No. 151, Net \$39.95—275 radio tubes
- RCA Piezo-Electric Calibrator, No. 9572, Net \$29.95—200 radio tubes
- RCA Universal A-C Bridge, No. 9600, Net \$49.65—350 radio tubes
- RCA Frequency Modulator, No. 9558, Net \$27.50—200 radio tubes
- RCA A-C Test Oscillator, No. 153, Net \$29.95—200 radio tubes
- RCA Electronic Sweep Test Oscillator, No. 150, Net \$64.50—450 radio tubes
- RCA Beat Frequency Audio Oscillator, No. 154, Net \$49.95—350 radio tubes

See your Distributor for complete details



# Radio Tubes

FIRST IN METAL  
FOREMOST IN GLASS  
FINEST IN PERFORMANCE

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

# HELP ON TUBE SALES

Promotion picture has brisk new colors

Important sales-getters are being cooked up by the radio tube makers.

Promotion experts are doing their level best to aid the dealer and serviceman toward better business in the tube replacement field. They are working fast on shop appeal and store well-being, in a new-style battle for more volume.

For these columns, the manufacturers have been asked to name the high points in today's tube promotion. The over-all summary of the trade makes it look as if the retailer can't miss.

(No doubt, the central blast of interest in the tube business today is concerned with the matter of prices—the terrific competition in discounts, deals, special offers, etc. However, the fact remains that the promotion departments, as well as the price-cutting divisions, of the tube companies are news.)

## Displays de luxe

Triad Mfg. Co. reports the following action, in the direction of more sales:

"We have just released to the trade a new series of four color display cards; one is the large size which can be used for window or floor display, a smaller one for counter display and an authorized dealer card. Locally here we are just instituting a broadcast for a period of one half hour once a week with a daily courtesy announcement. This latter is in the form of an experiment and is intended to help Mr. John Public to demand Triad tubes in the New England territory and to help the dealer move the tubes from his shelves.

"Other sales promotional ideas are being studied although the above is about what we are doing at the present time."

## RADIO BEDECKED WITH FLOWERS



A mirror-metal cart for fresh or artificial flowers, which contains a 5-tube superhet AC-DC radio. From Emron Radio Division of Creative Products Co. 1140 Broadway, New York City.

## Snappy tie-ups

Hygrade Sylvania Corp. has a series of announcements:

"We have just distributed a Fall window display with a football theme which dramatizes 'listening in' on the big games. Then, a more direct tie-up to help progressive dealers and servicemen is our football score booklet which we made available to them at reasonable cost. Each dealer who took the item received window streamers which directed passersby to come in and get one. Copy in the score book stressed the importance of having radios regularly inspected and new tubes installed at least once a year.

"We are now announcing a new outdoor metal flange sign which has two important features for the serviceman. The words, 'Complete Radio Service,' stand out strongly on the face of the sign and a plate for the man's name, personalizing the sign, is hung from the bottom edge with two 'S' hooks.

"For the Christmas shopping season we will have a holiday window poster reminding Mr. and Mrs. Consumer to give their radio a present of a new set of tubes and to have their radios tuned up to receive all the happy holiday programs."

## Progressive promotion

Here is the point-of-sale news from Ken-Rad:

"We have been distributing to our jobbers and their dealers several very attractive and effective point-of-sale advertising items.

"The progressive dealer will use the Ken-Rad tube displays to very good advantage. Dealers located in residential communities realize that replacement tubes and radio service work sales can be had by using effective window display pieces that are designed to suggest to the consumer that a radio set requires new tubes in course of time.

"Available to Ken-Rad tube dealers is a series of four display cards, a seven piece window trim set, window streamers decalomania and envelope stuffers that can be used for mailing."

## Business-builders

General Electric calls attention to these matters:

"Radio dealers and service men have expressed unusual interest in the new line of G-E radio test equipment recently released. The compactness and efficiency of the tube checker, signal generator and oscillograph particularly have caused much favorable comment. In addition to these three items there is also available a multimeter and combination tube and set checker.

(Continued on page 50)

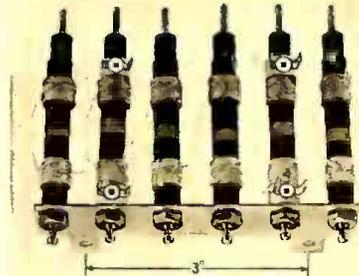
NEW ORLEANS  
PITTSBURGH  
BOSTON

PUSH-BUTTON  
TUNING TROUBLES  
Now Overcome!

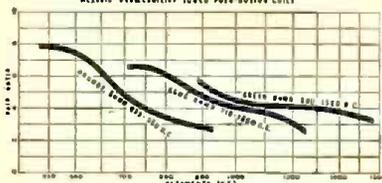


WITH LATEST  
ALADDIN  
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These devices manufactured under one or more of the following U. S. Letters Patent: 1,887,380 1,997,433 2,077,883 2,082,593 2,111,373 2,040,228 2,002,500 2,038,281 2,094,189 2,121,490 1,978,568 2,001,203 2,051,012 2,095,420 2,113,603 1,978,599 2,018,626 2,059,393 2,104,792 2,122,874 1,978,600 2,018,534 2,082,587 2,106,226 2,131,976 1,982,689 2,032,580 2,082,589 2,106,229 1,982,690 2,031,439 2,082,590 2,106,253. Other patents pending.

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# MATCHING BIAS TO CIRCUIT

## Dynamic Testing—Part X

Proper biasing of an amplifier tube is essential for distortion-free operation of the amplifier, yet it often happens that the radio serviceman does not know or cannot find out what the proper bias is.

Static measurements will tell what the bias voltage is, if suitable means are at hand for measuring the voltage. Sometimes, due to high resistance circuits, the bias cannot be measured without a vacuum tube voltmeter. But even if the voltage can be measured, unless the serviceman *knows what it should be*, it is not an infallible method of determining whether or not it is correct. Tube manuals and characteristics give many of the typical operating conditions, and it is an easy matter to interpolate. But if the manufacturer has used a different value of load resistance than that recommended or used other special operating conditions, the bias may be different from the recommended value.

For this reason it is desirable to have a dynamic test for determining whether or not the bias is best suited to the existing operating conditions.

### Tube as own V.T. meter

First of all, the tube under consideration can be employed as its own vacuum tube voltmeter for a check of the static conditions. The value of plate current that the tube draws in the radio set socket is a measure of the plate voltage and bias voltage. So if the plate voltage is okay and the tube is good, one expects a certain amount of plate current, for a given value of grid bias. Fixing all other variables, the plate current of the tube becomes an indicator of the grid bias, which may be calibrated from a knowledge of the tube characteristics. For a more complete discussion, the reader is referred to *Each Tube in Set a Vacuum Tube Voltmeter* which appeared on pages 55 and 56 of the July, 1937, issue of RADIO TODAY.

For a dynamic test of the bias, an audio signal generator with an output

from zero to that necessary for driving the stage to its full output is used. The generator may be coupled to the grid circuit through a blocking condenser if necessary. Frequency of oscillator should be about 400 to 1000 cycles.

As pointed out in the discussion on load impedances in the September and October issues, the plate current of a power output tube will increase as the grid signal on the tube is increased. As shown in Fig. 1, the plate current for a type 45 increases from 32.2 to 36.8 or about 14 per cent for a peak grid signal equal to the bias. For a type 2A3 Fig. 2 shows an increase of about 10 per cent.

### Non-linear characteristics

With pentodes the increase is sometimes followed by a dropping off. The type 47 increases about 5 per cent for about half its maximum output and decreases slightly for full output as illustrated in Fig. 3. This is because of the extreme non-linearity of the dynamic tube characteristic. (See Fig. 3 on page 51 of the October RADIO TODAY.) The type 42 tube (Fig. 4) shows a gradual increase which reaches about 8 per cent for full output (peak grid signal equal to bias).

If a power output amplifier does not exhibit a rise in plate current of about 5 to 10 per cent (some tubes 15 per cent), it is a sign that the bias on the stage is too low. Conversely, if the increase in plate current is greater than the figures given, the bias is too great. (Exceptions to this are the Class AB, Class A prime, and the Class B amplifiers).

This dynamic test is simple to make, and is most readily obtained using a socket-type analyzer having a cable to transfer the circuits from the set to the test unit. At the same time, the other measurements can be easily made on the circuit, since all the tube terminals are available for handy testing.

With such a circuit tester it is an easy matter to insert a milliammeter in the plate circuit. If the cathode

current is measured, the screen current, if any, must be taken into account—for this reason it is preferable to stick to the plate circuit of pentodes.

The dynamic test described is based on the assumption that the plate load impedance has been checked as outlined in the September and October issues of RADIO TODAY.

If cathode resistor bias is employed, the bias can be easily increased by inserting additional resistance in series with the cathode lead—here again the socket-type set analyzer is very handy. The additional resistance is so adjusted that the plate current increases 5 to 10 per cent at full power output. If an oscilloscope is available, the bias can be adjusted for maximum power output with minimum distortion. Or the ear can be employed for detecting a reduction in distortion.

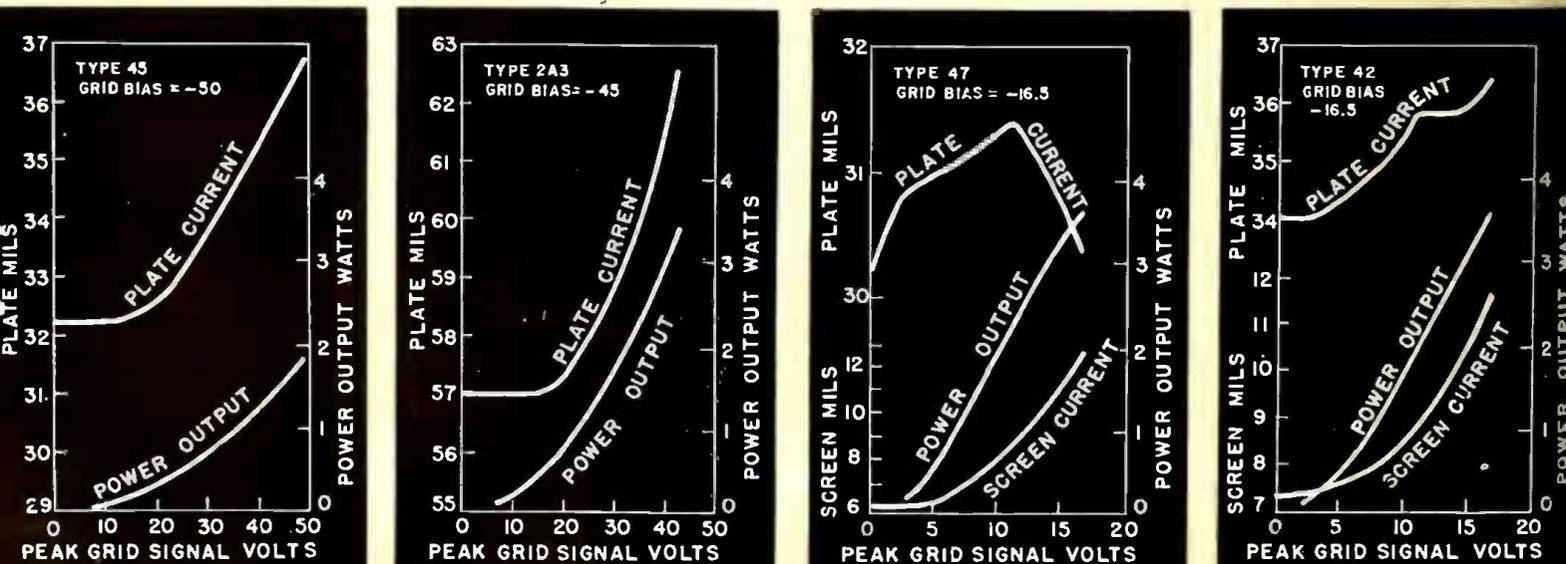
The bias can be decreased by shunting the cathode resistor with a variable resistance and adjusting it for proper circuit operation. The proper value of the resistance for the bias resistor is the combination of the resistor in the set and the external one.

With fixed bias it is usually more difficult to provide for changes in the bias voltage. A battery with a potentiometer across it can be used in series with the grid circuit for adding or subtracting from the bias voltage, as the need may be.

### Voltage amplifier tubes

The dynamic characteristics of voltage amplifier tubes are quite different from those of the power amplifier tubes since the value of load resistance does not have to be adjusted for maximum power output. Instead the load is generally chosen for the highest practical amplification. The high values of load resistance employed have a tendency to smooth out the dynamic characteristic—it is a more linear curve. As a result, the plate current of voltage amplifier is much more constant than that of power amplifier tubes. Practically speaking, the plate current will be constant for Class A voltage amplifiers, if the plate voltage is constant. If the power supply has poor regulation, it is likely that the increase in plate current of the power output tube may cause the power supply voltage to decrease slightly. Naturally, the change in plate voltage would have a corresponding effect upon the plate current of the voltage amplifier.

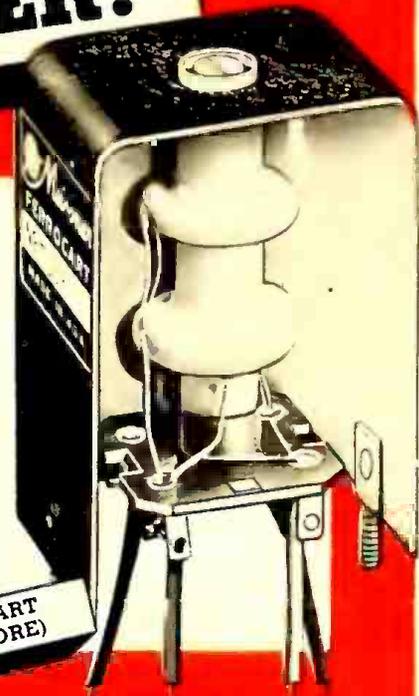
Figs. 1 to 4 below show that plate current of any power amplifier stage should increase with grid excitation. Voltages and load conditions are recommended values.



Replacements that Make the Receiver  
**"BETTER THAN EVER!"**

**"UNIVERSAL—ADJUSTABLE"  
 Antenna—R. F.—Oscillator Coils**

IT IS no longer necessary to order hard-to-get exact duplicates when an Antenna, R. F. or Oscillator coil needs replacing. These new adjustable-inductance Ferrocart (Iron Core) coils will replace the Broadcast Band coils in practically any receiver! The Oscillator coil is also designed to provide complete adjustment for receivers having intermediate frequencies from 175 to 520 kc, and may be used in either cut-plate tuning condenser or padding condenser circuits.



**FERROCART  
 (IRON CORE)**

**Band Expanding I. F. Transformers . . .**

These Ferrocart (Iron Core) Band Expanding I. F. Transformers meet all requirements for variable selectivity—razor-sharp, medium width or broad band for high fidelity reception. Band width is electrically variable by means of a switch.



**FERROCART  
 (IRON CORE)**

**Double-Tuned I. F. Transformers**

This is the ideal replacement transformer for Servicemen and Experimenters who demand the utmost in I. F. transformer performance at low cost. Available factory-peaked at 175, 262, 370, 456, 1500 or 3000 kc.



**CERAMIC BASE  
 MICA TRIMMERS**

**Ferrocart Antenna & R. F. Coils**

These (Iron Core) coils are designed to cover the broadcast band (540 to 1600 kc) with a 365 mmf condenser. Will work with any of the standard types of tubes, including metal and the battery-operated 2-volt series.



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**"A FAMOUS NAME FOR TWO DECADES"**

# METER RANGES VS. ACCURACY

Selection of instruments having proper scales increases dependability of measurements

By VINTON K. ULRICH, Service Editor

★ The choice of a voltmeter, milliammeter, or ohmmeter having the proper ranges or scales may often be more important than the rated accuracy of the instrument. Or to say it another way, an instrument designed with ranges unsuitable for radio servicing may give inaccurate results when used for set testing.

The logic behind this statement is apparent when one considers how instruments operate and are rated for accuracy.

While meters are usually rated as 2 per cent (or 5 per cent), the complete statement of accuracy usually reads as follows, "the meters are accurate within 2 per cent of the full-scale reading." This means that the maximum allowable meter error may be plus or minus 2 per cent of the full-scale reading.

## Per cent vs. absolute error

Taking a specific example, such as a 100 volt copper-oxide AC meter, the usual rating is 5 per cent. The error at any point on the scale may be as great as 5 per cent of 100 or 5 volts (often it is less). The numerical value of the maximum absolute error, 5 volts, remains constant over the entire scale. Since the numerical value of the error is a constant factor, the percentage of the error increases for less than full-scale deflection of the meter. A 5 volt variation at 50 volts represents 10 per cent. Likewise at 10 volts, a 5 volt variation is 50 per cent. (For a 2 per cent meter at 10 volts the variation permissible would be 2 volts or 20 per cent.)

However, the meter is still within the rating of the manufacturer's accu-

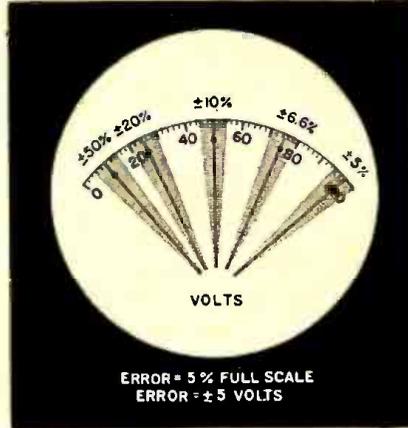


Fig. 1—The shadow of doubt in a meter reading remains constant in width, but increases in percentage for decreasing needle deflections.

racy. This type of rating applies to instruments of all manufacturers. Fortunately, meters are usually more accurate than the rating, since the rating is given for the purpose of taking into account many sources of errors that might occur, but generally do not.

However, there always is the possibility that a 10 volt reading on a 100 volt meter with a 5 per cent rating may actually be 50 per cent in error.

In Fig. 1 a typical meter scale is shown for the purpose of illustrating how the meter accuracy may vary with the deflection. The shaded areas at 10, 25, 50, 75, and 100 volts show what the maximum variation might be at those points. For a 5 per cent meter, the variation is 5 volts. The percentages of the maximum allowable

error for each point are given. (Note that we say maximum, not average.)

Looking at the error from another viewpoint, one sees that the maximum error for a meter with a uniform scale is inversely proportional to deflection of the meter. A reading at  $\frac{1}{2}$  of full scale may have a percentage error of 5 times that of full scale. Likewise the error at  $\frac{1}{4}$  may be three times as great as shown in Fig. 2. The maximum allowable absolute error of a meter is constant over the entire scale.

## Overlapping ranges

Fortunately, radio service instruments are designed with more than one range. Many meters have 5 or more ranges. If the overlap of 2 ranges of a meter is 4 to 1 such as 25 and 100 volts, the maximum percentage error that one gets on the 100-volt range in the vicinity of 25 to 30 volts is about 4 times the full-scale value. The reason for this is, that when the voltage is 25 or less, one uses the 25-volt range rather than the 100 volt range. If the voltage is just above 25 volts it is necessary to use the 100 volt range—and this higher range at  $\frac{1}{4}$  of full scale may have a percentage error as great as 4 times the rated error. As the deflection increases, the error reduces, until at full scale, the maximum allowable error is equal to that of the manufacturer's rating.

When comparing a reading on one range with that shown on a second range, the serviceman should remember that the error on one range may be plus, while that on another range may be minus. Thus if the errors oppose each other, the difference in the readings on the two scales will be the sum of the two errors. Likewise may be true if two separate meters are compared.

## Comparing meter readings

Also when comparing meter readings, additional apparent errors may be introduced by loading effects of the instruments upon the circuits. Circuit changes can and do influence the readings of instruments as every serviceman knows, but often overlooks.

If the overlap of the meter ranges is 2 to 1, then the maximum possible error occurs just at half scale, since deflections of less than half-scale would be measured on the lower range. At 50 volts on a 100 volt range, the percentage error may be twice that of full scale.

From this discussion of overlapping ranges, it becomes apparent that the maximum percentage errors in measurements are directly proportional to the ratio of the ranges. This relationship is illustrated in Figs. 2 and 3.

As a concrete example of how impor-

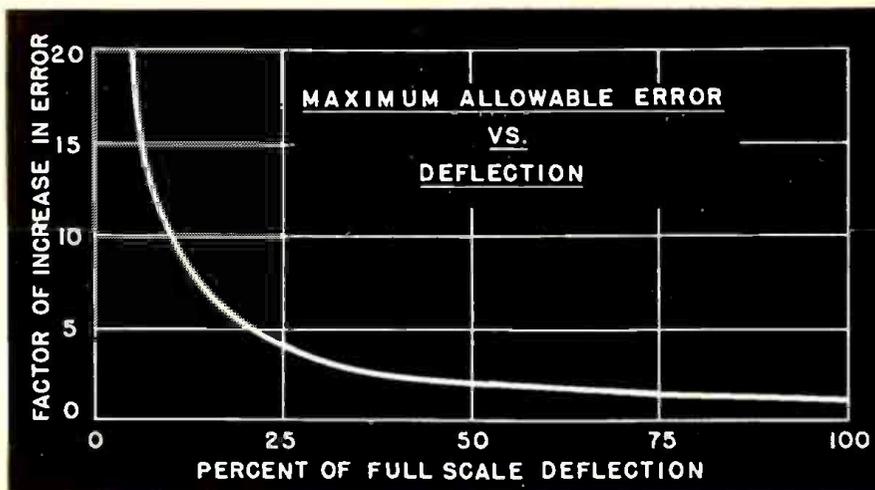


Fig. 2—The maximum allowable meter error increases very rapidly for deflections less than one-third of full scale. To find the per cent error, multiply the factor of increase in error by the per cent rating of the meter.

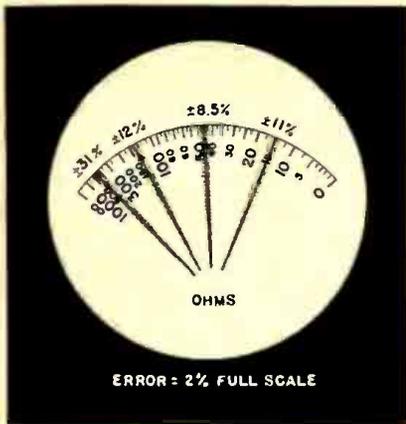


Fig. 4—For an ohmmeter the possible errors are greater than those of the meter movement itself because of the non-linear scale.

tant it is to have a small ratio in the overlap of instrument ranges, the following example is offered. A multi-range meter may have scales of 10 and 100 which are rated at 2 per cent. Another meter may be rated at 5 per cent and have ranges of 5, 10, 25, 50, 100. At 25 volts the 2 per cent meter may be in error by 8 per cent, while the 5 per cent meter on the 25 volt scale has an error no greater than 5 per cent. At 15 volts the error of the 2 per cent meter may be about 14 per cent, while that of the 5 per cent meter may be about 8 per cent. This relation is shown graphically in Fig. 3.

The serviceman, however, should not get the idea that it is advisable to buy less accurate meters with greater overlap of the ranges. The more accurate meters are usually held closer to tolerances than indicated by their ratings—that is, they are more conservatively rated. The comparisons have been made in terms of maximum possible errors rather than those most commonly encountered.

### Choice of ranges

In addition to meters having closely overlapped ranges, it is desirable that the ranges be chosen in so far as is practical, so that the voltages to be measured, fall somewhere near full scale. If the majority of voltages to be measured lie between 250 and 300 volts, a full-scale range of 300 is preferable to 500; for on a 500 volt range, most of the readings would be 50 to 60 per cent of full scale. Thus the percentage error would be about twice that of the meter rating. On the 300 volt range, the maximum error would be only 1.2 times that of the meter rating. Just by choice of suitable ranges, the error is reduced to 60 per cent of what it might have been.

For this reason the radioman should take into account what ranges he uses on his meters. Likewise using the same thinking, a meter that was adequately designed for measurement on 1928 sets is not so suitable for 1938 sets, because the voltage ranges found in present day sets are quite different from those of ten years ago.

When the type 71 was in its heyday, 180 volts was about maximum. Today 300 is very common, and 250 usual. The 200 volt range that was ideal in 1928, is of much less value in 1938.

Even though the same old meters may be perfect as far as their accuracy is concerned, many of them are unsuitable because the ranges are not what are needed for present day servicing.

Summing up the discussion, one can state that the ranges of the meters employed for radio servicing, should be of such values that most commonly measured voltages are on the upper third of the scale, and the ratio of the overlapping ranges should be rather low.

It follows, therefore, that a serviceman handling battery receivers almost exclusively, such as in a rural area, needs different meter ranges than a radioman who exclusively services power-line receivers.

### Non-uniform scales

So far only uniform ranges or scales have been mentioned. Ohmmeters have scales that are not uniform. At high end of the scale  $\frac{1}{16}$  of an inch may represent one ohm while at the lower end  $\frac{1}{16}$  of an inch may represent 1000 ohms. To express the accuracy of such a non-uniform scale is more difficult than for a uniform scale. However, basically the rating is the same. Rather than try to use ohms as a measure of the accuracy, it is easier to use degrees of deflection or per cent of the scale length in inches. Most DC meter movements are rated at 2 per cent. Therefore for such a meter, the error will not exceed 2 per cent of the full scale. If the scale length is 4 inches, then 2 per cent is  $.08$  or  $\frac{1}{12}$  of an inch.

Therefore anywhere along the scale of the meter, the error may be as great as plus or minus  $\frac{1}{12}$  of an inch. At half scale on a meter having a mid-scale reading of 45 ohms, the error may be  $3\frac{1}{4}$  ohms. On a percentage basis it is equal to  $8\frac{1}{4}$  per cent error. For one-fourth scale deflection, the error in inches is still  $\frac{1}{12}$  inch, but is equal to 15.7 ohms, or 11.6 per cent of 135. These relationships are shown in Fig. 4. At 450 ohms on the scale the error is 30.7 per cent.

Since the error gets rather high at low values of deflection it is necessary to have a rather small overlap factor. A factor of 10 is satisfactory. This

means each range is 10 times greater than the preceding one.

It is interesting to note, that as far as accurate readings are concerned, the lower fourth of the scale is of little value. As a result here at RADIO TODAY, we prefer to take the center-scale value rather than the extremity as an indication of the range. The center scale point is approximately  $\frac{1}{10}$  of the usable range of an ohmmeter scale. If the divisions at the high-resistance end of the scale are made small enough, it is possible to have a top resistance range of almost any desired value. As a result, ohmmeters made by two manufacturers having the same center scale reading, may have entirely different top ranges, depending merely on how small a deflection is calibrated on the scale near the infinity point.

Before concluding, it might be well to call attention to the fact that some instruments are rated as having meters with 2 per cent (or 5 per cent) accurate movements. This notation applies only to the meter itself, and the resistors may be less accurate. Likewise, meters are sometimes described as having resistors of 1 per cent (or other value). This does not necessarily mean that the movement is that accurate.

### Need for accurate meters

Another thing that the serviceman must consider is that his instruments should have a rated accuracy better than the required accuracy of his measurements. Often radiomen wonder why their instruments should be so accurate, when the tolerance in radio sets is usually 10 to 20 per cent for resistors and condensers and about 10 per cent for voltages. The reason for the greater accuracy in the instruments is for the reasons discussed previously; namely that the allowable error of the meter increases as the deflections become smaller.

Instead of looking at meters in terms of the highest ranges, the serviceman should consider instruments in terms of overlapping ranges and the choice of ranges that are most suitable for measuring the voltages, currents, and resistances used in his everyday work.

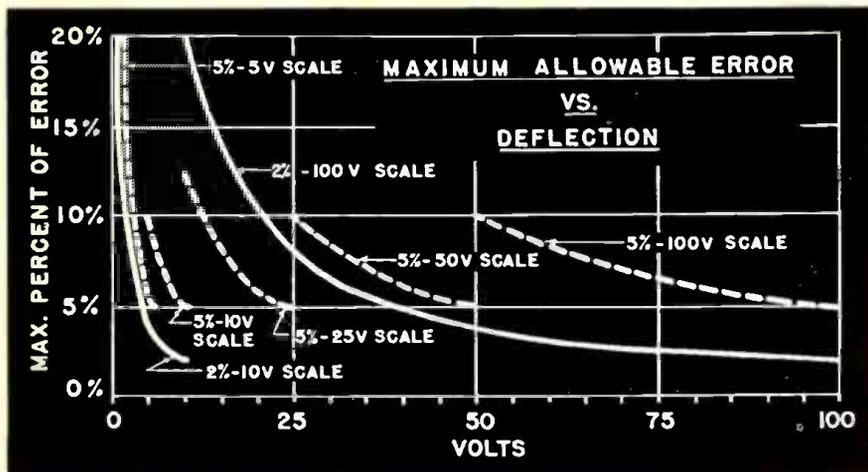


Fig. 3—By using closely overlapped ranges, the error due to the necessity of taking readings for small deflections is eliminated. Note that the 5 per cent meter represented by the dotted lines, in some cases has a lower allowable error than the 2 per cent meter (solid lines).

# ELECTRICAL FLASHES

First 1939 refrigerators appear this month

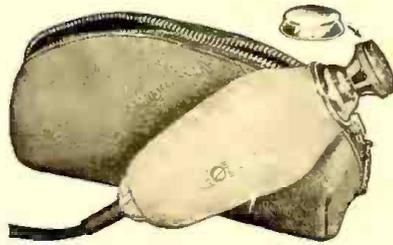
★ To catch this year's holiday trade with next year's models, Stewart-Warner Corp. will introduce new lines at a national convention of distributor execs at the Edgewater Beach Hotel, Chicago, Nov. 28, 29 and 30. At that time the 1939 Sav-A-Step refrigerators will be shown, and Stewart-Warner will also make its entrance into the electric range market. An entirely new finance plan, along with new advertising and promotion programs, will be announced by sales manager John F. Ditzell and vice-president in charge of sales Frank A. Hiter.

★ Frigidaire is experimenting with the idea of frozen food boxes for home use. The device is said to be more of a cabinet than a refrigerator, and will not compete with the latter because it must have a temperature of from 5 degrees below zero to 10 above. The new boxes are being advertised by Frigidaire at \$135 up.

★ In order to give washer and ironer displays a quality that will dramatically stop passersby, General Electric has introduced a series of eight displays of the "shell-shock" type. These displays emphasize "a single thought, a dramatic picture, and if possible, a single word," in a special attempt to arrest the man on the street.



Frank B. Williams is the new vice-president and merchandising head for Westinghouse Electric & Mfg. Co. He was formerly with Diehl Mfg. Co.



Here's the speedy "Casco 75" electric safety razor, which Casco Products Corp., Bridgeport, Conn., lists at \$10.

## RADIO DEALERS FIND DIATHERMY PROFITABLE TO SELL TO HOMES

Radio short waves that now bring music and entertainment to millions of people can also bring comfort and alleviation from pain, explains Michael Loonan, of the Scientific Diathermy Corporation, 200 W. 34th St., New York. Thousands of homes are already equipped with portable short-wave radiotherapy units, and the sale of short-wave radiotherapy machines is fast becoming a recognized profitable business for radio men, so that soon every small town will have a dealer.

Short-wave radiotherapy machines are really radio transmitting sets. They send out waves which, as they penetrate the body, heat the tissues. Such short-wave sets are actually "fever machines." The waves vitalize, directly and indirectly, by stimulating circulation, and support weakened tissues. They combat invading disease organisms, either by creating a less favorable medium for the growth of bacterial life, or by promoting at the disease area accumulation of the defensive reserves of the body. Among maladies which have yielded to short-waves are rheumatism and arthritic conditions, injuries to bones, joints, nerves and soft tissue, circulatory disturbances, sinus infections, prostatic and vaginal disorders.

### Prospective buyers

Like radio, diathermy has remained more or less dormant for years and then sprang up overnight. Short-wave radiotherapy has many prospects in every community. There is no reason why the radio dealer cannot be the one to profit from short-wave radiotherapy in his town. Built in compact form, automatic timing devices make it easy for even old folks to use diathermy with absolute safety. The soothingly pleasant penetrating radio rays bring almost immediate relief from pain. Although this method of treatment is already used in the larger hospitals and by doctors in the larger cities, there still remains about 99 per cent of the country open as a fertile



A nifty centerpiece for a radio dealer's Christmas window—a 6-color card which ties in with other items displayed, offered by Burgess Battery Company.

field for the alert radio repairman or radio dealer. Their technical qualifications and understanding of radio apparatus indicate them as the logical outlets in their respective communities.

Radiotherapy units have been sold to homes, hospitals, college football teams, baseball clubs, gymnasiums, turkish baths, police and fire departments, chiropractors, osteopaths, veterinarians, physiotherapists, masseurs, medical doctors, and trained nurses.

Such units are also rented on a monthly basis at a nominal fee, so that it is usually easy to establish a handsome income from a rental business. Rentals eventually lead to sales. The person renting the device finds out how easy and pleasant it is to get relief and in numerous cases has decided to buy the unit outright.

Heretofore it was necessary for invalids to leave home and travel many miles to have access to short-wave radiotherapy. But now with a portable unit in the home it is possible for anyone anywhere to enjoy the comfort and relief from pain provided by short-wave heating.



Pleasant treatment via short wave.



# A Double Feature That's Loaded With Profits!

40th Anniversary Victrola Safes Celebration



*RCA Victor's 40th Anniversary Celebration has dealers everywhere reporting big sales increases. You, too, can use it—and profit.*

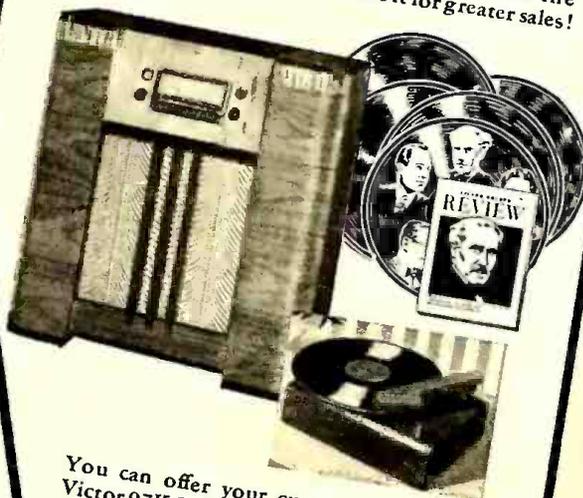
It enables you to allow your customers a \$40 trade-in on their old set, regardless of age or make, with the purchase of the RCA Victor 40th Anniversary Victrola (illustrated). This appeals to customers because it enables them to save \$40—getting this instrument which lists at \$175—for \$135. Also, your customer's choice of \$9 worth of Victor or Bluebird Records. In addition, the promotion includes a \$5,000 Contest in which you, as well as your customers, can win a prize—and which is designed to greatly increase your store traffic. Your RCA Victor distributor will give you full details. Listen to the "Magic Key" every Sunday, 2 to 3 P. M., E.S.T. on the NBC Blue Network.

*For finer radio performance—RCA Victor Radio Tubes*

These two sensational RCA Victor promotions are boosting dealers' sales higher every day! Use one for a week! Then use the other! Keep switching from week to week and watch your sales leap upward!

## RCA Victor 3-Way Offer

*"It's going great guns—bringing me a rich harvest of sales!" That's the way dealers describe the RCA Victor 3-Way Offer. Feature it for greater sales!*



You can offer your customers the RCA Victor 97KG Console Grand Electric Tuning Radio... the RCA Victrola Attachment... the new 40th Anniversary Album of Victor Records\* (or choice of \$9 worth of Victor or Bluebird Records)—plus membership in the Victor Record Society—all at one bargain price—a price which gives your customer a big saving—and a price which has caused thousands to take advantage of this offer. Full details from your RCA Victor distributor.

### \*EXTRA!

An extra sales aid! The RCA Victor 3-Way Offer entitles your customers to the new 40th Anniversary Album of Victor Records. Worth \$10.50, it contains recordings covering popular, classical and symphonic music by eleven of Victor's outstanding artists. If your customers wish, they may have their choice of \$9 worth of Victor or Bluebird Records instead.



# RCA Victor

RCA MANUFACTURING CO., INC., CAMDEN, N. J.  
A Service of the Radio Corporation of America

# CORRELATION OF RADIO TUBE TYPES

Listing of equivalent and similar tubes to aid radiomen in keeping up with increasing number of types

Type	Style	Service	Characteristics Equivalent to	Characteristics Similar To	Type	Style	Service	Characteristics Equivalent to	Characteristics Similar To	Type	Style	Service	Characteristics Equivalent to	Characteristics Similar To
OZ4	Metal	Full Wave Rectifier	OZ4*	6X5, 6X5G	6E7	Metal	R-F Amplifier	6D6, 6U7G	6U7, 6K7G, 6S7G, 7B	26	Glass	Amplifier	6A6, 6N7F	56*, 56S
OZ4G	Metal	Full Wave Rectifier	OZ4G*	6X5, 6X5G	6F5	Metal	Triode Amplifier	6F5G+	6S7G, 7B	27	Glass	Amplifier	6A6, 6N7F	56*
O1A	Glass	Power Output Amplifier	1D5G	34, 1N5G	6F5G	Metal	Triode Amplifier	6F5G+	6K5G	30	Glass	Amplifier	6A6, 6N7F	56*
1A4P	Glass	Power Output Amplifier	1D5GT	34, 1N5G	6F6	Metal	Power Output Pentode	2A5F, 4Z	6F6G*, 4Z	31	Glass	Power Output Amplifier	6A6, 6N7F	56*
1A5L	Glass	Power Output Amplifier	1D5GT	1C5G, 1G5G	6F6G	Glass	Power Output Pentode	6P7G	6F6G*	32	Glass	Power Output Amplifier	6A6, 6N7F	56*
1A6	Glass	Pentagrid Converter	1D7G	1C6, 1C7G, 1D7G	6F7	Glass	Triode-Pentode Amplifier	6P7G	6F7G	33	Glass	Power Output Amplifier	6A6, 6N7F	56*
1A7G	Glass	Pentagrid Converter	1E5GP	32	6F8	Glass	Duotriode Amplifier	6C9G (Two 9)	6C9G (Two 9)	34	Glass	R-F Amplifier	6A6, 6N7F	56*
1B4P	Glass	R-F Amplifier	1H6G	1A5G, 1G5G	6G5	Glass	Tuning Indicator	6T5*	6G5	35	Glass	R-F Amplifier	6A6, 6N7F	56*
1B5/2S5	Glass	Duotriode Detector	1H6G	1A5G, 1G5G	6G6	Glass	Power Output Pentode	6H6G+	6G6	36	Glass	R-F Amplifier	6A6, 6N7F	56*
1C3G	Glass	Pentagrid Converter	1C7G	1A6, 1A7G, 1D7G	6H6	Metal	Duotriode	6H6G+	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	37	Glass	R-F Amplifier	6A6, 6N7F	56*
1C7G	Glass	Pentagrid Converter	1C6	1NSG, 34	6H6G	Metal	Triode Amplifier	6J5G+	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	38	Glass	Power Output Amplifier	6A6, 6N7F	56*
1D5GP	Glass	R-F Amplifier	1A4P	34, 1G, 1C6, 1C7G	6J5	Metal	Triode Amplifier	6J5G+	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	39	Glass	Power Output Amplifier	6A6, 6N7F	56*
1D5GT	Glass	R-F Amplifier	1A4T	34, 1G, 1C6, 1C7G	6J5G	Glass	Triode Amplifier	6J5G+	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	40	Glass	Power Output Amplifier	6A6, 6N7F	56*
1E4	Glass	Power Output Pentode	1B4P	(Two 1F4) 33, 1G5G, 1J5G	6K7	Metal	R-F Amplifier	6K7G+	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	41	Glass	Power Output Amplifier	6A6, 6N7F	56*
1F4	Glass	Power Output Pentode	1F5G	33, 1G5G, 1J5G	6K7G	Metal	R-F Amplifier	6K7G+	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	42	Glass	Power Output Amplifier	6A6, 6N7F	56*
1F5G	Glass	Power Output Pentode	1F6	1B5/2S5, 1H6G	6L5G	Glass	Triode Hexode Converter	6L5G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	43	Glass	Power Output Amplifier	6A6, 6N7F	56*
1F7G	Glass	Duotriode Pentode	1F6	1B5/2S5, 1H6G	6L6	Metal	Triode Amplifier	6L6G*	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	44	Glass	Power Output Amplifier	6A6, 6N7F	56*
1G5G	Glass	Power Output Pentode	30	1J5G, 33	6L6G	Metal	Power Output Amplifier	6L6G*	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	45	Glass	Power Output Amplifier	6A6, 6N7F	56*
1H4G	Glass	Amplifier	1B5/2S5	(Two 1F4) 33, 1G5G, 1J5G	6L7G	Metal	Power Output Amplifier	6L7G+	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	46	Glass	Power Output Amplifier	6A6, 6N7F	56*
1H5G	Glass	Duotriode Amplifier	19F	33, 1G5G, 1J5G	6L7G	Metal	Power Output Amplifier	6L7G+	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	47	Glass	Power Output Amplifier	6A6, 6N7F	56*
1H6G	Glass	Duotriode Detector	6A3F, 6B4G*	1F4, 1F5G, 1G5G, 33	6L8	Metal	Triode Amplifier	6L8G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	48	Glass	Power Output Amplifier	6A6, 6N7F	56*
1J5G	Glass	Power Output Pentode	6F6G, 4Z	1A6, 1A7G, 1D7G	6L8G	Metal	Triode Amplifier	6L8G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	49	Glass	Power Output Amplifier	6A6, 6N7F	56*
1K6	Glass	Power Output Amplifier	6F7G, 4Z	1A6, 1A7G, 1D7G	6M6G	Metal	Power Output Amplifier	6M6G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	50	Glass	Power Output Amplifier	6A6, 6N7F	56*
2A3	Glass	Power Output Triode	6A8G	1A6P, 1D5GP, 34	6N7G	Metal	Power Output Amplifier	6N7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	51	Glass	Power Output Amplifier	6A6, 6N7F	56*
2A5	Glass	Power Output Pentode	6B7A, 6B7S, 6B8G	34	6P5G	Glass	Triode Amplifier	6P5G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	52	Glass	Power Output Amplifier	6A6, 6N7F	56*
2A6	Glass	Duotriode Detector	6B8G	45	6P7G	Metal	Triode Pentode Amplifier	6P7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	53	Glass	Power Output Amplifier	6A6, 6N7F	56*
2A7, 2A7S	Glass	Pentagrid Converter	6E5F	47	6P7G	Metal	Triode Pentode Amplifier	6P7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	54	Glass	Power Output Amplifier	6A6, 6N7F	56*
2B7, 2B7S	Glass	Duotriode Pentode	6E5F	47	6P7G	Metal	Triode Pentode Amplifier	6P7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	55	Glass	Power Output Amplifier	6A6, 6N7F	56*
2E5	Glass	Tuning Indicator	6E5F	47	6P7G	Metal	Triode Pentode Amplifier	6P7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	56	Glass	Power Output Amplifier	6A6, 6N7F	56*
2S/4S	Glass	Duotriode Detector	6E5F	47	6P7G	Metal	Triode Pentode Amplifier	6P7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	57	Glass	Power Output Amplifier	6A6, 6N7F	56*
5Z4/6B4	Metal	Rectifier	5V4G*, 83V	5V4G*, 83V	6Q7	Metal	Duotriode Triode	6Q7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	58	Glass	Power Output Amplifier	6A6, 6N7F	56*
5U6G	Metal	Rectifier	5Z4, 5X4G	5Z4, 5X4G	6R7	Metal	Duotriode Triode	6R7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	59	Glass	Power Output Amplifier	6A6, 6N7F	56*
5V4	Metal	Rectifier	5Z4, 5X4G	5Z4, 5X4G	6S7G	Metal	Duotriode Triode	6S7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	60	Glass	Power Output Amplifier	6A6, 6N7F	56*
5X4G	Metal	Rectifier	5Z4, 5X4G	5Z4, 5X4G	6T5	Glass	Tuning Indicator	6T5	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	61	Glass	Power Output Amplifier	6A6, 6N7F	56*
5Y3G	Glass	Rectifier	5Y4G, 80	5Y4G, 80	6U5/6G5	Glass	Duotriode Triode Amplifier	6U5*	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	62	Glass	Power Output Amplifier	6A6, 6N7F	56*
5Y3G	Glass	Rectifier	5Y4G, 80	5Y4G, 80	6U5/6G5	Glass	Duotriode Triode Amplifier	6U5*	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	63	Glass	Power Output Amplifier	6A6, 6N7F	56*
5Z3	Metal	Rectifier	5Z4, 5X4G, 5X4G	5Z4, 5X4G, 5X4G	6U7G	Glass	R-F Amplifier	6U7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	64	Glass	Power Output Amplifier	6A6, 6N7F	56*
6A3	Glass	Power Output Triode	2A3F, 6B4G	2A3F, 6B4G	6V6	Metal	Power Output Amplifier	6V6G*	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	65	Glass	Power Output Amplifier	6A6, 6N7F	56*
6A3/LA	Glass	Power Output Triode	6A8+	6A8+	6V6G	Metal	Power Output Amplifier	6V6G*	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	66	Glass	Power Output Amplifier	6A6, 6N7F	56*
6A5G	Glass	Power Output Triode	6A8+	6A8+	6V7G	Glass	Duotriode Triode	6V7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	67	Glass	Power Output Amplifier	6A6, 6N7F	56*
6A5G	Glass	Power Output Triode	6A8+	6A8+	6V7G	Glass	Duotriode Triode	6V7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	68	Glass	Power Output Amplifier	6A6, 6N7F	56*
6A5G	Glass	Power Output Triode	6A8+	6A8+	6V7G	Glass	Duotriode Triode	6V7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	69	Glass	Power Output Amplifier	6A6, 6N7F	56*
6A6	Glass	Power Output Amplifier	6N7, 6N7G, 6A8+, 6A8G, 2A7A, 2A7S	6N7, 6N7G, 6A8+, 6A8G, 2A7A, 2A7S	6W7G	Glass	R-F Amplifier	6W7G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	70	Glass	Power Output Amplifier	6A6, 6N7F	56*
6A7, 6A7S	Glass	Pentagrid Converter	6A8+, 6A8G, 2A7A, 2A7S	6A8+, 6A8G, 2A7A, 2A7S	6X5G	Metal	Rectifier	6X5G*, 84	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	71	Glass	Power Output Amplifier	6A6, 6N7F	56*
6A8	Metal	Pentagrid Converter	6A8G+	6A8G+	6X5G	Metal	Rectifier	6X5G*, 84	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	72	Glass	Power Output Amplifier	6A6, 6N7F	56*
6A8C	Metal	Pentagrid Converter	6A8G+	6A8G+	6X5G	Metal	Rectifier	6X5G*, 84	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	73	Glass	Power Output Amplifier	6A6, 6N7F	56*
6B5	Glass	Power Output Triode	6A1, 6A8+	6A1, 6A8+	6Y5G	Glass	Power Output Amplifier	6Y5G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	74	Glass	Power Output Amplifier	6A6, 6N7F	56*
6B5	Glass	Power Output Triode	6A1, 6A8+	6A1, 6A8+	6Y5G	Glass	Power Output Amplifier	6Y5G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	75	Glass	Power Output Amplifier	6A6, 6N7F	56*
6B7, 6B7S	Glass	Power Output Amplifier	6N6G, 2A3F	6N6G, 2A3F	6Z5G	Glass	Power Output Amplifier	6Z5G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	76	Glass	Power Output Amplifier	6A6, 6N7F	56*
6B8	Glass	Duotriode Pentode	6B8G	6B8G	6Z5G	Glass	Power Output Amplifier	6Z5G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	77	Glass	Power Output Amplifier	6A6, 6N7F	56*
6B8	Glass	Duotriode Pentode	6B8G	6B8G	6Z5G	Glass	Power Output Amplifier	6Z5G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	78	Glass	Power Output Amplifier	6A6, 6N7F	56*
6B8G	Glass	Duotriode Pentode	6B8G	6B8G	6Z5G	Glass	Power Output Amplifier	6Z5G	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	79	Glass	Power Output Amplifier	6A6, 6N7F	56*
6C5	Metal	Triode Amplifier	6C5G+	6C5G+	12A	Glass	Power Output Triode	12A	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	80	Glass	Power Output Amplifier	6A6, 6N7F	56*
6C5G	Metal	Triode Amplifier	6C5G+	6C5G+	12A5	Glass	Power Output Triode	12A5	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	81	Glass	Power Output Amplifier	6A6, 6N7F	56*
6C6	Glass	R-F Amplifier	6D7, 6J7G, 12Z3	6D7, 6J7G, 12Z3	12Z3	Glass	Rectifier and Amplifier	12Z3	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	82	Glass	Rectifier	6A6, 6N7F	56*
6C7	Glass	Duotriode Triode Detector	6D7, 6J7G, 12Z3	6D7, 6J7G, 12Z3	12Z3	Glass	Rectifier and Amplifier	12Z3	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	83	Glass	Rectifier	6A6, 6N7F	56*
6D6	Glass	R-F Amplifier	6E7, 6U7G	6E7, 6U7G	12A	Glass	Power Output Triode	12A	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	84	Glass	Power Output Amplifier	6A6, 6N7F	56*
6D7	Glass	R-F Amplifier	6C6, 12Z1, 12Z3	6C6, 12Z1, 12Z3	12A5	Glass	Power Output Triode	12A5	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	85	Glass	Power Output Amplifier	6A6, 6N7F	56*
6D8G	Glass	Pentagrid Converter	2E5F	2E5F	12Z3	Glass	Power Output Triode	12Z3	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	86	Glass	Power Output Amplifier	6A6, 6N7F	56*
6E5	Glass	Tuning Indicator	2E5F	2E5F	12Z3	Glass	Power Output Triode	12Z3	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	87	Glass	Power Output Amplifier	6A6, 6N7F	56*
6E6	Glass	Power Output Amplifier	2E5F	2E5F	12Z3	Glass	Power Output Triode	12Z3	6C3, 6C5G, 6C5G, 6P5G, 6D5G, 6K7	88	Glass	Power Output Amplifier	6A6, 6N7F	56*

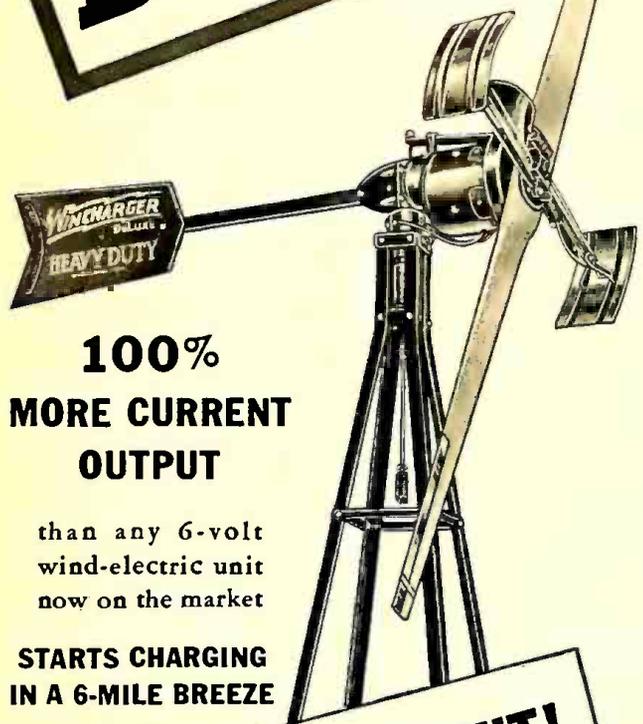
Symbols: \*Indicates direct interchangeability. In some cases realignment of tuned elements may be necessary particularly where capacitance differ. #Equivalent Characteristics except for filament rating. +Characteristics same as listed type except capacitance.

**Not an interchangeable list.** Read explanatory paragraphs on page 43. This listing compiled by the engineering department of Hygrade-Sylvania Corp.

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# MORE SOUND SALES

Indoor installations are the center of interest

## NEW PA SYSTEM FOR HOSPITALS DITCHES BELLS

To solve the hospital problem of locating doctors and personnel quickly and pleasantly, without disturbing patients, a new type selective paging system has been installed at Rochester, N. Y., General Hospital. The irritating, shrill-toned bells have been eliminated.

Over a regular broadcasting microphone in a sound-proofed studio, messages go to any one, any combination, or every one of 60 stations. Any part or every nook and corner of 10 acres of floor space in the hospital buildings can be reached at the same instant. Such fast paging gets the doctor in the shortest possible time—and when the doctor is really needed, time is the vital consideration.

It uses low-toned, low-volume speakers covering only small areas.

Because of tremendous variation in the acoustical characteristics of various corridors, each station has a separate volume control which has been accurately adjusted to deliver just the right volume required in its particular location.

There are 87 lines radiating from the telephone switchboard and not infrequently, in the past, the operators had to try more than 50 of these in locating desired persons. With the new system in operation, many calls will be heard over single stations only. In fact, two-thirds of the stations, the ones which handle the vast majority of the calls, are not within hearing of patients. And yet in an emergency, when time is valuable, depressing a single key will route the call over all stations.

A series of special signals has been arranged to promote the two-way efficiency of instant paging without undue noise. One is the mellow tone of Westminster chimes that calls doctors to clinical or departmental meetings. Another is the soft ticking of an electronic which calls the Night Nursing Supervisor. The tick can be heard only a few feet from the stations and cannot disturb patients.

## COMMUNICATORS FOR YOUNGSTERS

An important sales idea, involving all the children of the U. S., has been advanced for the benefit of dealers selling smaller-unit intercommunicators. The youngsters like to use these instruments as educational toys, and if properly approached, their parents will be shopping for them at Christmas time. The kids want the units to use in playing "big boss", various "spying" games, in imitating radio stars, in staging their own "amateur hours", for "playing theater", and to use as a radio extension.

Much of this appeal has been worked out by Louis Kassler, of Elkay Mfg. Co., 200 Fifth Ave., New York City, a toy manufacturer who decided that a small, low-priced electric intercommunicator would be a "natural" as a gift for the youngsters. Parents like the idea because it is

safe, instructive, cheap, novel, and of practical use to themselves.

Mr. Kassler's new "Junior Executive Intercommunicator" comes in a Bakelite case and is of course suitable for use in offices, factories, stores, schools, etc.

## FASHIONS IN PUBLIC ADDRESS

In shops where dresses are being designed and sold, it appears that store managers are becoming sound-conscious. It's another place for public address men to sell their systems.

Background music is being used by 11 dress houses in New York City, according to a survey by the magazine *Variety*. The garment executives have found that the music keeps the customers from standing around and chatting, when they should be watching the models display the gowns. Voices must be raised or stopped, and most of the dress buyers will obviously choose the latter.

## SOUND FOR HOTELS

E. M. Lurie, of American Communications Corporation, New York City, was the author of the excellent article on "Sound for Hotels" which appeared on pages 38 and 39 in the Selling Sound section of the October issue of *RADIO TODAY*. Mr. Lurie has had wide experience in providing sound-equipment installations for hotels and other institutions, and his article contained much practical information growing out of his special knowledge of this field.



Bell tones and code signals from the speaker in upper right corner fall softly on the ears of patients at Rochester hospital.



Electrically amplified music is used by the Philadelphia Symphony Orchestra—member Edgar Stanistreet points to the Amperite Kontak mike he used for solos.

## CORRELATION OF TUBE TYPES

The correlation of tube types on page 40 is made available to give a better understanding of the tubes which have "similar" and "equivalent" characteristics. These types are listed in two separate columns for convenient reference, and were compiled by the engineering department of Hygrade Sylvania Corp.

### Equivalent types

The tubes listed as "equivalent" are those which have electrical characteristics and circuit applications equivalent to the listed types. It is not implied that the tubes listed as "equivalents" are interchangeable. However, many of them are directly interchangeable, or interchangeable by a slight change in circuit constants. Such types are marked with an asterisk (\*). This interchangeability is particularly true in the case of "G" and metal tube equivalents. Realignment of the tuned circuits may be necessary in some cases when interchanging such tubes, and an external shield may be required on the "G" types. The other equivalent types not marked with an asterisk (\*) are identical only in electrical characteristics, the basing or filament rating being different so that interchangeability is impossible unless socket changes and, in some cases, circuit changes are made. For this type of modernization work this chart will be invaluable.

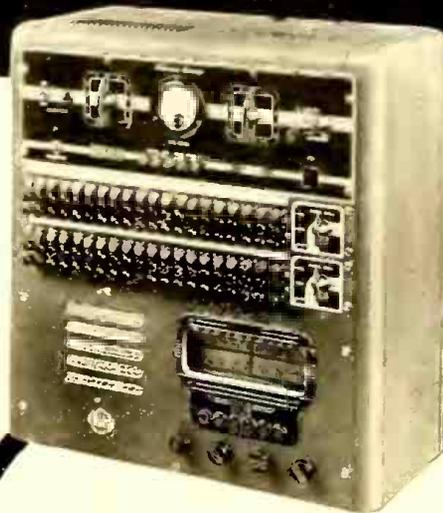
### Similar types

The tubes listed as "similar" are those which have electrical characteristics and circuit applications similar to the listed types. Such tubes are not directly interchangeable unless marked with an asterisk (\*). However, the aggressive serviceman can obtain information from the "similar" listings which will enable him to modernize obsolete receivers with new types of tubes. The sale of new receivers should always be encouraged rather than the idea of keeping the obsolete ones up-to-date; but, if a customer cannot afford to purchase a new receiver and desires to modernize his set by substituting the newer type of tubes for the original one, the conscientious serviceman can do much to provide this additional service. At the same time he will keep the customer from becoming discouraged with radio.

When making any modernizing changes, always refer to the operating characteristics and circuit requirements shown in the various technical manual or characteristic sheets so that full benefit of the changes will be received and no tube will be used in such a way that it will be abused.

Television picture tube, the National Union type 2005, is the subject of a new technical bulletin released by National Union Radio Corp., 57 State St., Newark, N. J. Besides the data on the tube itself, the booklet carries a complete description and illustration of a practical television receiver circuit, with detailed list of necessary parts. Television experimenters may obtain all these parts at a total cost of about \$100.

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WHOLESALE AND  
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Closing Date, December 7

**RADIO TODAY**  
480 LEXINGTON AVE., NEW YORK

# SERVICE NOTES

## MYSTERY CONTROL NOISE SUPPRESSOR CIRCUIT

★ In the explanation of the Philco Mystery Control which appeared in the October issue of RADIO TODAY, reference was made to the noise "gate" or noise suppressor circuit. Further details follow:

The purpose of this noise suppressor is to prevent the transfer of interfering noise signals which may be induced into the secondary inductor coil and which might otherwise lead to undesired actuation of the station selecting mechanisms, but to transmit the useful control signal.

The noise suppressor utilizes a 6ZY5G diode connected across the secondary or plate circuit of the 6J7G amplifier tube. The characteristic of this diode and its associated circuit is such that it acts similar to a low-pass filter to signals of short duration or of erratic (irregular) occurrence; while at the same time it has very little effect upon signals of longer duration or of a more regular occurrence. In other words, the circuit is so designed that it passes without attenuation, the pulses sent from the Mystery Control dial unit, while it excludes irregular noise impulses.

In Fig. 1 a type 6J7G tube is shown as feeding its output to a tuned transformer which in turn passes the signal to the grid of the thyratron tube. The 6ZY5G diode tube is shunted across the plate of the amplifier tube through a .02 mfd. condenser. Also a 750,000 ohm resistor is shunted across the diode.

### Charging condenser

Normally this diode acts as a short circuit across the transformer. The .02 condenser blocks the DC plate voltage from the diode, and prevents it from passing the DC voltage. If, however, an AC voltage (R.F. in this circuit) is generated across the coupling transformer by the amplifier tube, this AC voltage will be passed by the condenser and the diode tube will rectify it, and in so doing acts as a low resistance across the transformer, preventing any substantial signal from being transferred.

If the R.F. signal continues this rectified current gradually charges up the

.02 coupling condenser negatively. In so doing the diode is gradually backed off, permitting a larger and larger signal to be transferred. The reason for this polarity is quite simple to understand, if the diode is likened to the usual detector. In the ordinary diode circuit a negative voltage with respect to the cathode is created by the rectifier action of the tube. If the ungrounded end of the load resistor is negative, it follows that the condenser will also be negative in polarity, or have a negative voltage across it.

Fig. 2, shows the type of pulses or signals that is transmitted by the Mystery Control box. It is a series of pulses of radio frequency energy that are equally spaced and equally long. When these pulses are first applied to the 6ZY5G tube, the voltage on the coupling condenser is zero (with the exception of the DC plate voltage which can be neglected). At first, the diode acts as a short circuit, then as the diode starts to conduct and rectify a negative voltage, the condenser charges up slowly as shown by the curve labeled  $E_c$  which is the voltage across the condenser. This permits the signal transferred to become larger and larger in the same order.

### Voltage cancellation

Before the first pulse is over, the coupling condenser has been charged up to a negative value about equal to the positive peak of the signal represented by E-signal. When this condenser is fully charged, the negative voltage across the condenser ( $E_c$ ) cancels that of the positive peak of the signal. Thus the diode is connected across zero voltage and no longer conducts. Looking at it another way, the peak signal voltage, the condenser voltage, and the diode are in series; and as long as the condenser voltage is as negative as the peak voltage is positive, there is no voltage present to cause a current to flow in the diode.

The rate at which the condenser charges up, is dependent upon the DC resistance in the circuit and the capacity of the condenser. The product of the capacitance and the resistance is known as the time constant. This time constant is so adjusted so that for signals having the proper length,

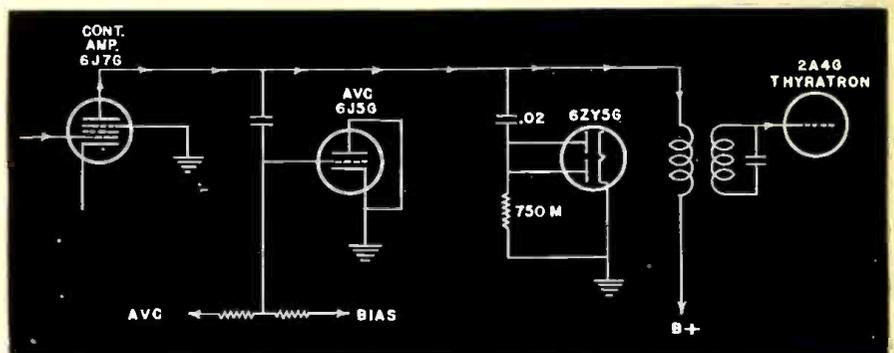


Fig. 1—Circuit used in Mystery Control amplifier for suppressing noise—essential element is the 6ZY5G tube with its condenser and resistor.

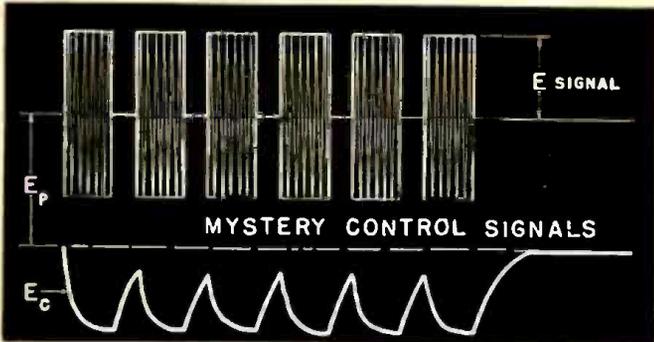


Fig. 2—The Mystery Control signals cause a negative voltage  $E_c$  to build up on the condenser, thus stopping the diode from conducting.

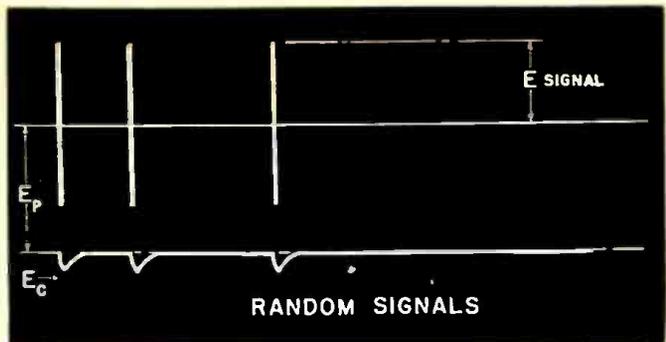


Fig. 3—The noise pulses are so short that the negative voltage  $E_c$  is not great enough to prevent the diode from conducting.

the voltage will build up on the condenser during the first portion of the pulse.

When the diode is conducting, it loads the plate circuit of the amplifier tube and reduces the amplification. When the diode current is largest (condenser voltage Zero) the load is almost a short circuit. When the condenser is fully charged, the current is practically zero—only sufficient current is required to offset the leakage caused by the 750,000 ohm resistor.

Referring to the Mystery Control signals in Fig. 2, the latter part of the first pulse is amplified. Then in the interval between the pulses the voltage on the condenser leaks away because of the 750M resistor. But the next signal pulse comes along and the con-

denser gradually charges up to full voltage, permitting amplification of the signal pulse. This process repeats until all the signals are transmitted.

If the signal is not long enough, as shown for random signals in Fig. 3, the condenser does not have time enough to charge up fully. Due to the nature of the previous circuits in the Mystery Control amplifier, the noise pulses will generally be short. As a result, the diode continuously conducts and loads up the circuit thus preventing transmission. It is in this manner that brief noise signals are excluded from the circuit—these short signals may be caused by electric switches, etc.

The time constant for the leakage of the voltage from the condenser is

determined by the product of the capacitance .02 and the resistance of 750,000 ohms.

Pulses whose duration is less than those transmitted by the dial unit will not be amplified. This is because the pulse does not last long enough to charge the condenser. It is interesting to note that the noise squelching characteristic of the circuit works even when the noise pulse is of less amplitude than the useful signal pulse.

On the other hand, if the signals are longer than those of the desired control signals, the stepping relays and switches will not operate. Hence the complete system responds only to pulses having a time duration and rate approximately equal to those generated at the control box.

**The Logical Item for CHRISTMAS PROMOTION!**

**.. here's WHY:**

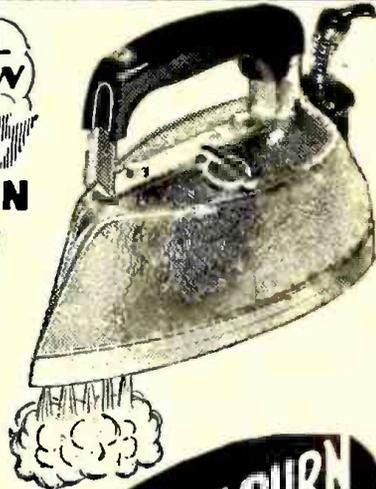
- NO SPRINKLING OR ROLLING
- NO MORE MILDEWED CLOTHES
- NO BURNING OR SCORCHING
- NO PRESS CLOTHS
- NO CONSTANT LIFTING
- SAFE TO FINE FABRICS
- SAFE TO SYNTHETIC FABRICS
- SAFE TO HEAVY WOOLENS
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- BLOCKS FELTS—KNITTED WEAR
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**SENSATIONAL NEW**

**STEAM**

**ELECTRIC IRON**

U. L. APPROVED!



**LIST PRICE**

**\$12.95**

Complete with Asbestos Stand Funnel and Cord.

**WILL NOT BURN OR SCORCH**

*The Finest Fabrics!*

**• A \$\$\$ AND SENSE PROPOSITION YOU SIMPLY CANNOT AFFORD TO PASS UP!**

... a money maker that will appeal to your good business sense. Quick turnover—BIG PROFITS! Dealer helps and newspaper mats FREE.

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City..... State..... RT1138

ORDERS ARE POURING IN!

POINTING THE WAY TO A BIG HOLIDAY TRADE!

# It's AEROVOX ... either way



● AEROVOX offers exact-duplicate replacements and general-utility condensers alike. It has no axe to grind. Arguments in favor of each, therefore, are hereby submitted. It's your own choice . . .

## EXACT DUPLICATES

● The most extensive and accurate line available. A replacement for every set. **FITS** right. **LOOKS** right. **WORKS** right. Restores set to its original **NEW** condition. Essential to pleasing fussy customers. Saves time, trouble, money. Insures more profitable jobs. Likewise your future as a **GOOD** serviceman.

## GENERAL-UTILITY

● The AEROVOX line includes ALL types of general utility units—card-board case and tiny metal-can electrolytics, long and short metal-can electrolytics, paper tubulars, etc. Recommended for those emergency or hurry-up jobs where set owner isn't fussy but in a hurry.

Ask for **DATA** . . .

● Your jobber can give you a copy of our latest catalog containing listings of exact-duplicate units. Ask to see his wall chart. Or write us direct.



## NEW RSA CHAPTERS

RSA has affiliated during the past several weeks, the Lehigh Valley Radio Service Association of Allentown, Penna., under the direction of T. W. Reichard, president; J. A. Muthart, treasurer; H. H. Fillman, secretary; the Hartford Institute of Radio Technicians, under the direction of Gerald Miller, chairman; James H. Smith, Jr., secretary; Kenneth G. Anderson, treasurer. These two groups represent two of the oldest established local associations in the country.

Also a Washington, D. C., chapter has been formed under the direction of J. B. Austin, Jr., as chairman; Pat Hendrican, secretary; Bill Carrick, treasurer.

## Chapter news

**Danville, Ill.**—Local charter of the chapter was presented by Joe Marty, Jr., RSA executive secretary, at a recent meeting. A. G. Mohaupt lectured on the "Uses of the Signal Generator in Service Work." Considerable membership activity is planned.

**Staten Island, N. Y.**—Annual picnic held recently for 177 persons. Motion pictures were shown and refreshments served.

**Peoria, Ill.**—In conjunction with the Klaus Radio Co., a meeting was held Oct. 27th, at which the RCA Victor engineers presented outstanding features of the new RCA line. Peoria will have the pleasure of hearing Russ Lund of the Clough Brengle Co. on "Dynamic Testing."

**Quincy, Ill.**—Russ Lund of the Clough Brengle Co. talked on "Dynamic Testing of Radio Receivers." Local charter of the Quincy Chapter was presented by the executive secretary.

**Cleveland, Ohio**—One of the best meetings in its history when Mr. Trammell and Mr. Kendall gave a serviceman's discussion of Rider's Chanalyst. These two men developed the uses and applications of the Chanalyst in ordinary service work.

**Minneapolis, Minn.**—Host to over 150 servicemen, including the RSA

group from St. Paul, at a recent meeting when John Potts gave the complete story of the Chanalyst. Chairman of the Minneapolis group is Forrest A. Nelson.

**Green Bay, Wis.**—All efforts of this chapter will be placed on a shindig to be held during the Christmas season for all the members, wives and guests. A. J. Nejedlo was elected chairman to make arrangements.

**Fremont, Ohio**—On Oct. 24th, Mr. Scott of the Clough Brengle Co. gave the complete story on Dynamic Testing for Radio Receivers, with demonstrations.

**Newark, N. J.**—A concentrated membership drive, directed by Harry Miller, is under way. Important point in the program is the use of advertisements in local newspapers in each county in the state. These ads stress the necessity of good radio service and particularly the kind extended by RSA members.

**Buffalo, N. Y.**—Annual banquet planned for Nov. 16th. Annual bowling party was held on Nov. 8th.

**Boston, Mass.**—Director Saunders, 20th District of RSA, explained in detail the workings of the oscilloscope. On Oct. 24th a discussion was held on the Chanalyst. Future meetings are under the direction of William Wells and Hyman Leve. Ingvar Paulsen, the well-known secretary, is still on duty after many years.

**Ogden, Utah**—A publicity program to acquaint the public with the value of good radio servicing is under way. At a recent meeting a demonstration of the new Philco Mystery Control by Lamont Boothe and Ted Olson of the Ogden Chapter was enjoyed by all members.

**Chicago, Ill.**—Meeting on Oct. 12th at which an engineer from the Bendix Radio Corp. went into detail concerning the servicing and maintenance of modern aeroplane receivers. Neal Austin, chairman of the Barter and Exchange Committee, is rapidly acquiring a knowledge of the numerous things that servicemen want to get rid of. Lew Evans, Shops Standards Committee, went very thoroughly into the costs of doing radio servicing at a recent meeting.

### A GOOD NAME GOES A LONG WAY



You can depend on Ken-Rad Radio Tubes to keep customers happy. Superior engineering assures better reception.

**KEN-RAD TUBE & LAMP CORP.**  
OWENSBORO, KENTUCKY

# ★ KEN-RAD ★

DEPENDABLE RADIO TUBES

Decatur, Ill.—Extensive publicity and advertising program launched to acquaint the general public of the type of service work extended by RSA members. This was done to counteract the ill affects on the radio servicing industry by virtue of the action of so-called radio mechanics who are daily fleecing the public. Nov. 1st A. G. Mohaupt was a lecturer at a closed meeting.

### Regional meeting

A combined meeting of all the chapters in the 9th District of RSA was held in Pontiac, Mich. Nov. 1st. Fifty men representing the officers and executive heads of committees of all the chapters had dinner, followed by entertainment. Speaker of the evening was Mr. Joe Marty, Jr., executive secretary, who outlined the progress of the RSA to date and gave some idea as to the future plans. Local charters were presented to the Flint, Detroit, and Pontiac, Michigan, chapters.

### CHICAGO JOBBER STAGES DYNAMIC TEST DEMONSTRATION

Over 100 radio service men of Chicago and northeastern Illinois, were recent guests at a big demonstration of "latest time-saving methods of dynamic analysis with cathode ray" staged by the Chicago jobber Lukko Sales Corp. Lukko technician Harold Justice appeared at the meeting with a 14-point step-by-step check-up on a modern receiver, using the much-discussed dynamic test chart recently published by Clough-Brengle Co.

Service men were greatly interested in the presentation of "A uniform test procedure that would completely check every set, as assurance of complete satisfaction to customers and protection of service men against unprofitable re-work." Lukko president William (Bill) Schoning was host to the gathering.

### S.I.C. SERVICE FORUM

Every Wednesday evening at 8 P.M. the Supreme Instruments Corp. service forum is conducted by Bruce Burlingame at Room 416, 130 W. 42nd St., New York City. All servicemen are invited to attend these free lectures and participate in the discussions.

Bring your service problems and questions on instrument applications for discussion and solution. Demonstrations at every meeting, using latest equipment and methods. Recent topics have been: "Condenser leakage—its causes, and methods of measurement," "Reasons for width and shape of resonance curves."

Bulletin No. 140, with brief descriptions of a series of measuring instruments, has been issued by Shallcross Mfg. Co., 10 Jackson Ave., Collingdale, Pa. It also includes a list of the standard size Shallcross wire wound resistors.

# Don't Take Our Word For It!

Read what these  
**SERVICEMEN**  
say about



Net \$107.50

# The RIDER Chanalyst

**COATESVILLE, PA.** "It's the easiest thing to use in my shop . . . does away with all guesswork and speeds up our service work. . . I put it to work as soon as I got it and have been using it every day since, on large and small jobs."—M. Godschild.

**PADUCAH, KY.** "I have had better results with the Electronic Voltmeter (in the Chanalyst) than any other output indicator I have tried. I have found the Chanalyst very useful checking intermediate frequency and in finding troubles which would have been hard to find otherwise, such as intermediate transformers that show resistance on the Ohmmeter but are still bad."—Emmet Helm.

**PHILLIPSBURG, N. J.** "I have been in service work 12 years and bought a lot of test instruments. The Chanalyst is the best I ever bought. For intermittents and distortion it has cut my service time 90%, and for coupling condensers, you can test them quicker than you can pick up a soldering iron."—Carl B. Williams, Radio Service Laboratory.

**HAZLETON, PA.** "I now find it indispensable . . . The Chanalyst enables you to actually travel through a receiver, everything seems to open up before you."—Residential Radio Sales and Service.

**DRYDEN, N. Y.** "The Watt Indicator in the Chanalyst, alone, saved me a lot of trouble and time on three sets where the power transformer had been subjected to a heavy overload and was burnt bad. The Chanalyst takes all the GUESS WORK out of servicing."—E. M. Little.

**HURON, S. D.** "The Chanalyst has changed headache jobs into a pleasure! The one we have has been busy almost continually since we bought it."—Arndt's Radio Service.

**SERVICE INSTRUMENTS, Inc.**  
404 Fourth Ave., New York City

## THE FASTEST METHOD OF TROUBLE-SHOOTING

# Don't Take Our Word For It . . .

## GET A DEMONSTRATION!

**QUALITY TESTERS**  
at **LOWEST PRICES**



Positively Checks Radio Receiving Tubes According to Latest Recommendations of Tube Engineers.

**NEW MODEL 432**

**TUBE TESTER Only \$21.60**

- Separate Plate Tests on Diodes and Rectifiers
- Neon Short and Leakage Tests
- Ballast Tube Continuity Test
- Uses Attractive Triplet Direct Reading Instrument 3" size. (GOOD-BAD) Scale
- Line Voltage Adjustment
- New Improved Low Loss Switch

Complete in attractive, sturdy quartered-oak case; suitable for counter or portable use. Sloping etched panel of silver and black.

Also available

**MODEL 431 ..... \$15.90**

Checks all receiving tubes. (No ballast test.) Tester uses dependable Readrite Meter. Quartered-oak case same as for Model 432.

**A.C. and D.C. VOLT-OHM-MILLIAMMETER**

Sturdy molded case with rounded corners, accessories included.



**Model 736**  
only \$12.00

Packet size

READRITE METER WORKS  
1119 College Avenue, Bluffton, Ohio  
Please send me more information on  
 Model 432;  Model 736;  
 Send Catalog

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

**FACING FURNITURE FACTS**

(From page 16)

A lot of helpful material can also be obtained from the radio manufacturers who specialize in period style cabinets. To an outfit, they are interested in telling the radio man what he needs to know about this kind of selling.

Then too, it is a good idea to talk to furniture salesmen. These chaps have made it their life business "to understand and to dramatize the qualities of period furniture" and have advice to give which is far more practical than material gotten from formal records. Radio buyers, as well as radio salesmen, will find this profitable.

**Do you know your woods?**

Part of the "furniture radio" sales technique is to know your way around among woods, figures, and finishes.

For instance, most dealers know mahogany when they see it (although it is not a "red" wood) but not all of them know that it comes in striped, swirl or crotch figures. To have this information about each wood, and to know the figures when you see them, is a great asset to the radio salesman. Some figures are very rare and expensive—you may not be able to get exceptionally high prices unless you know exactly why the patterns are special and costly.

About each wood are chiefly three things to know (1) its figure (2) where it comes from (3) what design it is mainly identified with.

For instance, crotch walnut is produced domestically, and is widely used in Queen Anne pieces.

**Merchandising style**

Once the dealer has become profitably interested in this branch of the radio business, several changes will be appropriate in his store. To begin with, most dealers find it smart to

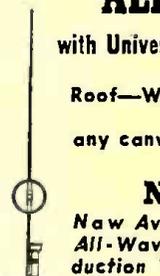
display a period cabinet separately, rather than crowded in amongst a series of standard models. When practical, right style rugs and furnishings accompany them.

A handsome lamp on a nearby table will help the display, and some decorative knick-knacks will add greatly to the effect. Further, period models should be displayed where there is not too much outdoor light coming in, as it detracts from bringing out the fine characteristics of the woods and finishes. It is for this reason that most furniture departments have the shades drawn when displaying fine furniture.

**AVNET TRIM-MAST AERIAL**

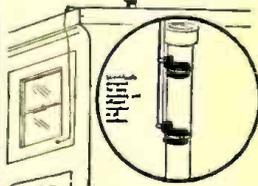
with Universal Mounting  
Far  
Roof—Wall—Window  
or  
any convenient place

Rust-Proof Non-Directional



**NEW**

Now Available with All-Wave Noise Reduction Transformers



Manufactured under patents of Amy, Aceves & King

- Forever eliminates unsightly and dangerous wires.
- Easy to mount to pole, wall or window.
- Clear, noise-free reception.

Here's news to be shouted from the house tops. 12, 15-ft. Trim-mast aerial that provides better reception with all radios. All-wave noise reduction. See your nearest jobber or write direct for complete Catalog Dept. RT

Cash in on this season's newest radio item

**The CHARLES AVNET CO.**  
Manufacturers of Home and Auto Radio Aerials  
156 CHAMBERS ST. NEW YORK



**MUELLER** The Original and Only Complete Line of

**• CLIPS •**

- Alligator Clips
- Wee-Pee-Wee Clips
- Copper Clips
- 300 Ampere Clips
- Insulated Clips
- Insulated Grid Clips

KNOWN FOR 30 YEARS AS THE BEST MADE!

Send for Free Samples and Catalog 980

*Mueller Electric Co.*

1573 E. 31st Street Cleveland, Ohio

## INTERNATIONAL ANSWERS FTC

The International Radio Corporation, Ann Arbor, Mich., reports that it welcomed the filing of the recent complaint issued by the Federal Trade Commission against the company and has filed answer thereto. International feels that this is a necessary step in bringing about a correction of at least one of the evils that has been prevalent in the radio industry for some years past. For a long time it has been felt that too much emphasis was being placed upon the number of tubes in a radio without regard to their functions, efficiency or necessity. "Most everyone was guilty to a greater or lesser degree and the International Radio Corporation felt that only by carrying this matter to a somewhat extreme point could the situation be clarified. This was done in the summer of 1937 and it is apparent that the results hoped for are being achieved and that receiving sets in the future will be advertised more honestly than they have been for several years past."

## WIRELESS RECORD PLAYERS OPEN NEW FIELDS FOR DEALERS

Since the recent introduction of the new-style record player which has no wire connection with the radio set, dealers are waking up to the fact that all radio buyers, old and new, are prospects for this new merchandise. For *RADIO TODAY*, Bob Howard, who is the divisional sales manager for Sonora Electric Phonograph Co., Inc., New York City, has listed some sales methods to use on the new instruments.

Exceptionally dramatic demonstrations can be staged with the players, right in the home of the prospect, if service men will take along a portable model when they make repair calls. The "wireless" features, when properly shown off, are easy to sell.

Also, some dealers are having good success by selling the players in combination with old radio models which are hard to move. In this way the retailer is able to offer what is really a phono-radio combination, at a very attractive figure.

All this fits in very well, Mr. Howard reminds us, with the new interest on the part of the public in records of all types. To develop this market, the Sonora firm now has a complete line of players, including those appropriate for dance fans, music lovers, college students, and those who require a portable model.

Sonora Radio & Television Corp., Chicago, has purchased the *Ferguson Radio & Television Corp.* of New York. According to Sonora president Joe Gerl, this is another of the steps in current expansion plans of his company; more of them will be announced soon. Manufacturing facilities, as well as sales organizations, are being enlarged and modernized in line with the recent growth of the firm.

Mr. Gerl has also announced the purchase by Sonora of all the physical assets of *Clinton Mfg. Co.*, Chicago. Consolidation of all the new properties of Sonora is under way.

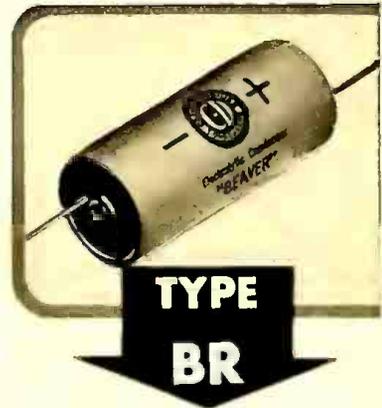
**“6 reasons why”**  
IS THE BIGGEST SELLING  
CAPACITOR LINE



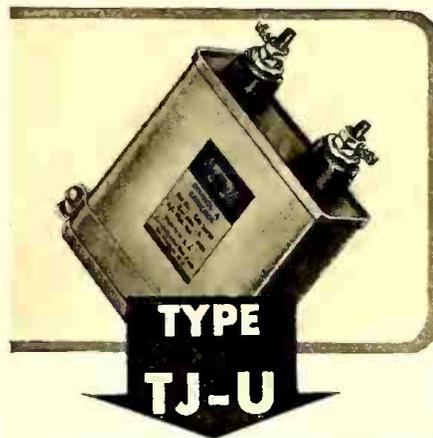

**QUALITY BUILT**

**EXPERIENCE TESTED**

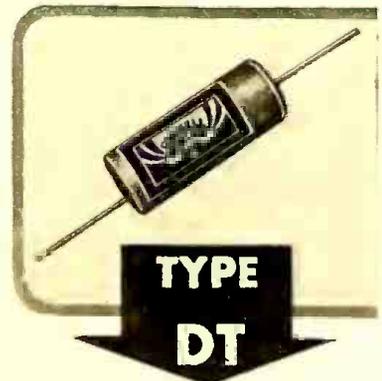
**ECONOMICALLY PRICED**

The type BR "Blue Beaver" is a typical example of the C-D "experience-tested and quality built" capacitor line. Hermetically sealed and vented, they eliminate drilling of chassis, use of pal nuts and washers as well as minimize assembly operations. You'll like the results you get from C-D's NEW Blue Beavers.



Type TJU fireproof Dykanol transmitting capacitors come hermetically sealed in sturdy steel containers. These are the capacitors practically every broadcast and government station in the world uses today. Standard equipment too, with tens of thousands of "hams" who will buy nothing else but C-D Dykanol units.



C-D famous "Dwarf-Tiger" paper tubular capacitors are non-inductively wound and specially sealed. Extensively used by leading set manufacturers, C-D has produced many hundreds of millions of these tubulars—more than any other company in the world. Type DT is a real quality capacitor at the lowest price ever offered.



**CATALOG NO. 161  
NOW OFF THE  
PRESS! Have You  
Enough Copies?**



**CORNELL-DUBILIER  
ELECTRIC CORPORATION**  
1022 Hamilton Boulevard, South Plainfield, New Jersey

## HELP ON TUBE SALES

(From page 33)

"All are available through regular G-E radio tube distributors who are making attractive offers on this equipment in conjunction with the purchase of G-E pre-tested tubes."

### High professional standards

National Union Radio Corp. explains what it has undertaken:

"Our approach to the problem of increasing retail sales of radio tubes is indirect. We hold to the theory that a large percentage of the total volume of tubes sold go through the channels of the radio service profession and, therefore, that any sell-

ing activity which directly promotes or increases the facilities of this profession is bound to lead to increased tube volume.

"We have directly approached the ideal of helping the serviceman build himself in the confidence of the public by enabling him to obtain the finest of modern set and tube testing instruments. It is obvious that the well-equipped service engineer creates confidence among his customers and is in position to service more sets in a shorter period of time. An increase in tube volume follows, naturally.

"Other items which make for better business efficiency in the service profession and which we give on a premium basis include typewriters,

shop coats, watches, stationery kits, electric clocks, semi-permanent signs for indoor and outdoor use, service manuals and advanced radio service study courses.

"This season we have a greater selection of radio service necessities than ever before and it is our sincere hope that these things will point the way to a bigger, more profitable radio service profession with resultant increase in retail tube sales volume."

### Door openers

Here is the progress at Tung Sol: "Our most successful door opener, the 'Tung-Sol Program Reminder,' was released during the month of September, 1938. It coincides with our usual plan of cooperative advertising and if properly used supplies the dealer with a prospect list as well as an opportunity to solicit new business. Complete instructions are printed on the back tear-off card of each book.

"The Renaissance design on the cover printed in gold and purple provide both eye appeal and retention value—every set owner will want it and—more important—it will be kept near the radio. The serviceman's name and phone number is imprinted on the front cover.

"Constant releases of new advertising items, including window displays, cloth banners, metal signs, stationery, etc., has supplied Tung-Sol dealers with personalized material that has enabled them to promote their own business and helped them acquire good-will and recognition in their own community."

How other tube manufacturers figure in the big campaign on more replacement sales, will be reported in later issues of RADIO TODAY.

## N. Y. RSA TO SPONSOR CHANALYST DEMONSTRATION DEC. 12

The Metropolitan N. Y. chapter of the Radio Servicemen of America have announced that on Monday evening, Dec. 12, at 8 P.M., John Rider in person will give a complete explanation of the useful application of the Chanalyst in radio servicing.

A number of the instruments will be in actual operation, each locating a different circuit defect.

Meeting will be held at the Hotel Capitol at 51st St. and 8th Ave., New York City. An invitation is extended to all radiomen to attend this free meeting.

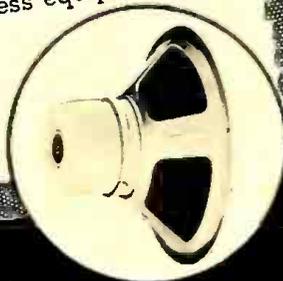
## GE MARKS 60TH YEAR

When the General Electric Co. was 60 years old last month, the Schenectady, N. Y., Chamber of Commerce tossed a big dinner to honor the company and its accomplishments. Chamber President L. G. Wagner presented a bronze plaque to GE President Gerard Swope; others on the program were Public Service Commissioner G. R. Lunn and GE Vice-president Charles E. Wilson. During the ceremony, three veteran employees of the firm, with 50 or more years of active service, received special honor.

## WHAT ENGINEERS LIKE ABOUT CINAUDAGRAPH SPEAKERS

What engineers like about Cinaudagraph Speakers is the even, high quality of tone and dependability of construction. Furthermore Cinaudagraph offers this fine quality in a complete line of permanent magnet and electro-dynamic speakers from 5" to 18". Investigate the new profit possibilities of comparatively priced Cinaudagraph speakers used so extensively by the country's foremost manufacturers of radio and Public Address equipment.

Write to Cinaudagraph Corp.,  
Stamford, Conn., for new  
descriptive catalog today.



**CINAUDAGRAPH CORPORATION**  
STAMFORD, CONNECTICUT

## EVERYTHING IN RADIO!

### A COMPLETE SOURCE FOR YOUR RADIO NEEDS!

Our immense stock of radio sets, parts and supplies enables you to purchase your entire needs on one order. The Big BA catalog is an encyclopedia of the Radio Industry. You will find all your Nationally Known Favorites shown in this Book and it's FREE for the asking. BA service is better than ever—practically every order is shipped the same day it is received.

Write for Big New Wholesale Catalog

**BURSTEIN-APPLEBEE CO.** 1012-14 MCGEE STREET  
KANSAS CITY, MISSOURI



**LEADING DISTRIBUTORS**  
*and*  
**EXPERT SERVICE MEN**

*Are All Stepping  
 To this Popular*

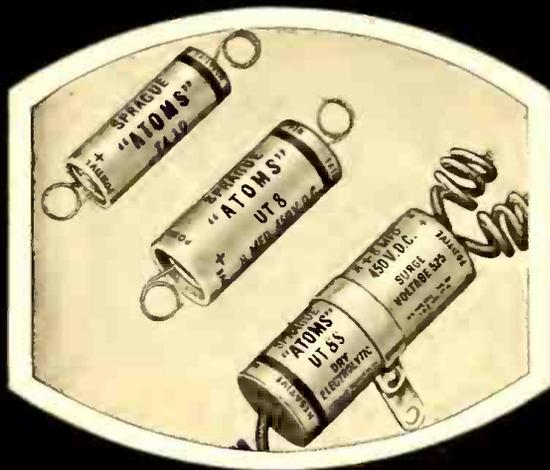
**SWING TUNE:**

**STANCOR'S  
 THE LINE  
 FOR NINETEEN-  
 THIRTY-NINE!**

**N.B. There's More Switching to Stancor Today Than to Any Other Line in the Transformer Field . . . . THERE MUST BE A REASON . . . !**

**STANCOR**

STANDARD TRANSFORMER CORPORATION  
 1500 NORTH HALSTED STREET, CHICAGO



**What about those  
 SMALL CONDENSERS ?**

**T**O ALL who have written to ask us "What about those new midget dry electrolytics so many manufacturers are talking about?"—we are glad to make this statement:

Sprague Atoms are beyond question the finest condensers yet produced in small size. We recommend them unreservedly for all ordinary replacements—especially where space is limited or where you need a really reliable condenser at a rock-bottom price. ATOMS will save you time, money and space. They will not let you down.

But do not confuse Sprague ATOMS with *ordinary* small dry electrolytics. For years, Sprague has led the way toward making *better* condensers in smaller sizes. ATOMS represent the ultimate of all that Sprague leadership in this direction represents.

ATOMS are made by an exclusive etched foil process, pioneered and perfected by Sprague. "Blowouts" are positively prevented by a Sprague design feature that other manufacturers are only just now beginning to copy. Extremely low leakage avoids overheating. Quick build-up and high surge voltage make them practically foolproof. They are made in both singles and dual combinations covering every replacement need. They are, in brief, truly universal—a modern Sprague development that every wide-awake radio man ought to know about—and use regularly.



**SPRAGUE**  
 GOOD CONDENSERS—EXPERTLY ENGINEERED—  
 COMPETENTLY PRODUCED

SPRAGUE PRODUCTS CO., NORTH ADAMS, MASS.

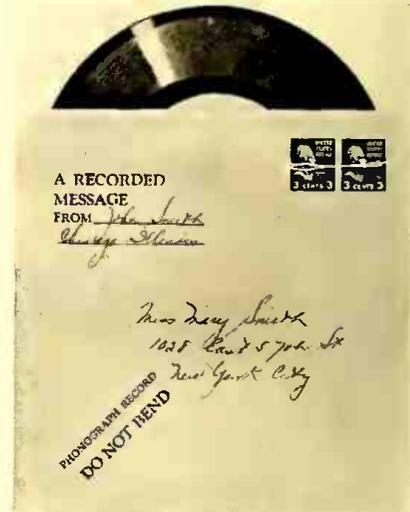
# SUCCESS ON PLATTERS

California dealer describes thriving record business

## MERRY CHRISTMAS VIA RECORDS

The profitable way in which the merchandising of phonograph-radios combines with the successful promotion of records is neatly illustrated by what is going on at the Birkel-Richardson Co, Los Angeles, "The House of Music."

Manager J. C. Bates of the phonograph-radio department has outlined the store activity for RADIO TODAY: "We have maintained our record department for the past twenty-five years. Though at times it was operated at a loss, the loss was made up in the sale of phonograph combinations. We have found that nothing sells an expensive machine better than the fact that a purchaser can obtain recordings in album form of complete operas; can play from six to twenty records continuously depending upon the model of the combination; and can have their choice of the world's finest music whenever they want it. Not only can they have the music they want when they want it, but they can have an improved music made possible with electrical amplification and tone control that will reproduce the finest symphonic music to a perfection. Such a selling point as that is hard to beat as the sales volume mounts higher to prove it. One helps the other and we seldom place a large combination without it being accompanied with a substantial order of recordings.



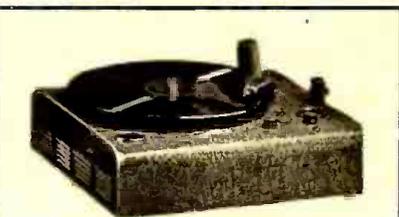
A Christmas stunt for dealers to get behind—selling customers the idea that they should use recorded Xmas greetings. This is Presto's 6" greeting record, all ready to mail.

superiority of the latest models and to compare them to the ones they now have. Many home demonstrations are arranged in that manner and when the new machine is played in comparison to the old model a sale is practically assured.

## THESE ARE DISC DAYS



New table for any of the new record players. Top is 20 x 15. Schloss Bros. supplies either walnut or mahogany; room for 120 discs. List \$7.



## FLASH!

REGARDLESS of your present radio line—Wilcox-Gay offers you opportunities for unusual profits during the coming Christmas season with the following new and novel creations:

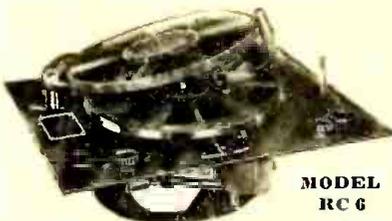
1. The ORIGINAL wireless record player.
2. The versatile "Thin Man" radio.
3. Beautiful all walnut console at \$59.95.
4. The convertible Wal-chairside model.
5. An unusual push-pull table set at \$36.95.
6. New performance in a compact battery job.

The wireless feature of the Wilcox-Gay record player is the only practical solution for playing records through any radio. Since June 1st, thousands of profitable retail sales have been made by Wilcox-Gay dealers.

The sensational success of the Wilcox-Gay wireless record player has brought forth players of similar design. We are complimented, of course. However, the Wilcox-Gay player is known to be good by tens of thousands of successful sales. Wilcox-Gay offers you a \$19.95 retail price and a generous discount; also, remember Wilcox-Gay uncovered this gold mine of extra business for the radio industry.

Write today for our free 1939 catalog which shows why Wilcox-Gay can make your radio business more profitable. Address Dept. D-S.

**WILCOX-GAY CORPORATION**  
CHARLOTTE, MICHIGAN, U. S. A.



MODEL RC 6

## LOOKING FOR CLUES?

"Garrard" is the clue to increased sales for YOU. Have "Garrard" Automatic Record Changers built into the phonoradios you carry (leading manufacturers use them on request) or feature "Garrard" units for custom assemblies and modernization jobs. Cash in on the demand for quality record playing equipment. Push "Garrard" for the answer to your sales "mystery." Write for FREE catalog No. 53L.

GARRARD SALES CORP. 17 WARREN ST., NEW YORK, N.Y.

**GARRARD**

*Automatic Record Changers*

### No mixed music

"In demonstrating the machine care must be taken to give the prospect the proper selection of recordings, for many sales have been made or lost in just that manner. We have our salesmen stick to classical selections throughout or to use all popular music, and never at any time intermix the two unless requested to by the customer, for we have found that if we can give the customers the music that especially appeals to them we have gone a long way in making a sale.

"Whenever a customer comes in for a recording we obtain if possible their name and address. This gives us a large mailing list and we continuously send letters and catalogs, then follow up with personal calls. It also affords us an opportunity while they are in the store to demonstrate to them the

"Another variation that we follow in our department is the asking for suggestions before buying our stock. We get a variety of opinions on the salesman's prospects and are able to base the individual quota accordingly."

Birkel Richardson Co. sells everything from phonograph needles to pipe organs, and all departments cooperate in an exchange of leads. The firm also makes a specialty of loaning instruments to movie studios, and making contacts with movie stars. "Our list of satisfied customers and prospects resembles a guide book to the homes of the stars," says Mr. Bates. "With their autograph on the delivery ticket, each one is a selling point to use on the next customer."

### WAX WORTH WATCHING

BUNNY BERIGAN and his orchestra playing Father, Dear Father, with VR by Bernie Mackey and Let This Be a Warning to You, Baby, with VR by Jayne Dorer—Victor 26061.

EOOY DUCHIN and his orchestra playing Heart and Soul and It's a Lonely Trail, both with VC by Stanley Worth—Brunswick 8233.

AL OONAHUE and his orchestra playing What Do You Know About Love and What Have You Got That Gets Me, from "Artists and Models Abroad," both with VC by Paula Kelly—Vocalion 4420.

PAUL WHITEMAN and his orchestra playing There's No Place Like Your Arms, with VC by Modernaires, and When I Go a Dreamin', with VC by Joan Edwards—Decca 2076.

KAY KYSER and his orchestra playing Two Sleepy People from "Thanks for the Memory," with VC by Ginny Simms and Harry Babbitt, and Have You Forgotten So Soon, with VC by Ginny Simms—Brunswick 8244.

RAY NOBLE and his orchestra playing Cherokee and By the Waters of the Minnetonka, with VC by Howard Phillips—Brunswick 8247.

RUSS MORGAN and his orchestra playing Summer Souvenirs with VC by Morgan, and Is That the Way to Treat a Sweetheart, with VC by Mert Curtis—Decca 2053.

ELLA LOGAN, with Perry Botkin and his orchestra, singing Come to the Fair, and Ragtime Cowboy Joe—Brunswick 8232.

CAB CALLOWAY and his orchestra playing The Congo Conga and There's a Sunny Side to Everything, both with VC by Calloway—Vocalion 4411.

EDDIE OELANGE and his orchestra playing Button Button and Jump Jump's Here, both with VR by Elisse Cooper and chorus—Bluebird B7837.

TOMMY OORSEY and his Clambake Seven playing You Must Have Been a Beautiful Baby, from the Warner Bros. film "Hard to Get," and Sailing at Midnight, both with VR by Edythe Wright—Victor 26066.

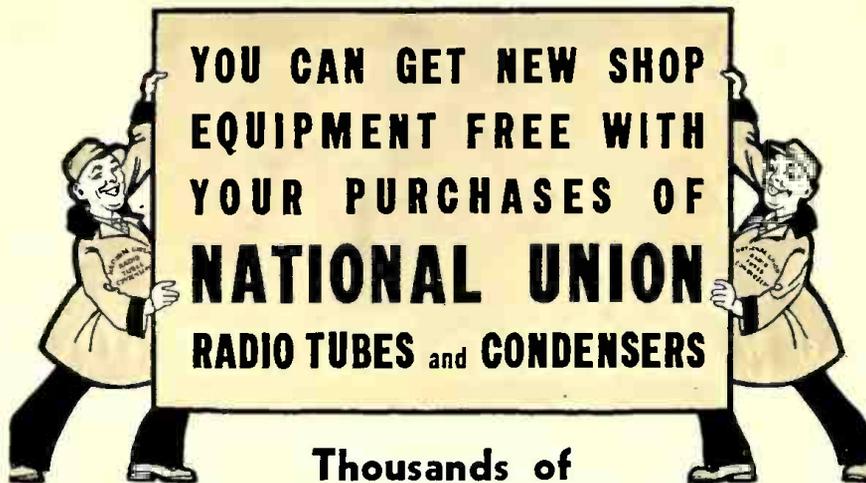
EDDIE OELANGE and his orchestra playing What Are Little Girls Made Of, with VR by Elisse Cooper and chorus, and New Shoes Blues—Bluebird B7855.

ANDREWS SISTERS singing Goodbye Goodbye and Lullaby to a Jitterbug—Decca 2082.

BLUE BARRON playing Heart and Soul, with VR by Russ Carlyle, and Love Doesn't Grow on Trees, with VR by Charlie Fischer, both from the Paramount film "A Song Is Born"—Bluebird B7872.

HILO HAWAIIAN orchestra playing That Night in Avalon and Colorado Sunset, with VR by Jimmy Ray—Bluebird B7749.

HAL KEMP and his orchestra playing Bambina, with VR by Bob Allen, and Monday Morning, with VR by Judy Starr—Victor 26031.



Thousands of  
**Aggressive Service Engineers Make More Money by getting instruments the N. U. way**

• Radio owners will naturally turn to the service engineer who builds himself a reputation for having the latest things in test equipment so that he can service radios quickly, and do a 100% satisfactory job.

Remember on the National Union plan you don't have to put up the amount of money which would normally be required if you were to go out and buy the modern equipment you want. Through National Union you earn the equipment through every day purchases of National Union Radio tubes and condensers.

Here's all you do:

1. Select the equipment you want.
2. Sign a National Union tube and/or condenser purchasing agreement.
3. Place a small deposit which will be refunded to you as a merchandise credit when your purchasing agreement is completed.
4. Order a small quantity of National Union tubes and/or condensers at the time you sign the agreement.
5. Apply your regular monthly purchases of tubes and condensers against the requirements of the contract.

### SEE THE BIG 102 PAGE MANUAL AT YOUR JOBBER



**Step Up! Equip Yourself for More Business the NATIONAL UNION way**

WRITE FOR DETAILS

AND

NAME OF NEAREST DISTRIBUTOR

**NATIONAL UNION RADIO CORP.  
NEWARK, N. J.**

RT-1138

### Unidirectional Dynamic D-9-T



BACK No Pickup  
FRONT Full Coverage  
VOLUME INCREASED  
by Reducing Feedback

D9T, List \$37.50, High Imp. 25' Cable  
D9, List \$35.00, Low Imp. 25' Cable

Write for Catalogue No. 29

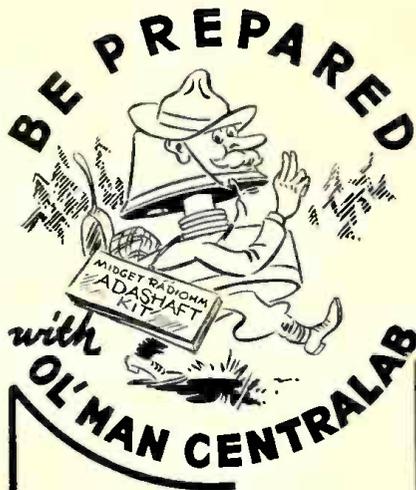
Manufacturers Full Line Dynamic, Crystal and Carbon Microphones and Stands

**AMERICAN MICROPHONE CO., Inc.**  
1915 So. Western Ave. Los Angeles, Calif.



B-9  
Crystal  
List  
\$22.50

O-5-T Dynamic  
List \$32.50



• Do yourself a good turn . . . and let that good old scout, "Old Man Centralab," help you with his ADASHAFT kit . . . housed in a swell metal box, hinged, contains ten Midget Radiohms, five types of attachable shafts, etc.

This kit will enable you to do some mighty fine "deeds" for more than 400 different makes of receivers . . . actually thousands of different models. See your jobber.



**Included in the ADASHAFT KIT**

are the following: 10 Adashaft controls, 5 Midget Switch covers, 6 4-inch Adashafts, 1 10-inch Adashaft, 2 3-inch Auto type Adashafts, 1 6-inch Auto type Adashaft, 2 slotted Insacups, 2 square hole Insacups, 1 300 ohm Bias Resistor, 5 Ground Straps, 10 "C" Washers, 5 Switch Insulators, and 10 Terminal Insulators. . . . 1 Instruction form 648.

**Centralab**  
Milwaukee, Wis.  
Division of Globe Union, Inc.

BRITISH CENTRALAB, LTD.  
Canterbury Rd., Kilburn  
London N.W. 6, England

FRENCH CENTRALAB CO.  
118 Avenue Ledru-Rollin Paris XI, France

**TELEVISION NEXT SPRING**

(From page 17)

Besides these transmitters there are 18 other stations licensed for experimental television in various parts of the U. S. One of these is W6XAO, the Los Angeles station of the Don Lee Broadcasting System, which recently sold the Harry R. Lubeke patent rights to RCA.

An example of prompt action on the part of independent broadcast stations came from station WTMJ, Milwaukee, which announced that "we have filed with FCC the first application for a license to operate a television station for the purpose of transmitting a regular schedule of programs."

To all stations, RCA has made available a not-too-expensive television transmitter, 1KW, the first medium powered one to be announced "to render a satisfactory service over a reasonable area."

In New York, the American Television Corp. announced a special device designed for department stores. It gives the manager of one department a chance to parade, via television, the merchandise being offered for sale in other departments.

**Word of caution**

Commander E. F. McDonald, Jr., Zenith president, declared that the radio industry should not ask the public to pay for its experimentation in television, at least not without letting the public know that costly replacements and changes may be necessary. Commander McDonald's view is that "the offering for sale of television receivers at this time in view of the present state of the art is unfair to the public and premature both for economic and technical reasons."

Zenith operates the experimental

station W9XZV in the Chicago area, and will have television receivers ready, but has no intention of selling them to public at this time.

Commander McDonald further explains his stand:

"Television holds the most fascinating possibilities ever envisioned by an eager public but I cannot agree that television receivers are ready for mass production and country-wide distribution on any such basis as even the first radio broadcast sets that were distributed in the early twenties.

"Television is essentially different from anything with which we have had to deal in the past. The first automobiles constructed and sold to the public, unless they have been worn out from use, will still operate on our highways today, and with the gasoline now used. Likewise, the first radio broadcast receivers constructed and sold to the public will still operate and reproduce programs broadcast from the most modern broadcasting stations of today. On the other hand, the television receiving set of one year ago is already obsolete and cannot be operated in the home with the latest television transmitter of today.

"What the public should know, and has not been told, about television is that the receivers must be matched to, synchronized with and built on the same standards as the transmitters. Any major change made in the television transmitter will necessitate a change in the receiver. This, of course, is not true of radio receiving sets. It is not only conceivable, but quite possible, that within a year from today the standards of the television transmitter, which, incidentally, have not yet been officially adopted, may again be changed, and this, in turn, will once again make obsolete all television receivers manufactured and sold today."

**Janette Rotary Converters**



**FOR CONVERTING D.C. TO A.C.**

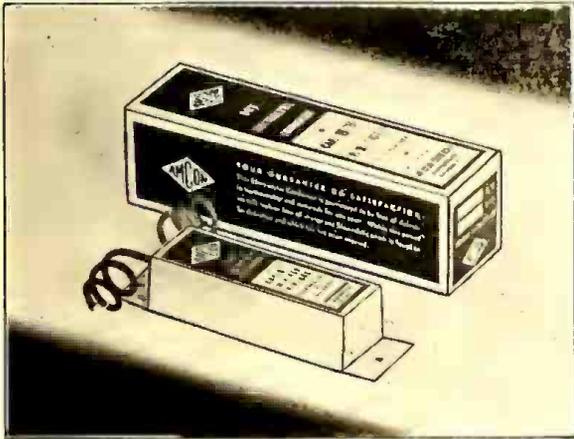
• Built especially for radio and sound apparatus—capacities 110 to 3250 volt amperes—with or without all wave filters. Dynamotor construction—economical to operate—ruggedly built for years of trouble-free service—used or recommended by the largest manufacturers of radio and sound apparatus throughout the world •

**WHY EXPERIMENT — INSIST ON A JANETTE**

ASK FOR BULLETIN 13-1

**Janette Manufacturing Company**

556-558 West Monroe Street Chicago, Ill. U. S. A.



**— AMERICAN  
CONDENSERS**  
ALL STANDARD TYPES  
BY-PASS & ELECTROLITIC

A perfected product of laboratory research, competent engineering and precision manufacturing methods. Long life, stamina and dependability make them ideal replacement units.

**AMERICAN CONDENSER CORP.**  
2508 So. Michigan Ave. Chicago, Ill.

**RADIO DEALERS ARE  
FINDING A *New* SOURCE  
OF PROFIT IN**

**SHORT WAVE  
*Radio-Thermy***

**At Last . . .**

It's here! The sensational Home Radiothermy machine that is sweeping the country! Sells like hotcakes. Every home a prospect. Supreme Model illustrated lists at \$149.50 with a big protected profit to you. Most good jobbers have at least one in stock for demonstration purposes. If he cannot supply you . . . write us at once giving his name and address.

Don't wait for Television to boost your profits . . . Radiothermy IS HERE . . . N-O-W!  
Address Dept. RT-11.

*Attractive Territories  
Open For Distributors*



**SCIENTIFIC DIATHERMY CORP.**  
200 WEST 34th STREET • NEW YORK, N. Y.

**ask yourself**



Is mine a representative service business?

Is my location free from interference with already established Tung-Sol agents?

Can I match my competition in technical knowledge and service equipment?

Can I turn over my tube stock at least every three or four months?

Are my facilities adequate to make use of attractive displays?

Have I a reputation for maintaining standard prices?

Can I be depended on to make monthly reports of consigned stock with remittance for tubes already sold?

*Dealers who can answer "yes" qualify under the Tung-Sol Consignment Plan. This means an adequate supply of world famous Tung-Sol Tubes without investment. If you think you qualify, write for details.*

**TUNG-SOL**  
*Radio Tubes*

TUNG-SOL LAMP WORKS, Inc. • Dept. C Radio Tube Division  
SALES OFFICES: ATLANTA • CHICAGO • DALLAS • DENVER • DETROIT  
KANSAS CITY • LOS ANGELES • NEW YORK • GENERAL OFFICES, NEWARK, N. J.

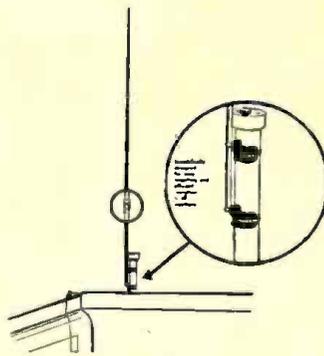
Vice-president *Howard Briggs* of *Howard Radio Co.*, has made an extensive trip south and has a report on sales conditions there: "business is definitely on the upgrade—most of the factories are going at a good clip—retail stores are enjoying a better volume than they have for some time. And the new 1½-volt sets have put a lot of pep into Howard dealers and jobbers."

A 3-day New Year's Eve party at the Ambassador Hotel in Atlantic City, N. J., has been arranged for dealer guests by the *RCA* jobbers *Bruno-New York, Inc.*, 460 W. 34th St., New York City. An *RCA Victor* special train will leave New York Friday, Dec. 30; the party will continue through Monday, Jan. 2.

Early November event at *Arcturus Radio Tube Co.*, Newark, N. J., was a big "open house" party for 2,500 guests who were personally conducted through the plant by *Arcturus* executives and engineers. A feature of the event was a visit to the departments where tubes are given 137 tests before they leave the factory. Here the guests were amazed at the mass and variety of the testing instruments used. The high-speed packing department was also a center of interest. *Arcturus* plans to stage more of these events.

Larger quarters at 17 W. 20th St., New York City, have been occupied by *Amplifier Co. of America*. The company will continue its policy of unconditional 5-year guarantee and free trial offer on amplifiers and PA equipment.

## PROGRESS IN VERTICAL ANTENNAS



Presenting a vertical antenna which provides non-directional pick-up characteristics, made by *Chas. Avnet Co.*, New York City. 12 and 15 ft. multi-section masts available with or without noise-reducing transformers and transmission line.

A group of dealers and servicemen from *Evansville, Ind.*, were recent guests of *Ken-Rad Tube & Lamp Corp.*, *Owensboro, Ky.*, for a dinner, a discussion meeting, and an inspection of the *Ken-Rad* factory. The group was also addressed by several of the *Ken-Rad* engineers.

*Charles B. Shapiro*, sales manager of *Howard Radio Co.*, was a recent guest at the California distributors for *Howard, Dunham, Carrigan & Hayden*, San Francisco.

President *Octave Blakc* of *Cornell-Dubilier Electric Corp.*, South Plain-

field, N. J., has announced a dividend of 10c per share on all CD common stock. Unusually successful year for the company was due to the development of new products and new applications for them, according to the announcement. Modernization of the firm's equipment was continued throughout the period.

*Universal Camera Corp.* has occupied new and larger quarters on three floors of the building at 28-30 W. 23rd St., New York City. Executive, sales, engineering and general facilities have been expanded and re-styled. The new set-up includes a series of displays which give dealers ideas for window dressing; visitors are cordially invited to take a look.

## STROMBERG PRICE CHANGES

Increased prices, f.o.b. Rochester, N. Y., on three *Stromberg-Carlson* radios to go into effect soon, were announced recently by radio sales manager *Lee McCanne*. No. 340-M will list at \$135 instead of \$127.50; No. 345-M at \$159.50 instead of \$150; and No. 350-M at \$187.50 instead of \$175. These new f.o.b. prices will go into effect Nov. 25th or before if the present factory run is exhausted before that time.

Mr. McCanne said, "These three models were formerly priced low in order to more quickly acquaint the public with the advantages of the *Labyrinth*. Now, with the *Labyrinth* story so well known, and so many orders received, it seems advisable to advance prices to cover their true worth."

Quality  
**PLUS**  
Economy

**DUMONT ELECTRIC CO.**  
514 BROADWAY, NEW YORK

## Get Volume Sales On Record-Changer Sets Folks Can Afford . . .

Model "M"

**LOW ADDITIONAL COST—  
OVER HAND CHANGING**

MEET the natural demand for automatic record playing without high cost. Sell the homes of moderate means that build volume sales. Install *General Industries Record Changer Units* in your radio-phonograph combinations.

Model "M" shown above plays and changes eight 10-inch or seven 12-inch records, repeating the last. Has famous *Flyer Motor* with turntable and pointer-and-dial speed adjustment. Dependable, simple, smooth-working record changer. High-fidelity pick-up—either crystal or magnetic. Completely assembled, self-enclosed unit ready to install in cabinets with low labor cost.

Write today for full information.  
Order sample Model "M" to test.

**The GENERAL INDUSTRIES CO.**  
3838 TAYLOR STREET ELYRIA, OHIO

# SOUND MEN!

ARE YOU OVERLOOKING C.I.S.E.?



See what FREE membership in the Clarion Institute of Sound Engineers does for those who qualify! Gives you . . . . .

- 1 Factory purchasing power!
- 2 Exclusive selling territory!
- 3 Free engineering and consulting service!
- 4 Competition-smashing prices!
- 5 Protected profits on the fastest-selling, most complete line of P.A. equipment in the world!

Several choice territories still open. Send today for complete information!

**CLARION INSTITUTE OF SOUND ENGINEERS**  
69 WOOSTER STREET, NEW YORK CITY

## SPARTON WIRELESS PHONOGRAPH DISPLAY



Prominent among the merchandising plans for the novel Sparton Wireless Phonograph is a four-color screen process display stand suitable for counter, window or store display. Sturdily built, it serves as a solid foundation for the wireless phonograph and also provides a pocket for the microphone that is shipped with each machine.

Free to all dealers demonstrating the Sparton Wireless Phonograph, it brings the merchandise out into the open and makes demonstration and sales much easier. It is 28 inches high, 21½ inches wide and 10½ inches deep.

## RADIO HAPPINESS PROMOTED IN 6 COLORS

A dramatic boost for radio as an all-important source of home entertainment is found in a new display issued by National Union Radio Corp., Newark, N. J. Lithographed in six colors on a heavy board 2 x 4 feet, the idea is that consumers should keep their sets in good condition, to enjoy news, comedy, drama, symphony, dance bands and opera as broadcast by the networks.

National Union has also released a Radio Foto Log, for dealers to distribute to customers. Its 32 pages include feature pictures of radio figures, program guides, station lists, notes on new trends, etc.

A new display banner, on heavy weather-resistant stock so that it may be used indoors or out, has also been issued by the company for dealers who want to exhibit the lively illustrated sales message "Pep up your radio with National Union Tubes."

## BRIGHT DISPLAY FOR JOBBERS

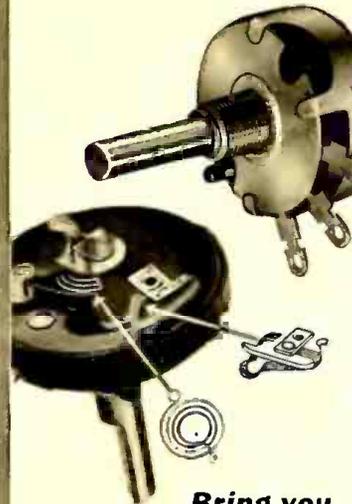
To call attention to the test instruments made by Radio City Products Co., 88 Park Place, New York City, the company has released to distributors a handsome die-cut display for windows or counters. Two of the RCP models are featured among colors that are lively and pleasant.

Only



TYPE CS

# VOLUME CONTROLS



Bring you

## RADIO'S MOST EFFECTIVE NOISE ELIMINATING FEATURES

- 1 Silent Spiral Connector
- 2 5-Finger Knee Action Silent Element Contactor

. . . each equally important, each pioneered and perfected by IRC. The combination of these two features plus the outstanding dependability of the famous IRC Metallized type element insures better performance under all conditions than any other known construction.

**INTERNATIONAL RESISTANCE COMPANY**  
401 N. BROAD ST., PHILADELPHIA

# Now! BALLAST REPLACEMENT

made **AMAZINGLY SIMPLE**

- Servicemen, with only 4 standard types of Amperite AC-DC Regulators you can replace 90% (over 100 types) of AC-DC Ballast Tubes now in use! Consult your jobber.
- Amperite Regulators are equipped with a patented Automatic Starting Resistor to prevent untimely burnouts and save pilot lights.
- New Low Price on Amperite AC-DC Regulators: \$1.00 LIST

Amperite Replacements for 2V Battery Set ballasts \$1.25 list

**AMPERITE Company**  
561 BROADWAY  
NEW YORK



WRITE FOR CHART A R

**AMPERITE**  
AUTOMATIC REGULATORS

**NEW!**

Model CC



# CAPACITOR ANALYZER



Incorporates Model CB Features, plus High Capacity Scale, High Test Voltage, Simplified Scales, Sloping Panel

This advanced Analyzer measures Capacity .00001 to 800 mfd., including motor starting condensers; measures Power Factor 0 to 50%, including motor starting condensers; measures Resistance 50 to 2,000,000 ohms; measures Insulation Resistance to 1000 megohms, using test voltages to, 600 D.C.; detects leakage and intermittents. A.C. operated.

Cat. No. CC-1-60 (110 v., 60 cyc.) Less tubes—\$24.90 net

Order through your jobber

**SOLAR MFG. CORP. 599-601 Broadway, New York**

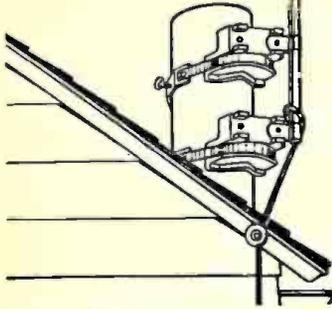
## INDEX TO ADVERTISEMENTS

	Page
AEROVOX CORP. ....	46
ALADDIN RADIO INDUSTRIES, INC. ....	33
AMERICAN CONDENSER CORP. ....	55
AMERICAN MICROPHONE CO., INC. ....	53
AMPERITE CO. ....	57, 60
ARCTURUS RADIO TUBE CO. ....	21
AVNET CO., CHARLES ....	48
BURSTEIN-APPLEBEE CO. ....	50
CENTRALAB ....	54
CINAUDAGRAPH CORP. ....	50
CLARION INST. (TRANSFORMER CORP. OF AMERICA) ....	57
CORNELL-DUBILIER ELEC. CORP. ....	49
CROSLY RADIO CORP. ....	4
DUMONT LABS., INC. ALLEN B. ....	Cover IV
DUMONT ELECTRIC CO. ....	56
EMERSON RADIO & PHONOGRAPH CORP. ....	3
GARRARD SALES CORP. ....	52
GENERAL ELECTRIC CO. ....	Cover II
GENERAL INDUSTRIES CO. ....	56
HYGRADE SYLVANIA CORP. ....	27
INTERNATIONAL RESISTANCE CO. ....	57
JANETTE MFG. CO. ....	54
KEN-RAD TUBE & LAMP CORP., INC. ....	46
MALLORY & CO., INC., P. R. ....	1
MEISSNER MFG. CO. ....	35
MILLION RADIO & TELEV. LABS. ....	59
MUELLER ELEC. CO. ....	48
NATIONAL UNION RADIO CORP. ....	53
PHILCO RADIO & TELEV. CORP., Phonograph Div. ....	6
PHILCO RADIO & TELEV. CORP., Set Div. ....	8
PHILCO RADIO & TELEV. CORP., Tube Div. ....	7
PORT-O-MATIC CORP. ....	59
RADIO CORP. OF AMERICA ....	2
RADIO SERVICEMEN OF AMERICA, INC. ....	60
RADOLEK CO. ....	59
RAYTHEON PRODUCTION CORP. ....	5
RCA MFG. CO., INC. ....	29, 30, 31, 32, 39
READRITE METER WORKS ....	48
SCIENTIFIC DIATHERMY CORP. ....	55
SERVICE INSTRUMENTS INC. ....	47
SOLAR MFG. CORP. ....	58
SPARKS-WITHINGTON CO. ....	19
SPRAGUE PRODUCTS CO. ....	51
STANDARD TRANSFORMER CORP. ....	51
STEEM-ELEC. CORP. ....	45
TRIPLETT ELEC. INSTRUMENT CO. ....	25
TUNGSOL LAMP WORKS, INC. ....	55
WARD PRODUCTS CORP. ....	59
WEBSTER-CHICAGO ....	43
WESTON ELEC. INSTRUMENT CORP. ....	Cover III
WHOLESALE RADIO SERVICE CO., INC. ....	60
WILCOX-GAY CORP. ....	52
WINCHARGER CORP. ....	41

While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this index.

# NEW!

## WARD'S DE LUXE HOME AERIAL MAST



- Can be sold to replacement market as well as with new sets
- Provides better reception, better pickup than old style "clothes-line" aerials
- Made of attractive, rustproof, nickel-plated bronze tubing; 4 sectional; 12 ft. high
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• Super power system for semi-heavy duty service. Has split twin speaker case, table stand and microphone. Amplifier only (illustrated) \$49.95.
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• Full 35 watt heavy duty system. With three piece split speaker case, table stand and microphone. Amplifier only \$79.95.

LITERATURE AND PRICES ON REQUEST.

## MILLION

RADIO AND TELEVISION LABS.  
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## JOBBERS AND REPS

OHIO—George H. Cameron, 2662 Shaker Road, Cleveland, recently appointed sales representative in Ohio and Kentucky for the line of set and tube testers made by Radio City Products Co.

ILLINOIS—Stuart D. Clayton, 10827 S. State St., Chicago, now represents the Radio City Products Co.'s line of tube and set testers in Indiana, Wisconsin and southern Illinois.

ALABAMA—McGowan Lyons Hardware Co., 113 N. Water St., Mobile, are new distributors in this state for Howard radios. To assist this jobber in promotion of the Howard line here, is E. L. Hollingsworth of Hollingsworth & Still, southeastern representatives for the Howard.

INDIANA—Charles D. Southern, 116 W. Rudisill Blvd., Ft. Wayne, has had his territory, for radio products made by Ward Leonard, extended to include Ohio, Kentucky and Indiana.

CALIFORNIA—Norman B. Neely, manufacturers representative, 1656 N. Serrano St., Los Angeles, has added a new sales engineer to his staff—Frank McRae. Having a wide experience in technical radio pursuits, Mr. McRae fits nicely into the Neely organization, which accents specialized technical sales promotion for manufacturers.

VIRGINIA—George W. Hudson, 3303 E. Broad St., Richmond, now represents Radio City Products Co., Inc., makers of tube testing equipment. He will also cover North and South Carolina.

## NEW BOOKLETS

Aerovox Corp., 70 Washington St., Brooklyn, N. Y.—condensed catalog on condensers which includes listing of the most popular types of carbon and wire wound resistors. In handy form, the catalog also features exact-duplicates plus exact-duplicate motor-starting capacitor replacements.

Amplifier Co. of America, 17 W. 20th St., New York City—1939 catalog of amplifiers, an entirely new line using the new 6SF5 and 6SK7 tubes. Complete specifications given for 14 advanced designs, as well as accessories. Copies are free.

Audak Co., 500 Fifth Ave., New York City—an eye-catching descriptive catalog of entire Audak line of pick-ups and cutting heads, including latest "Compensated Microdyne" models. Written for dealers and servicemen as well as technicians. Copies come direct from Audak.

Port-O-Matic Corp., 1013 Madison Ave., New York City—titled "Port-O-Matic Goes to Town—and Country," here are 16 pages of portable combinations, radios, phonographs, and accessories, with photos and specifications.

Presto Recording Corp., 137 W. 19th St., New York City—a "go to your dealer" booklet, for customer distribution, on home recordings. A dozen Presto models are shown, along with blank discs and needles.



## SEND FOR NEW CATALOG DESCRIBING AMERICA'S GREATEST PORTABLE PHONO-RADIO

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U.S. PAT. OFF.

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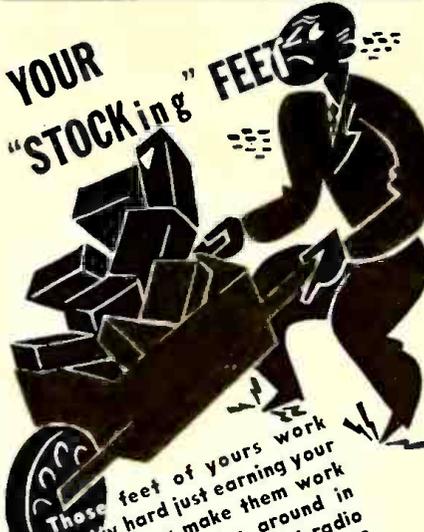
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CHICAGO, ILL. • ATLANTA, GA. • BOSTON, MASS.  
BRONX, N. Y. • NEWARK, N. J. • JAMAICA, L. I.

## COLOR SPLASH FOR CINE 8

Sixty new features of the new 1939 Cine 8 movie camera made by Universal Camera Corp., 28-30 W. 23rd St., New York City, are stressed in a new 4-color window and counter display introduced by the firm. This 16" x 24" attention-getter rests solidly on a large wing easel, and is available to dealers stocking the camera.

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## STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of RADIO TODAY, published monthly at New York, N. Y., for Oct. 1, 1938. State of New York, N. Y., County of New York, N. Y.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Orestes H. Caldwell, who, having been duly sworn according to law, deposes and says that he is the Editor of RADIO TODAY and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Maurice Clements, 277 Park Avenue, New York, N. Y.; Editor, Orestes H. Caldwell, Catrock Road, Cos Cob, Conn.

2. That the owner is (if owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Caldwell-Clements, Inc., 480 Lexington Avenue, New York, N. Y.; Maurice Clements, 277 Park Avenue, New York, N. Y.; Orestes H. Caldwell, Catrock Road, Cos Cob, Conn.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two Paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signed) Orestes H. Caldwell

B. M. Phillips  
Notary Public, New York County  
Sworn to and subscribed before me this 26th day of September, 1938.

Notary Public, Westchester County, Belle Mead Phillips County Clerk's No. 396.

New York County Registrar's No. 8 P 227 (My commission expires March 30, 1940.)

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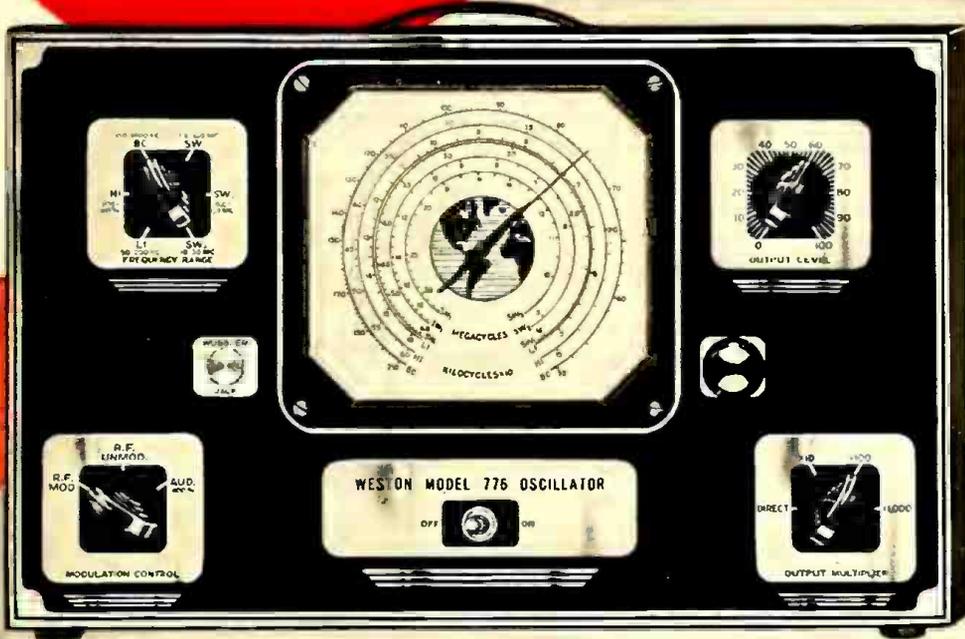
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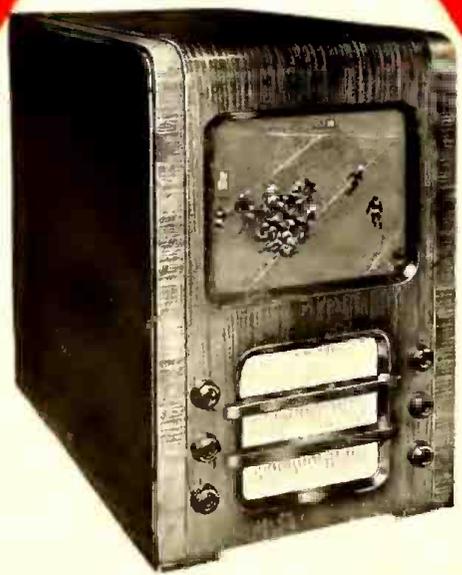
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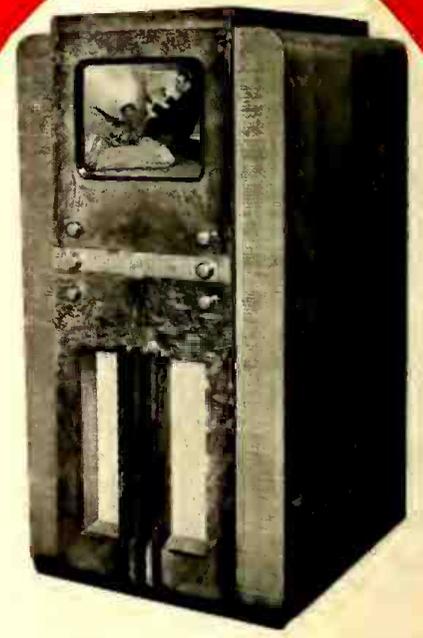
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**THE TABLE MODEL 180**

embodies everything desirable in a compact Table Model sight and sound receiver. The trim, beautifully grained walnut cabinet measures approximately 24 inches high, 15 inches wide, and 2 1/2 inches deep. This Receiver incorporates independent high fidelity sight and sound channels singly controlled. A DuMont Type 144-9-T 14 inch Teletron provides a brilliant black and white 8 inch by 10 inch picture of excellent contrast. Twenty-two tubes are employed. Power consumption 120 watts.



**THE CONSOLE MODEL 182**

is an exquisite addition to any livingroom. The handsomely finished cabinet of selected grained walnut measures 48 inches high, 22 1/2 inches wide, and 25 inches deep. A DuMont Type 144-9-T, fourteen inch Teletron provides the brilliant 8 inch by 10 inch picture, and a high fidelity electro-dynamic speaker provides the sound accompaniment. The receiver in this model is similar to those employed in the Table Model 180. Twenty-two tubes in all are employed in this Model. Power consumption 120 watts.