“TO CATCH HER EAR, FIRST CATCH HER EYE” See page 16
I'LL SELL RADIOS for you that you couldn't sell without me.

I know the people in your community... particularly those of moderate means who buy on the instalment plan. They know me, too, through extensive national advertising of the service I render them, and through actual dealings with me in previous purchases of motor cars, refrigerators, ranges and other appliances. They like the way I've treated them. They'll do business with me again. I can make them your customers.

I know how to investigate their credit standing without offense or embarrassment.

I know the danger signals that warn of bad risks. I can protect you from them.

I know how to keep collections up to date and relieve you of the embarrassment of an occasional repossession, without losing you any of your customers' good will.

It's my business to know all these things and to employ them to your advantage.

I'm the local manager of a Commercial Credit Company office. You can get in touch with me in any of 193 offices in the principal cities of the United States and Canada. When you adopt Commercial Credit financing for your time payment sales you get 100% cooperation from me on credit, collections and remittances. You can concentrate on selling.

COMMERCIAL CREDIT COMPANY

COMMERCIAL BANKERS CONSOLIDATED CAPITAL HEADQUARTERS: BALTIMORE AND SURPLUS $65,000,000

SERVING MANUFACTURERS, DISTRIBUTORS AND DEALERS THROUGH 193 OFFICES IN THE UNITED STATES AND CANADA
DO YOU KNOW these essentials about volume controls?

DO YOU KNOW that the resistance value of a volume control is not critical? It is commercial practice to allow a resistance variation of plus or minus 20%. Most circuits will allow even greater variation.

DO YOU KNOW that a linear taper is really not a taper at all—the resistance is uniform over the element? That linear tapers are rarely used except in low resistance values?

DO YOU KNOW that a Yaxley taper is critical—and if the incorrect taper is employed the volume control action will be sudden and perhaps noisy?

DO YOU KNOW that there are only two kinds of taper necessary for proper volume control operation? The left hand taper used in shunt circuits, and the right hand taper used in series circuits.

DO YOU KNOW that Yaxley tapers are easy to remember? Left hand is number 1 and right hand is number 2.

DO YOU KNOW that in developing constant improvements in Yaxley Replacement Volume Controls, Mallory-Yaxley engineering has brought about undreamed of precision in universal application to meet all service needs for over 12,000 different radio receiver models?

That's worth knowing—if you profit by the knowledge!

Use MALLORY REPLACEMENT CONDENSERS...VIBRATORS

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

Use YAXLEY REPLACEMENT VOLUME CONTROLS
WORLD'S LOFTIEST SIGN ON RCA BUILDING, RADIO CITY, N. Y.

The new RCA sign stands 900 feet above Rockefeller Plaza. The letters—24 feet tall on the north and south sides of the building, 18 feet on the west side—are constructed of 5000 pounds of solid aluminum. By night they are brilliantly lighted with a new kind of golden-amber helium gas, contained in 2376 feet of specially constructed Claude-Neon tubing. The sign is visible for many miles around New York City.
"INDUSTRY today is following the vanguard of science into new and infinite realms of knowledge. It would be a rash astronomer who said that he had calculated the outermost limits of space, beyond which there is nothing. It would be a rash physicist who claimed that he had dissected the atom into its ultimate, indivisible fragments. Science and knowledge have no boundaries. "So it would be a rash economist who predicted any limit to the tangible results of scientific thought in the form of new goods and services placed at the disposal of mankind. In fact, it is only by a constant development of new goods and services that we may expect to re-engage the man-power released by technological improvements in established industries. The market for every new commodity eventually reaches a saturation point and becomes primarily a replacement market, so that a more efficient technology reduces the number of workers needed in that field.

"But science is simultaneously creating new employment, both by the modernization of established industries and by the creation of new ones. In our own generation we have seen the automobile, the airplane, the motion picture, and the radio provide totally fresh fields of activity for millions of men and women. Many of our older industries have engaged scientists, with notable success, to develop new and remodel old products to meet the needs of a modern era. "The industry which has not learned how to employ scientists to make it new, and keep it new, is doomed. Few industries are so stagnant as not to be aware of this; but there are some so conservative that the scientist is called upon to turn salesman and show them how modern science can rejuvenate them to meet present-day realities and survive."

[Signature]
President
Radio Corporation of America

Your free copy of "TELEVISION" is ready!
This new book of more than 20 recent laboratory and field reports on the new art by leading RCA engineers will be sent without extra charge to all paid-up subscribers to the RCA REVIEW, an outstanding quarterly journal of radio progress. $1.50 per year (foreign, $1.85). Address RCA Review, 75 Varick St., New York City.

OF AMERICA RADIO CITY, NEW YORK
RCA MANUFACTURING COMPANY, INC.
RCA INSTITUTES, INC. • RCA COMMUNICATIONS, INC.

September, 1937
They expected us to do it—AND WE DID IT! Detrola has a complete set-up for you on radio's NEWEST and BIGGEST feature—Electric Tuning! NOT manual tuning—NOT variable trimmer tuning—NOT mechanical tuning—but genuine Electric Tuning in its most simplified and most accurate form... and at unequalled prices that give you more profit and the public a great deal more for their money.

Be the first to offer Electric Tuning Radios at moderate prices.

J O B B E R S a n d D I S T R I B U T O R S
A few exclusive territories still available. Phone, wire or write for particulars.

T H E R E ' S Y O U R S T A T I O N
To Retail at

$69.50

The first Electrical Tuning table model radio in America and at a sensationally low price. 8 tubes with 12 tube performance. AC Superheterodyne. Bands: Standard Broadcast, Police, Aviation, Amateur, Foreign. 532-16000 KC. 8” dynamic speaker. Telabeam Tuning Eye—Automatic Volume Control, Tone Control, Illuminated Network Dial. Cabinet: 12" x 22" x 9".

Write for Illustrated Literature
NOW ON THE AIR
OVER 197 STATIONS!

$50,000
CONTEST

TREMENDOUS enthusiasm marked the launching of
Phileo's big $50,000 Cash Prize Mystery Contest
on radio stations all over the country! Already tube
sales are mounting ... and dealers everywhere are
cashing-in BIG!

FOLLOW THRU! Be sure you have a sufficient num-
ber of Official Entry Blanks. Remember ... contestants
must call for them at a Phileo Tube dealer's store. Get
these blanks from your Phileo distributor ... and get
full details of the special promotion material which will help
make your store Contest Headquarters in your
community!

With this series of contest broadcasts, Phileo Tubes
... the easiest tubes in the world to sell ... become still
easier to sell. GO TO IT!
HOT?... IT'S SETTING THE INDUSTRY ON FIRE!

The Most Startling Radio Improvement Since the All-Electric Set—and Only Stewart-Warner Has It

Utterly Different from Other Tuners—Faster—Simpler—More Accurate—Easier to Set—Easier to Use

Amazing Exclusive

STEWART-WARNER

Mystic Mechanism with the MAGIC KEYBOARD

FOUR TIMES as many orders for immediate shipment as the best previous year in our history! That's the record-smashing result of the first showing of the Stewart-Warner Mystic Mechanism with the Magic Keyboard!

Dealers and distributors who had heard rumors of what was coming expected great things—but never even dreamed the full truth of what this amazing, exclusive invention is and does.

Truly, there's nothing else like it! Any 15 stations—regardless of dial position—are held in readiness—and tuned in perfectly at a touch. The dial goes direct to the station—in a split second. The keys are set from the front—without tools—and any key can be re-set to any station without disturbing the others!

No wonder they're saying it with orders. It's a feature that puts you ahead of any competition—the "headline news" in a great new 1938 Stewart-Warner line with more models and a wider price range than ever before. Ask your Stewart-Warner distributor for all the details—at once.

EXCLUSIVE NEW FINANCE PLANS offered by Stewart-Warner-C.I.T. include a startling Add-On Sales Plan that really makes sales.

- COAST-TO-COAST BROADCASTS by Horace Heidt and his famous Alemite Brigadiers, favorites of millions, are selling YOUR prospects now.

- INCREASED ADVERTISING AND MERCHANDISING SUPPORT insures more prospects—more sales.

STEWART-WARNER CORPORATION — CHICAGO, ILLINOIS
Over ten years ago RAYTHEON developed and pioneered the 2-volt battery tube. It was the improvement the engineering world was waiting for—to make possible real radio reception in rural localities!

Since then, there has been no outstanding development until the announcement of the new RAYTHEON LOW DRAIN cathode-type tubes which permit AC operation from battery sets without excessive battery drain.

Again RAYTHEON was responsible for tripling the sales of battery receivers! When you buy replacement battery tubes with the name RAYTHEON on the base you are getting tubes made by the engineers who invented them with the added advantage of proven field experience!
Radio's Outstanding *ACTION* Feature

The New
FLASH TUNING

...quick as a wink

Of all this season's improvements in radio operation, none equals Stromberg-Carlson's method of automatic tuning. A twist of a knob—and flash...there's the station, with the call letters instantly lighted up. And it's the same knob you use for regular tuning—that's the best of it—no complication—no trouble. Dealers who have seen these latest Stromberg-Carlsons are wild with enthusiasm over this automatic tuning convenience. Besides, the station is kept in tune exactly through perfected 2-tube and 3-tube A.F.C. circuits. Pre-selected stations are easy to set up. Women, interior decorators and all who are strong on appearance are delighted with its freedom from the "machine" look.

Other operating features? Yes, a host of them—altogether putting Stromberg-Carlson away out in front in making a radio that ships right, works right and is easy to use.

**There is nothing**

Stromberg

Radio Today
The current year reveals no radio advance comparable to "Labyrinth" tone. It still remains the outstanding important feature of high quality radios. It is patented and exclusively Stromberg-Carlson, obtainable only in Stromberg-Carlson receivers. The "Labyrinth" gives natural reproduction of speech and music; doing away with cabinet "boom." It increases the bass response—resulting in rich, full audio quality; projects sound from the front of the cabinet only thus avoiding sound-wave interference.

With "Labyrinth" tone; with the most beautiful and exclusive cabinets ever seen in radio; with Stromberg-Carlson quality of workmanship which everybody knows; with a price range from $57.50 to $1050 the line offers to any dealer an opportunity for money-making probably never before presented in radio.

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

All prices slightly higher in Southeastern States and West of the Mississippi.
A YEAR ago Philco’s slogan “Click . . . there’s your station!” spread the glad tidings that Philco Automatic Tuning had arrived.

It was a great slogan then . . . and it still is . . . in the original form and in all variations.

But a new season is a new season with Philco! When Philco launched the 1938 line with that powerful sales-making idea “NO SQUAT... NO STOOP... NO SQUINT”... Philco felt that this was a sales appeal even more powerful than last year.

But “NO SQUAT . . . NO STOOP . . . NO SQUINT” has clicked beyond Philco’s fondest expectations. Philco advertising in the magazines, in the newspapers, and on the air started the ball rolling . . . and will keep it rolling. Newspaper columnists and cartoonists have taken it up. Everybody . . . everywhere . . . knows that six-word slogan!

But more important than anything else . . . those six words are selling Double-X Philcos! That’s why we can say that all America has said “Yes!” to “No Squat . . . No Stoop . . . No Squint!”
RISING SET PRICES—LISTS UP, $3 TO $15

* Major set manufacturers are now announcing price increases on many models. Mark-ups range from about $3 to $15 or more. Percentage increases amount to as much as 25 per cent on some of the models, which evidently were priced originally to give an exceptionally good value. Five or ten dollars is the increase for sets listing between $50 and $150, while the $20 to $40 table models are hiked about $3.

One manufacturer marked up a table model about 10 per cent, while the same chassis in a console model went up 25 per cent—this indicating that cabinet cost must have been the major factor in the increase.

Changes are most notable in the popular-priced jobs—with the real expensive models staying very much in line with the June prices.

Manufacturers announcing price increases effective immediately are: RCA-Victor, Philco, Zenith, and Crosley.

Radio tube sales showed a corresponding increase. Following are the figures on tube output, with values given in factory selling prices:

<table>
<thead>
<tr>
<th>Quarter</th>
<th>1926 Value</th>
<th>1927 Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan.-Mar.</td>
<td>14,770,077</td>
<td>15,768,077</td>
</tr>
<tr>
<td>Apr.-June</td>
<td>13,572,172</td>
<td>15,472,182</td>
</tr>
<tr>
<td>July-Sept.</td>
<td>14,620,312</td>
<td>16,527,462</td>
</tr>
<tr>
<td>Oct.-Dec.</td>
<td>15,912,816</td>
<td>18,012,816</td>
</tr>
<tr>
<td>Total</td>
<td>140,474,625</td>
<td>175,000,000</td>
</tr>
</tbody>
</table>

INVENTORIES INCREASING?

* While receiver manufacturing is going ahead, there is a distinct fear in some quarters that distributor and dealer inventories are piling up, and that sets are slow in moving from dealers to the public. Manufacturers were out early with their new lines this year, and long orders were encouraged. Retail purchasing was delayed by the extreme hot weather of early September. Whether the delayed public purchasing would be frighted out by war scares in the Orient and Mediterranean, and by stock-market antics in New York, was troubling radio-industry leaders as this issue went to press.

RADIO DATES AHEAD

Oct. 1-3—New York Radio Parts Trade Show, Commerce Hall, 8th Ave. at 15th St.

Oct. 1—Joint Meeting, Eastern and Western Sales Managers Clubs, Victoria Hotel, New York City.


Oct. 7—Membership Meeting, National Association of Radio Parts Distributors, Victoria Hotel, New York City.

Nov. 8-10—Rochester, N. Y., Fall Meeting, Institute of Radio Engineers.
AUTUMN AIR HAS NEW QUALITY

* Starts the parade, and dozens of broadcast favorites make their Fall return to the mikes. Besides the Jack Benny-Eddie Cantor-Fred Allen-Al Jolson sort of thing, new names and new entertainment tricks are coming up.

Such important newcomers as Tyrone Power, Kitty Carlisle, Allen Jones and Hugh Johnson are all set to air if they aren't at it already. General Motors' concert series will be switched to a new idea—a permanent company of top artists under season-long contract.

Crosley, General Electric, Philco, RCA Victor and Stewart-Warner will continue broadcast efforts in the interest of modern radio sets. Zenith appears with a new weekly coast-to-coast broadcast tagged the "Zenith Foundation"—described as "startling and unprecedented"—an idea worked up by Commander E. F. McDonald, Jr. Mental attitudes toward progress are dramatized, and new surprises promised.

AND SO—VICTORIA

* World's largest exhibition hall is bristling with great plans for one of the world's best shows. In other words, Commerce Hall in New York City will sag with the newest in radio parts when nearly 75 exhibitors appear Oct. 1-3. The Hall is located at 15th St. and 8th Ave., a 10-minute subway ride from Show headquarters at the Victoria Hotel, 7th Ave. at 51st St.

Pleased no end with the industry's enthusiastic attitude toward the event are the Show corporation officials: S. N. Shure of Shure Bros., president; A. A. Berard of Ward-Leonard, vice-president; Ken Hathaway, managing director; and Carl Rauber, secretary of the program committee. Reports indicate that extra masses of jobbers, servicemen, sales representatives, engineers and amateurs will show up. They'll eye the exhibits, attend the big-time technical sessions, and meet their own kind in organization meetings aside from the main show.

On following pages of Radio Today, the customers will find a complete program, and a list of all exhibitors.


THE PRESIDENT'S INK ON MILLER-TYDINGS

* Careful now, what price you put on trademarked radios. There's a many-toothed national retail price maintenance law since President Roosevelt signed the Miller-Tydings bill Aug. 17. Clean-cut selling is a nation-wide reality except in seven states, Alabama, Delaware, Mississippi, Missouri, New Hampshire, Texas and the Dist. of Columbia, where national price control is pointless because of no state "fair-trade" laws.

Bond Geddes, shrewd RMA executive, and member of the Washington (D.C.) bar, has this to say: "In the 42 states having so-called fair trade practice laws which permit price maintenance, direct contact between manufacturers and dealers (or distributors) are now permissible, exempt from anti-trust laws, instead of former contracts limited to such states and between state distributors and dealers."

What the dealer has to know next is about trade-ins. Question is whether manufacturers should issue lists of fixed maximum trade-in allowances, or whether retailers themselves should decide what's reasonable.

John J. Ross, dynamic president of Detroit, embarks on jobber-dealer policy of radio distribution.

12
EHFA BOTHERS TO FINANCE RADIOS

* Electric Home and Farm Authority, no less, has announced that its finance plan now applies to radios. But they must be purchased in combination with one or more of the appliances listed on the Authority’s schedule of acceptable equipment.

To decide the maximum time over which radio-plus-appliances payments may be extended you take the maximum period named for the appliance or appliances involved. For instance, EHFA will finance a radio sold in combination with a refrigerator over a maximum period of 36 months, because that period is the maximum one named for “boxes.”

EHFA, in the Tower Building, 14th and K Streets, Washington, D. C., is printing and will distribute a new and detailed explanation of terms.

BROADCASTERS ESTABLISH NEW EDGE

* Sponsor after eager sponsor has nodded favorably to broadcast time and talent charges running to six figures. It all has a terrific effect on radio’s leadership among advertising media. In the most recent report of the National Association of Broadcasters it says, “radio broadcasting for the first half of this year showed the greatest relative increase of any major medium.”

For the first six months of the year, broadcast ads totalled $65,497,432, as compared to $50,892,179 for the same period last year. This was a gain of 28.7 per cent for radio, while national magazine ads increased 10.2 per cent, national farm paper volume 13.6 per cent and newspaper lineage 2.9 per cent.

THE POWER TO PURCHASE

* Like something on springs, the buying power of the nation is moving still further upward. More persons are crowding into radio’s moneyed-prospect classes.

Since July of last year, payroll disbursements among factory employees have increased 34.2 per cent, according to the latest release from the National Industrial Conference Board.

Among 25,000 middle-lass families in 43 states, four out of five have hiked their annual incomes an average of $347 since the business sag a few years ago. This was revealed in a striking study recently made by the Northwestern National Life Insurance Co. The investigation indicated that more families are buying

238 questionnaires asking what people did with their evenings:

<table>
<thead>
<tr>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listened to radio... 45</td>
<td>35</td>
</tr>
<tr>
<td>Had cocktails......  5</td>
<td>12</td>
</tr>
<tr>
<td>Worked overtime..... 5</td>
<td>5</td>
</tr>
<tr>
<td>Dined out .......... 12</td>
<td>15</td>
</tr>
<tr>
<td>Read newspapers.... 26</td>
<td>30</td>
</tr>
<tr>
<td>Read magazine or books 35</td>
<td>42</td>
</tr>
<tr>
<td>Played bridge ...... 1</td>
<td>6</td>
</tr>
<tr>
<td>Talked ............ 20</td>
<td>16</td>
</tr>
<tr>
<td>Went to the movies . 10</td>
<td>10</td>
</tr>
<tr>
<td>Walked ............ 12</td>
<td>10</td>
</tr>
<tr>
<td>Entertained guest .. 10</td>
<td>2</td>
</tr>
</tbody>
</table>

Of course there are other things done evenings, but you can’t snoop around too much with a questionnaire!

"SELLING SOUND"—OF IMPORTANCE TO EVERY RADIO MAN

* As Part II of this issue of Radio Today, the publishers present a special section on “Selling Sound,” covering the vigorous and active new business which has developed in the sale of sound-reinforcing equipment, public-address, and intercommunicating systems.

In this “Selling Sound” section, the radio man will find the attractive sales opportunities in sound, fully presented from a diversity of angles, including:

- The Market for Sound
- Outlook for Sound Sales
- Jobbers' and Dealers' Problems
- Intercommunicating Systems
- Laying Out an Auditorium
- Sound Short Cuts
- Glossary of Sound Terms
- Sound News, Trends
- Buying Guide to Sound

Don’t fail to study Part II of this issue.

Squatless, stoopless, squintless; here are Philco’s Sayre Ramsdell, left, and Harry Boyd Brown. Latter was recent speaker at Sales Execs Club, N. Y.
Watch out to see that you are adding enough "Mark-up"

And don't let expenses eat up the "net" before you get it.

* "Money, money, money! The air's filled with cash!"—is the refrain of one of the big radio promotion campaigns this Fall.

And certainly radio money is all around these days—ready to be gathered in by the radio dealers and service men who go after it. Crops are good. Employment is up. Incomes have increased 20 per cent and are again at prosperous levels.

And people want radio sets. For the first time in seven long years, this Fall the public has money to spend with some feeling of freedom.

And they want the new things—radio offers—new sets, new cabinets, new styling, new tone values. Don't worry about it any longer. The public is coming to you for radios this Fall and Winter.

**Holding on**

And for what it wants and buys, the public will pay. Collections will be good. Money is moving: crop cash is being poured into the nation's steady stream of finances. Bank accounts are higher than since the depression hit. You will sell sets and you will get your money.

But the question is, will you be able to hold onto your fair share of the money you receive? Will you be able to make a profit, and collect it— and hold it?

For profits are slippery things. It is not enough to select and stock the right goods, sell it, and collect the money. The profit ought then to be in your hands. But it won't be if you have failed to price your goods right.

Nor will profits linger long if expenses have been allowed to creep up and absorb most or all of the margin that had been set aside for "net."

Don't fool yourself, the smartest and biggest businessmen get bitten sorely by these same two dangerous bugs, the bacillus Cut-price-osis and the germ Expensibus Gallopus. Some of the most successful executives and managers have seen their sound business structures rapidly destroyed by these two arch-enemies of profits.

Like beams attacked by termites that silently eat their way through wood which seems solid on the surface (until it crashes)—businesses appear to have ample strength and volume for gratifying profits—but may be profitless inside. Expenses may be eating all the fibre and strength out of the otherwise healthy business operations.

**Watch closely**

So keep a close watch at two points—1. Prices and 2. Expenses.

You must get in enough money for a fair profit in the first place.

---

**Per cent**

Owner's Salary........ 11
Employees' Wages........ 8
Rent .................. 3
Tel., light, heat....... 2
Advertising .............. 2
Installation ............. 2
Other expenses........ 2

Total .................. 30

In other words, if your merchandise costs $50 you will have to add $30 to

"We're buying a modern all-wave radio" is caption of this widely circulated Admiration Cigar ad in the E. Regensburg series heralding the return of prosperous, happy living in 1937-38.
that cost to sell for $88 and "just break even." And $90 is a little over 21 per cent of $88. Add 30 per cent to cost, and then just break even! Add 51 per cent to "cover expenses," but then have $0.00 for yourself!

To net a profit

On the other hand, if you are interested in earning at profit of 12 per cent for yourself—(as the average radio dealer surveyed by Rano Tona succeeded in doing)—you will have to add $2 to the $55 cost of that merchandise, to have a selling price of $100. In that case, $30 will go for selling costs, and everything above $88 is sweet net profit.

Most merchants don't understand how very large the percentage of markup must be to meet expenses, if any net profit is to be made. Get your pencil and figure it out.

If you add only 20 per cent you're in for a loss on every sale—a loss of 21 per cent. If you add 30 per cent, you'll still have a loss—12 1/2 per cent in red. In fact here's what the loss or the profit will be, if you add to the cost of merchandise, the percentages of markup below:

Add 20% Loss 21%
Add 25% Loss 17 1/2%
Add 30% Loss 14 1/2%
Add 35% Loss 11%
Add 40% Loss 8%
Add 45% Loss 4 1/2%
Add 51 1/2% Break-even
Add 55% Profit 2 1/2%
Add 60% Profit 8%
Add 65% Profit 11%
Add 70% Profit 11 1/2%

Average store costs

So better check-up and see just what your percentage of mark-up is on the radio merchandise you are offering when the big Fall "push" gets underway. Because, if it is going to roll up only losses and deficits and "red ink" instead of net profits, you had better leave it lie in your store, and get somebody to take it off your hands as a job lot. For you can make a satisfactory net profit only if there is a fair net profit in every sale you make.

And in the modern bed-room de luxe, the center of the picture is now occupied by a cozy bed-table radio that provides space also for lamp, clock and books. An item for every home.
HOW RADIO LANDS THE LADIES

The woman buyer begins to dominate the quality set market
Advertising that will catch her eye—and sell new models

In every town there is a street.
On that street is a house.
In that house is a lady.
In that lady's sock are $100.
It's enough to buy a brand new radio. And with some special effort
on the part of the dealer, the sale
be made. Hundreds of ladies;
hundreds of sales!
The woman is responsible for the
house; supervises all that goes into it, spends more time there than the
(laboring) male. And, of course, the
house is where home radio functions.
The trick is to CATCH HER EYE. She's increasingly worth it!

60% important

To Radio Today, dealers have re-
ported that as high as 60 per cent of
their total sales are regularly inspired
by women. The technique by which
the woman buyer is dragged profita-
ably into the radio picture seemed to
come under these heads: (1) special
advertising on cabinet design, (2)
window displays with "milady's"
angle, (3) personal letters, (4) hook-ups
with local women's clubs, (5) extra
attention to store atmosphere, and
(6) revised methods on the sales
floor.

Dealers are generally happy to use
an advertising theme based on mod-
ern radio cabinet design, because it
offers a new chance to play down the
matter of price. And it is a special
magnet where women are concerned.

Dramatizing design

The idea is to accent beauty and
utility in radio store ads. More in
detail, such lead-offs as "To High-
Light a Corner of Your Home—
Model ABC," or a heading in big
type like this one: "Mrs. America
Finds a Spot for Our New Radio!"

Advertising copy in such cases uses
the less rugged wording. Rough, flat
technical descriptions are played
down. And the writer remembers
that women have considerable vanity.
They are to be addressed as if they
were positively the last word in taste
and home-maker perfection.

Eye-catchers

In these ads, radio dealers are at
liberty to talk more about wood
grains in cabinets, new standards in
furniture finishes, interior decorative
effects, etc. Women like to be cre-
dited as knowing all about such things
even if they are privately bewildered.

It has been found that the ladies
are greatly interested in the radio
tastes of celebrities. Testimonials by
famous persons have a powerful
meaning to the gals. For instance,
if dealers could display a photo of
Myrna Loy tuning a certain radio in
her home, countless women would be
genuinely impressed. This is particu-
larly true of the younger ones.

Of course, the men, too, would gaze
at such a picture, but they might not
feel that Miss Loy knew anything
about the set except that it had an
elegant appearance.

In many cases, dealers alertly
choose the women's section of local
papers for these feminine-appeal ads.
The displays are not expensive and
do not require a great deal of space
because prices in screaming type have
no special place in them.

Windows

Window displays designed to at-
tract femme customers have more
than just a mass of radios. Part re-
productions of actual rooms, or sec-
tions of rooms, are effective. Careful
attention is given to the surface con-
dition of the merchandise—no dust
and no doubtful polishes. Many deal-
ers like to use an attractive floor
covering—a cheerful rug or a trim
carpet.

Some dealers have used fresh flow-
ers in their windows on special days
with good effect. As for the placards,
graceful handwriting rather than
square lettering is in vogue.

Others find the frilly nature of
such displays to be beyond them.
They are inclined to ask the advice
of a woman employee, a stenographer
or a file clerk. However, the average
radio man can make a special effort
to be neat, clean and rather fancy,
and do a fine job.

"Dear Madam:"

Direct-mail pieces addressed to
women are found to be OK when
they are personal in tone and are
carefully written. Such letters can
scarcely advise women, in bold black
and white, about household well-be-
ing, since they are signed by a man.
Mostly radio dealers stick to a clear,
Leave a new receiver by her chair.

simple and attractive outline of new radio developments which are likely to interest the ladies.

These letters need to consider whether the woman addressed is also a mother, and whether she will therefore need to consider the listening needs and habits of youngsters. Some radio retailers make a practice of learning the names of the offspring and mentioning them in letters.

Although most of the giveaways available in the radio field are designed for men, some radio stores take tips from refrigerator and appliance merchandisers, and use the device among radio prospects. Women always welcome useful household items, and when they are being given away, letters are a good spot to mention the fact.

Club contacts

No doubt there is a batch of important women's clubs in town which will stand an approach by the dealer. First move is to watch the local society and club news, and to make a complete list of the organizations. If they have musical interests, so much the better. To keep a record of the leaders and officers is a valuable stunt.

Then the dealer may loan consoles for special meetings of clubs and church societies or may arrange to use phonograph radios with formal programs of recorded music. For bridge clubs, he may furnish score cards with his imprint on them. And if a local club goes on the air at the local station, the dealer is sure to make a gala radio event out of it.

In large stores where private rooms are available, women's clubs are invited to hold meetings with the dealer as host.

By this time, she's in the store

Having angled properly for the woman shopper, the dealer still has special tactics to use when she shows up in the door way. She positively must not get the impression that the radio store is an "engineering den."

Store atmosphere registers sharply with women; they dislike the prospect of tripping over wires or mixing with dust. Neatness is their business. They're house-cleaners, and the dealer had better house-clean before they arrive.

Appearances count

Modern women are used to shopping under the most comfortable conditions. They remember that in no other store were they confronted with greasy gadgets and general informality. Thus in case the shopper should compare the radio store with others, it is necessary that she get a first impression of a trim, pleasant exhibiton of glistening furniture.

Definitely discouraging to the person with the purse are such things as old radio tubes scattered about, half-opened packing cases with nail points in evidence, sloppy piles of manufacturers' booklets and dangerous-looking wire and outlets.

Nobody suggests that to sell a lady you have to be a fashion plate. But the facts are that she notices such items as dirty collars and soiled hands. A slick appearance is a definite asset throughout the sales period, unless you're one of those rare gents who has a lady-killing movie personality ready to turn on.

The right necktie

A prominent merchandiser recently advised radio dealers to think more about their personal appearance, and for the rest of the check-up on treatment of women buyers went on to say:

And have you taken care that your personal approach or that of your salesman will be agreeable and acceptable?

Does the salesman show interest in the customer, approach her promptly when she enters the door, and devote his attention to her? Does he listen carefully to what she says, and follow any suggestion for a clue as to what kind of radio will interest her?

A man's manners

Courtesy is demanded by the woman customer. Courtesy can be shown by the radioman's greeting, by his general attitude, and by his facial expression. The man who is selling must listen carefully to what the woman says, show his models willingly, be patient when she finds it difficult to make up her mind, and always be helpful.

One way to catch the shopper's eye is to catch her ear via the telephone.
* THE logical basis on which the present tube-numbering system was developed, is explained below by Roger M. Wise, chief radio engineer for Hygrode-Sylvania, and chairman of the RMA tube committee, who had an important part in shaping up the new system. He makes clear how the tube-number can usually be used to gain an idea of the heater voltage, number of useful elements, and base connections. This “logical” system thus makes it very much easier to remember tube-type numbers and so contributes to the usefulness of the numbering system.

As long as radio-tube types were few in number, the selection of a “type number” was rather simple. One of the earliest types was given the designation “200,” the next one “201,” etc. Also, certain manufacturers used the corresponding numbers in the 200, 300, 400 and 500 series. In addition to this complication, some numbers otherwise available, were used up for transmitting tubes.

As the number of tube types increased, it became desirable to leave off the first digit in order to eliminate some of the confusion between type designations among manufacturers. When this was put into effect a great simplification resulted, as can be seen by taking as an example the early, indirectly heated triode, introduced as UY227. This type, variously designated as 197, 297, 327, 427, and 527, became merely type 27.

**Digits cover essentials**

With the more rapid introduction of tube types, the two-digit combinations were soon all used up, and so many three-digit combinations had been used that it would have been necessary to jump to a four-digit combination to obtain designations which had not been previously used. At this point the RMA Vacuum Tube Committee again reviewed the subject, with the hope of finding some solution more attractive than going above 1,000 for tube-type designations. After much discussion and some difficulty in reconciling differing views, a proposal was drawn up in 1939 whereby a combination of digits designating certain essential features of the tube type, combined with an arbitrary letter assignment, was proposed in order to meet this problem.

One point of prime importance to every tube-user is the filament voltage. Recommendation was therefore made that the first digit, or digits, in the tube-number be selected in accordance with the filament or heater-voltage rating, with one or two arbitrary arrangements, as indicated in the following tabulation:

<table>
<thead>
<tr>
<th>Cold cathode</th>
<th>Heater Rating</th>
<th>Designating Digit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage rating below 1.5 volts</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2.5 to 3.5 volts</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3.5 to 4.5 volts</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4.5 to 5.5 volts</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>5.5 to 6.5 volts</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>6.5 to 7.5 volts</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

This includes tubes in which the cathode is heated by the plate current.

If a fully logical arrangement had been followed the battery tubes rated at 2.0 volts would have carried the digit 2, and the 2.5 volt tubes designed for a-c use would also come under this same classification. This difficulty was avoided by throwing the 2.0 volt rating into the “1” class (the 1.1 volt battery tubes had become obsolete by the time this matter was under consideration). This arrangement has worked out very well in practice, as it has served to distinguish clearly between the battery group and the low-voltage a-c group.

**Useful elements**

The last part of the tube type number is related to the number of “useful” elements in the tube. “Useful” in this case being restricted to those elements which are brought out to a separate base-pin or top-cap connection. If an additional element is not provided with an external connection, it is not counted. Since the heater or filament constitutes a single element, the filament pins are counted as one, even in cases where there are more than two such connections, as in the case of a tapped filament designed for operation at different voltages.

To determine the digit to be used in designating the number of useful elements it is only necessary to count up the number of active pins on the base and subtract one in cases where the normal arrangement of two filament pins is provided. If a top-cap is also used the number is increased by one. The resulting figure makes up the last part of the tube designation.

By clearing these numbers through a single agency (E. W. Wilby of RCA License Laboratory) it is possible to avoid all the conflicts which would otherwise arise in case of simultaneous development of new types of tubes which are similar in design.

A few observations of the working of this numbering system will give some idea as to the convenience obtained by its use.

**Examples of system**

All battery tubes designed for 2.0-volt operation carry numbers starting with the figure 1. All 2.5-volt tubes, including the group used for AC receivers, start with the figure 2. All 3.5-volt tubes designed for automobile, AC-DC and AC receivers start with the figure 3. Among higher voltage types we have a number of 36-volt AC-DC types in which the type number starts with the figure 25.

Ballast tubes of the resistor type, designed for use as series resistors in AC-DC sets, have been numbered under this system in the past, but because of the desirability of incorporating provisions for pilot-light operation, have been numbered under a modified system. Prior to this time such numbers as 46A1 were used, this particular number indicating a 46-volt resistor tube.

Tubes of the filament type are designated by the figure 3 at the end of the type number. Heater-type triodes are designated by the figure 4 following the type number, the extra element in this case being the cathode, which, since it is brought out to a base pin, counts as a useful element. Thus type 6B4 is a heater type triode.

It is evident that too much dependence cannot be placed on this portion of the type number, as a filament-type tetrode such as type 1A4 carries the same final digit as a cathode-type triode. It only constitutes a general guide, giving a rough indication of the complexity of the tube type to which it is assigned.

Thus 2A3 is a filament-type triode

(Continued on page 43)
Get the serviceman to tell you about the basic technical set-up.

Let whole sales staff hear how to use '38 engineering.

**NEW SALES STYLE**

On 1938 technical features

Photos from the Fairbanks-Morse film, "Sweet and Lovely"

Translate the serviceman's dial-remarks into lively sales talk.

Compare improved tone quality, and ease of control.

Explain the bare essentials of purity in 1938 tone production.

After the console sale, mention advantages of second set.
PLANNING DOUBLE PROMOTION

Manufacturers pour new millions into direct advertising aid for retailers.

* PROMOTION BLASTS of rare quality are behind the radio dealer this Fall.

Manufacturers have dozens of tricky new ideas for selling 1938 radio to the public. They are spending about $20,000,000 to put them over.

W. H. Stellner of Motorola's household division reports big things doing in the company's first year in the home-radio business.

"Our appropriation is set at a good many thousands of dollars," he writes. "The promotion campaign will be built around electric push-button network tuning and will include a unique spot broadcast campaign, newspaper advertising, and window and store display material."

With the Motorola push-buttons colored to identify popular networks, the company has special material to promote. Featured colors will be red, blue, green and yellow, respectively, for the NBC red, NBD blue, Columbia and Mutual networks.

General Electric drives

With the first leg of a greatly enlarged advertising campaign just complete, GE plans yet another drive in Fall promotion. Ernest H. Vogel, manager of the radio sales division, mentions "a consistent advertising schedule in over 600 newspapers in excess of 440 towns throughout the country," aside from the space used in national magazines.

Mr. Vogel continues, "We have built a very complete and comprehensive campaign of sales promotion on our Touch Tuning, including billboards, window displays, spectacular traveling department store displays and all of the complementary sales promotion literature."

New campaigns for the company will run through October, at which time the promotion schedules will start all over again. In summary, Manager Vogel states that "our proposed advertising program for the Fall of 1938 represents an expenditure of approximately twice that of 1936."

Fairbanks-Morse at work

From Parker H. Erickson, radio sales manager for Fairbanks-Morse, comes a statement: "Our all-around effort for promoting the 1938 Turret Shielded radio line constitutes larger and more comprehensive plans than ever before."

"Nationally, the line will be backed by a Sunday newspaper advertising campaign in every major distributing city. It is our largest newspaper campaign. The theme throughout is the dramatic presentation of four major features incorporated in the line."

"Fairbanks-Morse's campaign in total comprises more than a hundred million advertising impressions. Backing up this national effort is a well-rounded-out sales promotion procedure involving sales education, store identification, outside selling efforts, etc."

RCA promotion

"We enter the Fall selling season with one of the most comprehensive advertising and sales promotion campaigns in RCA-Victor history," declares Thomas F. Joyce, advertising manager, RCA Mfg. Co.

As units of the campaign, Mr. Joyce names a $30,000,000 nation-wide electric tuning contest, an "Oversens Dial" promotion which features direct-by-mail pieces from London, Paris and New York, and full page ads in four colors in a series of national magazines.

In addition, RCA has its six and eight page editions of Listen, appearing each month in Life picture magazine. The advertising program in newspapers will be the largest in many years, and besides cooperative advertising with dealers and distributors, large space ads have been placed with newspapers in the principal metropolitan areas. All this together with the phonograph-radio advertisements in national magazines, and the RCA Magic Key program on a network of more than 90 stations.

"Phyl Coe" mysteries

With every one of its nearly 200 distributors enlisted, the radio-tube division of Philco Radio and Television Corporation entered the first week of its $50,000 cash "Phyl" Coe Radio Mysteries contest with 239 broadcasting stations.

Enthusiastic acceptance of the contest has also been reflected in a sharp increase in tube sales, an overwhelming demand for additional tube display material and many dealers reported a marked increase in demand for servicing to assure reception of the weekly broadcasts.

Up to the week prior to the first of the 16 weekly broadcasts, Philco reported it had sent out 2,000,000 pieces of literature for consumers and more than 200,000 pieces of literature and displays to dealers.
ACROSS THE ATLANTIC

—Improved dials and controls keynote of British advances

* EUROPEAN radio design again this year is placing much emphasis on controls and dials. The dials are even larger than before, many of them being mounted at an angle. And on a few models, the angle of the dial may be adjusted to suit the owner. Lens projection systems are used to throw magnified, large sized tuning scales on a ground glass screen, thereby avoiding crowded, hard-to-read arrangements. Dials are made with the names of the station locations.

Recessed controls on the side of the receiver do much to eliminate the unsightly appearance of several knobs on the front; moreover, it is claimed that the side of a receiver is a more natural place because the hand doesn’t have to be twisted to an awkward angle. One line employs a 14-inch spin-wheel for rapid tuning. Mounted in the roll at the top of the cabinet, it somewhat resembles the old drum dials with a thumb drive used some years ago in this country. The dial pointer may be sent across the entire scale by a mere flick of the finger, and the wheel permits both fine and quick tuning. One console has the dial on the top, facing vertically for convenient operation.

Woven-fibre cabinets

Woven fibre cabinets in console styles are made up in a variety of colored fibres similar to those found in easy chairs. Models are available with sideboards and cocktail cabinets.

Practically all of the British receivers have all-wave three-band tuning in contrast to the two of last year, while a limited number tune to the ultra-short-waves. In general, the many extra “luxury” circuit features found in American models are limited in use. Many of the receivers employ as few as three or four tubes (not including rectifier). However, two manufacturers are featuring contrast expansion, which is known here as volume range expansion.

A number of automatic tuning receivers were shown at Olympia radio show in London. These included both the manual and electric motor types.

For the record enthusiast, an automatic record changer with an automatic needle-changing device is being sold on the Continent and was displayed at the Berlin show. Claim is made that the records will last longer since the needle is changed regularly after each playing.

Television in England seems to be reaching the commercial stage—some fourteen manufacturers showed models at Olympia. Both direct and projection type cathode-ray tubes are employed, and an average picture size is 8 x 10 inches. In Berlin there were a number of television exhibits, although none was for sale.

Dr. Goldmark, chief television engineer for C.B.S. reports after a five-week tour of Europe that the English outdoor pickups are of fine quality and that the B.B.C. televises events taking place within a 20-mile radius of Alexandra Palace. More sensitive television cameras permit pick-ups in daylight illumination ranging from bright sunlight to dim haze.

Despite the fact that the B.B.C. has broadcast visual programs for almost a year, less than 3000 receivers have been sold to home users. With prices ranging from $300 to $800, television cannot yet be considered as a popular entertainment medium.

AUTOMATIC TUNING FOR CHEVIES

* Among the outstanding features in U.S. auto radio field this Fall will be push-button automatic tuning introduced by Crosley for General Motors’ Chevrolets. It is reported that this feature will appear in the Fall models of the cars. The unit is the “pre-set” type and is very easily adjusted. It is very small in size, approximately 2 in. x 3 in. x 4 in., mounts on the outside of the regular receiver case, and is driven by a 6-volt reversible motor. Temperature compensation of circuit tuning is used, instead of AFC. General Electric used AFC last Fall in Model FA50.

For 1938, minor improvements have been made in the method of coupling the low-capacity rod antenna in 1937 receivers, resulting in more efficient operation. Several manufacturers have improved reproduction by designing speaker baffles to eliminate resonance.

At the Berlin Radio Show, this cathode-ray outfit re-projected an enlarged picture of the speaker, onto a screen behind him. Scanning was accomplished by a flying-spot of ultra-violet, cathode-ray controlled.
NEW HATS IN THE SALES RING

Current selling strategy as tried by radio's merchandisers

BIG PICTURES GET ADV. RESULTS

* The radio department of Ed. Schuster & Co., Milwaukee, Wis., has experienced an increase in sales recently, according to C. Schetter, manager, by using practically ninetenths of a page space in which to place the illustration of a radio. Only a small part of the page is used for copy.

"The advantage of an advertisement like this is that when people are turning the pages of a newspaper they can't help seeing the radio illustration," states Mr. Schetter. "After all, it is the radio that people are interested in mostly, and when they see it in a picture, that arouses a buying desire. Since we began using ads like this we have noticed a fine increase in business. This applies to various types of prospects, both those who have radios to trade-in and those who haven't."

COMPUTE OPERATING COST

* "Get in touch with prospects at the time they are thinking of buying, and sales are half made," advises R. A. Miller, manager of the radio department of the Endres Electric Co., Anderson, Ind.

To put his theory into action, Miller recently staged an estimating bee at a local community show in his city. He displayed a radio in operation and invited the public to calculate how much it cost to run this radio for 100 hours. As rewards he offered credits toward the purchase of a radio at the Endres store.

"Because of the nature of these prizes, we knew that only those interested in buying a radio were going to turn in answers," stated Mr. Miller. "We sold 20 radios to prospects thus secured.

"Naturally the average seller doesn't know when a man is ready to buy. Nor can he know, without devising some such means as this sales plan, which automatically spotted the worthwhile leads for us."

SETS FOR FACTORIES

* Prominent Philadelphia factory has made a move which indicates that any factory is a good prospect for the sale of a whole series of receivers, to be used particularly during the baseball season.

Philly outfit noticed that interest among the employees in baseball broadcasts was sufficient to interrupt working schedules, so rather than have the workmen grabbing off informal listening periods in an unorganized and unsupervised fashion, factory officials installed a number of sets around the place for the special purpose of listening to the big games.

These and other factory officials are ready to decide that their employees may as well take time off to listen, as to be unhappy and impatient about not being able to hear the airings of important games.

FARM RADIO CONTEST

* Special method by which the dealer may connect with new prospects for farm radio involves the use of local farm boys and girls in a contest to find the oldest farm radio. Prizes are offered to the youngster who brings in the name and address of the farmer owning the oldest receiver, as shown by make and model.

The boys and girls can be required to leave the dealer's literature in the homes contacted. Radio men will find that the device builds valuable prospect lists.

This sales trick is one of those presented in "More Farm Radio Sales," the lively booklet published by Wincharger Corp., Sioux City, Iowa.

PROFIT VIA HOME MOVIES

* A batch of radio men have reported some lively experiences in selling home movie equipment. At George's Radio, Washington, D. C., it has been found that the merchandise hives traffic about 10 per cent, that it is a simple matter to display it effectively, and that it is "pretty good for Xmas business." Sales technique at this store is to plug the cameras and projectors with window displays and newspaper ads.

Aaron Lippman Co., Newark, N. J., find the equipment easy to handle as an adjunct to radio, and mentions "personal contact" as the chief method of advertising it.

Fort Orange Distributing Corp., Albany, N. Y., uses envelope stuffers to plug the merchandise and thinks that it's good for a 10 per cent increase in store traffic.

A.B.C. Darcy, San Diego, reports selling more movie equipment in the past seven months than radio and the latter volume hadn't fallen off either.

It happens that all these merchandisers are currently stocking Univex.
SELLING FINER CABINETRY

Emphasize the beauty of the cabinetry. But assure the customer also that the cabinet has something behind its well-groomed appearance.

(From an RCA talking slide-film produced by AudiVision, Inc.)

Talk woods that are sturdy, seasoned, and matched.

Explain the process of polishing.

Mention details of how parts are put together.

Remind her that modern styling fits the room interior.
PUSH BUTTON TUNING SYSTEMS

A detailed description of the RCA, G-E, and Sparton tuning systems

* ELECTRIC tuning as used in the new receivers is really quite simple in operation when only the basic principles are considered. With the RCA and G-E models, use is made of a reversible type motor to drive the condenser gang. Upon reaching either extremity of rotation, the reversing switch attached to the condenser gang is operated and serves to reverse the direction of the driving motor.

In the Sparton receiver use is made of six sets of pre-set trimmer condensers—these being brought into the circuit by means of a series of 3-pole interlocking switches which complete the circuit.

**Motor drives**

The motor drive systems are set into operation by pushing a button which completes the motor circuit. The motor then turns in the direction in which it was last rotating—it keeps going in that direction until the contact for the desired station is made, or until the condenser can turn no further and reversing switch changes the direction of rotation. After the reversing switch has operated, the condenser is driven in the opposite direction—when the contact for the desired station is made, the motor stops and the station is tuned in. In other words, the motor continues to turn the condenser until its position is such that the contact for the desired station is made.

What happens after the contact is made is where the various systems differ. In the RCA-Victor receivers "making contact" is really opening the circuit.

The RCA sets have an assembly of 8 discs at the rear of the tuning condenser. These discs are fastened to the shaft in such a manner that they will slip when a moderate amount of force is applied to them—otherwise they are immovable. The angular position of these discs is what determines the station to which the set will tune.

**Setting stations**

To set up the receiver, the push button to be pre-set is depressed and the motor allowed to stop. Then a key is inserted at the rear in a slot on the disc corresponding to the push button (see illustration). The station desired is then tuned in manually while the disc is held in place by the key. This procedure is repeated for each one of the 8 stations desired.

An examination of the discs shows that when the condenser is tuned to the station desired (same position as with key in slot)—an insulated segment prevents the spring contact on the bottom from completing the circuit. As long as the push-button is in and the spring is making contact, the motor will turn the condenser gang. When the instant the insulated segment opens the circuit, the motor goes dead and the condenser stops tuning.

**Motor thrust**

A novel use is made of the fact that, when the motor is energized, there is a thrust on the shaft which causes the motor armature to move forward. This forward movement engages a pin which connects the motor up to a gear on the condenser drive. When the motor is off, the armature comes back because of a spring. In this manner the motor is always disconnected for manual tuning.

The motion of the motor armature also operates a switch which serves to mute the set, and kill the AFC during the tuning operation. This switch is labelled "SW" on the diagram.

In order to simplify the diagram, only one of the push buttons and selector discs is pictured. There are eight of these units in parallel (enclosed in dotted lines). Since they are series circuits, only the one having a button depressed is in operation at any one time—the others are dead. The push button stays in the closed position until another one is depressed, at which time it snaps up.

A 24-volt induction motor is employed for driving the condenser, through a train of gears to reduce the speed. The voltage is supplied from a winding on the power transformer.

**Remote control**

When remote control is employed, a duplicate set of push buttons, connected to the set by a cable, is employed. A control on the receiver panel is used to select manual, panel push-button, or remote push-button tunings. These circuits have been made of the thrust on motor armature to close switch contacts and connect motor to condenser shaft.
If you are the kind of dealer who knows that the easiest way to make money retailing radios is to concentrate on a well known medium priced line, HOWARD is the line for you!

It doesn’t take a lot of argument to get folks to buy HOWARD radio. . . . They sell quickly because they combine a good name with irresistible value. In both appearance and performance they will please your customer the first time he sees them, and keep on pleasing him day after day, month after month, year after year. . . . Every time you put a HOWARD in a prospect’s home you’ve made a lasting friend and an enthusiastic booster for your store.

We’re all set with the most outstanding . . . most complete selection of A.C., battery, and auto radios in Howard history; and back them with advertising and sales promotion ideas that guarantee you a big pay-off right from the start.

Illustrated above is our new 14-tube, push-button motor driven automatic tuning model 425-A. All the latest 1938 features including push-pull beam power output . . . 14 watts undistorted . . . BASS BOOST, three full bands covering 18,000 to 540 K.C., edge lighted dial, gold plated escutcheon, copper plated chassis, R.F. stage on all bands, and giant 15 inch heavy duty dynamic speaker.

Distributors’ and Dealers’ interests fully protected; write or wire for either proposition.

HOWARD
RADIO COMPANY
1735 BELMONT AVENUE
CHICAGO

September, 1937
omitted on purpose since they do not come into the operating principle.

The General Electric system of electric tuning operates in a similar but opposite manner to the RCA. Stopping the condenser at the desired point is done by making a contact which operates a relay. A series of adjustable contacts are used in conjunction with push-buttons. In addition to the station selector buttons, there are buttons for manual tuning, scanning, and turning the set off. The receiver is automatically turned on when any one of the station selector buttons is pressed.

**Adjustable contacts**

The layout of the contacts is shown in an accompanying sketch. These contacts are adjustable along 3 axes—each are 180° in length. The contacts are adjusted by tuning in the station manually, and then sliding a contact so that it meets the roving contact which is the condenser shaft. Three semi-circular slots are used so that stations can be set up closely to each other if desired. If only one slot were used, it would be impossible to set the adjustable contacts to within 10 KO because of the space they occupy.

A second sketch on the G-E receiver shows the wiring of the entire electric tuning circuit. However, for simplicity only one station button is shown, and likewise only one adjustable contact shown connected. The off button is connected in the power transformer primary. When any other button is depressed it closes automatically, thus pushing any station button turns on the set and puts the motor into operation.

When a station button is pressed, both the manual button switch and relay contacts are closed—this means that power is supplied to the motor from the 6.3-volt transformer wind-}

when the shaft has reached either extreme of rotation. The motor continues to operate until the station contact and roving contact meet. The scan button enables one to cause the motor to turn the condenser continuously until it is released, since it closes the circuit to the motor (note the relay is always closed except when the station selected is tuned in).

The manual button is so arranged as to open the motor circuit when depressed. It, however, automatically closes when a station selecting button is pushed in.

The relay in addition to handling the tuning circuit, has contacts which kill the AFC and close the silent tuning contact.

**Latching buttons**

All buttons except the scanning latch in, and release the other push buttons when they are depressed. The motor is a split-phase reversible induction type.

The Sparten Selectronne tuning system does not require the use of motors. Pre-set trimmer condensers are used to tune a total of six sta-

(To page 52)
THAT'S WHAT THESE TWO SENSATIONAL NEW RCA VICTOR SELLING HELPS MEAN!
THEY'LL WORK FOR YOU LIKE BEAVERS—BRINGING HOME THE BACON
IN THE FORM OF GREATER VOLUME AND INCOME.

1

RCA Victor ELECTRIC TUNING CONTEST!

Designed to pull hundreds of new prospects into your store where you can make demonstrations and sales—this great contest begins September 20th—runs for 5 weeks. And during those weeks you'll have chance after chance—every day—to make more money!

There's no doubt about this contest's pulling power. It will bring the people into your store in flocks and droves because it's an easy contest—and a free one...because every one of the $50,000 worth of prizes is a valuable prize...because 1022 prizes are guaranteed to persons in your territory each week...because local newspaper advertising will tell everyone in your community about it—and send them to your store for demonstrations and entry cards! Get behind this spectacular contest—push RCA Victor at every opportunity—and your sales will grow bigger each day!

2

A MAGAZINE WITHIN A MAGAZINE! RCA's "LISTEN" IN LIFE!

The Aug. 16th issue of Life presented to America the most revolutionary advertisement of modern times. It was a "magazine within a magazine", 6 pages, run by RCA and called LISTEN.

LISTEN is a dramatic picture "magazine". Each month it tells the RCA story in a new, different, refreshing way—a way that guarantees consumer reading. LISTEN is going to make millions conscious as never before of the great part RCA plays in radio and sound entertainment. It's going to inspire new and greater public confidence in the RCA trademark. It's going to mean easier selling for dealers who feature RCA products—and will make every RCA Victor dealer a bigger man in his community.

RCA MANUFACTURING COMPANY, INC., CAMDEN, N. J.
A SERVICE OF THE RADIO CORPORATION OF AMERICA

300 MILLION RCA RADIO TUBES HAVE BEEN BOUGHT BY RADIO USERS...IN TUBES, AS IN RADIO SETS, IT PAYS TO GO RCA ALL THE WAY!
COMBINATIONS & RECORD PLAYERS

Complete specifications and sales features of the 1938 phonograph instruments

<table>
<thead>
<tr>
<th>Model No.</th>
<th>List Price</th>
<th>Cabinet Style</th>
<th>Dimensions</th>
<th>No. of Waves</th>
<th>No. of Tubes</th>
<th>Power Output</th>
<th>Speaker Size</th>
<th>Power Supply</th>
<th>Auto Record Changer</th>
<th>Turntable Speeds</th>
<th>Self-Starting Motor</th>
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David Bogen Co., Inc., 663 Broadway, New York, N. Y. — "Bogen-Supreme"

R189  $49.95  T  12x14x4  3  4  8  AC  0  No  No  No  Yes  Cry  No

Emerson Radio & Phonograph Corp., 118 E. 82nd St., New York, N. Y. — "Emerson"

R189  $49.95  T  12x14x4  3  4  8  AC  0  No  No  No  Yes  Cry  No

Galvin Mfg. Corp., 454 Augusta Blvd., Chicago, Ill. — "Motorola"

9R  $169.95  CON  41x19x19  3  9  NS  8  AC  1  Yes  Cry  No

Garod Radio Corp., 115 Fourth Ave., New York, N. Y. — "Garod"

307-PS  $157.50  CON  45x27x18  3  7  4  12  AC  1  No  No  No  Yes  Cry  No

Harris Mfg. Co., 2422 W. 7th St., Los Angeles, Calif. — "Harris Electrotone"

500  $99.50  PO  23x15x9  1  7  6  8  AC  1  Yes  Cry  No

600  155.50  PO  23x15x9  1  7  6  8  AC  1  Yes  Cry  No

Radio Today
Visible plus-value features of Fairbanks-Morse Turret Shielded Radios turn lookers into buyers

Demonstrate any model from the 1938 line of Fairbanks-Morse Turret Shielded Radios to a prospect—and you will have made a sale. Some day, perhaps, all good radios will have features like those that make today's Fairbanks-Morse Radios sell on sight. But today, only Fairbanks-Morse offers them.

First—Turret Shielding and monitor base chassis, an exclusive Fairbanks-Morse development that shuts out much of the crackling and popping noise that ruins foreign reception on ordinary sets. Add to this the natural built-in ability of Fairbanks-Morse Radios to bring in foreign stations clear and strong, and you begin to realize what a demonstration of this feature means when the prospect is 'on the fence'!

Second—the exclusive Fairbanks-Morse Tone Projector that gives this radio new faithfulness and beauty of tone. Your prospects see what it is—hear what it does—like it—buy it and show it to their friends.

Third—today's finest development in automatic tuning—true automatic tuning with true automatic frequency control.

And that's not all. The Fairbanks-Morse 1938 Turret Shielded Radio has everything worth-while found in any radio—plus these and other sales-clinching features found in no other line.

No other radio makes as favorable an impression on the prospect as does a 1938 model Fairbanks-Morse.

Write for the complete story. There is a substantial net profit in it for you if your territory is open. Address Fairbanks, Morse & Co., Home Appliance Division, 2060 Northwestern Avenue, Indianapolis, Indiana.
ELECTRIC PHONOGRAPH & COMBINATION SPECIFICATIONS — Continued

<table>
<thead>
<tr>
<th>Model No.</th>
<th>List price</th>
<th>Cabinet design</th>
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<td>PR-103</td>
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<tr>
<td>PR-104</td>
<td>$100.00</td>
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Midwest Radio Corp., 909 Broadway, Cincinnati, Ohio — "Midwest" |

| HT-10 | NS ACR 28x13x13 | 10 6 6 AC-DC |
| PT-10 | NS CON 46x33x16 | 4 6 12 12 AC-DC |
| QT-6 | NS CON 46x33x16 | 6 16 12 12 AC-DC |
| QT-10 | NS CON 46x33x16 | 6 16 12 12 AC-DC |
| YY-20 | NS CON 46x33x16 | 16 18 12 12 AC-DC |

Noblett-Sparks Industries, Inc., 13th & Big Four R.R., Columbus, Ind. — "Arvin" |

| 84C8S | $125.00 | ACR 23x16x26 | 8 5 10 AC |

Pilot Radio Corp., 3706 36th St., Long Island City, N. Y. — "Pilot" |

| TP23 | $99.50 | T 17x18x15 | 7 2 6 AC-DC |
| RGA14 | 159.50 | CON 31x7x19 | 8 3 6 AC-DC |
| RGA15 | 169.50 | CON 31x7x19 | 8 3 6 AC-DC |
| RGA16 | 169.50 | CON 31x7x19 | 8 3 6 AC-DC |
| RGA17 | 149.50 | CON 31x7x19 | 7 3 12 AC-DC |
| RGA18 | 149.50 | CON 31x7x19 | 7 3 12 AC-DC |

Portomatic Corp., 1013 Madison Ave., New York, N. Y. — "Portomatic" |

| PR-40 | $125.00 | PO 25x6x9 | 8 2.5 6 64 | AC-DC |
| 101F | 125.95 | PO 25x6x9 | 8 2.5 6 64 | AC-DC |
| 107F | 125.95 | PO 25x6x9 | 8 2.5 6 64 | AC-DC |
| 109F | 125.95 | CON 25x6x9 | 8 2.5 12 12 | AC-DC |

Radio Bar Corp. of America, 7100 McKinley Ave., Los Angeles, Calif. — "Phonograph with Philco Radio" |

| 1-116 | $400.00 | CON 42x24x21 | 15 15 15 NS AC |
| 3-31 | 450.00 | CON 42x24x21 | 15 15 15 NS AC |
| 3-32 | 396.00 | CON 42x24x21 | 15 15 15 NS AC |
| 4-82 | 395.00 | CON 42x24x21 | 15 15 15 NS AC |
| 5-6 | 139.50 | CON 30x5x17 | 6 6 NS AC |
| 6-9 | 119.50 | ACR 22x16x31 | 6 3 NS AC |


| RG 1A | $19.95 | T 5x9x11 | AC |
| B-4 | 32.50 | T 7x1x16 | AC-DC |
| R-5 | 67.50 | T 13x1x17 | 3 4.5 8 AC-DC |
| R-9 | 89.50 | T 14x1x17 | 3 4.5 8 AC-DC |
| R-9G | 149.50 | CON 31x5x25 | 7 4.5 6 64 | AC-DC |
| R-9B | 125.95 | PO 24x6x9 | 5 4.5 12 12 | AC-DC |
| R-9E | 129.50 | ACR 23x16x26 | 5 4.5 12 12 | AC-DC |

Reconco Corp., 178 Prince St., New York, N. Y. — "Reconco" |

| Jr | $39.75 | T 17x9x15 | AC |
| Jr | 46.75 | T 17x9x15 | AC |

Sonora Electric Phonograph Co., Inc., 160 Varick St., New York, N. Y. — "Sonora" |

| PB1 | 35.50 | T 7x6x11 | AC |
| PB2 | 35.75 | T 7x6x11 | AC |
| PBA | 35.95 | CON 21x1x18 | 1 3.5 10 10 AC-DC |
| P200 | 49.95 | T 10x1x15 | 3 3.5 6 6 AC-DC |
| P250 | 59.95 | T 10x1x15 | 3 3.5 6 6 AC-DC |
| P250A | 64.55 | T 10x1x15 | 2 3.5 6 6 AC-DC |
| P250B | 71.95 | T 10x1x15 | 2 3.5 6 6 AC-DC |
| P250C | 89.50 | ACR 23x7x15 | 2 3.5 10 10 AC-DC |
| P300 | 99.50 | ACR 23x7x15 | 5 3.5 10 10 AC-DC |
| P300A | 119.50 | ACR 23x7x15 | 5 3.5 10 10 AC-DC |
| P300B | 129.50 | ACR 23x7x15 | 5 3.5 10 10 AC-DC |
| P300C | 139.50 | ACR 23x7x15 | 5 3.5 10 10 AC-DC |
| P300D | 149.50 | ACR 23x7x15 | 5 3.5 10 10 AC-DC |
| P500 | 199.50 | ACR 23x7x15 | 5 8.5 12 12 AC-DC |
| P500A | 199.50 | ACR 23x7x15 | 5 8.5 12 12 AC-DC |
| P500B | 199.50 | ACR 23x7x15 | 5 8.5 12 12 AC-DC |
| P500C | 199.50 | ACR 23x7x15 | 5 8.5 12 12 AC-DC |
| P600 | 214.50 | ACR 23x7x15 | 5 8.5 12 12 AC-DC |
| P600A | 214.50 | ACR 23x7x15 | 5 8.5 12 12 AC-DC |
| P600B | 214.50 | ACR 23x7x15 | 5 8.5 12 12 AC-DC |
| P600C | 214.50 | ACR 23x7x15 | 5 8.5 12 12 AC-DC |

Sound Products Co., 701 N. Carson Ave., Hollywood, Calif. — "Sound Products" |

| Hollywood | $199.50 | ACR 24x29x30 | 10 12 AC |

Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill. — "Zenith" |

| 6S03 | $99.95 | ACR 23x15x23 | 6 4.5 8 AC-DC |

Radio Today
ANOTHER SPECTACULAR KADETTE—
AN UNUSUAL BEAUTY

Sensational
10 TUBE
SUPERHETERODYNE

$24.95

KADETTE ANNOUNCES the newest value-shattering
1938 model—the K-1024 with 10 tubes for
only $24.95.
The beauty of this new Kadette challenges com-
parison with any radio at any price. A step-up
for the already famous 10-tube Model K-1019
at $19.95, this latest Kadette model is a bargain
for the public with a full profit to the dealer.
Features of the K-1024, in addition to its striking
cabinet of Prima Vera Maple finish matched
with Walnut grains, include 10-tube AC Super-
heterodyne circuit with full automatic volume
control . . . electro-dynamic speaker with highest
quality tone reproduction . . . fully illuminated,
easy reading, crystal-covered airplane type dial
. . . standard broadcast, amateur, airplane,
police and 49 meter foreign tuning ranges.
Kadette’s complete line is bringing dealers the
biggest profits in all Kadette history. The buy-
ing public’s demand for Kadette is exceeding
every expectation.
The Kadette line includes compact, console,
table and chairs models. There’s a Kadette
in beautiful wood or colorful plastic in every
price bracket from $10.00 to $59.95.
Sell Kadette and get your share of bigger profits.
See the line that is startling the industry. Com-
municate with your distributor—or write or wire
TODAY.

KADETTE DIVISION
INTERNATIONAL RADIO CORPORATION
548 WILLIAMS STREET • ANN ARBOR, MICHIGAN

KADETTE The World’s Best Value

September, 1937
**NEW THINGS FROM THE MANUFACTURERS**

Majestic receivers

![Image of Majestic receiver](image1)

**Auto radio control belts**

- Woven fabric belts of 2-ply canvas and 2-ply rubber. Exact duplicate for practically every set on the market including Zenith, Grumow, Silvertone, Emerson, Fada, Garod, and Crowe.


Crosley Dynatrol radio

![Image of Crosley Dynatrol radio](image2)

**Portable record players**


RCA-Victor receiver

![Image of RCA-Victor receiver](image3)

**Precision resistor**

- Wire-wound type resistor for use with precision equipment. Made in values up to 1½ megohms—extremely small, 1½ long by ½ diameter. Standard tolerance of 1 per cent—on special order to 1/10 of 1 per cent. Non-inductive, low noise level, impregnated against moisture. Type WW-5. International Resistance Co., 401 N. Broad St., Philadelphia, Pa. — *Radio Today*—see also advt. p. 44.

Radio Today
Ride the Crest of the Wave!

with Sentinel DOUBLE PURPOSE RADIO

and RAD-O-FONE The PRIVATE COMMUNICATION SYSTEM

Superlative Radio Performance

Plus A Private Communication System

CITY RADIO from $21.95 to $99.95
FARM RADIO from $26.95 to $89.95

With every Modern Radio Feature Plus RAD-O-FONE

Sweeping Ahead to Greater Sales and Added Profits!

Sentinel Dealers are riding the crest of the wave—the wave of buying by the Sentinel-conscious public—a wave that’s smashing its way to new highs in sales and profits.

No wonder! Never before has any radio dealer had so much to offer his customers. In the cities—on the farms, RAD-O-FONE has captured public approval, approval that keeps the Sentinel Dealers' cash registers working overtime.

Even with RAD-O-FONE this sensational Sentinel 1938 Line would still be outstanding! It’s got everything, Automatic Tuning, Splendid New Performance, Value, New Low Prices, National Advertising and a Complete Line with 110 volt AC Models and 2, 6, and 32 volt Farm Models, every model in every classification a set that you can safely RECOMMEND to your customers—everything needed to make Sentinel the outstanding “Profit Line of 1938!”

Ride the Sentinel Wave to New Profits. Send in the Coupon today!

WHAT IS RAD-O-FONE?
The most sensational radio development in years—another exclusive Sentinel feature! RAD-O-FONE provides the equivalent of TWO radios—radio in one location, second speaker in another location—and a control system that allows conversation between the two!

MAIL THIS COUPON NOW!

SENTINEL RADIO CORPORATION
2222 Diversey Pkwy., Dept. RTS, Chicago, Illinois

Please send me complete information on the 1938 Sentinel Line.

Name...........................................................................

Address......................................................................
Crosley Dynatrol—Model 1127-11 tubes... 3 bands, 325-22,000 kc... Receives American, foreign, amateur, aviation, police, and ships-at-sea broadcasts. Dynatrol motor-drive electric tuning. Latest type IRIS tuning indicator. Mirro-Dial, edge lighted, gold reflector-type with graduations fused on the convex glass. 10" electrodynamic speaker. Tone compensation on broad automatic volume control.

Once again Crosley crashes through with another sensational radio leader from the 1938 All-Star Radio line... an eleven-tube console model with electric tuning for only $89.95. Like every other model in the Crosley All-Star line, the Dynatrol 11 is by a wide margin the biggest radio value in its own price class. Like all the other All-Star models, too, it is a natural sales leader that has all America “Swinging to Crosley.” Have your Crosley Distributor demonstrate the startling Dynatrol Electric Tuning feature, as well as the score of other powerful selling features that distinguish this and other Crosley All-Star models. See and hear these models today. Stock and sell them... and join the profitable “Swing to Crosley.”

(Prices in South and West slightly higher)

THE CROSLEY RADIO CORPORATION - CINCINNATI  POEWL CROSLEY, Jr., President

Home of “the Nation’s Station”—WLW—500,000 watts—70 on your dial

YOU’RE THERE WITH A CROSLEY
Centralab parts
* Universal auto replacement volume controls—1/4 to 2 megas with or without D.P.S.T. switch. Slotted shaft with hinged insert and guide funnel on shaft. Tone compensation tap.
* Line of economy P.A. controls. Gain controls, straight fader, delta T pads. For all types of fading and mixing positions—standard impedances.
* Spring return switches—replacements for intercommunicators. Available in 1, 2, 4 poles. Switch returns to original position when released.
* Centralab, 900 E. Keefe Ave., Milwau-
kee, Wis.—Radio Today—see also advt. p. 52.

Dual controls for auto radio

* Universal type auto radio control permitting operation from 2 different points—such as front and rear of car or boat. Both control heads synchronized all the time. May be added to any radio without disturbing original control mechanism. Gears for matching all ratios. Dual Remote Control Devices, Detroit, Mich.—Radio Today.

Ruralite 32-volt generator

* High-powered wind-driven generator for 32-volt farm power systems. 4-pole generator rated at 25 amps, but will deliver 45. Extra large commutator, oil-sealed ball bearings. 3-blade variable pitch, automatically governed propeller of Douglas 9r. Instrument panel with both ammeter and voltmeter, relay, fuse block. Equipped with mountings for guy tower or standard windmill tower. Ruralite Engineering Co., Sioux City, Iowa—Radio Today.

Converter tube test oscillator

* Instrument for testing the performance of oscillator sections of converter tubes. Measurements made at approximately 1,000 kilocycles. Varies the resonant impedance seen by the tube between its grid and cathode as proposed by the RMA Committee on tubes. Type 10A, Boonton Radio Corp., Boonton, N. J.—Radio Today.

Magic wave antenna

* All-wave type antenna, giving noise reduction on both broadcast and international short-wave bands. Uses ordinary type antenna such as horizontal or vertical wire of any length from 20 to 120 feet. Comprised of antenna and transmission line to set transformers, transmission cable, antenna wire, and accessories. No. 9812—list $6.95. RCA Mfg. Co., Front St., Camden, N. J.—Radio Today.

2-volt storage batteries


Car-radio control kit

* Two control heads, one switch-arm, 7 extra dials, provide for replacement of all auto radio controls. Any combination of gear ratios can be matched. Enables jobbers and dealers to maintain full service with a minimum of parts. Universal Controls, Inc., 21-07 40th Ave., Long Island City, L. I., N. Y.—Radio Today.

Radiotechnic tube tester

* Checker for tubes using a system of colored lights to indicate condition of tubes. Test dependent upon ability of grid to control plate current, and cathode to supply emission current. Non-obsolescence circuit—set 3 switches for any tubes. Gives indication of output, shorts, open elements, leakage, and noise. Radiotechnic Labs., 1328 Sherman Ave., Evanston, Ill.—Radio Today—see also advt. p. 78.
HOOUP TO CHECK-UP THROUGH

CENTRAL TELEPHONE EXCHANGE

It's the most spectacular check-up promotion ever offered to radio dealers and service men.

The RCA Fall Check-Up promotion beginning September 20th features the advertising of a Central Telephone Number that prospects call when they want an RCA radio check-up. The telephone exchange—an independent telephone number having no connection with RCA—then relays the call to the nearest qualified RCA tube dealer. He does the job—pockets the profit. That's all there is to it. It's simple—but effective.

The RCA Central Telephone Exchange is being established in over 112 cities. A partial list of these is shown at the right. All tube dealers, particularly those located within a 10¢ calling distance of a Central Telephone Exchange can build business by tying in with this promotion. BUT YOU MUST BE IN ON THIS PROGRAM BEFORE SEPTEMBER 20th. Remember, RCA pays all the costs and a purchase of 50 tubes qualifies you for this listing. Get in touch with your RCA or Cunningham tube distributor RIGHT AWAY for full details.

HERE'S HOW WE'LL MAKE 'EM PHONE!

We'll make prospects phone by running 4-inch newspaper ads, 4 times as large as the one shown, on radio pages three times a week. Or by sponsoring spot broadcasts on local radio stations. As soon as prospects find out how inexpensive a check-up is—how easy it is to get in touch with you—they'll keep your telephone ringing and your cash register humming a merry profit tune!

Some of the 112 cities in which the RCA Central Telephone Exchange Check-Up Plan will operate:

- Atlanta, Ga.
- Chattanooga, Tenn.
- Denver, Colo.
- St. Louis, Mo.
- Hartford, Conn.
- Minneapolis, Minn.
- Chicago, III.
- Los Angeles, Calif.
- New York, N.Y.
- San Francisco, Calif.
- Buffalo, N.Y.
- Pittsburg, Pa.
- Washington, D.C.
- Oklahoma City, Okla.
- Kansas City, Mo.
- Norfolk, Va.
- Columbus, Ohio
- Des Moines, Iowa
- Richmond, Va.
- Dayton, Ohio
- Columbus, Ohio
- Waco, Texas
- New Orleans, La.
- Toledo, Ohio
- Louisville, Ky.
- Memphis, Tenn.
- Santa Ana, Calif.
- Norfolk, Va.
- Toledo, Ohio
- San Antonio, Tex.
- Scranton, Pa.
- Columbus, Ohio
- Miami, Fla.
- Columbus, Ohio
- Scranton, Pa.
- Seattle, Wash.
- Pittsburgh, Pa.
- Detroit, Mich.
- St. Louis, Mo.
- Chicago, Ill.
- Baltimore, Md.
- Baltimore, Md.
- New York, N.Y.
- New York, N.Y.
- St. Louis, Mo.
- New York, N.Y.
- St. Louis, Mo.
Please ship the following RCA Tubes

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<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
<th>Type</th>
<th>Quantity</th>
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<tr>
<td>45</td>
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<td>80</td>
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In accordance with the Special RCA Free Promotional Material offer (effective Sept. 1, to Nov. 1) please ship in return for the tubes ordered in excess of 50 (amount required for telephone listing) the sales promotional items indicated below, using name and address shown under "Telephone Qualifications" for imprint information.

Form f. Form f. Form f.

"TELEPHONE QUALIFICATIONS"
Service Work regularly done. No. years.
From State or Home. Service Notes used...
Equipment Owned—Checker Oscillator
Oscillograph Output Meter

Name of Firm or Business
City
Telephone

YOUR DISTRIBUTOR CAN GIVE YOU FULL DETAILS. OR, BETTER STILL, IF YOU WANT ANY OF THE MATERIAL OFFERED, FILL IN AND CLIP THE COUPON AT LEFT AND MAIL IT TO YOUR JOBBER.

RCA MANUFACTURING CO., Inc., Camden, N. J.
A SERVICE OF THE RADIO CORPORATION OF AMERICA
Have You
Investigated?
THE NEW 1938
Majestic
MIGHTY MONARCH
OF THE AIR!

...THE LINE OF
AUTOMATIC RADIOS
CHALLENGES COMPARISON ON
EVERY POINT!
A COMPLETE
MODERN LINE BACKED BY
AN EXCLUSIVE
DEALER FRANCHISE

FACTORY-TO-DEALER PLAN
. . . OUTSTANDING CABINET
BEAUTY . . . SALES-PERFORM-
ANCE IN THESE ADVANCED
FEATURES:
* AUTOMATIC BASS COMPENSATION
* AUTOMATIC VOLUME EXPANSION
* ELECTRIC AUTOMATIC TUNING
* TELEOMATIC AUTOMATIC TUNING

Complete Line of Table, Chairside and
Console Models with Automatic Tuning
...A Price Range That Permits Profitable
Merchandising!

Write Today for Detailed Information

MAJESTIC RADIO &
TELEVISION CORP.
2600 West 50th Street
Chicago
Cable Address: "Majestico-Chicago"

No Haggling Over the
Counter When You Say—
"IT'S A UTAH"

- You're in business to make money . . . so think twice about Utah Speakers and parts. First, remember that there are more than 3,000,000 sets in use TODAY equipped with Utah parts. Second, Utah's 12 consecutive months of sales increase prove that servicemen and parts buyers, more and more, are looking to Utah for replacement parts.

Just bet your next order that UTAH Speakers are easiest to sell. Try it. Dealers have found that the easiest way to make more sales at bigger profits is UTAH—the name that means "Worth the Money" to parts buyers. Address department RT9 for complete information.

UTAH RADIO PRODUCTS CO.
CHICAGO, U. S. A.
TORONTO BUENOS AIRES
ONTARIO CANADA (UCOA RADIO PRODUCTS CO.)
"16 YEARS OF LEADERSHIP"
NEW THINGS

Triplett test bench panels

- Cabinets for use with Triplett Master or Deluxe instruments. Unit illustrated (model 1402) accommodates 1 deluxe and 2 master testers. Model 1402 has compartments for 4 deluxe instruments, and 1404 holds any 4 master units. Two or more cabinets may be bolted together to form a long continuous panel. Units easily removed for field use. Metal with black wrinkle finish. Drawer at bottom. Triplett Electrical Instrument Co., Bluffton, Ohio—Radio Today—see also advt. p. 55.

Philo signal generator


Kadette receiver


Chairside radio


All-wave oscillator


Star auto radio control


Water-cooled power plants

- Complete line of AC and DC generating plants powered by water-cooled gas engine. Designed for marine use, but can be supplied with radiator. Ratings of 500, 1,000, 2,000, 3,000 watts, Manual or self-starting from remote control. Constant voltage characteristic under varying loads. Streamlined design. D. W. Ohan & Sons, 53 Royalston Ave., Minneapolis, Minn.—Radio Today—see also advt. p. 76.

Transmitter kit


Universal replacement electrolytics


Ultraimar receivers

- 6-tube 3-band superhet operating on AC or DC. 2 watts power output and 6½-inch speaker. Large illuminated dial 4½ x 7½ inches. Octal type tubes. Phonograph pick-up jacks. Model 366. Also available with long-wave tuning as model 316.

The last word in truly automatic tuning. Now... just touch a button... and presto!... in comes one of your favorite stations as simply and swiftly as switching on an electric light. The actual tuning is done by a tiny electric motor. Full vision rectangular dial with hands arranged horizontally permit easy reading. All calibrations are etched on a rich gold background and clearly indicated by moving ACRA-pointer.

Other outstanding Admiral features include full size dynamic speaker, automatic volume control, automatic frequency control, bass intensifier control, and many others.

Remember—Only Admiral gives you "tilt-tuning" plus electric "Touch-O-Matic" Tuning

Note: Admiral "Tilt-Tuners" are fully protected by patents. All Models RCA, Hazeltime and Latour licensed.
TILT TUNING is here!

IT was really new last year when Admiral first said goodbye to "back-benders". No more "daily dozen" every time you bring in a different station. Standing or sitting the tilted dial is tuned in a jiffy. Easy on the back, kind to the eyes.

Always Ahead of the Parade

Naturally such an outstanding feature was too good to go unnoticed by other radio makers...but none can duplicate the streamlined beauty of the curved front panel. This design is an exclusive Admiral patent. Admiral alone combines tilt-tuning convenience with smart, artistic cabinet styling.

But that's not all! Only Admiral for 1938 gives you "tilt-tuning" plus electric "Touch-O-Matic" tuning...twin features that make Admiral the outstanding "buy" of the year. You owe it to yourself to get the whole Admiral story now. Mail coupon below today!

CONTINENTAL RADIO & TELEVISION CORPORATION
325 W. Huron St. Chicago, Illinois

MAIL THIS COUPON FOR FREE CATALOG!
Just sign, tear out and mail to Continental Radio & Television Corp. 325 W. Huron St., Chicago, Ill.
Name ________________________________
Address ________________________________
It was really new last year when Admiral first said goodbye to "back-benders". No more "daily dozen" every time you bring in a different station. Standing or sitting the tilted dial is tuned in a jiffy. Easy on the back, kind to the eyes.

Always Ahead of the Parade

Naturally such an outstanding feature was too good to go unnoticed by other radio makers... but none can duplicate the streamlined beauty of the curved front panel. This design is an exclusive Admiral patent. Admiral alone combines tilt-tuning convenience with smart, artistic cabinet styling.

But that's not all! Only Admiral for 1938 gives you "tilt-tuning" plus electric "Touch-O-Matic" tuning... twin features that make Admiral the only one standing "buy" of the year. You owe it to yourself to get the whole Admiral story now. Mail coupon below today!

Continental Radio & Television Corporation
325 W. Huron St. Chicago, Illinois

Mail This Coupon for Free Catalog!

Just sign, tear out and mail to Continental Radio & Television Corp., 325 W. Huron St., Chicago, Ill.

Name...........................................

Address...........................................

25 Models To Choose From

FROM the sensational new Admiral "Duettes" with their dual utility... to smart table models... to floor-model Amboise radios... to splendid new "Tilt-Tuners"... to all their radios... to radios built for comfort... giving performance... radio styled in the best of good taste. That's Admiral for 1938!
**NEW THINGS**

**Washer motor with battery charger**


**Soldering set**

* Variable heat control and soldering iron for all types of radio work. 100-watt iron. Heat control keeps tip of iron clean and saves power. Drake Electric Works, 2554 N. Lincoln Ave., Chicago, Ill.—Radio Today.

**Roto-ranger analyzer**

* High-sensitivity multi-range meter featuring 10,000 ohms per volt ranges. DC ranges 0/10/50/300/1000 volts, AC voltages 0/8/150/1000 at 1,000 ohms per volt. Current readings 0/100/500 mils; resistance ranges 0/2/1000/20megs. Meter scales on rotating drum coupled to range selector switch—only one scale visible at a time. Model 275. Simpson Electric Co., 5216 W. Kinzie St., Chicago, Ill.—Radio Today—see also advt. p. 53.

**12-tube table receiver**


**16-mm. sound-on-film projector**


**Insulated resistors**

* Carbon resistors with bakelite molded jacket providing additional protection against moisture, shorts, etc. Color coded, 3-inch pig-tail leads. Resistance values from 100 ohms to 10 Mohms. Standard tolerance 10 per cent. 1/2 and 1-watt units. Aerovox Corp., 70 Washington St., Brooklyn, N. Y.—Radio Today.

**Garod receivers**

* Seven-tube AC superhet tuning 16-545 meters in 3 bands. Power output of 4 1/2 watts—8-inch dynamic speaker. Open face dial 6 x 7 inches with 15:1 tuning ratio—cathode-ray tuning indicator. Size 11 1/2 x 2 1/2 x 3 1/2 inches. Model 3974.

**Low-cost touch tuning**

* 9-tube console with push-button tuning listing around $100. Selects any one of 7 pre-set stations—instantaneous tuning. Automatic frequency to insure perfect resonance. 12-inch dynamic speaker. All-wave reception from 450-18,000 KC in 3 bands. Model F-36.

**Glassmike condensers**

* Line of condensers sealed in plastic cabinet of modernistic design— 6 1/2-inch dynamic speaker. Model F-40 listing at about $20. Other new G-E sets are F-51, 5-tubes around $30, and the F-74 and F-80, 7 and 8-tube models with lower dial and tone monitor. General Electric Co., 1285 Boston Ave., Bridgeport, Conn.—Radio Today—see also advt. inside rear cover.

**Multivibrator oscillator**

* Signal generator for providing a signal over the entire spectrum simultaneously. Used in conjunction with usual signal generator to check operation of set at all points of the dial. Set condenser is varied to check operation of receiver over the entire band—no need to adjust or keep multivibrator oscillator in track. Weak spots, crossovers easily located—oscillator series paddles quickly adjusted. Model 20. Monarch Mfg. Co., 3341 Belmont Ave., Chicago, Ill.—Radio Today.

42 Radio Today
Key to Radio-Tube Numbers

{From page 18}

having a filament rating of 2.5 volts, while 6A5 is a similar tube having a filament rating of 6.3 volts.

Pentagrid Converters

The pentagrid converters having a larger number of elements are designated by higher numbers in the last portion of the type designation. Thus 1A6 is a pentagrid converter designed for 2-volt operation. Corresponding AC types are types 2A7 and 6A7, which have one more element (the cathode) than is the case with battery types.

In the case of metal tubes an extra connection is provided for the bulb which acts as a shielding member. Thus the tube corresponding to the 6A7, in metal becomes type 6A5.

A further modification of the numbering system was made by using the letter "G" following the type number to identify glass tubes mounted on octal bases. Thus the octal-base glass equivalent of type 6A8 became type 6A8G.

It is obvious that the number of type designations available can be expanded indefinitely, since after the alphabet is exhausted, two-letter combinations can be used. This is already being done to some extent, as a type recently introduced is a full-wave rectifier carrying the designation 62YT5-G.

Letters Ablow

* For radio tube dealers is a new neon bulb display lamp announced by RCA as available from distributors. It glows with the letters "RCA" fits into any AC or DC-110-volt outlet, and has a feature which makes it possible to have the letters face in any direction.

The item is suggested for novelty effects in windows, to identify the tube department, for general identification, or for night use.

Mail Campaign for Jobbers

* Hygrade Sylvania has started a 5-letter sales campaign, free to jobbers, to help line up new dealers and to aid Jobber salesmen generally. Following the salesman's call on a dealer prospect, and upon receipt of a post card report of the call, Hygrade will mail, free, 5 letters to the dealer.

First letter offers a free subscription to Sylvania News. The second lists a series of new sales and technical helps, and the third is a vigorous letter on company policy. Fourth letter concerns tube quality, and the fifth explains the factory guarantee. Jobber's name appears on each letter.

America's No. 1 Movie Camera

The Favorite of the Movie Stars!

Most Sensational Campaign Ever Put Behind Any Movie Camera!

Testimonials by America's "top flight" movie stars are appearing in full pages and dominant space in leading magazines and newspapers-reaching millions from Coast to Coast!

Smart dealers are tying up with this dynamic campaign by featuring UniveX Cine "8" in their own advertising—as well as in their windows.

Prepare for Xmas Now!

There's no question about it—UniveX will be the most popular gift item this Xmas, because it is the only movie camera everybody can afford.

Universal Camera Corporation
World's Largest Unit Manufacturers of Cameras


Cine '8' UniveX $9.95

September, 1937
For years, servicemen have been looking for better controls—quieter controls for those extremely critical duplicate replacement jobs that cannot be handled with standard types. Today, IRC makes such controls available—backed with all the well-known features of standard Metallized units PLUS the exclusive 5-Finger Silent Element Contact PLUS the exclusive Silent Spiral Connector which is supplied on all of the new special replacement controls listing at $1.50 and up (not standard types). These special controls are identified by the letter “J” preceding their part number in the IRC Guide. See them at your IRC jobber’s today.

GET THIS NEW GUIDE FREE!

Just off the press! 208 pages! Lists standard and special replacement types for practically every radio receiver. Includes handy control and resistance calculation data, complete IRC Resistor Catalog, etc. Indispensable! Ask your jobber for a copy—or write direct to us.

Quietest! BECAUSE SLIDING METAL-
IT ELIMINATES THE MOST COMMON SOURCE OF NOISE IN ANY CONTROL

The outcome of two years of engineering development work, IRC brings you the outstanding control improvement in years—positive and continuous electrical connection between the center terminal and the adjustment arm. This Silent Spiral Connector spells complete elimination of sliding, metal-to-metal contact in the place where most control noises originate. It means that these new IRC Special Replacement Controls are unquestionably quietest, because they are the only controls having this feature.

The Silent Spiral Connector is made of special wire—sturdy and durable—constructed like a fine watch for a lifetime of the quietest service you can imagine.

THEY'RE THE Only CONTROLS IN WHICH METAL CONTACT HAS BEEN ELIMINATED
Indiative-Resourcefulness - Cooperation to advance the interests of the industry

**Metallized CONTROLS**

**Now Available in SPECIAL REPLACEMENT TYPES**

with the First and Only

**SILENT SPIRAL CONNECTOR**

"Because It's Positive—It's Positively Noiseless!"

The outcome of two years of engineering development work. IRC brings you the outstanding control improvement in years—positive and continuous electrical connection between the center terminal and the adjustment arm. This Silent Spiral Connector spells complete elimination of sliding, metal-to-metal contact in the place where most control noises originate. It means that these new IRC Special Replacement Controls are unquestionably quietest, because they are the only controls having this feature.

The Silent Spiral Connector is made of special wire—sturdy and durable—constructed like a fine watch for a lifetime of the quietest service you can imagine.

**IT ELIMINATES THE MOST COMMON SOURCE OF NOISE IN ANY CONTROL**

**QUIETEST! BECAUSE THEY'RE THE ONLY CONTROLS IN WHICH SLIDING METAL-TO-METAL CONTACT HAS BEEN ELIMINATED**

INTERNATIONAL RESISTANCE COMPANY

101 NORTH BROAD STREET, PHILADELPHIA, PA.


Factories and Warehouses in Many States for More Different Applications Than Any Other Manufacturer in the World
RETAILING NEW RECORDS

Note also phonograph-radio lists on pages 28-30

PHONOGRAPH-RADIO FOR COUNTRY USE

* A combination which should be made available to dealers is a battery-operated one for farm use, according to Carl R. Grigsby, of United Sale & Service, Flemingsburg, Ky. Mr. Grigsby believes that there's a big record market in the country which cannot be developed until such an instrument is produced. Backing his statement is the fact that there are about 4,000,000 homes in the country without current.

"This combination would use the spring type, or a 6-volt motor, and electric pick-up," suggests Mr. Grigsby, who insists that most of the country record fans want combinations.

BOOK OF THE OPERA

* The 586 pages of the new ninth edition of the Victor Book of the Opera are to be translated into Braille, so that the volume can be used by the blind. Work is being done by a WPA Braille project at Bismarck, North Dakota, where Martha Herman is supervisor.

General interest in the book has increased sharply as the Fall music season approaches. New edition was revised by Charles O'Connell, author of the Book of the Symphony, orchestra conductor and Red Seal recording expert. Nearly 100 pages of new material and 180 new photos were added, and since it appeared 6 months ago, over 40,000 copies have been sold.

WAX WORTH WATCHING

AFRAID TO DREAM. From the 20th Century-Fox film, "You Can't Have Everything" and "CAN I FORGET YOU?" From the Paramount film, "High, Wide and Handsome." Both sung by Jean Shelden with orchestra.—Victor 25643.

THE BIG APPLE AND SONG OF THE SAMOVAR. Both by Clyde Lucas and his orchestra.—Vocalion VA 531.

BLOOMS ON BROADWAY. From the Paramount film of that name in a LITTLE CAROLINA TOWN. VC by Russell Brown. Both with Jan Garber and his orchestra.—Brunswick 1059.

IF YOU WERE SOMEONE ELSE. VC by Eddie Wright. "AN OLD FLAME NEVER DIES." VC by Jack Leonard. Both from the musical "Virginia," both with Tommy Dorsey and his orchestra.—Victor 25649.

I KNOW NOW and "CAUSE MY BABY SAYS IT'S SO." Both from the Warner Bros. film, "The Singing Marine," both sung by Dick Powell with orchestras under direction of Lou Perez.—Decca 1310.

THE MOON GOT IN MY EYES (AND YOU KNOW IT ALL). SMARTY. Both from the Paramount film, "Double or Nothing." Both sung by Bing Crosby with orchestra.—Decca 1370.

SYMPHONIUM OF SWING. Special release of four 15-in. swing records in an album. Two hot tunes by each of the orchestras of Tommy Dorsey, Benny Goodman, Benny Herman; two tunes by "Park" Walker.—Victor Album C-29.

Radio artists develop more use for recording equipment. Here's Hollace Shaw, CBS singer, warbling for Radio Today's camera and Presto's recorder.


YOU AND I KNOW. VC by Barry McNutt. AN OLD FLAME NEVER DIES. Both from the musical, "Virginia," both with Claude Thornhill and his orchestra.—Brunswick 7051.

CODE READER OPENS NEW FIELD FOR DEALERS

"Reading code"—a new thrill from the home radio.

* "For several years past there has been nothing really new to interest the radio fan," states Eli Lurie, president American Communications Corp., 1630 Broadway, New York. "By 'fan' I do not mean the licensed amateur who knows the technical side of radio, but the man who, in the early days of radio, used to stay up till the small hours of the morning getting dx.

"The thrill of foreign broadcast stations has already gone. The element of mystery has been removed because it is now a commonplace occurrence with the modern radio receiver.

"Today there is but one thing left to these folks . . . the code bands. With the American Code Reader attached to any receiver the average man can 'catch code on tape' and decode it easily and quickly with the aid of our simplified decoding table."

Mr. Lurie went on to say that every radio dealer has a list of customers who, without knowing radio technically, have a keen interest in radio. Dealers have been quick to recognize that code recording will appeal to them and have, as a consequence, stocked the code reader to fill this need.

Although originally intended as an aid to the embryonic amateur, as well as the licensed amateur, sales to all-wave listeners have accounted for a large percentage of the volume to date.

Radio Today
THREE NEW DISPLAYS

Available to dealers of the Continental Radio & Television Corp. are three new displays. First is a master which has space for a tilt-tuning console and four table models. Second is a Du-ette metal display, modernistic design, with room for three Admiral Bakelite Du-Ettes. Third (illustrated herewith) is an elaborate auto display arranged so that the prospect may operate the radio himself.

SETS HUNG ON SILVER

Specially compact display, which holds all of the 23 models comprising the 1938 Kadette line, has been released to dealers by International Radio Corp., Ann Arbor, Mich. The elaborate affair comes in panels (a single one is illustrated here), designed in two shades of blue with silver background and trim. Each panel is lighted by 3 indirect diffusing lights. Sets hang on special concealed brackets against a silver background and all of them can be demonstrated. The display is free to dealers with the purchase of Kadettes.

The AMERICAN CODE READER

A New Source of Profit for Alert Jobbers and Dealers

- Here's a sensational new money-maker for Dealers and Jobbers everywhere. The Smash Hit of the 1938 season! The Cash Register is ringing in stores that demonstrate the American Code Reader.

The Code Reader is not only a hit with the licensed Radio Amateur, the experimenter and the beginner! A vast new field is opened up in the person of the man who is "a hound for DX"... the man who is constantly looking for a NEW THRILL IN RADIO!

Every Dealer has a list of such customers! Cash in on it! Tell these customers how they can get code messages from far away lands... how they can open up an entirely new field of exploration which has hitherto been closed to them!

The secrecy which has hitherto surrounded Code Messages... which has mystified many an All Wave Listener, now is dispelled with the advent of the American Code Reader.

LOW IN PRICE

Because it is low in price (Standard model lists at $20 less tubes); because it is so easily operated (a child can do it); because it fills a genuine long felt need... YOU ought to stock it if you have not already done so! Mail or wire your order today and get complete sales plan, discounts, etc., at once!

AMERICAN COMMUNICATIONS CORP.
1650 BROADWAY  Dept. RT-2  NEW YORK, N. Y.
SALES PROGRESS ON REFRIGERATORS

Radio dealers attracted to profits in new appliance lines

SELF-SELLING REFRIGERATOR

* "Good morning, madam, don't you think I'm a good-looking refrigerator?"

A pleasant, chatty voice thus stops passers-by in front of the Caldien Furniture Co., Mt. Holly, N. J. It comes from a Norge refrigerator, one of several appliances lined up outside the store. The mysterious voice goes on to say, "I'd like you to meet other members of my family," and meanwhile a salesman gets under way among the pedestrians who have been attracted by the device.

Harry G. Wright, Caldien service manager, explains the trick, which has been very profitable to the concern. "We installed a 2-way inter-office phone system, equipped with a combination speaker and microphone. We plugged in the mast control inside the store, where the hidden operator had a good view of the display. The loudspeaker was placed inside the freezing unit, with the refrigerator door open."

"It worked like a charm; almost invariably people stopped. Our salesmen asked people what they thought of the talking refrigerator, and if they were reluctant to speak before the crowd, the salesman addressed the refrigerator. The 'box' would then talk about itself. When the hidden operator spotted someone he knew, he called out his name with startling effect."

SHORTER-TERM CREDITS BY FINANCE COMPANIES

* During the years of economic readjustment growing out of the depression, finance companies revised their down payments and credit terms so that dealers might continue to sell to their budget buying market which had suffered diminished income.

"Today public income has risen and is rising to higher levels," explains A. O. Dietz, president, C. I. T. Corporation, New York. "It is our belief that we can render an important constructive service to our clients by adjusting installment credit terms in better proportion to public income, encouraging standard down pay-

M. W. (Tommy) Thompson, new ad manager for General Household Utilities Co. On Dec. 1, Grunow will introduce new Thermene refrigerators.

ments and somewhat shorter maturities.

"Therefore effective September 1st, the following terms of maximum maturity apply to appliance paper acceptable to C. I. T. branch offices:

| DISHWASHERS | 24 Months |
| IRONING MACHINES | 24 Months |
| RANGES | 30 Months |

(Installation costs of $25 on electric ranges will be financed. Any excess installation costs should be added to down payment.)

| REFRIGERATORS | 30 Months |
| SPACE HEATERS | 24 Months |
| VACUUM CLEANERS | 24 Months |
| WASHING MACHINES | 24 Months |
| WATER HEATERS | 30 Months |
| GAS OR ELECTRIC | |

| RADIO RECEIVING SETS | 18 Months |

(On a battery-operated set, down payment must be sufficient to cover the cost of the battery.)

On all above, a minimum down payment of 10% of cash installed price, or $5.00, whichever amount is the greater, is required.

"Establishing substantial interest in the equipment for the purchaser at the time of sale, and insuring satisfied ownership of the equipment before it wears out, definitely increases the safety of your operations and brings the purchaser into the market sooner as a prospect for another sale," Mr. Dietz points out.

* National Electrical Manufacturers Association has issued a report on U. S. sales of electric household refrigerators for the first six months of the year. Units numbered 1,586,449, with a value of $125,925,937, compared with 1,311,820 units sold in the same period last year, valued at $107,065,496.

* Frigidaire Division, General Motors Corp., has started production on a newly developed line of electric ranges to be introduced later this year and to be marketed nationally.

* Air conditioning equipment has been added to the group of products made by Apex Elec. Mfg. Co., Cleveland, according to Apex president C. G. Pratts. The firm already produces refrigerators, washers, ironers and vacuum cleaners, but has recently bought the Zephyr air conditioning division of the Savage Arms Corp., Utica, N. Y. Sales program for the new product includes continuation of the present Zephyr distributors and dealers.

* P. B. Zimmerman, one of the most-respected figures in the appliance industry and for 25 years a top executive at General Electric, has been named as Norge's new vice-president in charge of sales. Zimmerman is widely credited as having started several of the major trends in electrical marketing, and is nationally identified with quality performance as a sales leader.

Announced at the same time by Howard K. Blood, Norge president, was the promotion of John H. Knapp to the position of assistant to the president.

* Electrical Appliance Dealers Association of Brooklyn, N. Y., one of the country's most vigorous dealer organizations, made another move Aug. 25 with Fair Trade laws and associated trade-in problems again the main discussion. Special guests were representatives from similar dealer groups in neighboring Manhattan, Westchester, Queens and Staten Island. A speaker was W. H. Ingerson, of Norvell, Babson, who worried a resolution which the association adopted:

"Resolved that the practice of some manufacturers of leaving to the unguided individual judgment of dealers, the valuation of second hand trade-in radio sets offered by consumers in part payment toward the purchase of their new branded sets is unfair and unacceptable in principle, to the members of this association; and further, that it is the sense of this meeting that the refusal by manufacturers operating under the Fair Trade Act to establish reasonable maximum valuations on trade-ins, leads to the practical nullification of the Fair Trade Act of the state in respect to radio merchandising and opens the way to indirect rebating from the standard, uniform prices on new merchandise which it was the purpose of the Act to maintain, thereby defeating the policy of this state in respect to such merchandise."

48
Announcement

On December 1st of this year your Grunow Distributor will display

Grunow THERMENE

—the most amazing development in refrigerator history... a companion line to the popular electrically powered Grunow models.

GENERAL HOUSEHOLD UTILITIES CO.
CHICAGO, ILLINOIS

CHILLED BY THE FREEZING FLAME
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<td>.38</td>
<td>.68</td>
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<td>.2</td>
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<td>2.48</td>
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<td>Return eliminator for linear sweep</td>
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<td>Synchronizing sweep control (locking)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Calibrated screen</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Internal oscillator or wobbulator</td>
<td>No</td>
<td>Wob, only</td>
<td>No</td>
<td>Wob, only</td>
<td>Wob, only</td>
<td>Wob, only</td>
<td>Wob, only</td>
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<td>No</td>
<td>No</td>
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<tr>
<td>Oscillograph controls on panel</td>
<td>NS</td>
<td>vg, hr, sv, st, f, sc, l, f, vh</td>
<td>vg, hr, sv, st, f, sc, l, f, vh</td>
<td>vg, hr, sv, st, f, sc, l, f, vh</td>
<td>vg, hr, sv, st, f, sc, l, f, vh</td>
<td>vg, hr, sv, st, f, sc, l, f, vh</td>
<td>vg, hr, sv, st, f, sc, l, f, vh</td>
<td>vg, hr, sv, st, f, sc, l, f, vh</td>
<td>vg, hr, sv, st, f, sc, l, f, vh</td>
<td>vg, hr, sv, st, f, sc, l, f, vh</td>
<td>vg, hr, sv, st, f, sc, l, f, vh</td>
</tr>
<tr>
<td>Oscillograph controls elsewhere</td>
<td>NS</td>
<td>vp, hp</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Dimensions</td>
<td>NS</td>
<td>81/4 x 7 x 10</td>
<td>13 [1/8] x 1/4 [1/4]</td>
<td>85 x 8 x 1 [1/4]</td>
<td>90 x 1 1/4 x 1/4</td>
<td>12 x 7 1/4 x 1/4</td>
<td>11 x 5 1/4 x 1/4</td>
<td>11 x 5 1/4 x 1/4</td>
<td>12 x 7 1/4 x 1/4</td>
<td>11 x 5 1/4 x 1/4</td>
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<td>NS</td>
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<td>25</td>
<td>16 1/2</td>
<td>16 1/2</td>
<td>39</td>
<td>195</td>
<td>39</td>
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</tbody>
</table>

**CODES:**
- **C**: Controls
- **V**: Vertical gain
- **F**: Focus control
- **D**: Double Image
- **H**: Horizontal gain
- **S**: Synchronizing voltage selector
- **W**: Wobble
- **A**: Amplifier balancing controls
- **P**: Phase control
- **R**: Resistors

**NOTES:**
- Data not supplied
IMPROVED UP-TO-THE-MINUTE 1937-1938 TUBE TESTER

Only $19.80 for this TUBE TESTER

Positively Checks All Type Radio Tubes According to Latest Recommendation of Tube Engineers

- Has Line Voltage Adjustment
- Has Leakage and Short Test
- Uses Triplett Direct Reading Instrument (GOOD-BAD Scale)

PORTABLE OR COUNTER USE!!!

See Our Display—Booth No. 105—Radio Parts Show, New York City

Five flush type sockets provide for all tubes. The tester operation is very simple and indicates condition of the tube for dealer and customer on Direct Reading (GOOD-BAD) colored scale of Triplett instrument. Will also test for inter-element shorts and leakages. Complete in attractive, sturdy, quartered-oak case. Sloping panel of silver and black. Suitable for portable or counter use.

A Modified Emission Type Tester . . . Approved Circuit

Model 431 same as 430 except has Readrite (Good-Bad) Meter. DEALER PRICE $15.90

SEE YOUR JOBBER

WRITE FOR CATALOG

READRITE METER WORKS
919 College Drive, Bluffton, Ohio

Without obligation please send me more complete information on □ Model 430; □ Model 431; □ I am also interested in . . . .

Name
Address
City... State...

September, 1937
Mr. George Rohr says:
"Centralab is the difference between a satisfied customer and a dissatisfied one."

Mr. Rohr, who swipes a mean soldering iron at 67 Thorne St., Jersey City, N. J., is one of that vast army of radio men who year after year cast their preference with Centralab.

The smooth, noise-free performance of these world-famous controls explains their ever-growing popularity.

For all replacements . . . CENTRALAB.

* The non-rubbing contact insures smoother performance . . . and the long resistor element maintains a more uniform taper.

Get the 1937 Volume Control Guide

**STANDARD RADIOOHM**

Milwaukee, Wis.
Division of Globe Union, Inc.

BRITISH CENTRALAB, Ltd.
Canterbury Road, Kilburn
London, N.W.6, England

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

---

**PUSH BUTTON TUNING**

Wiring employed in the Sparton push-button tuning receiver.

(Continued from page 26)

Sections. A trimmer is used for the antenna, first detector, and oscillator circuits. The accompanying schematic shows the essentials of the circuit as applied to a single stage. A manual-automatic switch serves to disconnect the gang tuning condenser from the coils and connect in the Selectronne tuning unit.

In the automatic position a shielded lead is brought to a series of 6 trimmer condensers. Any one of these 6 trimmers can be connected into the circuit by grounding it through the push-button operated switch. Each push-button controls the switches for the 3 tuned circuits.

**Shielded assembly**

The mechanical construction of the tuning unit is illustrated on page 26. Referring to the plan view (as seen from the top), note that each push-button operates a shaft which is attached to three contacts for grounding the trimmer condenser circuits.

The button at the extreme right is shown depressed—making a contact to the low-potential side of the trimmers. A flexible pig-tail is connected to each push-button contact and then to ground. A latching bar holds the push-button in place—while it automatically releases the button when any other button is pushed.

In the rear elevation view, the 3 sets of 6 trimmers are plainly visible. Note the contact bars (cross hatched) behind the trimmers. When a button is depressed, the entire contact bar moves as a unit. Spring type contacts are used on the trimmer contacts and assure a perfect connection.

The entire assembly is well shielded and shielded leads are used to connect the trimmers to the rest of the receiver. The trimmers have suitable capacity ranges so that practically any combinations of stations can be selected. Adjustment of the trimmers is done the same as with any other high-frequency trimmers in a receiver—but naturally since there is no tracking problem involved, there is no oscillator series condenser.

In the three makes of receivers described, use is made of automatic frequency control to insure perfect tuning at all times. The accuracy of the station settings can be quickly checked by killing the AFC circuit and noting whether or not there is any change in the quality of the station received. If the quality is noticeably bad, it indicates that the station set-up on the automatic tuning has not been done accurately enough and an effort should be made to do a better job. While AFC will correct inaccuracies in tuning, best operation will be had when that correction in mistuning is as small as possible, for then fading and strong adjacent stations will have a minimum effect on reception.

**MAKING USE OF THE INFINITE RESISTANCE VOLTMETER**

* The more widespread use of extremely high resistance circuits in the new receivers has made the measurement of voltages a difficult problem. Vacuum tube voltmeters are satisfactory for much of the work, but they have some disadvantages. The infinite resistance voltmeter is an ideal device for DC voltages—it, however, will not handle AC or RF voltages as does the vacuum tube voltmeter. Some uses of the infinite resistance voltmeter* are described and explained by Glenn H. Browning, well known consulting engineer.

One cause of intermittent reception in a radio receiver is a faulty resistor in the plate circuit of a resistance coupled audio frequency amplifier. With an ordinary voltmeter it is difficult to measure the voltage between the cathode of the

---

*The infinite resistance voltmeter was described in Radio Today for May 1936 on pages 29 and for September 1936 on pages 60-66. A complete theoretical discussion will be found on these pages.
Microamps

Model 220 Roto Rangen
Tube and Set Tester
In the opinion of hundreds, the Model 220 is the greatest of all analyzing equipment. The "Roto-Ranger" feature places twelve distinct scales at your finger tips. Utilizes latest tube testing circuit, illuminated reset selector. Tests all types of condensers on separate scales. Has separate resistance scales of 100 ohms, 100,000 ohms, 100 megohms. Three D.C. scales of 8-300-1000 volts. (2500 ohms per volt.)

Net price...
Time Price: $12.50 down and 6 monthly payments of $9.60 each.

Model 275 Roto Rangen
High Sensitivity Set Tester
With the Roto-Ranger convenience and a sensitivity of 10,000 ohms per volt, this is one of the most outstanding instruments on the market—a new Simpson development. Ranges are D. C. volts 0-10-50-1000; A. C. volts 0-15-1000; ohms 0-2-1000, 2000, 5000; milliamperes 0-10-100-500; microamps 0-150.

Net price...
Time Price: $8.50 down and 6 monthly payments of $6.60 each.

Model 201 and 202 Roto Rangen
Volt-Ohm-Milliammeter
A Volt-Ohm-Milliammeter with Roto-Ranger. Features with the following ranges: Model 201 (D. C.) Ohms: 0-20-200-2000-20,000-20,000 200 megohms. Microamps: 0-200; Milliamperes: 0-10-100; Volts: 0-1-30-100-1500. Model 202 (A. C. and D. C.) A. C. Volts: 0-30-100-1500; D. C. Volts: 0-300-1000; A. C. Milliamperes: 0-5-25-125; D. C. Milliamperes: 0-1-5-100-500; Ohms: 0-100-5000 200 megohms.

Net price D. C. Model...
Net price A.C./D.C. Model...

Model 210 All-Wave Signal Generator
A signal generator as accurate as it is beautiful. Heavy aluminum casings give proper shielding. Single rotary selector switch provides modulated, unmodulated and externally modulated radio frequency and 400 cycle audio output. Range: Continuously variable from 0.4 kilocycles to 20 megacycles—all on fundamentals, divided into 6 bands, 94216, 21750, 539000, 1.1-4.0, 4.0-10.0, 10.0 megacycles, selected by means of 6-position rotary switch. Calibration: At 8 points with quartz crystal oscillators. Maximum change in original calibration over long periods of time is less than 1%. Net...

Model 100 ANAL-SCOPE
A NEW FREE POINT TESTER for use with any Set Tester or Volt-Ohm-Milliammeter. Has five sockets with a complete set of series type jacks connected into the various circuits for measurement of voltage, current and resistance to any tube elements or socket contacts. By selecting a card corresponding to the tube under test and placing it on the ANAL-SCOPE a complete picture of the elements and connections is in view while all tests are being made. The cord and plug method of analysis is combined with the "Free Point" method in this modern testing unit. Furnished complete with test漂亮 cards and cards covering all popular tubes. Can be kept up to date at a cost...

Net price...

SIMPSON Instruments that STAY ACCURATE
ASK YOUR JOBBER

September, 1937
The infinite resistance voltmeter will accurately measure voltages in high resistance circuits such as this.

5000-ohm-per-volt meter—voltage 1.5
1000-ohm-per-volt meter—voltage 1.2
zero current voltmeter—voltage 1.5

It will be noted that in the above case the 5000-ohm-per-volt meter is correct. However, the measurements made between the cathode and the grid of the 6FS, a 1-megohm resistance would have been in series with this voltage and the 5000-ohm-per-volt meter would have been materially in error. Of course, in the case of measuring cathode bias on power amplifier tubes the 1000-ohm-per-volt meter will, in practically all cases, give a sufficiently correct answer for practical purposes.

**AVC testing**

Cases of inoperative or incorrect operation of automatic volume control give the service man no end of trouble and an instrument which will measure accurately the biasing voltages on the tubes controlled by the automatic volume control system is a great advantage to say the least. To give the reader an idea of the automatic biasing voltage on the RF tubes, a radio frequency signal was applied between the antenna and ground system of a superheterodyne receiver by means of a signal generator and the automatic biasing voltage was measured between points A and ground in the 6H6 diode detector circuit shown above. The data obtained gave the values of automatic volume control bias as measured on the three voltimeters with various RF signals put into the antenna and ground system of the receiver. The bias voltage varied from 0 to about 25. A comparison showed that even the 5,000-ohm-per-volt meter has an average error of about 60 per cent.

The operation of the zero current voltmeter described is extremely simple, consisting of a variable po
tentiometer the voltage across which is supplied with a step-variable power supply. The balance between the known and the unknown voltage is indicated by the zero reading of a galvanometer type instrument the sensitivity of which is 850 microamperes. This meter is adjusted to zero after which the unknown voltage may be read directly on the same instrument (or a separate meter if desired) by pushing a button which connects the current instrument in series with the proper resistance across the variable voltage source so that a direct reading in volts is obtained. This type d-c voltmeter has been incorporated into a new set tester now being manufactured by Hickok Electrical Instrument Co.
“Could you have listened to my set with the old and the new tubes you could truthfully testify that Ken-Rad Tubes brought it to the peak of performance in reception. Radio is my hobby and I believe myself qualified to be a competent judge of really good radio performance.”

Mr. Walter P. Fenchell
114 Williams St.
Laurenceburg, Indiana

“KEN-RAD TUBES BROUGHT MY RADIO TO THE PEAK OF PERFORMANCE”

Enthusiasm among customers for the items you sell means an ever-increasing repeat business. This is the backbone of profits. For dependable performance and dependable profits tie in with Ken-Rad. Write us for our dealer proposition.

* KEN-RAD BULBS, TOO
Cheap electricity means an ever-increasing lamp field. Get your share of profits with Ken-Rad Bulbs.

KEN-RAD Radio Tubes

KEN-RAD TUBE & LAMP CORPORATION, Owensboro, Kentucky
Also manufacturers of Ken-Rad Electric Light Bulbs

September, 1937
I.F. PEAKS

PART XI - RADIO TODAY - SEPTEMBER 1937

Model  I.F.  Chassis  Peak
---------  ----  -------
TRAV-LER  S.L  465-R

Model  I.F.  Chassis  Peak
---------  ----  -------
TRAV-LER  S.L  465-R

C—Condensers  R.M.A. color coded
R—Resistors  R.M.A. color coded
f—R.M.A. color coding used throughout the set

*Indicates that the listings have been checked by the manufacturer.

While every effort has been made to have this listing 100% accurate, in some cases there may be omissions and mistakes.

Whenever possible, it is recommended that reference be made to the manufacturer’s service notes for complete information on the set.
Model 1200-E
Volt-Ohm Milliammeter

- Resistance Readings to 40 Megohms
- Separate A.C. and D.C. Instruments in Tilting Twin Case; Accuracy of each Within 2%
- For All Radio Measurements, Not requiring a No Current Draw Vacuum Tube Voltmeter

TRIPLETT MASTER VOLT-Ohm-MILLIAMMETER, Easily Identified by the Exclusive Tilting Twin Scale, Is by All Odds the Overwhelming Favorite...Because It Is the Most Practical... (It Offers the Most for the Money)

Model 1200-E offers a new order of precision testing with 25,000 Ohms per Volt. Modern radio sets that require delicate balancing can be easily and quickly adjusted.

READINGS: D.C. Volts 10-50 250-500-1000 at 25,000 Ohms per Volt. A.C. Volts 10-50-250-500-1000. 50 D.C. Microamperes, 1-10-50, 250 Milliamperes. Resistance ½-1000 Low Ohms; Backup Circuit; 0-40,000 Ohms; 4 and 40 Megohms.

Remember Booth No. 205—Radio Parts Show—New York City... Many New Triplett Items Will Be Displayed.

New LABORATORY TEST BENCH PANEL AS SHOWN CONTAINS:
- 1220-A Tube Tester
- 1232 Signal Generator
- 1260-A A.C. Voltmeter
- 1200-D Volt-Ohm-Milliammeter

OTHER LABORATORY MODELS
Model 1402 with compartments for any two DeLuxe Testers; Model 1403 with accommodations for any two Master Units and one DeLuxe Tester.

For More Information SEE YOUR JOBBER... OR MAIL COUPON TODAY!
**Radio Sources of Supply**

An alphabetical list of manufacturers whose advertisements have appeared in **Radio Today**. Companies having advertisements in this issue are listed in the **Advertisers Index. P. 79.**

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<thead>
<tr>
<th><strong>Manufacturers</strong></th>
<th><strong>City and State</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC Radio Laboratories</td>
<td>3334 N. New Jersey St., Indianapolis, Ind.</td>
</tr>
<tr>
<td>Adler Manufacturing Co.</td>
<td>295 &amp; Chestnut St., Louisville, Ky.</td>
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<tr>
<td>Aetna-Cornell Co.</td>
<td>40-35 Liberty St., New York, N. Y.</td>
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<td>Aladdin Radio Industries</td>
<td>448 W. Superior St., Chicago, Ill.</td>
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<tr>
<td>Alvin Products Co.</td>
<td>236 Centre St., Brockton, Mass.</td>
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<tr>
<td>Allen-Gibbons Co.</td>
<td>13 Jackson Blvd., Chicago, III.</td>
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<tr>
<td>American Cariner-Call Corp.</td>
<td>39 West 69th St., New York, N. Y.</td>
</tr>
<tr>
<td>American Microphone Co.</td>
<td>4915 S. Western Ave., Los Angeles, Calif.</td>
</tr>
<tr>
<td>American Radio Hardware Co.</td>
<td>425 Park Ave., New York, N. Y.</td>
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<tr>
<td>American Record Co.</td>
<td>561 Broadway, New York, N. Y.</td>
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<td>Ansley Radio Corp.</td>
<td>420 West 23rd St., New York, N. Y.</td>
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<td>Artcuris Radio Corp.</td>
<td>720 Fraternity Ave., Newark, N. J.</td>
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<td>Artuson Manufacturing Corp.</td>
<td>4056 Diversey Ave., Chicago, Ill.</td>
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<td>Atlantic Microphone Laboratory</td>
<td>610, Gladstone, Youngstown, O.</td>
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<td>Atlas Sound Corp.</td>
<td>1431-39th St., Brooklyn, N. Y.</td>
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<tr>
<td>Birtch Radio Mfg. Co.</td>
<td>641 Hudson St., New York, N. Y.</td>
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<tr>
<td>Bogen Co.</td>
<td>1206 Broadway, New York, N. Y.</td>
</tr>
<tr>
<td>Bower Bros. Co.</td>
<td>310 W. Delmar Blvd., St. Louis, Mo.</td>
</tr>
<tr>
<td>B. F. Franks Co.</td>
<td>420 W. Division St., Chicago, III.</td>
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<tr>
<td>Briggs &amp; Stratton, Milwaukee, Wis.</td>
<td></td>
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<tr>
<td>Brush Development Co.</td>
<td>230 &amp; Perkins Ave., Cleveland, Ohio.</td>
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<tr>
<td>Cannon Co.</td>
<td>600 East Keefe Ave., Milwaukee, Wis.</td>
</tr>
<tr>
<td>Central Communications, Inc.</td>
<td>194 W. 23rd St., N. Y. N. J.</td>
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<tr>
<td>Claustroph Corp.</td>
<td>110 Davenport St., Stamford, Conn.</td>
</tr>
<tr>
<td>Claron Radio, Inc.</td>
<td>30 East 2nd Ave., Chicago, Ill.</td>
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<tr>
<td>Clearstat Mfg. Co.</td>
<td>805 N. Sixth St., Brooklyn, N. Y.</td>
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<tr>
<td>Continental Radio Corp.</td>
<td>2815 W. 5th St., Chicago, Ill.</td>
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<td>Consolidated Radio Products Co.</td>
<td>618 W. 8th St., Chicago, Ill.</td>
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<td>Continental Carbon Co.</td>
<td>12801 E. Jefferson St., Detroit, Mich.</td>
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<tr>
<td>Continental Radio &amp; Televis Corp.</td>
<td>325 W. Huron St., Chicago, Ill.</td>
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<tr>
<td>Cornell-Dubilier Corp.</td>
<td>765 South Fullerton, N. J.</td>
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<tr>
<td>Cornish Wire Co.</td>
<td>30 Church St. New York, N. Y.</td>
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<tr>
<td>Croxley Radio Corp.</td>
<td>1959 Aristocrat St., Cincinnati, Ohio.</td>
</tr>
<tr>
<td>Crowe Name Plate &amp; Mfg. Co.</td>
<td>1740 Grace St., Chicago, Ill.</td>
</tr>
<tr>
<td>Curtis Reader Mfg. Co.</td>
<td>505 W. 30th St., Cleveland, Ohio.</td>
</tr>
<tr>
<td>Detroit Radio Corp.</td>
<td>4728 Auburn Ave., Detroit, Mich.</td>
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<td>Deutschmann Corp.</td>
<td>103 E. Jefferson St., Chicago, Ill.</td>
</tr>
<tr>
<td>Detroit Mfg. Co.</td>
<td>500 Fifth Ave., New York, N. Y.</td>
</tr>
<tr>
<td>Electro-Acoustic Products Co.</td>
<td>2311 Broadway, New York, N. Y.</td>
</tr>
<tr>
<td>Eastern Adverse Co.</td>
<td>432 E. Story Ave., Brooklyn, N. Y.</td>
</tr>
<tr>
<td>Electro-Voice Mfg. Co.</td>
<td>324 Colfax Ave., South Bend, Ind.</td>
</tr>
<tr>
<td>Electronic Laboratories, Inc.</td>
<td>220 W. New York St., Indianapolis, Ind.</td>
</tr>
<tr>
<td>Electronic Manufacturing Co.</td>
<td>420 S. 13th St., Los Angeles, Calif.</td>
</tr>
<tr>
<td>Emerson Radio &amp; Phonograph Corp.</td>
<td>111 Eighth Ave., New York, N. Y.</td>
</tr>
<tr>
<td>Eric Wallstrom Corp.</td>
<td>284 W. 12th St., Erie, Pa.</td>
</tr>
<tr>
<td>Fada Radio &amp; Electric Co.</td>
<td>30-20 Thomson Ave., Long Island City, N. Y.</td>
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<tr>
<td>Fairchild Electric Appliance Inc.</td>
<td>216 North Broadway, Indianapolis, Ind.</td>
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<tr>
<td>Federal Sales Co.</td>
<td>1076 Jefferson, Chicago, Ill.</td>
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<tr>
<td>Ferguson Radio Corp.</td>
<td>746 Broadway, New York, N. Y.</td>
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<td>Fierro &amp; Co.</td>
<td>4500 Augusta Blvd., Chicago, Ill.</td>
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<tr>
<td>General Electric Co.</td>
<td>1285 Boston Ave., Bridgeport, Conn.</td>
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<tr>
<td>General Electric Co.</td>
<td>2068 N. Crawford Ave., Chicago, Ill.</td>
</tr>
<tr>
<td>General Industries Co.</td>
<td>207 E. 22nd St., New York, N. Y.</td>
</tr>
<tr>
<td>Gehrke Manufacturing Co.</td>
<td>119 Fourth Ave., New York, N. Y.</td>
</tr>
<tr>
<td>Goff &amp; Co.</td>
<td>600 S. Poiria St., Chicago, Ill.</td>
</tr>
<tr>
<td>Holcomb Corp.</td>
<td>500 Ravenswood Ave., Chicago, Ill.</td>
</tr>
<tr>
<td>Holcomb Industries Co.</td>
<td>12 E. Berry St., Indianapolis, Ind.</td>
</tr>
<tr>
<td>Howard Radio Corp.</td>
<td>1311 2nd Ave., Chicago, III.</td>
</tr>
<tr>
<td>Jentac Corp.</td>
<td>500 2nd Ave., New York, N. Y.</td>
</tr>
<tr>
<td>Mainline Corp.</td>
<td>600 Fifth Ave., New York, N. Y.</td>
</tr>
<tr>
<td>National Telecommunications Co.</td>
<td>23 Park Place, New York, N. Y.</td>
</tr>
<tr>
<td>International Telephone &amp; Telegraph Co.</td>
<td>444-454 William St., New York, N. Y.</td>
</tr>
<tr>
<td>International Reversing Co.</td>
<td>401 North Broad St., Philadelphia, Pa.</td>
</tr>
<tr>
<td>Janette Mfg. Co.</td>
<td>200 W. 3rd St., New York, N. Y.</td>
</tr>
<tr>
<td>J. F. D. Manufacturing Co.</td>
<td>4111 Ft. Hamilton Pkwy., Brooklyn, N. Y.</td>
</tr>
<tr>
<td>Jennings Manufacturing Co.</td>
<td>2015 So. Dearborn St., Chicago, Ill.</td>
</tr>
<tr>
<td>Kato Engineering Co.</td>
<td>727 S. Front St., Mansfield, Minn.</td>
</tr>
<tr>
<td>Kregel Company</td>
<td>500 W. 30th St., Chicago, Ill.</td>
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<tr>
<td>Krenaker &amp; Co.</td>
<td>388 W. 13th Ave., Newark, N. J.</td>
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<tr>
<td>Kreider Co.</td>
<td>2610 W. 17th St., New York, N. Y.</td>
</tr>
<tr>
<td>Lauenberg Radio Corp.</td>
<td>907 N. Washington St., Indiana, Ind.</td>
</tr>
<tr>
<td>Lea Development Co.</td>
<td>212 W. 65th St., New York, N. Y.</td>
</tr>
<tr>
<td>Leotone Radio Co.</td>
<td>655 Olive St., Chicago, Ill.</td>
</tr>
<tr>
<td>Majestic Radio &amp; Televis Co.</td>
<td>5409 Rockwell St., Chicago, Ill.</td>
</tr>
</tbody>
</table>

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**Microphone stands**

**Radio Books and Manuals**

**Gas Engines**

**Radio School**

**Tape Code Recording Equip.**

**Short Wave Converters**

**Transmitting Equiv.**

**Retail Supply Houses**

**Radio Radio Today**

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**Continued on page 69**
HERE'S ONE lad who'll rest well tonite—secure in the knowledge of a job well done. He uses Cornell-Dubilier condensers exclusively—he KNOWS they're the BEST.

If a task is worth doing at all—it's worth doing well. And servicing jobs "stand up" when CD condensers go into 'em.

No matter what the radio circuit—there's a rugged, dependable CD condenser designed for it. The use of C-D in servicing means . . .

Profits - Satisfied Customers - Peace of Mind

For complete description and listing of Cornell-Dubilier capacitors, send for Catalog No. 151A today. Available at all C-D authorized distributors.

WORLD'S LARGEST AND OLDEST EXCLUSIVE MANUFACTURERS OF CAPACITORS
Why waste both in defective tube replacements, when there's a line like Sylvania on the market?

Poorly-functioning or defective tubes can raise the devil with a retailer's business. Tube replacements waste time and—according to that old proverb, Time itself is money.

Why trifle with so important, so vital an item? Thousands of dealers have found that the most profitable line of tubes—right now, and in the long run too—is Sylvania. Profit by their experience—and you'll make a profit, direct and indirect, on every tube you sell. Scores of exacting tests make sure that every Sylvania tube will back you up, through thousands of useful hours, with sound, dependable performance.

Rid yourself of time-killing, money-wasting tube troubles! Switch to the Sylvania line! For complete sales and technical information, write to the Hygrade Sylvania Corporation, Emporium, Pa.
HIGH RESISTANCE VOLTAGE MEASUREMENTS

* Further radio set analysis based on using each tube as a vacuum tube voltmeter has resulted in the development of a voltage measurement method that is accurate and easy to use.

In the previous article a voltage measurement method was described that would give the serviceman a rough indication of what the voltages were.

By the use of small battery, linear potentiometer, and a voltmeter connected according to the accompanying diagram, it is possible to get extremely accurate measurements of grid voltages.

When the grid is negative with respect to ground, the positive side of the battery is connected to ground and the lead from the potentiometer slider is connected directly to the grid.

The slider contact is varied until the plate current (or cathode) reads the same as it did before the connections were made. When the current is the same, it indicates that the applied voltages are again normal. The grid voltage can then be read directly on the voltmeter.

Care should be taken when connecting the device to power tubes that the grid bias is not reduced too greatly so as to cause excessive plate current. Usually the potentiometer can be adjusted to approximately the correct voltage before connections are made. This device is simple and easy to use and costs practically nothing to build since a spare voltmeter is usually at hand. A switch should be used to open the battery circuit when the device is not in use.

* New plan by Supreme is to issue certificates to those servicemen owning a minimum of certain types of instruments. Copy states that Supreme's engineers believe that the owner of the certificate has the necessary technical instruments to properly service and align radio sets and similar equipment.

Complete details as to requirements and methods of qualifying are available from the company's Greenwood, Miss., offices.

* A new "Hamannual" will be ready for Oct. 1 distribution by Standard Transformer Corp., 850 Blackhawk St., Chicago. It's a combination amateur catalog and construction manual, with circuits in blue-print style.

* Solar Mfg. Corp., 599 Broadway, New York City, is distributing an elaborate 85-page booklet titled "Capacitors." The catalog, No. 3-C, has a list price supplement included.

--

Serviceman Will Hayward of Chicago knows his condensers as evidenced by his winning Sprague's contest by estimating within 1%.

HOW would you like to have a good stock of nationally advertised radio tubes on your shelves—without paying a nickel until they're sold?

That's how the Tung-Sol Consign-ment Plan works for radio dealers who can qualify. You don't pay for the tubes until you've collected your cost and profit. That's worth looking into—to see if you are eligible for this unique plan.

More than 8,000 dealers have qualified—and are going places in the tube business.

Full profit—no investment—no dead numbers to write off a loss. Easy to sell, because your trade knows that Tung-Sol means top flight tube efficiency.

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

The Tung-Sol franchise is still available to a limited number of dealers who can qualify. Write for the name of your nearest wholesaler.
Curtain Goes Up on These Exhibitors at NY Parts Show,
Commerce Hall, Oct. 1-3.

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Colorful Displays

* Two displays, a 14-foot permanent illuminated floor display and a smaller table model, one, are being made available to Philco to those dealers who purchase fixed amounts of merchandise.

The larger one forms a gold and purple stage setting for two floor models. It has removable sections for table models, figures dramatizing "No Squirt—No Stoop—No Squirt," concealed flasher bulb and a cut-out model of an attractive girl.

Smaller one fits against the wall, will display up to 6 table models among shelves and panels finished in ivory-purple and ivory-white.

"Philco Week," which the company has made a national event, is set for Sept. 16th to 25th. Magazines, newspapers, radio, billboards and extra dealer promotion helps are parts of this campaign.

Post Card Cartoons

* Series of four direct mail post cards made up in cartoon style are being made available to dealers by Stromberg-Carlin. Each card carries the dealer's name and address and some new receiver feature in a lively way.

* Four new directors of the RCA, chosen from the parts division, are S. I. Cole, president of Aerovox Corp.; Jerry Kahn of Standard Transformer Corp.; R. E. Osmond of Centralab; and Ray F. Sparrow of P. R. Mallory Co.

* M. W. ("Tommy") Thompson is the new advertising and sales promotion manager for General House-hold Utilities Co., named by president Harry Alter. He takes the place recently occupied by Tod Reed, now a member of the sales staff of the magazine "Look." Thompson's wide experience includes work with such radio firms as DeForest, RCA, Majestic, and Stewart-Warner. At his new job, he will again be working with Majestic associates W. C. Gorman, Harry Alpert, Sid Aronson, J. J. Davis, Frank Hart, Ray Shadley, et al.

* Elaborate new display and salesroom has been opened by Wholesale Radio Service Co., Inc., at 110 Federal St., Boston, Mass. Michael Scott is in charge. The 16-year old firm, which headquarters are at 100 Sixth Ave., New York City, also has branches at Bronx, N. Y.; Chicago; Atlanta, Ga.; Newark, N. J.; and Jamaica, Long Island, N. Y.

* Charles B. Shapiro, general sales manager for Howard Radio Co., has finished a series of dealer and distributor meetings along with the company's western representatives C. C. Smoot and Wm. Swartz, in California cities.

* Board of Directors of Decca Records, Inc., New York, at a recent meeting declared a dividend of 30c per share to stockholders.

* Emerson has launched its biggest promotion campaign with ads in 8 of the country's leading popular magazines. New angle of the big drive is that each of the advertisements is a different presentation of the line. Store and local advertising tie-ins are suggested to distributors.

* C. W. Pederson has recently been named sales manager for the Fairbanks-Morse appliance line for Brown-Camp Hardware Co., distributors of Des Moines, Iowa.

* J. H. Weymouth has been named district sales manager for Texas and western Louisiana for Howard Radio Co.
G. Earle Walker, ably performing as merchandising manager for Crosley.

**Henry W. Faunttitch**, who has been with the Grunow organization since 1932, has been appointed chief of the refrigerator engineering staff of General Household Utilities Co.

**J. P. (Jim) Quam**, president of the Quam-Nichols Co., was a recent visitor to the New York trade, calling upon the manufacturers with Milt Schetcher and Bob Breuer, who represent Quam speakers in this territory. Mr. Quam found the set manufacturers working at capacity and took back with him to Chicago substantial orders to emphasize this optimism around the trade.

**R. B. Karet**, director of sales of the wholesale division of the Utah Radio Products Co., Chicago, has been out on the "firing line" several weeks, including in his itinerary Cleveland, Detroit, Pittsburgh and Youngstown. At Detroit, September 4-6, he attended the annual "ham" show, where a complete line of Utah amateur kits was exhibited by the Radio Specialties Co., Utah jobber.

**Charles B. Shapiro**, general sales manager of the Howard Radio Co., is back in Chicago after a trip to the Pacific Coast, where he found Howard jobbers keenly enthusiastic regarding the new line. At San Francisco, the Kaeppert-Burrer Corp., and at Denver, the Easy Housekeeping Shop, both report dealer interest in the new products far beyond their anticipation.

**C. L. Pugh** is the new sales promotion manager for Standard Transformer Corp. He has been in radio since 1923, leaves his post as parts manager of Detroit's Radio Distributing Co. for the new position with Standard.

**I. Isaacson**, of the Rodney House organization, New York, recently suffered painful injuries in an auto accident, but is now recovering nicely.

**Business done by the Wilbur B. Driver Co., Newark, N. J., has been added up for the first half of the year and found to be the best in the firm's history. Sidney A. Wood, sales manager, reports vigorous activity in the electrical appliance, resistance device and radio tube fields.**

**New production facilities have been installed at the Fairbanks-Morse plant in Indianapolis and the company is breaking all previous records in shipping radios.** On a recent day, according to W. Paul Jones, general manager of the home appliance division, shipments to distributors in the U. S. and 9 foreign countries passed any previous single-day business in the history of the company.

**Check-up by Charles Verschoor, head of the test department of National Radio Corp., reveals production of Kadette radio to be now at the highest point in history. Orders are currently running 3 times what they were last year, and about 3 times as many persons are employed at the plant as were on the payroll last year. A new addition to the Kadette plant is under construction.**

**Newcomer to the staff of Reiss Advertising, Inc., RKO Bldg., New York City, is Robert A. Burns. Reiss handles advertising for Bruno, Clair, Dubilier, Electric Soldering, Hytron, Pilgrim Electric, Presto, Wholesale Radio and Bud Radio.**

---

**QUALITY Proven by actual PERFORMANCE**

**ENDORSED BY LEADING SERVICE ORGANIZATIONS**

**FREE EQUIPMENT**

Let N.U. equip your service shop free with your pick of the latest and best radio testers. Free equipment includes: Tube testers, set analyzers, oscillographs, signal generators, modulators, meters and other servicing instruments. In shop equipment items available include stock cabinets, coats, display signs, electric clocks, etc. All items absolutely free the National Union Way.

**THE NATIONAL UNION WAY**

Through National Union's help, radio service dealers everywhere have been able to set up better equipped shops to do better work, also to obtain sales helps that produce more customers. National Union has constantly put the latest advances in scientific equipment as well as modern selling aids within reach of the service dealer. The National Union Deal calls for a dealer deposit which is rebated when the specified number of tubes have been purchased. Over 70,000 completed deals every dealer should investigate.

---

**THE ROAD TO BETTER BUSINESS**

1. National Union Radio Corporation, RT-937
   570 Lexington Avenue, New York City.

   I am interested in the following equipment

   Name

   Address

   City State

---

September, 1937 65
The Japanese stations on SELL Sentinel handle, when released, becomes one end of an intercommunicating system, with remote speaker in barn, garage or other distant location, up to 400 feet. Switch handle, when released, automatically returns to "radio" position, in which radio programs can be heard in home receiver as well as remote speaker.

SHORT WAVES FROM WAR ZONE

* It's up to the short wave fans on the Pacific Coast to tell the rest of the country what Chinese and Japanese stations are best received. The whole nation is eager for news of the Sino-Japanese brawl.

L. H. Sullivan, RCA executive, investigated Coast reception and found that these stations are the best bets:

- ZBW—Hong Kong  6.50 2.5 kw
- XGOX—Nanking  6.800  0.5 m
- JZK—Tokyo  11.800 50 m
  10.70 m

NEW YORK RADIO PARTS
 TRADE SHOW
PROGRAM AT COMMERCE HALL

FRIDAY, OCT. 1

8:00 p.m. Technical Session Opens "New RCA Amplifiers and Speakers"—M. M. Brishin, RCA Mfg. Co.

9:00 p.m. "Present and Future Education of the Radio Service Engineer"—John P. Rider, J. F. Rider Publications.

10:00 p.m. "New RCA Test Equipment and Methods of Use"—H. S. Schrader, RCA Mfg. Co.

SATURDAY, OCT. 2

8:00 p.m. "Transformers and Their Use"—Robert Kenyon, Kenyon Transformer Co.

9:00 p.m. "Application of Amplifiers to Musical Instruments"—Charles Comers, Hygrade-Sylvania Corp.

10:00 p.m. "Technical Features of Touch Tuning"—Earl Reihman, General Electric Co.

SUNDAY, OCT. 3

2:00 p.m. "Errors in Sweep Circuits and Their Correction"—Bruce Burlingame, Supreme Instruments Corp.

3:00 p.m. "Manufacturing Parts, Paging Systems and Amplifiers"—Pere Collison and John J. Wolfe, Stromberg-Carlson Telephone & Mfg. Co.

3:30 p.m. "Break-Down of Radio Receiver Troubles and Their Cures"—Allen Herzig, Service Magazine.

8:00 p.m. "Modern Test Equipment"—Kendall Clough, Clough-Lyvengle Co.

9:00 p.m. "Selling Sound"—Earl Sandwick, Electro-Acoustic Products Co.

9:30 p.m. "Servicing Automatic Tuning"—Charles Gerhard, Philco Radio and Television Corp.

Arthur A. Berard, president of the Sales Managers Club, eastern group, has called a joint meeting of the eastern and western Sales Managers Clubs at 10:30 a.m., Friday, Oct. 1, at the Victoria Hotel. At the same hour and day, Leslie Rocker, president of the National Association of Radio Parts Distributors, has called a meeting of regional delegates. Membership meeting of the organization is set for 10:30 a.m., Sunday, Oct. 3, also at the Victoria.

Offices of the Radio Parts Manufacturers National Trade Show are now located at 53 W. Jackson Blvd., Chicago.

* Group of new factory representatives have been announced by Howard Radio Co.: C. C. Sloat, Son Francisco, and Wm. P. Swartz, Los Angeles, to cover the West Coast; E. T. Rice, Boston, to handle the New England states; R. B. Nall and Jean Mannion, both of Chicago, to cover the Middle West.
We're glad most condensers are bought on the basis of hard-boiled engineering tests rather than advertising claims. When quality is allowed to speak for itself there can be no mistaking what it says. That's why Sprague Condensers are today specified by leading radio and electrical manufacturers throughout the world.

SPRAGUE
GOOD CONDENSERS—EXPERTLY ENGINEERED—
COMPETENTLY PRODUCED

SPRAGUE SPECIALTIES COMPANY, NORTH ADAMS, MASS.
Noise $$$

* AEROVOX interference analyzer diagnoses noises and recommends exact cures. Only $7.50 (Satisfaction's Net Cost).
* Carry a few AEROVOX noise filters. A type for every noise source or for use at set.
* Distribute the new AEROVOX Radio Noise folder to set owners. Saves the way for your call.
* Finally, think, talk and sell noise suppression. There's money in it for you.

New CATALOG . . .
Just issued. 32 pages. Entire section on noise suppression. Ask your jobber or write us direct for copy.

A group of South American boxers were recently guests at the Zenith plants, Chicago. Left to right: Maurao Russell, Brazil; Paul Bryant, assistant to Zenith president; Arquimedes Romind, Uruguay; and Alberto Festa, Buenos Aires. Back to each country went a new receiver.

Sprague Products Co., North Adams, Mass., has announced a price slash on their TC tubular condensers. Net prices of 15c have been reduced to 9c on condensers from .9001 mfd. to and including .01 mfd., and other price cuts have been announced. Salesmanager Harry Kalker states that the reduction enables service-

men to use the product on every replace-

ment job.

* Ralph J. Orner, active in radio engineering since 1930 when he worked with DeForest, has been named chief radio engineer for Gen-

eral Household Utilities Co., by W. C. Grunov, chairman of the board.

* Two new sales representatives have been appointed by Emerson Radio & Phonograph Corp., to call on distributors and to aid the job-

ber in his promotion work with the deal-

er. Harry Elkan will cover the area of Westchester County, N. Y., Altoona, Pa., and the state of Vir-

ginia. Carl Lewis will operate in North and South Carolina, Georgia, Alabama, Florida and Tennessee.

* H. C. Bohack Co., Inc., Brook-

lyn, N. Y., operators of 28 retail radio and accessory stores in the area, have started a drive on Fair-

banks-Morse radios. Campaign will feature newspaper ads, store displays, and display ads on the deliver-

y trucks of the 600 Bohack food stores. A. J. Steffens, Bohack exec, is supervising the event, with the help of FM district manager, Henry L. Itear.

* The huge daylight factory of Ruralite Engineering Co., Sioux City, Iowa, is now being equipped to produce 200 Ruralite units per day. According to Jimmie Jones, presi-
dent of the concern, the volume of recent orders for Ruralite wind chargers is the basis of the current expansion. The company has noticed lively demand for each of its 3 sizes of chargers, the Junior and the Senior, which are 6-volt units, and the new “1000” model which has an output of 1,000 watts—52 volts.

* Norman A. Tripplett, of the Triplett Electrical Instrument Co., Bluffton, Ohio, and Miss Marjorie Hofer of that city were married at the local First Presbyterian church Aug. 1.
There's a 'NEW DEAL' in EQUIPMENT DEALS!

ARCTURUS makes it easier than ever before to obtain up-to-the-minute shop equipment!....

Here is your chance to keep your shop absolutely up-to-date with standard equipment. The new ARCTURUS PLAN makes it possible for you to get the equipment you need, even the most expensive unit—and get it quickly, with only a small down payment.

AND REMEMBER—when you buy ARCTURUS TUBES under this plan you pay STANDARD LIST PRICES, less standard discounts. We haven't added one cent extra. This means that ARCTURUS offers a sensational Equipment Deal and STILL SELLS TUBES AT STANDARD PRICES!

The small monthly tube requirements make it easy for you to own this equipment. Some deals require the purchase of less than one tube per day! No need to "oversell" yourself on tubes.

Equipment offered includes Tube Testers, Set Testers, Oscilloscopes, Analyzers, Signal Generators, Combination Unit Assemblies, Portable Typewriters, a Genuine Neon Sign and a long list of other high quality shop equipment.

MAIL THIS COUPON FOR DETAILS

Radio Tube Co., Newark, New Jersey.

Gentlemen:

Send complete details of your new Equipment Deal.

[ ] I am a Dealer
[ ] I am a Serviceman

Name
Address
City State

September, 1937
Distribute some literature on this new instrument.
You will be surprised at the interest in home recording among your own customers.
A supply of 3½" by 6½" folders will be sent you free upon request.

President S. I. Cole of Aerovox is host at a Maine outing: left to right, bottom row, Howard Rhodes, Aerovox; Bert Champlain, Tury Durin Co.; Walter Lasker; Charley Golenpaul, Aerovox; Aaron Lippman. Back row, Jack Simberkoff; Lew Harry, Harry & Young; Fred Ellinger; Harry Gerber; S. I. Cole; Morris Green, Radio Electric Co.; Bill Schoning, Lukko Sales; Hall Gayhart, Radio Parts. In the rear, Jules Benek.

* Detrola Corp., Detroit, Mich., makers of Detrola radio and refrigerators, have moved to a new modern plant which covers 7 acres of ground and which will allow the firm to meet greatly increased production schedules. Detrola has recently announced its new policy of national distribution through distributors and dealers, and will continue its expansion.

* Standard Electrical Products Co., St. Paul, Minn., now occupy new offices and factory at 317 Sibley St. Company is developing and will soon begin production on a line of variable voltage transformers for industrial and laboratory use. Trade name for all products is Starco.

* Covered Wagon Co., Mt. Clemens, Mich., manufacturer of trailers who have made one specially designed for RCA, report that following the wide use of the trailers by distributors there is now a lively interest among dealers.

* A service organization which contacts 1,500 small town newspapers throughout the U. S. has been employed by International Radio Corp. to offer to dealers, through local newspapermen, mats of ready-made dealer Kadette ads. This move supplements Kadette's regular mat service through jobbers.

* Alfred Crossley has been named as special consulting engineer for Belden Mfg. Co., Chicago. Crossley has been active in radio for more than 25 years; he has had experience with several large radio firms, was formerly a U. S. Naval radio officer and is a holder of patents here and abroad. Belden and its new appointee are working on the design and production of advanced types of aerial systems and transmission lines.

* Wincharger Corp. has announced a new sales set-up on 22-volt, 650-watt giant Winchargers. To act as dealers, Wincharger Service Stations are being authorized all over the nation, under a new system which has hiked the profit involved in selling the equipment. The plant chargers are merchandised as complete farm power plants which provide enough power to light a house, barn and out-buildings, as well as to run radio, washer, vacuum, iron, water pump, small motors and other appliances. Wincharger officials recently found that in the 30-day period ending Aug. 15, sales of these chargers were unprecedented.
"Gene" Carrington, veteran sales exec, has joined Clough-Brengle, to head a new division soon to break.

* Wholesale Radio Service Co., 100 Sixth Ave., New York City, has announced a "best letter" contest in which $1,000 in merchandise vouchers will be given away. Contest ends Oct. 31. Letters are to be written on "Why I Have Found the Wholesale Radio Service Catalog Valuable," and will be judged by Joseph Reiss, president, Reiss Advertising agency; Lawrence Cockaday, editor, Radio News, and Dr. O. H. Caldwell, former Federal Radio Commissioner and editor of Radio Today. First prize will be $250; second, $150; third, $100, and 50 other prices of $10 each.

* Wright-DeCoester of St. Paul, Minn., have published a bulletin (A16) on "Methods of calculating load impedance and power division for multi-speaker installations." Free to sound men upon application.

* Opening 3 additional offices during the first two weeks of September, C.I.T., national sales finance company, will have 195 local offices operating in the United States and Canada by the middle of that month. Most recent openings are in Fayetteville, N. C., Johnstown, Pa., and Midland, Tex. Canadian Acceptance Corp., the C.I.T. affiliate, now has 15 local offices since the addition of one in Edmonton, Alberta. The other 180 C.I.T. local offices are all in the United States. Marked increase in offices is due to the greater dealer interest in the C.I.T. Budget Plan for their installment sales and C.I.T.'s policy of affording localized service with national strength. Among the C.I.T. local offices opened in August were those at Corpus Christi, Tex., Quincy, Ill., Long Beach, Calif., Green Bay, Wis., El Dorado, Ark., and Flinthill, Mich. Offices opened since June 1st include Decatur, Ala., Stanford, Conn., Twin Falls, Idaho, Asbury Park, N. J., Shreveport, La., Presque Isle, Me., and South Bend, Ind.

THE 1938 CHALLENGER LINE of

GREBE RADIOD

The Greatest Line in Grebe's 25 Year History!

In its long history of radio manufacturing, Grebe has given the trade many outstanding lines. But, nothing like the present one! Pictures and words cannot do it justice. You'll be thrilled by the beauty, the marvelous new dial, the superb tone quality and the easy selling of the new Challenger line.

Modern to the minute in styling and features, the new line gives you everything that a winning line should have. No experiments or tricky innovations; no disappointed customers. Every Grebe owner is a Grebe salesman. Every Grebe set will uphold your name and ours.

Get the Grebe Line NOW, Before it is too late! Distributors and dealers are urged to wire or write for full details of the line. Learn all about Grebe's liberal dealer policy, liberal discounts, and the exclusive franchise that protects every dealer, giving him the full benefit of his effort. Find out about the Grebe cooperative plan of local advertising.

THE LINE IS COMPLETE

Over 50 models, from 5-tube compacts to 16-tube automatic combinations. AC—AC-DC—Battery sets. Radio phonograph combinations, 1 to 3 band shortwave and broadcast sets, some including European long-wave.

MAIL COUPON TODAY

Grebe Manufacturing Company,
119 Fourth Avenue, New York, U.S.A.

Send full details of 1938 Challenger Line.

Name
Street

City State

I am Dealer Distributor

The World Knows No Higher Standard Than Grebe Quality

JANETTE ROTARY CONVERTERS
FOR CONVERTING DIRECT TO ALTERNATING CURRENT

- Built in capacities from 35 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 sound apparatus—in use in all countries of the world—Send for prices and data.

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

BOSTON—NEW YORK—PHILADELPHIA—CLEVELAND—MILWAUKEE—LOS ANGELES
DETOUR—SEATTLE

September, 1937
Vital Merchandising Data and Helpful Selling Hints Condensed Into One Handy Pocket Manual

THE industry's No. 1 magazine—RADIO TODAY—now offers you a valuable PLUS service, one that will help make your saleswork more effective and increase your profits.

Every monthly issue of RADIO TODAY gives you a tangible and timely magazine service, with special attention to merchandising matters, but you also need reference material of the kind that appears in the Radio Dealers' Handbook. It will cut waste time, put an end to needless troubles and prevent the loss of sales.

The Handbook is sent FREE as an extra service with new subscriptions or renewals to RADIO TODAY. It is not SOLD and is obtainable in no other way. In addition, you will receive, free, two issues of Selling Sound—

SOME OF THE FEATURES:

Set Specifications • Trade-in Allowances • Cost of Doing Business • Table of Salesmen's Wages • Markup Table • Calendar of Selling Opportunities

a new promotional magazine and handbook of sound, published semi-annually as a separate section of RADIO TODAY.

Sound is no longer a radio sideline. It is a major specialty. If you are not selling sound, but planning to do so, this new all-sound magazine will help you get started. If you are already in the business, Selling Sound will help you tremendously.

ORDER AT ONCE • EDITION STRICTLY LIMITED
Enter your subscription now and you will receive the greatest bargain in radio publishing.

1 Issue of RADIO DEALERS' HANDBOOK
2 Issues of SELLING SOUND
12 Issues of RADIO TODAY

$1.00
Tube huddle—left to right, M. H. Willis, pres., Spokane Radio Co.; Paul Ellison of Hygrade; and A. F. "Speed" Horton, also of Spokane, Wash.

* National advertising campaign of $100,000 proportions has been undertaken by Wincharger Corp., Sioux City, Iowa. Designed to sell new battery radios to the farm market and intended to send prospects direct to radio dealers, the ads will accent "new worlds of radio enjoyment open to farmers, with the new 6-volt battery radios powered by Wincharger." They will appear in farm papers, radio publications, local newspapers, direct mail, state, county and local fairs and consumer exhibits. Ads in 2,522 local newspapers will read "clip this ad... it's worth $7.50 on the purchase of a new farm radio equipped with Wincharger."

* Fred K. Stable, Inc., Denver, Colo., has been named as sales representative for Allen B. DuMont Laboratories, Upper Montclair, N. J. Stable will handle the DuMont line of cathode-ray tubes, oscillographs, etc., in the sales areas of Wyoming, Colorado and New Mexico. DuMont recently displayed their resonoscope at the New York City convention of the National Association of Music Merchants and attracted great attention in the musical world with the cathode-ray pitch indicator. Lester B. Holmes, DuMont engineer in charge of the display, reports a new pitch-consciousness among musicians.

* Entire personnel of Ward Products Co., Cleveland, were recently treated to a full day frolic at Willo Beach, on Lake Erie. Three hundred of the "aerial makers" enjoyed games and contests at this the first of a series of annual picnics.

* Newcomer to the sales staff of Northern Radio Co., Admiral jobbers of Seattle, Wash., is C. W. " Wes" Ball, a vet radio man who will call on the trade in western Washington.

Meissner Wave Traps are standard in many De Luxe custom built receivers. Catering to the world's largest set manufacturers, and working in close harmony with their laboratories, we offer here the finest in Wave Traps.

**DUAL UNIVERSAL MODEL**
The only wave trap that will eliminate both periodic and intermodulation interference at all times. Less than 2000 Hz. @ 1000 kHz in standard. Equally adjustable for quick changes. (See Set-Maker Wave Trap brochure).

- **Cat. No. 8485**
- **List Price**...

**DUAL BROADCAST ONLY MODEL**
Similar to above except to be used for broadcast only, where the signal strength of the interfering station is unusually large.

- **Cat. No. 8485**
- **List Price**...

**STANDARD WAVE TRAP MODELS**
These traps are designed for use where aural coupling is required. There is a trap for every purpose from 1,000 kc. to 20 meter band. Because of low prices they are ideal for low priced receivers.

- **LOW FREQUENCY MODEL—600 to 700 Kc.**
  - **Cat. No. 8475**
- **MEDIUM FREQUENCY MODEL—650 to 1000 Kc.**
  - **Cat. No. 8480**
- **HIGH FREQUENCY MODEL—950 to 1600 Kc.**
  - **Cat. No. 8481**
- **20 METER MODEL—14.43 to 13.95 Mc.**
  - **Cat. No. 8482**
- **40 METER MODEL—7730 to 7000 Kc.**
  - **Cat. No. 8483**
- **80 METER MODEL—350 to 3610 Kc.**
  - **Cat. No. 8484**
- **160 METER MODEL—2100 to 1713 Kc.**
  - **Cat. No. 8485**
- **456 Mc. I.F. MODEL—Cat. No. 7525**

**ALL STANDARD MODELS**
**List Price**...

Meissner Mfg. Co.
Mt. Carmel. Illinois

---

**JFD AUTO RADIO ANTENNAS**

13 MOST POPULAR TYPES

Double grip all rubber covered running board antennas. . . . Cow horn antennas. . . . Four different tappers—fit all cars. . . . Door hinge antennas. . . . Bumper antennas. . . . Special installers for Oldsmobile and Buick cars.

Ask for Our Complete Catalog

J. F. D. Manufacturing Company
4111 F. Hamilton Parkway
Brooklyn, N. Y.

September, 1937
JIM QUAM
Says

You parts dealers have quite a job on your hands at that. You are fighting on three fronts today. What impressed me was that you followed not only your usual advertising, but also were building items out of your stock. You must stock to be competitive. When someone asks for a brand you don't stock, you're in a bind. Get the brand, a technician and a diplomat— all rolled into one. To succeed at this you recommend that you size up the jobbers in the area. If you don't have to keep your name on their list, you are in the seven-eighths to one of three categories—only it has to be twice as good.

QUAM-NICHOLS CO.
33rd Place & Cottage Grove
1674 Broadway
CHICAGO
NEW YORK

QUAM SPEAKERS

NEWS AT WHOLESALE

PARTS-JOBBERS' PRESIDENT
BACKS SINGLE-LINE IDEA

* "In answer to Radio Today's question, 'Should the radio parts jobber push only one line?' it is my emphatic personal belief that the most successful road to follow is to definitely concentrate on a single product," declares Leslie C. Rucker, parts jobber of Washington, D. C., and president of the National Radio Parts Distributors' Association.

"If we are selling the best there is no reason for us to sell a second best, because then we only cut down the turnover on our first choice. If we do find it necessary to carry a second line of a real low price type of merchandise then I definitely feel that the smallest possible quantity should be stocked in order to 'have it' but not to 'push it.' After all, profits are made through turnover, and turnover is gained through buying and selling, therefore, if we concentrate our efforts behind one name, one product of a kind, one inventory and continually buy and sell that product, believing that we are handling the heat that money and science can build, then we are very definitely on the road to bigger and better profits."

* R. H. McManus, Inc., Westinghouse jobber, attracted wide attention recently in the New York metropolitan area with a 2-day showing of 1938 Westinghouse radios, proctor appliances, 1900 washers, etc. The first day, the show was staged at the Hotel Astor, New York City; the second event was held at the Hotel St. George, Brooklyn, N. Y.

* Additional new jobbers for Admiral have been announced by Continental Radio & Television Co. These include Henderson Bros., Sacramento, Calif.; Southwest Radio & Equipment Co., Oklahoma City, Okla.; Macintosh-Dupan, Inc., Portland, Me.; Haw Hardware Co., Ottumwa, Ia.; and Capital Radio Wholesale Co., Washington, D. C. An Admiral distributor at Flint, Mich., the Radio Tube Merchandising Co., has been given additional territory including several counties in central Michigan and Lansing. This firm recently held a big dealer showing.

* At C. M. McClung & Co., the Knoxville, Tenn., jobbers for Pullbanks-Morse, Ken W. Shirley has been appointed dealer sales counsellor for the McClung refrigerator territory.

* Added to the personnel of Valley Radio Distributors, the Clarion jobbers of Appleton, Wis., is Val Preissner, in the wholesale service department. Company also has a new secretary, Miss Ziechert.

* Pitt Appliance Co. is the new firm formed to distribute Grumow products in the Pittsburgh, Pa., area. Pitt Co. is headed by J. P. Miller, who has been in charge of the branch of General Household Utilities Co., formerly serving the territory.

* Over 700 Massachusetts radio dealers went to the big Magic Keyboard show staged recently by Hunting-Merquand, Inc., the Boston, Mass., jobbers for Stewart-Warner. Meeting turned out to be one of the liveliest affairs of the season.
CONTINENTAL CARBON

Quiet, Insulated, and Reliable RESISTORS

CONTINENTAL CARBON doped resistors are impervious to moisture; conveniently small and noiseless in high gain circuits. They are recommended for use in compact amplifiers and radios.

M3, 5" x 1/2" 3 Watt, $3.00
M1, 1" x 1/4" 1 Watt, .20
M1/2, 1/4" x 1/4" 1/2 Watt, .17

CONTINENTAL CARBON doped resistors have withstood the tests of time in actual service. Where space permits, ceramic insulated resistors are recommended for the utmost in stability and long life. In close tolerance applications, these resistors are the choice of leading test instrument manufacturers and meters.

H3, 3" x 1/2" 5 Watt, $5.00
E3, 2" x 1/2" 3 Watt, .30
D3, 1 1/4" x 1/4" 1 Watt, .20
G4, 1" x 1/4" 1/2 Watt, .17

Send for Bulletins 104B, 105, 102A, and 101A

CONTINENTAL CARBON Inc.

13910 LORAIN AVENUE, CLEVELAND, OHIO
Also Toronto, Canada

TRIAD

TRIPLE CHECKED RADIO TUBES

IMPROVE YOUR RECEPTION

Used by Leading Set Manufacturers and Preferred by Expert Servicemen.

A PROFITABLE LINE TO HANDLE

Write for Particulars

TRIAD MANUFACTURING CO.
INCORPORATED
PAWTUCKET RHODE ISLAND

The Quality Name in Radio Tubes

September, 1937

75
ONAN ALTERNATING CURRENT PLANTS
operate AC RADIO, PUBLIC ADDRESS, SOUND CAR and MOTION PICTURE EQUIPMENT . . . . . . . . .

These PLANTS supply electricity for Domestic and Commercial places where current is not available. Operate Water System, Refrigerator, Household Appliances.

SIZES TO SUIT EVERY PURPOSE:
Operate on Gasoline, Gas or Distillate. Sizes 350 to 50,000 watts, $110 and up. Also 12, 22 and 110 volt, DC Models. All Models furnished complete, ready to run. Write for Details.

D. W. ONAN & SONS
571 Royalton Ave., Minneapolis, Minn.

Quick-Touch DIAL
1938 KNIGHT 5 TUBE SUPERNET

A REAL LEADER!
Here's a new set that's perfect for a price-leader! An amazing performer with latest features. New Quick-Touch Dial—tunes 12 stations in 12 seconds! R.C.A. and Hazeltine licensed 5-Tube AC Superhet circuit, 4¾" full-vision dial. Tune control, A.V.C., etc. Gets police calls. Priced low to sell. See this set and 64 other new 1938 KNIGHT "Extra-Value" Radios in ALLIED's new 1938 Catalog—just out. Investigate this great line of radio trend-makers today!

New RADIO SUPPLY GUIDE Just Out!
Write for the new 1938 ALLIED Radio Catalog—your COMPLETE Buying Guide. 164 pages packed with Everything in Radio! Over 12,000 parts, latest test equipment, new KNIGHT Infrared Sound Systems, books, tools, etc. All standard lines at prices that save you money. Send coupon now!

ALLIED RADIO CORP.
Dept. 154 E. 833 W. Jackson Blvd.
Chicago, Ill.

H. W. Forman, Pittsburgh, Kan., jobber, who supplied winner G. F. Chastain in Raytheon's recent contest for servicemen.

* E. Garnich & Son Hardware Co., Ashland, Wisc., jobbers for Fairbanks-Morse, have announced the addition of Ben Stoltzman as specialty man.

* Appointed by J. H. Larson Co., the Hudson, Wisc., jobbers, to handle the company's operations in Eau Claire, Wisc., is E. E. Miller.

* Hudson Valley Asbestos Corp., Albany, N. Y., distributors for Stromberg-Carlson, have completed a successful trailer sales tour among dealers in eastern New York. "Bill" Fraser, Stromberg field engineer, accompanied the trailer. Mr. Pursel, Hudson Valley president, reports that the tour opened several new accounts, and also that there's a trend to higher-priced models.

* Four new distributors have been announced by Detrola Radio Corp., Detroit, Mich.: Elliott-Lewis Elec. Co., Inc., Philadelphia, Pa.; Koumons-Mohawk Hardware Co., Huntington, W. Va.; Refrigeration and Appliance Corp., Cleveland, Ohio; Sanford Corp., New York City. Lively activity on Detrola lines is scheduled for these areas, with emphasis on the company's special electric tuning.

* Two new accounts who have recently lined up with Arvin are A. Baldwin & Co., New Orleans, La., and A. S. Hatcher & Co., Macon, Ga. Also, to distribute Arvin throughout the north Alabama area, The Radio Elec. Co., Montgomery, have opened a store at Birmingham. New models are being added to the Arvin line of home sets and a big Fall campaign is under way in national magazines.

* Two new salesmen have been added to the sales staff of Dakota Radio Corp., the Yankton, S. Dak., distributors for Sparten, Clarion and Wilcox-Gay.

(To page 78)
Announcing
THE NEW RIDER MANUAL

The Greatest
ADVANCE SALE of any RIDER MANUAL

Enthusiastic acclaim even before it was published,
that is the story of Volume VIII, our November 10th.
Jobbers ordered heavily merely from a decision
of its contents. They visualized the value of the
"plus" service which it offered to servicemen.
VOLUME VIII IN TWO SECTIONS
1. MANUAL. Over 1000 pages giving complete
circuit information on 1937-38 models of over
a hundred manufacturers.
2. INDEX. Of about 175 pages makes it easy to
quickly find the data in all Rider Manuals.
3. "HOW IT WORKS". A separate section giving
a description of the Technical Features of new
sets, such as A. F. C.—automated tuning, etc.

PRICE $5.00
ORDER TODAY FROM
YOUR JOBBER

JOHN F. RIDER, Publisher,
1440 Broadway, New York

VOLUME VIII
Rider
MANUAL
OUT NOVEMBER 10TH
OVER 1600 PAGES
PLUS THE NEW SUPPLEMENT

It's here
RURALITE
LEADERSHIP IN
DEALER PROFIT
QUICK TURNOVER
FINER
QUALITY
EXCLUSIVE TERRITORY

MODEL
"1000"
32 VOLT
RURALITE

You will search in vain for a
more efficient and more econ-
nomical 32-40-volt wind elec-
tric plant than the Ruralite Model
"1000". No other 1000-watt
charger performs so nicely and operates so
economically.

Write
RURALITE ENGINEERING CO., SIOUX CITY, IA.
for literature and information on 32-volt and 6-volt
Ruralite chargers.

RURALITE PRODUCTS
STANDARD TRANSFORMER CORPORATION
850 BLACKHAWK STREET - CHICAGO

Announcing the
APPLE CART

"Who'd y' mean — upsetting the apple
cart?"

No! Stoncor is not upsetting prices, for the
Stoncor price policy is firm. Stoncor often gives
better-than-usual value, but by manufacturing
improvements, not shorter margins.

No! Stoncor is not violating the ethics they have
tried so hard to help establish in the industry.

But Stoncor is upsetting the apple cart with . . .
the most complete transformer line,
the most compact transformer line,
the finest new catalogs and manuals ever
issued by the industry,
and . . . a new brand of jobber promotion.

It's too long a story to tell, here. Ask our near-
est representative or drop us a line and say,
"Let's hear the news."

STONCOR
PRODUCTS
STANDARD TRANSFORMER CORPORATION
850 BLACKHAWK STREET • CHICAGO
METALEX HORNS

A Boon to the Sound Engineer

* Steel for Wear

Model 2800

* "EX" for Objectionable Resonances

The enthusiastic expression we are receiving regarding the Metalex Horn makes us want everyone interested in public address work, to try one.

These efficient exponential horns should not be confused with the so-called parabolic units. Spun from steel and coated with the material "Ex," these Metalex horns give almost unlimited wear and have no objectionable resonances. Stocked in 3 sizes.

The Model N112900—12" Nokiel speaker installed in a Metalex Horn gives almost unbelievable reproduction.

Write for interesting literature.

Wright-DeCoster Distributors are always anxious to cooperate.

WRIGHT-DeCOSTER, Inc.

2265 University Ave. St. Paul, Minn.

Export Dept.: M. Simon & Son Co., New York

Wm. F. Kelly Co., Toronto, Ont., Canada

Taylor & Pearson, Ltd., Edmonton, Alta, Canada

§ Michigan Detrola Sales Co., jobbers for Detrola, are currently working with the big Detroit retailers, Grinnell Bros., on a large-scale promotion of the line. Extra newspaper ads and special window displays are being used on Detrola electric tuning. World premiere of the line was held recently in Detroit by the jobber, with dealers of the state as guests. Representing Detrola Corp. were John J. Ross, president, who presented the new line, and Horace H. Skillman, sales director, who toasting mastered and outlined the national sales drive.

§ Z. C. M. I. Wholesale Hardware Co., Salt Lake City, Utah, one of the most famous marketing organizations of the country, have been announced as distributors for Fairbanks-Morse radios. Zion's Co-operative Mercantile Institute was founded by Brigham Young almost 70 years ago, has been doing a distinctive quality job in the Intermountain area ever since. The institute has created new divisions, expanded its scope, erected new buildings as it went along. Latest expansion is the announcement of a special new building for major appliances. Z. C. M. I., which has distributed FM refrigerators for some time, has as its motto, "Winning the West and the Public Confidence."

§ Stromberg-Carlson's contest for distributor salesmen will continue through Oct. 16. According to Jack Kennedy, sales promotion manager, there is a 100 per cent enroll-

Sentinel Radio presents Phil Krumm, left, purchasing agent, and Bill Schnell, chief engineer.

NOW

NEW THRILLS FOR FARM RADIOS

Any 110 volt A.C. Radio Operates From 32 volts D.C. with an ELECTRONIC CONVERTER

Also Models for Converting Any DC Voltage to 110 AC

- Now you can offer every farm with a 32V power supply any model 110 volt AC radio—with an Electronic Converter—that will give new radio thrills to your customers. They want big time reception and a wide selection of models. Moreover, none of the models offered can be limited to a few 32V sets that have no trade-in value and are obsolete when the high line arrives. The Electronic Converter not only opens the great remaining farm market for easy-to-sell 110V radios—but there is a nice cash profit in every converter you sell. Only Electronic Converters offer a record of proved satisfaction. Tested and recommended and used by leading manufacturers including Amos, Canadian Marconi, Closeh-Bredia, Eastman Kodak, Fairbanks-Morse, General Electric, Millionaire Radio, Ltd., Northern Electric, Rogers Majeestic, Simplex, Spartan, Spartan of Canada, Stewart-Wagner-Almrite of Canada, Stromberg-Carlson Tel., Mfg. Co., Stromberg-Carlson Tel., Mfg., Co. of Canada, Ltd., Universal Battery Corp., Zenith Radio Corp.

Tie with Electronic and boost your profits.

Write for full details.

ELECTRONIC LABORATORIES, INC.

Dept. RT-937, Indianapolis, Ind.
While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional chance or omission in the preparation of this index.

September, 1937
NEW BOOKLETS

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* Two-color bulletin describing features of the new DuMont all-purpose 5-inch oscillograph is available by addressing the Allen B. DuMont Labs, Inc., Upper Montclair, N. J.

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* Announced by International Resistance Co., 401 N. Broad St., Philadelphia, Pa., is a new handy pocket size volume control replacement guide of more than 21 pages. The guide lists IRC controls for replacement use on practically every standard receiver made up to the present time, and includes other tube, resistance calculation data, etc. Available from jobbers or direct from IRC.

THE BRUSH TRANSFILTER FILLS THE GAP

* The Transfilter fills the selectivity gap between the electronically tuned circuit and the quartz filter. A transfilter can be employed in any superheterodyne whose intermediate frequency amplifier can be tuned to 465 kilocycles.

Technical data on request. The BRUSH DEVELOPMENT COMPANY 3313 PERKINS AVENUE CLEVELAND, OHIO

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MORE SALES
MORE PROFITS
FOR RADIO DEALERS EVERYWHERE

It's a natural sales scoop — packed with sales features that GIVE YOUR CUSTOMERS MORE FOR THEIR MONEY. It's packed full with sensational features that give you more to talk about — more to demonstrate — more to sell — a bigger opportunity for profits.

**G-E TOUCH TUNING** — with 16 button controls. Fully automatic. Just press a button — that's all.

**G-E TONE MONITOR** — an amazing improvement...this newly perfected circuit corrects tone distortion.

**G-E LOUVER DIAL** — "easy to read as a ruler" from natural standing or sitting position. Incorporates VISUAL 4-point TONE and VOLUME CONTROLS.

**G-E "Custom-Craft" CABINETS** — smartly styled. Beautiful and rare veneers — plus 10 additional sales features.

GENERAL ELECTRIC IS BACKING ITS SENSATIONAL NEW LINE WITH THE MOST FAR-REACHING AND SWEEPING ADVERTISING PROGRAM IN ITS HISTORY

- **in MAGAZINES** — a smashing schedule that will help you sell G-E Radios.
- **ON BILLBOARDS** — throughout the nation the G-E Radio story is told to America's outdoor population.
- **in NEWSPAPERS** — Right now...637 newspapers in 473 cities are telling the G-E Radio story to still more millions.
- **with ACTION WINDOW DISPLAYS** — in thousands of windows telling the G-E Radio story.
- **ON THE AIR** — every week the G-E "Hour of Charm" tells the G-E Radio story to still more millions.
- **and 10 SALES-MAKING SALES PROMOTION ITEMS** — to help you sell G-E Radios.

GET ABOARD THE G-E BANDWAGON FOR EXTRA SALES AND PROFITS

Appliance and Merchandise Department, General Electric Company, Bridgeport, Connecticut

FOR REPLACEMENTS SPECIFY GENERAL ELECTRIC PRE-TESTED TUBES
Motorola

NETWORK TUNING
with 19 Electric Push Buttons

THE CLEVEREST AUTOMATIC TUNING IDEA ON THE MARKET

PUSH THE COLORED BUTTON FOR YOUR FAVORITE NETWORK PROGRAM

JACK BENNY

PUSH THE RED BUTTON for N.B.C. RED NETWORK PROGRAMS

IT'S QUIET
Motorola's Electric Tuning uses a quiet drive with no motor-gears to clash, grind or squeal.

IT HAS THE MOST BEAUTIFUL DIAL IN AMERICA
Motorola's Talking Dial and electric push-buttons are designed as a part of the whole cabinet and not as a mechanical after-thought. Women appreciate this harmony of design.

PUSH THE GREEN BUTTON for COLUMBIA NETWORK PROGRAMS

IT HAS COLOR
Color attracts the prospect's eye in the store and makes tuning easier in the home. The four colored Network Tuning buttons stand out as if alone; yet there are fifteen additional buttons for other stations, too.

PUSH THE YELLOW BUTTON for MUTUAL NETWORK PROGRAMS

IT'S TOOL-PROOF
Holding down all the buttons at once can do no damage. The motor simply stops at the first button it comes to. Pressing buttons rapidly in succession enables you to "scan the dial" with great speed and precision, with no possible harm to the mechanism.

PUSH THE BLUE BUTTON for N.B.C. BLUE NETWORK PROGRAMS

IT'S SET FROM THE FRONT
The buttons are "set" for their stations, from the front. And it doesn't require a service engineer for the job.

IT HAS FEWER PARTS
Fewer parts mean greater durability, less chance for trouble. There's only one switch for all buttons, instead of one for each.

SEE YOUR MOTOROLA DISTRIBUTOR FOR A CONVINCING DEMONSTRATION!

HOLLYWOOD HOTEL

LONE RANGER

CALVIN MFG. CORPORATION - CHICAGO
THOUSANDS of businesses today need sound! Thousands of buildings, halls, and entertainment places need sound installations! Tens of thousands of offices and plants need intercommunicating systems!

Yet because, in each case, some responsible person does not know about sound reinforcement, or does not understand how sound can be applied in that special instance, such sound sales are delayed.

True, the sound sales story is spreading rapidly. Tremendous progress has been made in the last three years. But the missionary work must be speeded up, if sound is to fulfill its destiny.

Every sound man, every radio man interested, every distributor, is needed to help tell the sound story by personal contact and verbal selling in his own town and circle. Even if a particular prospect does not yet seem quite ready, explain to him nevertheless the merits of sound, the advantages that would result from a proper sound job — and note how the period of waiting is thereby shortened before that sale is actually made!

For even running as it does, into tens of millions of dollars in yearly volume, the sound business is not yet big enough to enable manufacturers to do national advertising to reach the widely-scattered prospects for sound jobs.

So sound men themselves must take up this educational and publicity work for sound. Morning, afternoon and night, the effort must go on — "talking sound." By personal calls, by telephone, by letters, by circulars, every possible prospect must be told what sound can do for him.

Tell 'em about Sound! And ask them to Buy!

O. H. CALDWELL, Editor
The remarkable success at the Amperite Velocity is the result of Amperite's P.A. Policy—to give P.A. Men the finest possible microphones at prices no higher than what they would pay for other mikes. A letter from Ridleÿ's P.A. Systems is typical of the general response of the P.A. industry. It says: "Your Velocity is the finest type of microphone I have ever used.... Please duplicate my order." You, too, will duplicate orders... improve installations... and enjoy better quality at a competitive price by using Amperite Velocity Microphones. There's a model for every type of installation.

<table>
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<th>NEW! Desk Stand</th>
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<td>New and novel. Ideal for desk, podium, pulpits, footlights, banquets. Microphone can beinned in the horizontal plane and used in various positions, as desired. LEAF SPRING SUSPENSION ACTS AS AN EXTRA SHOCK ABSORBER. Unusually stable. STAND ONLY. $4.00 LIST. Name plate with maximum of 10 letters, $2.00 LIST.</td>
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<th>NEW! &quot;Ham Mike&quot;</th>
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<tr>
<td>No peak! No splashing! Real broadcast quality. Output—68 db. RF Choke Circuit included in microphone. Operates directly into grid of tube. Rugged. Not affected by temperature or pressure changes. MODEL HAM (high imped.)...</td>
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AMPERITE JUNIOR
A "lapel" Velocity of surprising quality. Size of a match box. Ideal for lectures and specialty acts. Can be hidden under coat. Output constant with any position of the head. Transformer included in microphone case. MODEL 7H (200 ohms) or MODEL 7H (2000 ohms) $30.00 LIST.

FREE WINDOW DECAL advertising your Sound Service. Size 5¼x3½, finished in 4 striking colors. WINDOW DISPLAY, 11 x 17, and... New illustrated bulletins. Write for these valuable sales helps today.
Another First
Selective Paging System with Talk-back Features

- 7 Watts of Power
- Talk to any Station
- Talk back from remote position through speaker

- Again Webster-Chicago blazes the trail of Sound Progress, opening a vast new market for the Sound Dealer. Previously a paging or call system consisted of an amplifier, microphone, and the required number of speaker stations. Now for smaller factories, hotels, auto stations, departmental installation in larger factories... a new low priced design having in addition a selective switch so that the operator can talk to any one station only, or can throw the switch so as to talk to all stations. Transmitter shown will handle up to 5 stations.

Compare this 20-Watter

Model PA-20-A

A complete 20 watt, two speaker system having a twin sound cell crystal microphone and a full length floor stand; all stowed in two easily handled portable cases. A sound system of wide appeal; very economically priced.

With the very latest in Sound Equipment... Built to give Satisfaction... Priced to SELL.

Webster-Chicago, the fastest selling sound line.

Everything in Sound. Amplifiers, speakers, microphone P.A. Systems of all sizes, fixed and portable, interoffice systems, School Systems, Factory Systems, Hotel installations, Marine installations, etc.

Designed by Specialists. Webster-Chicago have been popular priced leaders in the Sound Field for more than 12 years. All engineering personnel have had long experience with actual Field problems.

Technical Help and Information. Special service is rendered to the trade on sound problems. Dealers with Webster-Chicago can approach any size installation with confidence.

Extensive and sustained advertising to Consumers. All inquiries are referred back to the dealer. Hundreds of sales each month result from these direct leads furnished to dealers.

Dealer Helps that definitely open doors. Folders, displays, signs; special letters, etc., make it easy for the dealer to go after business.

See Your Jobber—Write for Catalog

WEBSTER-CHICAGO

WEBSTER-CHICAGO,
5622 Bloomingdale Ave., Chicago, III.
Without obligation please send me complete catalog.

Investigate "Sound" OPPORTUNITIES

I am particularly interested in...

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Alma.

A New Model
Teletalk
Webster Electric announces a new low priced Teletalk! This model consists of a master unit that is selective and up to five speaker stations. The cabinets are solid walnut with a hand-rubbed finish. Master unit, $39.50; Speaker units, $9.50. Send for new book.

There’s a New Pick-Up Coming
Webster Electric announces a new electric phonograph Pick-up that will be unlike any other ever developed. New in design. New in principle. New in performance characteristics. Write for information as to how you can profit by the increasing replacement demand.

IF EVERY EAR KNEW Perfect Tone Pitch YOU WOULD SELL ONLY WEBSTER ELECTRIC

- When you sell sound you sell an intangible thing. Few people can recognize true tone pitch. Therefore, it is highly important that you choose only the finest sound equipment—the World’s finest—Webster Electric.

Webster Electric Sound Equipment was voted the best at the last Radio Parts Show. It is the result of skilled engineering. It is checked and tested by men who know. Its exterior design is the product of an outstanding industrial designer. Its component parts assure flawless performance and a wide margin of safety.

Many of the better distributors are now stocking this fine Sound Equipment. You can get it quickly—with little investment.

WEBSTER ELECTRIC COMPANY • RACINE, WISCONSIN, U. S. A.
Established 1909
Export Department—100 Varick Street, New York City

FROM 5 TO 50 WATTS
In addition to this range of sizes, the line also includes a 4-Position Mixer, a new Mobile Unit and all the usual accessories. The line is streamlined and finished in three tones—red, silver and black.

Webster Electric Sound Systems are licensed by agreement with Electric Research Products, Inc., under patents owned by Western Electric Company, Inc., and American Telephone and Telegraph Company, Inc.

Webster Electric
PORTABLE AND SEMI-PORTABLE SOUND SYSTEMS • ELECTRONIC INTER-COMMUNICATING SYSTEMS • ELECTRIC PHONOGRAPH PICK-UPS • TRANSFORMERS AND FUEL UNITS FOR OIL BURNERS
WHEREVER PEOPLE GATHER

* "If I were a dealer, a service-man, or a sound specialist, this is what I would do at the outset of selling sound," says Electro-Acoustics L. M. Sandwitz, who used to sell at retail himself. "I would say to myself 'Here is a product I can sell wherever a group of people gathers. Now, how many gathering places are there in my natural territory?"

"Then I would systematically list the food stores, garages, parking lots, churches, schools, material yards, ball rooms, theaters, industrial plants, taverns, hotels, lodge halls, and warehouses within easy access of my place of business.

"The number of prospects will be astonishing. In fact, it will be necessary in most cases for the city dealer, to pick particular types of prospects on which to concentrate at the outset. For profitable sales in the next twelve months, my personal choice would be industrial plants, stores and markets, churches!"

SPONSORED SOUND FOR FOOTBALL GAMES

* Have you ever tried to put on a PA show for your local football games—only to find that the top price obtainable wouldn't begin to cover the costs?

Well, here's how one sound company has made good returns over a period of years, not only for portable work, but for semi-portable and permanent installations as well. This sound specialist gets an advertising "sponsor" to pay the costs, and gives this sponsor verbal advertising between quarters.

"Dress the whole job up," says he. "Get a good sports announcer—furnish the music from records. And maybe you can throw in a small field system for the cheer leaders and game officials to use."

"Do it right—put on a good show and you won't have much trouble finding sponsors who will pay you a fair price for your work.

"But don't stop with portables," adds this sound man, "this same idea has been expanded by us in many other directions, even to instances where wealthy members donate installations for churches and schools."

REVAMPING OLD "SOUND" JOBS

* Plenty of old sound systems can stand revamping these days. And now that there are good permanent-magnet loudspeakers on the market, one of the quickest means of demonstrating the sound man's ability to a customer is to take one of these new speaker units for test at some school job where the old magnetic-type cones are still in use.

Substitute the new unit in some classroom where one can step across the hall and compare with it an old type speaker. Or rig it up with the replaced unit for a comparison test.

Most of these new speakers can be obtained with adjustable transformers so that the impedance relations need not be disturbed. It is quite convincing, too, to find that the new type speakers are more efficient than the old ones. In a lot of cases they will fit into the same boxes the old one did. Sometimes in the case of a school it will help to keep the costs down, if the sound man suggests that the woodworking classes make new face plates for the speaker cabinets where they are necessary.

REAL OPPORTUNITIES

* "The editors of Selling Sound are to be congratulated on the comprehensive effort they are making for the sound industry," comments John Erwood, vice-president of Webster-Chicago.

"The very nature of sound makes each installation to some extent individual. Thus the aggressive dealer and high-class technician—those radio men who are interested in engineering as well as sales—are finding the sound field a business of real opportunities."

"That a publication like Selling Sound has come into the field to give up-to-date knowledge on the industry and to help solve the difficulties of merchandising a specialized product, is bound to be a great aid and a wonderful incentive."

UNDEUTKERS USE 'PHONES FOR HOME SERVICES

* Undertakers have proven to be unexpected prospects for intercommunicator systems. When funeral services are held in a private home, the members of the immediate family usually prefer not to come downstairs to the ceremonies, but to remain secluded in their own rooms while the services are going on. With a set of intercommunicators, explains S. R. Hurt, of the American Carrier-Call Corporation, one unit can be plugged in downstairs and turned on as a microphone, while other units are plugged in in the upstairs bedrooms so that the bereaved family can hear every word of the services without exposing their grief to outsiders present.

Undertakers who have introduced this plan find it a great selling point for their services, as against undertakers not offering interphone privacy.
THE MARKET FOR MODERN SOUND

Industry's complete list of prospects, with reasons why they will buy

ADVERTISING AGENCIES
- can demonstrate the nature of amplified voices
- arrange convincing auditions

ADVERTISING TRUCKS
- broadcast effective messages
- can keep within city ordinances

AIRPORTS
- can talk up the safety angle
- will handle more passengers

ALARMS SYSTEMS
- can cut burglar-insurance costs
- complete house modernization

AMUSEMENT PARKS
- can widen their concession grounds
- govern crowds more readily

ARENAS
- can increase seating capacity
- like box office receipts

ARMORIES
- can communicate house bulletins
- improve social relations

ATHLETIC FIELDS
- can communicate instructions accurately
- like staff efficiency

AUCTION ROOMS
- will save time in bidding
- cut the number of complaints

AUDITION STUDIOS
- can conduct several hearings at once
- contact more artists and sponsors

AUDITORIUMS
- can stage more varied events
- must correct their acoustics anyway

BAND STANDS
- can attract greater audiences
- increase popular value of music

BANQUET HALLS
- can improve table and dining arrangements
- offer faster service

BASEBALL PARKS
- can report scores promptly
- attract more clubs and fans

BATHING BEACHES
- can establish atmosphere of safety
- cut life-guard costs

BEER GARDENS
- can widen entertainment scope
- publicize improved service

BUS TERMINALS
- can cut porter costs
- reach passengers in all depot rooms

CABARETS
- can make appropriate recordings
- keep all guests within range

CHAIN STORES
- can stage more special sales
- increase clerk efficiency

CHURCHES
- can do dignified broadcasting
- emphasize large social gatherings

CIVIC CENTERS
- can improve local business relations
- sponsor more varied events

COLLEGES
- can issue rapid campus bulletins
- improve student-faculty relations

CONVENTIONS
- can contact the "last-row" audience
- increase power of speaker

COOKING SCHOOLS
- can demonstrate more equipment
- get more novelty in exhibitions

DANCE HALLS
- can distribute music properly
- conduct detailed supervision

DINING ROOMS
- can speed up service
- add appropriate music

EXHIBITIONS
- can explain complicated displays
- add speaking specialties

ELOCUTION SCHOOLS
- can handle more students
- use recordings effectively

FACTORIES
- can improve labor relations
- create pleasant working atmosphere

FAIRS
- can increase entertainment area
- broadcast ads and announcements

FOOTBALL FIELDS
- can simplify the coaching job
- report what spectators miss

GOLF CLUBS
- can stage more tourneys
- publicize modern facilities

GYMNASIUMS
- can increase general capacity
- broadcast instructions at right moment

SELLING SOUND
Hospitals
- can circulate important bulletins
- can distribute news flashes and music
- make a point of house communication

Lawn Fetes
- can simplify the hostess' job
- can knit guest groups together

Lecture Rooms
- can advertise perfect acoustics
- can increase room drawing power

Lodges
- can meet emergencies
- can distribute more music

Markets
- can spot necessary price changes
- can stop thieving

Memorial Parks
- can offer impressive outdoor music

Music Schools
- can stage and bigger recitals
- can amplify juvenile voices

Newspapers
- can circulate flash instructions
- can operate the organization as a unit

Orchestras
- can sponsor new sound effects
- can depend on light touches being appreciated

Paging Systems
- can increase coverage and foes
- can advertise dependability and clarity

Parks
- can organize 100 per cent supervision
- can accent larger social events

Picnics
- can control wandering crowds
- can simplify work of entertainment

Playgrounds
- can enforce new safety measures

Political Gatherings
- can offer front and last rows equal clarity
- can make more lasting impressions

Prisons
- can regulate matters of discipline
- can relieve tension within walls

Race Tracks
- can connect judges with attendants
- can offer spectators flash bulletins

Railroad Stations
- can reach all rooms simultaneously
- can improve general passenger well-being

Railroad Yards
- can handle emergency situations
- can arrange quiet distribution of voices

Restaurants
- can advertise speedy service

Sales Meetings
- can explain plans to large groups
- can assist the process of note-taking

Sanitariums
- can pleasantly connect all wards
- can arrange quiet distribution of voices

Schools
- can enlarge recreational activity
- can improve staff operation

Ships
- can quicken action of crew
- can proceed with more safety

Soap Box Derbies
- can keep spectators informed
- can instruct all scattered entries

Stadiums
- can widen the scope of events
- can instruct crowds arriving and leaving

Steamship Piers
- can organize scattered workmen
- can distribute docking bulletins

Street Dances
- can keep standers pacified
- can offer notes of explanation

Stock Exchanges
- can avoid sending messengers through crowds

Stockyards
- can reach scattered attendants
- can assist auctioneers

Stores
- can improve staff efficiency
- can reach all sections quickly
- can halt shoplifters

Summer Resorts
- can announce social and sports schedules
- can accommodate additional guests

Swimming Pools
- can broadcast warnings
- can advertise complete safety

Talking Signs
- can get novel and mysterious effects
- can advertise more types of goods

Theatres
- can expand entertainment schedules
- can reduce balcony complaints

Undertakers
- can eliminate noisy messengers
- can avoid interruptions of privacy

Vaudeville
- can experiment with freak effects
- can play to bigger houses

Weighing Stations
- can save time for patrons

Window Demonstrations
- can furnish striking "stoppers"
- can bring models to life

Yachts and Steamships
- can broadcast lifeboat drill instructions
- can save passengers climbing narrow stairs

Radio Today, September, 1937
THE OUTLOOK FOR SOUND SALES

Manufacturers' optimistic views on 1937-38 prospects
Counsel distributors and dealers on going after business

* TO GIVE readers of “Selling Sound” a general picture of the present situation, the editors sent invitations to a number of sound-industry leaders, asking their views regarding the most important problems in the sound-equipment field.

What we asked is the general outlook for the development of sales in the sound-equipment field for the next twelve months. What types of markets can be most profitably developed by dealers, servicemen, and sound specialists? How can the jobber best cooperate with his dealers in stimulating the demand for sound equipment?

Thousands of prospects ready

A combination of good business conditions generally—plus the rapidly growing public acceptance of sound reinforcing systems as a positive necessity wherever groups gather—makes the sales outlook for the next year extremely bright, declares L. M. Sandwick, sales manager, Electro-Acoustic Products Co., Fort Wayne, Ind.

As a result of the improvement in general business, numerous institutions, such as churches, schools, hotels and stores, are now in position to proceed with sound installations which they recognize the need for, but which, a year and two years ago, they were unable to finance.

The growth of public acceptance of sound equipment has resulted from three major factors. First, radio.

Second, sound pictures. Third, successful sound reinforcing installations. The first two factors, while indirect, have focused public attention on sound reproduction and have created an acceptance by people in general of hearing and enjoying reproductions of speech and music.

The third factor—the successful sound installation itself—is the key to the present intense interest. Beginning with Chicago's "A Century of Progress" in 1933, millions of the public have heard and reacted favorably to sound equipment at the great fairs and expositions throughout the country. Countless others have realized increased enjoyment at sports events in ball parks, race tracks, gymnasiums, stadiums and arenas, through timely announcements or running accounts of the play or action.

How to sell sound

Surprisingly enough—for sound equipment manufacturers almost without exception have failed to capitalize these favorable openings—the public itself has begun to reduce these spectacular installations to everyday requirements.

The time has now come to consider "sound" selling less as an engineering exercise and more as a specialty merchandising.

Viewed in this light, there are three easy ways for the dealer to win the confidence of his prospect.

First, by visiting the job during working hours and making an actual survey of the requirements. This shows his interest.

Second, by asking questions regarding the uses and applications which the prospect may have in mind. This goes a long way to convince the prospect that the dealer has a service to render, and that he wants to render it honestly and conscientiously.

Third, by a straightforward presentation which avoids technical discussion as much as possible, makes no extravagant claims for the equipment and leaves the prospect to expect a good, workmanlike job, at a fair price—but not a cutthroat price.

Remember, the dealer in sound equipment—more than in any other business—is advertised by his own good works. The prospect who has been sold by conservative claims and reasonable promises will be the finest possible advertisement for the dealer whose performance exceeds his sales talk.

Bumper crops, bright outlook

We feel that the general outlook for the development of sales in the sound equipment field for the next twelve months is probably the best it has ever been, particularly so in the Middle West and Southwestern states, declares Lawrence A. King, sales manager, Operadio Manufacturing Co., St. Charles, Ill. This, of course, is due to the bumper crop of small grains and corn which they will have this fall. Also we feel that more and more people are realizing the necessity of sound—this being particularly true in the industrial field. Because of these factors, the general outlook for the next twelve months is probably as good if not better than at any previous time.

As to how the jobber can best cooperate with his dealers in stimulating the demand for sound equipment, we feel that this is not primarily a problem of the jobber but one that is a dual responsibility between the jobber and the manufacturer. It is the

At the left is the center of a sound job in Texas, which handles 10,000 spectators strung along 4 city blocks watching a Soap Box Derby. Chap with the goggles is Elliott Wilkinson.
duty of the manufacturer and the jobber, from the sound standpoint, to develop as many leads as they possibly can for dealers and then to pass these leads on to the dealers. In addition to this, of course, the jobber still as the manufacturer must have the product available for the dealer when he makes a sale so the dealer's customer can obtain his sound material a reasonable length of time after he has ordered it.

By adhering to these two policies, plus aggressive selling every dealer must do, a nice volume of sales should result for all concerned.

**Must know product**

In order for a dealer to sell sound specialty equipment and solicit business which will ultimately result in the satisfactory installation, it requires a very thorough knowledge of a particular line of equipment. Therefore, one of the first duties of the dealer or sound specialist is to become absolutely familiar in every detail with what he is selling. He can do this by consulting his jobber or the factory men. Of course, the average sale, such as of "package merchandise," should then be a very simple problem for him to handle.

In larger installations, he should gather together complete data pertaining to the particular job and then from his own experience make his recommendations and submit these back through the jobber to the manufacturer for their okay and approval.

**Quality, reliability essential**

One of the fundamental differences that should be understood about P.A. is that it is used for business purposes and not for home use, points out S. Ruttenberg of the Amperite Corporation. "Many times such apparatus is being used for business purposes, its quality and reliability must necessarily be greater. The equipment is expected to stand hard usage and continuous service. Replacement after approximately three years is not objectionable. It is, therefore, of paramount importance to use equipment that will stand up, hence the sound man can charge a little more because of the service that is usually demanded, and the fact that the number of jobs are at best limited.

Because the jobber himself knew very little about sound and the sound business, the P.A. man received very little cooperation. Most P.A. men carried a lot of equipment, but as his jobber, and often larger. By giving a P.A. man fast service on his requirements as well as a little help on financing jobs, the jobber could put himself in an enviable position and increase his business on sound equipment tremendously.

For the money invested, sound business is much more profitable to a jobber than other small parts businesses. The number of items are few, the unit of sales large and the possibilities of equipment becoming obsolete are practically negligible.

At the right, entertainers test their "sound" personalities for outdoor presentation to the mob.
DISTRIBUTOR-DEALER PROBLEMS

Candid discussion from those in middle of sound sales

* TO PRESENT the low-down on the distribution situation in sound equipment, Radio Today's editors asked jobbers and dealers to give us their candid comments on present sales methods and how they can be improved—and what sound offers to distributors and dealers during the next 12 months.

Planning for big future

We feel there is everything to be done in the selling of sound equipment, declares Lew J. Bonn, Lew Bonn Company, distributors, Minneapolis, Minn. By "selling sound equipment" we mean creating a demand or a desire to have. As soon as some conscientious effort is made by distributors to sell sound and sell good equipment, the manufacturers will take more interest in its development. I claim it is principally a selling job.

Sound should be the dealer's and serviceman's business, but many purchasers have found it necessary to go direct in order to get satisfaction, and that has encouraged every manufacturer of sound, equipment, especially the small independent company, and also mail order houses from all parts of the country, to "quote direct." This evil should be overcome, and this we have been trying to accomplish, but we find invariably we lose a sale because of direct quotations by some Eastern mail order house.

Every institution of any size is a potential prospect for some sort of sound, from the large amplifier down to interoffice communication. As it requires quite an investment, naturally the buyer wants to know what he is getting, and it is a semi-engineering and salesman's job to produce this business. Even the small amplifiers sold to orchestral leaders, night clubs, and so-called "beer parlors," require sales talent and technical knowledge.

We are setting ourselves up for the future of sound business and believe it is going to be large. Practically every hotel is inadequately equipped, and lots of money is paid every month for telephone interoffice communication, which can be much more economically administered through Inter-communicating mediums.

Greatest opportunity in sound

I think there is more opportunity for increased sales in the sound-equipment field for the next twelve months than any other field, writes Robert Henry, radio distributor, Butler, Mo.

The market that has the greatest possibility for development is the market among those prospects which are best financially able to buy new equipment of any sort that they are convinced will be of use to them. All you have to do to make profitable sales is to show them how they can use sound-equipment. Sound-equipment sales should be handled by a department that devotes the greater part of its time to this work and whose members can become specialists in sound-equipment.

Jobber cooperation vital

My frank but humble opinion is that selling sound along the lines sold in the past has none too bright a future. But this practice of manufacturers selling anyone and everyone that comes along will now yield benefits to the jobber who gets out and makes personal contacts, for the public is loaded down with obsolete and discredited sound equipment. Therefore, they are in the market for reputable equipment, backed by companies financially and technically sound and having an intelligent sales policy, concludes W. H. Edwards, wholesale radio supplier, Providence, R. I.

The market is business houses, advertising firms, government places and specialty sound men. Schools, state and public buildings will also have to be sold. But again, only good equipment, backed by intelligent salesmanship, will have a chance.

Cooperation of the jobber with the retail dealer is absolutely essential. Three hundred dealers out selling sound are better than one expensive jobber salesman. Also cooperation creates good-will for the jobber for his other lines. This part of the program is up to the jobber. His personal contacts with the dealer must be utilized to the fullest in explaining the "sound" business and the methods of selling, also the different types of installations. But, as for selling the public buildings, the jobber must do that himself. The primary reason for this is that public officials insist upon discounts.

Make "sound conscious"

The immediate outlook for sales is slow unless manufacturers do enough advertising to make America "sound conscious," thinks E. L. Grimm, of Radio Television Co., Washington, D. C. Some people think an amplifier is a converted radio set, some other people think it falls in the price range of the cheapest radio sets.

The dealer and serviceman seem in the best position for supplying and installing inter-communication systems for business and homes, but haven't the necessary training for engineering the problems of high-powered amplifiers, which should be covered by sound specialists.

The jobber stays in the background as a supply depot for the dealer. It is up to the manufacturer to stimulate the demand for sound equipment through advertising to reach all types of consumers.

In soliciting new business and giving estimates the most important thing is to break down any wrong impressions the customer has regarding sound systems. And, above all, to keep "Sound" out of the classification that surrounds cheap radio sets and cheap radio service—also the peculiar idea of the customer that a sound system can be tailored to fit and installed in a few minutes. It would be best to

At the left, sound equipment becomes an important part of the scoreboard on the football field at Southern Methodist University, Dallas, Tex.

SELLING SOUND
lose the job rather than have to skimp on the installation. Your customer would have to charge them for what they get and give them what they pay for.

One should also advise all dealers not to try to take a $20-per-hour radio man and call him a "sound engineer." To do so will mean customer dissatisfaction and a black eye for sound in general, unless the sound outfit is of the simplest low-powered type.

Too much inexperience

I find that in the amplifier field there are too many inexperienced people. First, there are too many manufacturers who do not make quality amplifiers, and who do not use the proper microphones and speakers because the amplifier is a price proposition, comments Perry S. Grannam, treasurer, Stern Wholesale Parts, Hartford, Conn. However, for all those who are not qualified to manufacture sound equipment, there are plenty of responsible manufacturers who are qualified. But, as the old saying goes, you only get what you pay for: naturally, the prices of the best systems are higher, and the equipment is consequently harder to sell to the average buyer.

Now, as far as the jobber is concerned, a jobber with a sound sales engineer would be qualified to sell amplifiers. But the biggest problem is the buyer. There are several types of buyers. First, there are those who know nothing of what they are buying; they are part-time musicians who also work, we will say, during the day for the city water department, perhaps as a machinist in a typewriter factory, or maybe as a barber. They get together small orchestras and look for work in small taverns, restaurants, or clubs for a night or two a week. Most restaurants require that the orchestra furnish its own sound equipment. So consequently the orchestra leader goes out shopping and buys something low priced that looks as if it could qualify him for the job. Usually the sound systems are not very good, and the orchestra may not be much better, so they don't hold the job very long.

Sound technician

Every good sized city should support at least one high-class sound technician, continues Mr. Grannam. These men usually get good prices for their time and equipment. They can take care of any type installation, such as places remote from a.c. lines, motorcycle races, carnivals, and so forth. My idea is to work through such people, letting them make the sales and allowing them to make the profit between the wholesale and retail prices. They are also in a position to give you and find out what the customer requires, and to make proper recommendations. When the sale is completed, the sound engineer should make the installation. There are so many tricks to a proper installation that even the best equipment will not perform properly unless correctly installed.

Such a sound technician can make a substantial living. A truck properly equipped to handle a.c. or battery-operated equipment, and capable of taking care of a ball park, should net the owner not less than fifty dollars per day of operation. For contract jobs, such as two evenings a week at the motorcycle races, equipment permanently installed should net the owner about ten dollars per evening for only a few hours' work. I have one such operator who told me last year his gross income was $2,250.00 from this equipment—most of which was for rental.

Jobber bills customer

I believe the best market for the serviceman in the coming year will be intercommunication equipment. In this field the market is practically unlimited, explains G. W. Hudson, Hudson Radio Supply Co., Richmond, Va.

In most cases the serviceman's capital is limited and he is unable to finance a sound installation. I have found it the best policy for the distributor to make the installation and bill direct to the customer. The serviceman is then given the difference in the list price and his net price on the equipment. The serviceman is responsible for all service within the 90-day guarantee. In case the customer wishes to have the installation financed over a period of time we have found it best for the distributor to handle the financing. If the distributor can handle the time-payment it will work out much better than the various propositions offered by the manufacturers. The distributor is better able to get credit information in his section than either the serviceman or the manufacturer.

In soliciting new business it is always best, if possible, for the salesman to find out what type of equipment the customer can use. If the salesman goes to the customer with a definite proposition rather than "can you use an amplifier set or do you need communication in your plant?" he stands a much better chance of making the sale. If there is any doubt in the mind of the salesman as above, PA invades the physical education field. A Gym class at Oyster Bay, N. Y., High School gets its directions from a ceiling speaker.

to the price of equipment he should take the matter to the distributor. The sound distributor should have at least one man on his staff who is thoroughly capable of furnishing information on all types of equipment as well as estimates.

In closing, I would like to say that the sound field opens a market to the dealer and serviceman which in the next few years should prove as profitable as the set market has been in the past.

Practical advice

Inasmuch as we have enjoyed an average gross on sound business of $1,400 per month in a city of 80,000 population, I believe that we may be able to offer some sound suggestions which may be helpful to others, answers George Sharpnack, manager, Program Service Co., Lincoln, Neb.

1. Direct contact by a good man or sales force is the best way, by far, to get the rental and sales business.

2. Advertising in local papers is usually a failure because you do not strike when sound is needed.

3. If you must advertise—use the "gifts" method. Paper weights with your ad on them, a miniature microphone or some such article will stay on the desk of your "potential" customer.

4. Free sound jobs to churches, Boy Scouts or other such groups cause more trouble than good. A better way is to offer your regular set-up at half the usual price—and then stick to it.

5. Most of your sales result from well planned demonstrations of new or latest type equipment. As an example, to show a prospect how much better a new velocity microphone will operate will very frequently result in a sale of complete new equipment.

(To page 31)
FOOT-WORK IN SELLING 'PHONES

Ways to tap today's big market in intercommunicating systems

* GENTLEMEN carrying small traveling cases are all over town. They're plying briskly between the radio store and its hundreds of prospects for intercommunicating systems. The luggage contains one master station and one remote speaker—or pairs of intercommunicators—all polished and neatly packed. In the side pocket of the bag is a complete supply of circulars, instruction books, price lists, etc.

Salesmen know that office bosses are beginning to get back from vacations. On the salesman's side also is the fact that the public is now better educated to the conveniences of modern inter-phones. Effects of the first promotions of the equipment are now being felt—business executives are definitely 'phone conscious. Time-payment plans have been adjusted.

Offers to demonstrate

Some of the shoe leather is being spent as a result of letters written by dealers to a selected list of prospects. These were personal in nature, and were essentially offers to demonstrate the intercommunicators. Only very brief attempts were made in the mailing pieces to outline the features of the merchandise— the point was chiefly a friendly request for a chance to show the phones and let them sell themselves.

In other cases the outside selling is being done "cold." Then's when the salesmen must pick up some knowledge of the profession in which he circulates, with a view of filling, with his inter-room gadgets, the particular needs involved in that branch of business.

For instance, if he calls at a publishing office, it will help him to know how and in what way the editorial department needs to communicate with the advertising department.

Selling modern business

(It has been found that offices or organizations which are involved in the production or distribution of electrical products, are particularly easy to approach. Executives in such places are naturally interested in the operation of the inter-phones, and will allow themselves to be shown the instruments for that reason at first.)

Retailers of this equipment have the "be modern" angle on their side. If the prospect is advised that modern business certainly includes the use of the intercommunicators, he will begin to think that his competitors are using the equipment to advantage.

Executive persons are just as unwilling to be outclassed by neighbors or competitors as anyone else. This is presented not as a sweeping sales argument, but as an important undercurrent.

Sales demonstrators can be fairly sure that female office workers are generally more anxious to save steps than the men in the office. So it turns out that one of the tricks is to see the receptionist first. She can't do the actual buying, but she can have a whirl of an influence on it.

If tactfully demonstrated to while the salesman is waiting to see her boss, the receptionist will be pleased to discover that she is interested, and will be in the mood and in position to cooperate if the demonstration occurs between her desk and that of her boss.

Busy spots

Since interphones are sold to deliver instant communication, a salesman with confidence in his instrument will offer to demonstrate in the "rush-spots" of an organization. It seems the best way to show instantly how the phones will hike efficiency and save money for the outfit.

Obviously a salesman cannot do this in a few minutes; he should be willing to spend considerable time to allow the equipment to prove its value. Unless company executives exhibit some special interest in watching the demonstrator being set up, the salesman may excuse himself during the process. This is done out of respect for the prospect's time.

If the demonstration does occur in a rush spot, salesmen must take care to keep themselves and their gadgets out of the way until the inter-phone goes into action.

Training angle

Naturally, prospects will wonder whether it will be difficult to train employees to operate the intercommunicating units. Some of them may feel that their office workers, particularly the women, will be mystified when confronted by a series of switches and levers.

Webster Racine's 2-way, no-switch, loud-speaking intercommunicator.
The "education to operate" becomes simple when the salesman picks out the brighter persons to teach, when possible, and operates the 'phones himself several times under their very noses. The trade itself knows that modern equipment is simple and foolproof, but from the viewpoint of the consumer who finds his organization routine changed, operation of the equipment may seem at first confusing.

The more tricky aspects of using the 'phones are left until the essentials are mastered. In some cases a file clerk can report the contents of a file into an interphone located halfway across a room, when time is valuable. A novice might bungle this stunt until he has had some experience with how the voice is carried.

Argument for secrecy

Some organizations will get the idea that the minute they install a sensitive intercommunicating system, that the private affairs of a single executive will become a public broadcast. Actually, there is no necessity for private and confidential matters to be aired around the premises, when the inter-phones are used.

Some of the newest intercommunicators are built so that an earphone may be used for listening to reports which the listener's companions shouldn't know about. Other systems may be adapted for the same kind of situation, if in no other way than by placing the instruments at strategic positions.

In organizations where calling or paging systems are needed, a multiple station inter-phone system will often fill the need exactly. The only other way to do the trick is to use a central PA speaker which covers a whole room rather than sections. This is often unsatisfactory because the person called can only be paged, since the whole room is listening. To tell him why he is wanted and what to do would be undesirable when large groups are also held at attention.

Intercommunicators used as paging systems allow the persons called to be addressed in a semi-private fashion. More details may be communicated without creating a disturbance. This is particularly true in factories, where an interruption of large groups of workers represents a definite loss of time and money.

While the emphasis continues on the outside work in merchandising the equipment, dealers figure out new methods of display and demonstration in the store.

In many stores it is no longer enough to have a demonstrator system which connects the front of the store with the back. One of the greatest appeals is that the gadgets save the effort and the time involved in going up and down stairs. Hence, dealers want to be sure that their model installations in the store run vertically as well as horizontally. They make special arrangements with tenants upstairs if there is no department in the basement.

Some radio stores are hooking themselves up to neighbors on either side, for demonstration purposes. This stunt has more novelty appeal than anything else, as it in no way demonstrates the intra-organization need for inter-phones.

An effective method of display is the use of two small desks in windows—one on each side of the entrance if the store front is arranged in that way. On one desk is displayed a master unit; on the other a remote speaker.
RADIO-MUSICAL INSTRUMENTS

New artistic possibilities achieved by tube outfits

* "MUSIC is an art, indeed a fine art, a very fine art. "But music is not all art. Behind every art lies a vast accumulation of scientific knowledge and experience, and considerable in the way even of engineering practice. "But when we compare music with the other arts, and particularly with other fields of human endeavor, we find tradition enthroned, instead of progress!" declares B. F. Miessner, radio and musical inventor of Millburn, N. J., before the recent New York Convention of Music Merchants.

Age of progress

"The graphic arts have evolved photography and moving pictures, even in color—and television. The drama has availed itself of every conceivable device to intensify the arts of make-believe. Communication has made tremendously great strides by telegraph, telephone and radio. Transportation, likewise, has tremendously accelerated the pace of human movement, with steamships, railroads, automobiles and airplanes. Illumination today is very far ahead of the oil lamp of the dark ages. Agriculture and industry leave no stone unturned to press improved machinery into service. "But what of music? In this age of progress in every conceivable field, music and musicians still use the traditional instruments and apparatus of hundreds of years ago.

Aborigine music

"One musician scurries the tail of a horse across the intestines of a cat—and the older his instrument is, the more he prizes it. Another blows lividly through a brass tube or a wooden pipe. Another hammers on the drum of the aborigines made from the hide of a cow. Another, sometimes with terrible physical exertion, pounds on a keyboard to rouse his audience through the physical vibrations of struck strings and huge soundboards. Another with aggregations exceeding 10,000 pipes—some as long and large as a forest log—and with hundreds of other complicated and bulky appurtenances, produces the sounds of the organ.

"That most of these have reached the limit of their development is amply supported by their almost fixed design for hundreds of years. The principles upon which they are based have been carried through all these years of development, to the end of their capabilities. "Electrical methods have revolutionized many other industries, and the music-instrument industry is next!

Guitars and ukuleles

"Electrically amplified fretted instruments, particularly guitars and ukuleles, are rapidly supplanting the old types. Bowed string instruments are also coming on the market with the same effect. In carillons, huge bells are now being supplanted by tiny ones, electrically amplified. New solo instruments, fingered like a violin, but requiring no bowing, and with a wide tonal range, electrically generated, are being developed. The latest addition to the electrical instruments are the electronic pianos. Music of rare new beauty is being produced. Tools of marvelous facility and power are given the composer and artist.

Change tone colors

"Pianos in the last few years have trended towards smaller, cuter and cheaper types. But tone has steadily been sacrificed more and more. Now with the new electronic-amplified pianos we have not only recaptured the lost tone, but we have, even in these smallest instruments, exceeded the performance of the largest grands, and at a far lower cost. "These pianos are not nearly so complicated electrically as modern radio receivers, and they are well within the service knowledge and facilities of the average radio servicemen. "The advantage in using electrical amplification instead of mechanical principles for tone production lies not alone in the ability to produce bigger, louder, or more sustained tones—although these are important. "But the ability to change those tones in color, in power and in other ways, gives to the artist a control over his instrument never before experienced and thus greatly extends and enriches his performance."

"At the same time for present radio men, this new expansion of the radio-tube art opens up a new volume of sales and maintenance business. If the standard music store is to hold its place in this new advance of musical instruments, it will have to take on qualified radio men or join forces with now established radio-service organizations, familiar with the radio and 'sound' arts."

Lew Green and Ferde Grofe, well known orchestra leaders, follow the trend to electrically amplified music. Here, it's Epiphone’s new electric guitar.

12
NO SATURATION IN THIS MARKET
HERE’S HALF A MILLION PROSPECTS

290,000 STORES AND MARKETS • 80,000 LARGE INDUSTRIES • 50,000
CHURCHES • 33,000 COAL AND MATERIAL YARDS • 25,000 HIGH
SCHOOLS • 22,000 THEATRES AND HOTELS—are going to be busy this winter.
They're going to need Electro-Acoustic Sound Equipment—the modern necessity
wherever people must hear. They have the money to pay for it.

You have a right to expect perfect performance in the sound
equipment you sell. Electro-Acoustic Systems give it to you
because they're carefully engineered and built of the highest
quality materials in the finest plant in the industry. They're built
by people who "know how"—backed by twenty-six years of
experience and leadership in this field.
That's why the "Electro-Acoustic" label is your customer's
guarantee of a perfect installation.

THE LINE IS COMPLETE

Electro-Acoustic is the line with which you can get your share of this
mighty untouched market.
It's the line with systems, amplifiers, power stages, microphones, bauges and all accessories for every permanent and portable installation
requirement.
It's the line that features advanced design—matchless flexibility—
modern appearance—perfect performance.
Complete systems from $53.00 up, with adequate discounts to qualified
distribution and dealers.

ELECTRO-ACOUSTIC SYSTEMS ARE FULLY LICENSED

ELECTRO-ACOUSTIC PRODUCTS COMPANY

MAIL THIS COUPON

ELECTRO-ACOUSTIC PRODUCTS COMPANY

DEPT. SS, FORT WAYNE, INDIANA

PLEASE SEND ME CATALOGS ON ELECTRO-ACOUSTIC PRODUCTS AND THE NAME OF MY NEAREST DISTRIBUTOR. I AM ALSO INTERESTED IN RECEIVING COMPLETE INFORMATION ON:
- Electro-Acoustic Portable Systems
- Electro-Acoustic Amplifiers
- Magnavox "EA Special" Speakers

NAME ..................................................
ADDRESS ...........................................
CITY ..................................................
STATE .............................................
STEREOPHONIC SOUND

— "Acoustic perspective" with distant actors, at Dallas Fair
— C. C. Langevin devises new methods to sell novel sound effects

* WHEN the San Diego fair was opened, three years ago, Carl C. Langevin sold the Associated Oil Company the idea of sponsoring public-address and radio-pickup facilities for the fair. He put in a wide-range system for outdoors reproduction. It was the hit of the exposition. It soothed the nerves of foot-sore spectators. Only wide-range vertical-cut records were used for reproduced music. People went away talking about the quality of the music which covered every square foot of the exposition grounds.

Cavalcade of Texas

In addition to the public-address equipment Langevin installed remote radio pick-ups all over the grounds. The fair ran a second year, and a delegation of Texans came to hear and see the sound equipment. They were planning an exposition of their own at Dallas.

Naturally Langevin got this business, too. This time he persuaded the Gulf Oil Corporation to sponsor the public-address facilities. In addition he made the installation of sound at the feature attraction, "The Cavalcade of Texas."

"There was a show, the like of which no one had ever seen before," comments Walt Whitmore of the Western Electric Company. Hundreds of actors re-enacted memorable events in Texas history on a great outdoor setting 300 feet wide. Capacity crowds of 3,000 persons witnessed almost every performance, and everyone heard each word of dialogue in the mighty pageant. Few realized that the actors did not speak their lines, so cleverly had the dialogue, spoken into microphones by unseen performers, been cued to the action and pantomime of the actors on the set. The recorded music used as background and dramatic embellishment to the action of the pageant was a thing of beauty not soon forgot. It was the sound reproduction which made the pageant. For the first time on a large scale, dialogue spoken offstage had been cued to the action of actors on stage. Truly it was a sensation.

Remote actors

This year, 1937, "The Cavalcade of Texas" has grown into "The Cavalcade of the Americas," and sound equipment installed by Langevin is again the sensation of the show. Langevin has again introduced a new feature in sound reproduction. It is the first time that "stereophonic sound" has ever been used for a show of this kind. Again as last year unseen performers speak the lines for the actors on the set, but unlike last year's performance, the voices produce a perfect illusion in that they seem to be coming from the lips of the actors no matter where they may be on the giant stage. It is a realism never before achieved.

In one scene, a member of the cast walks from one end of the set to the other, and his voice follows him with complete illusion of coming from his lips, although his lines are being spoken by another person into a microphone in a soundproof booth 300 feet distant.

Loud enough

Langevin's success is based on one thing—his insistence upon quality of reproduction. By quality, he means three things: The sound coming out of the loudspeaker must be an exact copy of that going into the microphone; the volume must not be too great, but loud enough for every listener to hear, without straining, each word or sound clearly and distinctly above all extraneous noise and third the illusion that the reproduced sound is coming from its original source must be perfect. These are requirements difficult and costly to meet.

"Failure to meet these requirements is the reason why so many men fail in public-address business," says Langevin. "Others are too afraid of their competitors. They haven't the courage to charge enough to make a legitimate profit, for fear a competitor will underbid them. We never think about competitors. We charge what we know the job is worth to do it right, and trust to our ability to sell them on the idea that they must have a quality system.

"In all our experience we have never sacrificed quality to meet a price. The best is none too good."

These actors in their sound-proof booth, supply all voices heard from the 300-ft. stage, through the mixing panels above.
Again leads the way with a startling new feature in inter-communicating equipment

CARRIER-CALL-RADIO

... a RADIO RECEIVER and CARRIER-CALL combined in a single unit!

NOW, in addition to the standard Carrier-Call Systems, you can offer your customers a totally new type of instrument—a system that gives complete radio and communication facilities in any room of the house, any part of the office, without wiring or installation cost—ALL at a SINGLE LOW PRICE.

Plug into any lighting socket, AC and DC.
No wires; no batteries; no installation cost.
Portable—move it anywhere in a jiffy.
Radio reception can be transmitted from master station to outlying stations.
Radio cuts out automatically when unit is used as a communicator by any station. Resumes automatically and immediately conversation is through.
Can be sold where other types are unsalable.
Widens the inter-communication market enormously.
Perfect for executives needing market reports and other broadcasting receptions.
Ideal for homes; the residence market now wide open to Carrier-Call dealers.
Surest opportunity for profitable selling.
Complete merchandising and technical cooperation.

The Carrier-Call-Radio is a NATURAL for dealers. So get the Carrier-Call franchise for your territory before it is too late. Distributors and dealers are urged to wire or write for complete details.

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39 WEST 60th STREET
NEW YORK, N. Y.
SELLING AN AUDITORIUM SOUND JOB

Tips which will help figuring any large sound system and will simplify the installation

* ARE you making a bid on that auditorium P.A. system? If so, here are a few suggestions which will help you—not only in figuring the job to make your price right, but also in producing results that will give your “sound” business prestige and favorable advertising for the future.

In planning such a system there are two definite steps to be taken:—
1. Get clearly the customer’s requirements, and 2. Make a careful survey. Here’s why!

First of all, the requirements determine what equipment is necessary. That sounds simple doesn’t it. But do you know that probably half your competitors won’t figure on the proper equipment and as a result their prices will be out of line. You don’t want either to lose your shirt or to be too high, so get the story straight.

If just speech reinforcement is needed a better system will result if the low frequency end is chopped off completely. However, if the system is used for music reproduction, it will need some “low-frequency response” or power depending upon the frequency absorption characteristic of the auditorium.

The ideal P.A. system should have a characteristic which is the converse or opposite of the auditorium’s natural characteristic. It’s not so easy to get a curve like that and it would cost a lot of money for equipment if done completely and scientifically. Herein lies the need for making a careful survey.

**Speaker location**

But before getting into the subject of acoustics let’s see what else the survey should accomplish. A set of drawings from the architect will be of aid in determining the power output and speaker requirements. A side elevation drawing and a floor plan are sufficient. (The architect is a good man to know—he can help you a lot, and he will usually do so if he sees you are going about your job in the right way.) If the drawings aren’t available, take measurements and make sketches to scale.

It used to be a standard method to group all the loudspeakers in one central spot just forward of the stage, on the center line of the building. That’s still good practice in churches or where there is a speaker’s stand and only one microphone location. If there are going to be microphones all along the foot lights, it makes a better job to spread your loudspeakers across the top of the proscenium arch.

By using the floor plan and knowing the distribution angle of the loudspeakers, they can be laid out so as to give even coverage. Remember that with dynamic speakers, the low-frequency spread is very wide and the high-frequency output is not much more than a beam. If it is a speech reinforcement job, the lows should not get through anyhow, therefore not any more than a 60° spread should be figured unless your loudspeaker manufacturer specifies differently.

If there is a balcony, the loudspeakers across the top of the proscenium arch should be used for reinforcement in the balcony only. Don’t try to bend the sound waves down under the balcony to the rear orchestra seats. Sound waves won’t bend. Cover the back of the orchestra with loudspeakers located on each side of the proscenium.

The elevation drawing comes in handy in determining the right height

![Elevation Drawing](image-url)

Elevation of an auditorium having a balcony. Separate speakers are used for coverage up and downstairs. Note how the sound envelope is paralleled to the ceiling to avoid reflections.
DB gain required is dependent upon power output and the mike level.

for these side speakers. Aim them so that the upper envelope of the distribution angle parallels or coincides with the ceiling under the balcony.

**Use of absorption material**

If with this layout there is too much sound on the front wall of the balcony, it is desirable to put on some heavy absorption material such as velour hung in deep folds across the front of the balcony. When installing the loudspeakers for balcony coverage, use the same theory—that is let the upper envelope parallel the ceiling line as nearly as possible. The axis of the speaker in the vertical plane should be aimed near the middle of the balcony seats.

**Keep sound off walls**

The ideal sound system may be described as one where everyone hears perfectly without having the slightest idea that any electrical or "sound" apparatus aid is being used. If the audience doesn't realize there is a sound system, it must be right in sound quality and distribution. For that reason, the back rows should not get as much sound as the seats further front. And remember the people in the front seats don't want to be knocked over either.

Direct the speakers about three quarter ways back; and if the sound waves are kept off the side and back walls, they won't bounce off and stir up a lot of reverberation troubles. Half of this business about "poor acoustics" in walls can be overcome by using some good old horse sense in placing and aiming the loudspeakers.

While a sound level meter is an ideal tool for figuring out the power requirements for an auditorium, because of expense it is usually out of the question for most sound men. However, the cubical content of the room gives fairly good results for figuring in most cases. First of all the cubical content of the hall must be calculated—deducting the mass of balconies and sloping floors.

**Dividing power between speakers**

The accompanying chart shows the number of acoustical watts required for various size installations. The efficiency in per cent and also the power handling capacities should be obtained from the manufacturer of the loudspeakers. If the efficiency is 20 per cent you must multiply the acoustical power by 5 to get the audio output power of the amplifiers (20 per cent = 80) or if only 8 per cent efficient multiply acoustical power by 13 1/2, etc.

If only one loud-speaker is used, its power capacity must be great enough to handle all the soup the amplifier puts out. If two are used, each one will get 3 db less than the maximum, and so on. Each time the load is doubled, half the power is applied to each unit. When the electrical power is converted to acoustical power these are going to add again in the same ratios so don't worry about that.

One must remember, however, that the same amount of sound energy may not be wanted from each speaker. In this case the level differences may be adjusted by working from different taps on an auto transformer. Or if the maximum in quality is desired and power dissipation is not a factor, T type attenuators in the individual loudspeaker circuits can be used. Make sure, though, that the amplifier output is matched into the impedance of your combined load.

**Gain requirements**

The overall gain of the amplifier system depends upon the efficiency of the microphones and the insertion loss of your mixer circuits. Microphone manufacturers will furnish the necessary data on output levels at various distances and angles of incidence. This will aid in determining the spacing required between microphones if they are to be arranged along the footlights and also allow calculations of the total system gain.

If the microphone output is —50 db. and your electrical power required is 6 watts or +30 db. and the insertion loss of your mixers 6 db. your gain must be the algebraic sum of these.
SERVICING PA SYSTEMS

Without question there is a lot of “sound” servicing business to be had these days for the alert service-
man.

School installations which are idle all summer need to be tested out thoroughly at the beginning of every fall term. Auditoria systems which are only used two or three times a year should be carefully inspected and tried out prior to each time it is used as these events are apt to be of consider-
able importance.

Systems need attention

Some of the larger companies have sold inspection service with their instal-
lations but there are today probably thousands of systems which have not had any expert attention since they were installed. In some cases it will be found that it is just as easy to sell a combined servicing and op-
eating contract, particularly where the system is only used a few times a year. Churches offer a very good field for both servicing and operating contracts.

In attempting to sell service, one should have a fair idea of the magnitude of the installation. With this in mind, an itemized statement of what you will do and how often is an excellent approach to a prospective customer. Be specific but make your story complete. The following lists some of the more important items which should be covered particularly with the older installations:
Check batteries (or rectifiers) recharge if necessary.
Check AC line voltage.
Inspect and test all fuses—replace corroded or defective ones.
Clean and lubricate all mixers and other type controls.

Test all vacuum tubes and replace faulty or border line tubes.
Test microphones—if double button carbon type see that units are well balanced and that button currents are normal.
Test all loud speakers—if electro-
dynamic, make sure that the fields have normal currents. If the diaphragms of cone type units have been subject to high humidity, see that they are thoroughly dried out (damp diaphragms not only cause loss of efficiency but create abnormal fre-
quency response patterns). Be sure that the speakers are properly matched to the output of the amplifier.
Test all accessories such as phonographs for correct speed and flutter, radio tuners for good reception, cable connectors for good contacts, etc.

Noise and hum

Test system overall for noise level—electrolytic condensers almost always need to be reformed, particularly after long periods of idleness. This is also the time to check mixer noise—key clicks—transmitter hiss if carbon button units are used. In testing for noise, it is well to terminate the input ahead of all mixer controls, and monitor the output increasing the amplifier gain to its maximum. It may sometimes be found that the loud speakers are of a type which have a low frequency cut-off well above the AC hum region. In such cases it is important to monitor with a speaker which will reproduce this noise, as sometimes through a fault in the filter circuits, this hum may be of such proportion to modulate part of the speech signals.

Test the overall system response using a frequency record or a piano or other musical instruments. A portable audio frequency oscillator is, of course, the most desirable test in-
strument for measuring the system characteristic.

Finally, make an actual talking test, checking the range of pick-up of the microphones and the coverage of the loud speakers. Make this test having someone read as this generally produces the most constant level. Check all parts of the auditorium for loudness and naturalness of sound, noting any discrepancies which might be remedied by better auling of or distribution of energy from the loud speakers. Also include the singing test—that is, advance the gain to a point where singing occurs and then decrease it until it stops. This point should be marked so that the oper-
ator will never exceed it. Determine the best setting for operation where the sound is most natural and com-
parable with the one used when the auditorium is full of people. The dif-
ference will give you an indication of the absorption value of the audience.

Above all—keep a record of conditions as you find them and whatever changes were made. Send a nicely prepared report to your customer—it is impressive and accomplishes two things—it helps to justify the money he has paid you and shows him the necessity for a periodic service of this type. And besides, you will find these records keep increasing in value. They are time savers for you, and they help you sell new replacement parts or a modernization job.

CLEANING ATTENUATOR CONTACTS

While the procedure for cleaning mixers and other step type gain controls is very simple, the Don'ts are extremely important. Briefly the procedure is as follows:

1. Wipe the contacts clean with a clean soft cloth. Never use any form of abrasive or cleaning fluids. Carbons, carbon tetrachloride or the like are all harmful. If you find that someone has previously used vaseline or some other grease or gummy oil—remove as much as possible with your cloth.

2. Put a few drops of a high-grade light oil which is non-corrosive and will not gum on the contacts. Rotate the switch arm until the old dirt is loosened up.

3. Wipe clean with clean soft cloth and lubricate with the same oil using only enough to give smooth operation.

Repeat No. 2 as often as necessary to properly clean all contacts and keep the rest of the unit, particularly the contact plate and the resistance units, free from oil and dirt.

Block diagram showing various components of a sound system.
Substations, like master system, plug in anywhere without special wiring. Can be moved at will. Absolute privacy for every conversation.

**CENTRAL-CALL** master system and substations are smart and modern in cabinet design. Sturdy construction of 5-ply walnut with piano finish. Substation switch makes easy selection. Call by loudspeaker—simultaneous talk as by telephone.

All Metal-Glass Tubes give better tone, greater volume—operates on AC or DC

MODERN executives have been demanding an inter-office communicating system like CENTRAL-CALL for a long time. Speaking delays and awkward interruptions caused by the talk-listen switch are eliminated entirely by the CENTRAL-CALL System. Simultaneous conversation can be carried on privately between master and any one of the substations. So completely selective that no interference or cross talk is possible from other substations.

CENTRAL-CALL adds speed and easy exchange to office communication. The metal-glass tubes and 6 inch speaker assure the finest voice reproduction with plenty of volume in reserve.

No special wiring is needed. Plug in anywhere on the office or house lighting circuit. Saves time and money in wiring... quick installation and immediate operation make big selling features.


CENTRAL-CALL will sell at once on demonstration and by comparison. Territories are open for aggressive distributors who will appreciate the liberal profits. Write or wire at once for complete details.

CENTRAL COMMUNICATION DEVICES, INCORPORATED
140-144 WEST 22nd STREET, NEW YORK CITY

PHONE—CHELSEA 2-7144-5
PUBLIC ADDRESS

Have you ever thought possible you want a power of sound energy in an enclosure through repeated reflections.

Rate of decay—Time involved in absorption of sound energy.

Insertion loss—Attenuation caused by the introduction of elements, combination of elements, or equipment units in any circuit.

Power loss—When the attenuated energy is actually dissipated.

Transmission loss—When input signal is greater than the output signal—may include insertion, power, reflection or transition losses.

Transmission gain—When output signal is greater than input signal.

Optimum reverberation—Desirable average for overall frequency range and various size and shape of enclosure.

Reverberation time—Time required for sound energy to decay to one millionth of its starting value.

Echo—Concentrated sound reflections where noticeable time interval occurs.

Interference patterns—Resultant effect of two or more sound waves arriving simultaneously at same location.

Acoustic feed-back—Sound waves emanating from loudspeakers feeding back to the microphones.

Phasing or polarizing loudspeakers—Connecting speakers so that they will receive the same instantaneous polarity of signals so that their diaphragms will vibrate in unison.

Boomy—Term to describe lack of high frequency response or over-emphasis of low frequency.

Thin—Term describing sound lacking in low frequency response.

Lows—Low frequency energy, either acoustic or electrical.

Highs—High frequency energy, either acoustic or electrical.

Loss—Loss of power.

Wow—Effect of pitch change due to variation of speed in recording or reproducing machine.

Beating—A phenomenon in which two or more period quantities react to produce a resultant having pulsations of amplitude.
...challenge with a line of sound equipment for 1938 that cannot be matched! Light, non-corrosive steel cabinets - streamlined designs - new colors - new values! Lafayette offers you wide range, high fidelity, P.A. equipment ... built for lasting performance. Every part perfectly matched ... every unit styled to sell itself. Look at all lines ... you'll choose Lafayette.

1938 is definitely a Lafayette Sound Year!

MODEL 134-A
Price $2995
20-30 Watt Amplifier

MODEL 101-A
Price $2175
15-20 Watt Amplifier

MODEL 375-P
Price $9850
20 Watt DeLuxe Portable System

MODEL 249-A
Price $1395
5-8 Watt Amplifier

MODEL 371-P
Price $7750
30 Watt Portable System

MODEL 364-P
Price $11650
30 Watt Studio Model System

MODEL 710-P
Facsimili-Tone Theatre System
Descriptive Booklet and Prices on Complete Line Available On Coupon

MODEL 358-P
Price $4250
15 Watt Portable System

MODEL 267-A
Price $3950
30-40 Watt Amplifier

MODEL 369-P
Price $5995
20 Watt Portable System

Above prices less tubes and protective steel cover.
NEW SOUND EQUIPMENT

Electro-Acoustic sound system


Lafayette amplifiers


Selective paging system

* 7-watt interphone system for factory paging, institutions, small hotels, etc. Handles up to 5 remote stations—will select any one or all. Talk back feature operates up to 20-40 feet from speakers. Sufficient power for factory floor spaces of 20 to 30 square feet at average noise level. Webster-Chicago model FC7R. Webster Co., 5622 Bloomingdale Ave., Chicago, Ill.—Selling Sound—see also advt. p. 1.

Aircraft microphone


RCA amplifier


Velocity Hand-i-mike

* Smallest complete velocity mike ever made with a high or low impedance output, designed for use as a hand type, but also can be employed as a desk or mounted on regular floor stand. Flat response from 60 to 7,500 cycles. Output only 3 DB below standard type of velocity microphone. Head measures 2 3/4 x 1 x 13 1/4 inches. Molded rubber case. List $22. Amperite Corp., 581 Broadway, New York, N. Y.—Selling Sound—see also advt. inside front cover.

Oil-filled capacitors

* Round-can oil-filled condensers for inverted mounting in limited space. Hermetically sealed aluminum case with insulated center terminal. Fittings supplied for insulating can from chassis. Units available in 600, 1,000, 1,500 volts DC and capacities of .5 to 4 mfd. Aerovox Corp., 70 Washington St., Brooklyn, N. Y.—Selling Sound.

Ramco sound system

* 15 watt deluxe amplifier system with split carrying cases. Dual input channels with mixing and fading controls. Variable impedance output. 114 DB gain with response from 3 cycles up. Velocity mike, banquet stand, speaker and microphone cables. Model 150. Regal Amplifier Corp., 14 W. 17th St., New York, N. Y.—Selling Sound—see also advt. p. 29.

Crosley interphone

* Low-cost intercommunicating system for homes, offices, etc. 2-way loudspeaking communication. Uses power lines for transmission. Cabinet of walnut measuring 7 1/4 x 11 x 6 1/2 inches. Crosley Chattabox—list $19.99 per unit. Crosley Radio Corp., 3294 Arlington St., Cincinnati, Ohio—Selling Sound.

Mobile sound system

* 6-volt and 110 AC amplifier for mobile use. Has phone and microphone inputs which can be mixed. Four speaker receptacles with change-over switch to match speaker load. Crystal pick-up. Modernistically designed base and hood. Webster Electric Co., Racine, Wis.—Selling Sound—see also advt. p. 2.

Crystal mike

* Microphone with both velocity and pressure operated elements. Uni-directional response with both elements. Velocity element alone gives bi-directional response, while non-
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• Build Profits
• Satisfy Customers
• Flexibility to meet EVERY requirement

REMLER INTER-COMMUNICATION SYSTEMS

Build a permanent and worthwhile business with profitable Remler systems. Priced to meet competition with new features which are not available in other systems, regardless of prices!

Modern styling . . . bakelite cabinets . . . superior station selector system . . . high intelligibility . . . approved by Underwriter's Laboratories. Prices start at $49.50 for two station systems.

REMLER—SINCE 1918

Remler Inter-Communication Systems are backed by the reputation and stability of a trustworthy firm continuously under the same management for twenty years. Write for catalogue sheets, price lists, illustrated folders, sales helps and name of nearest distributor.

REMLER COMPANY, Ltd., 19th at Bryant, San Francisco

Radio Today, September, 1937

NOT in years has there been such a heavy demand for wire in connection with the Serviceman's business. You have noticed it—we have noticed it.

With Public Address going like a prairie blaze and Radio a seething hotbed of activity which promises to be sustained, you will be needing GOOD WIRE.

CORWICO Wires are scientifically produced to do their job 100%. Antenna Systems, P-A Cables, Hookup Wires—"made by engineers for engineers." Use CORWICO on your next contract.

Eliminates "Man-Made" Static on Broadcast as Well as on Shortwave Bands

Licensed by Amy, Aceves & King, engineered with traditional CORWICO care, this masterly aerial system fits every set and every location. Filters out nuisance noises caused by electrical devices. Improves reception generally—widely endorsed by Service men.

No. 14 (illustrated above) $6.75 List

For broadcast and shortwave frequencies, designed to eliminate "man-made" static and afford better reception. 2 to 6 sets can be operated at the same time with an additional lower transformer for each added unit. Other "Noise-Master" units available. WRITE FOR INFORMATION.

CORWICO WIRE CO., Inc.
30 CHURCH STREET NEW YORK CITY
CORWICO Wire Catalog available to Service men. Distribution is exclusively through jobbers
Tubes alone including tubes.

Model nation hand and banquet stand, 813 Complete with Model 8 Portable Unii Electrodynam.

ST.CHARLES MANUFACTURING

TODAY EASY MENT

EASY PAYMENT PLAN.

SOUND. THE 1937 PROFIT LINE!

For NEW 1937 Illustrated Catalog address Dept. R9T

To established Importers Abroad: The Most VALUABLE FRANCHISE in the PUBLIC ADDRESS SYS- TEMS field is still available for some countries. Write TODAY for details.

OPERADIO MANUFACTURING COMPANY
ST.CHARLES - ILLINOIS

6 VOLT D.C.
110 VOLT A.C.

25-35 WATTS

RUGGED・COMPACT・TYPE 132

MOBILE P.A. SYSTEM

Uses Beam Power Tubes... Electronically mixes one Microphone and one Phonograph... Includes Dual Diaphragm Crystal Microphone Hand Type... Two 12" Heavy Duty Permanent Magnet Speakers... Interchangeable Power Packs... can be used in conjunction with Radio Set by using a Model A-3960 Radio Matching Unit.

- Extremely rugged, compact and ready to go in every case where a temporary installation is required. A simple change of parts and it's ready for 110 Volt A. C. or 6 Volt D. C. Beautifully finished in baked black stipple, this unit never falls down on the job expected of it.

PRICE—Unit only, 6 Volt D.C. $142.50 operation including Tubes... Additional for two 12" Permanent Magnet Speakers and Crystal Microphone $750.00 A. C. Power Unit only, with Tubes... $225.00 (Above prices subject to usual jobbers' and dealers' discounts.)

The Most COMPLETE Line of Interm-unicating Systems, P. A. EQUIPMENT, P. A. SPEAKERS AND RADIO REPLACEMENT SPEAKERS THE MARKET AFFORDS. EASY TIME PAYMENT PLAN.

THE PRICED RIGHT LINE... THE LIBERAL DISCOUNT LINE... THE 1937 PROFIT LINE!

NEW THINGS

directional pick-up is obtained with the pressure element alone. A switch selects either one or both elements. Model 720A—list $35.00. Shure Bros., 226 W. Huron St., Chicago, Ill.—Selling Sound—see also advt. p. 30.

Interphone paging system


Espey intercommunicator


Portable sound system

Intercall communicator

* Wire and wireless type interphone systems for home and office use. Office systems for 5 or more stations with all-master units, permitting full intercommunication. Headphone for privacy use—speaker cuts out. Push-button connects with desired station or stations. Intercall Systems, Inc., Dayton, Ohio—SELLING SOUND.

Speech relay system

* Master type interphone system handling up to 4 remote stations. 2-way conversation controlled at master station. Selector switch for any one or all of outlying stations. Model A permits party line operation whereby remote stations may talk among themselves. Aluminum cabinets with silk suede finish. AC-DC operation. Complete set $59.50. Turner Co., Cedar Rapids, Iowa—SELLING SOUND.

30-watt amplifier

* Four-stage amplifier with 30-watt output using push-pull 6L6 tubes, high and low-gain channels—master control—tone control. Field excitation supply of 30 watts. Sold assembled but unwired—model K-30 net $17.75. Eastern Radio & Television Co., 156 Liberty St., New York, N. Y.—SELLING SOUND.

Audio oscillator

* Beat-frequency type audio oscillator with frequency range up to 11,500 cycles and essentially constant output of 2 volts to 500 ohm load. Attenuation independent of output impedance. Walnut cabinet and German silver dial. Hand calibrated over 2-month period to insure against thermal unbalance. Net $35. Televiso Co., 127 N. Dearborn St., Chicago, Ill.—SELLING SOUND.

Remote mixer control

* Two-channel remote mixer for newest RCA sound system. Mixer is connected into circuits so that no signal circuits are taken out of amplifier. Provides same operation as mixer at amplifier—no hum or noise pick-up. Enables operator to monitor sound at a position in auditorium with consequently better sound reinforcement effects. List $24.55 with 50-ft. cable. RCA Mfg. Co., Camden, N. J.—SELLING SOUND—see also advt. outside rear cover.

VOCAGRAPh Thirty Watts "Hushed Power"

* Tube tester with floating filament selector. Five tests possible—inter-element leakage, open element in each circuit, short check between any 2 elements, quality test of complete tube elements, separate sectional test of dual purpose tubes. Model 501 IL-

Supreme tube checkers

* New 6-v and 110-v Mobile Amplifier

The lowest price combination 6-v battery 110-volt line operated amplifier ever built, with full rated 30 watts output from generator or 4-c pack built in. Phonograph player optional. Complete amplifier prices start at $55.00. Write for full details.

FREE ENGINEERING BULLETIN

VOCAGRAPH SOUND SYSTEMS

Division of electronic Ignition Corp., 1460 N. May Street, Chicago, III.

Send us complete data and prices.

Address .

FUNCTIONAL DESIGN

"V" SERIES VELOCITY MICROPHONES

The smooth trim lines and screen housing are more than just style. They contribute to the top performance that typifies the "V" Series. No side-wall reflection. No Resonance.

Priced from $25 to $75 list.

WRITE FOR CATALOG • SEE YOUR JOBBER

ELECTRO-VOICE MFG. CO.

338 E. COLFAX AVE.

SOUTH BEND, IND.

Export Office: 100 Varick St., New York, N. Y.
New Business for SOUND ENGINEERS

- You can attach the Presto 112-D recording mechanism to any radio-phonograph combination to record radio programs off the air. No pre-grooved records needed. The Presto mechanism cuts the groove as it records the sound—makes permanent high quality records that can be played 50 times or more.

Net price to P.A. and service men complete with installation data $64.00

PRESTO RECORDING CORPORATION
137 West 19th St., N. Y. C.

RECORDERs

MICROPHONES
New dynamic. An amazing sound development. Also crystals, carbons, condensers, velocity, ribbons, stands and accessories.

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

Illustrated—net $36.95. Model 502 same as 501 but with 19-range AC-DC multimeter—net $49.95. Supreme Instruments Co., Greenwood, Miss.—SELLING SOUND.

Universal type sound system


8-watt portable PA system

- High-gain portable sound system using crystal microphone. 6L6 beam power output stage, 3½-inch dynamic speaker with 25-foot cable and polarized plug. Banquet mike stand. Housed in case. 8½ x 12½ x 3½. Price $50. Sundt Engineering Co., 4258 Lincoln Ave., Chicago, Ill.—SELLING SOUND.

Communications microphone

- Combination microphone and desk stand with "Grip to talk" switch. Frequency response especially appropriate for communication in all types of commercial applications. Crystal type unit. Complete with 8 feet of cable. Astatic Microphone Lab., Inc., Youngstown, Ohio.—SELLING SOUND.

Speaker and amplifier cases

- Complete line of portable carrying cases for speakers, amplifiers, phonographs, etc. Made of heavy plywood covered with black fabricoid. Reinforced corners, rust-proof hardware. Custom Auto Trunk Co., 300 W. 19th St., New York, N. Y.—SELLING SOUND.
Ray eye monitor. Bass booster and high frequency controls. Dual 12-inch PM speakers, velocity mike, amplifier and split speaker cases. Model HFP90 complete with tubes and cables—list $203.60. Radio Amplifier Labs., 59 Walker St., New York, N. Y.—SELLING SOUND.

Central-call interphones


High-sensitivity multi-meter

* AC-DC multi-range meter using rotary range selectors. Ranges chosen so that commonly measured values fall on upper section of meter scale. Ranges—AC and DC volts 0/3/15/30/60/150/300/600—DC at 20,000 ohms per volt—AC at 2,000 ohms per volt. DC mils 0/50/200/500. Resistance ranges 0/500/50M/20M meg with self-contained battery. Model 320—net $38.50. Triumph Mfg. Co., 4017 W. Lake St., Chicago, Ill.—SELLING SOUND.

Vocograph amplifiers

* Low-priced line of amplifiers with many features. Series thirty available in 10 watts at $32.50, 15 watts at $49.50, 20 watts at $68.50. Electronic Design Co., 164 N. May St., Chicago, Ill.—SELLING SOUND—see also advt. p. 25.

Radio Today, September, 1937

20-watt sound system


Microphone stands

* Line of "select-your-own" mike stands. Base and tubing for stands available separately so that any desired combination may be had. Bases available with %", %", %", and %" inch pipe threads to fit all tubing sections. Gun-metal, bronze, chrome, black or silver wrinkle finishes on bases. 77 distinct combinations possible. Eastern Mike-Stand Co., 56 Christopher St., Brooklyn, N. Y.—SELLING SOUND—see also advt. p. 28.

A pair of Aces for P.A. pick-ups!

Between them, Western Electric's famous "8-Ball" and "Salt-Shaker" mikes meet every Public Address need. Both can be used for non-directional work — both can be transformed quickly for directional work by simply putting on their acoustic baffles. Both are popular with P.A. engineers and dealers all over the country. At their low prices, you can't afford anything less than the true Western Electric quality these mikes give you! For full details: Graybar Electric Co., Graybar Building, New York.

Western Electric

Distributed by GRAYBAR Electric Co. In Canada: Northern Electric Co., Ltd.

Radio Today, September, 1937

27
NEW THINGS

Combination interphone and radio

★ Midget type broadcast receiver incorporated in a new inter-communicating unit. Two-way conversation may be carried on between a monitor station and five outgoing stations. Radio reception at the monitor may be transmitted to any outgoing station. Radio cuts out automatically when system is used for communication by any one of the stations. Resets instantly when conversation is completed. Manufacturers expect new unit to widen interphone market and open up new channels of distribution.

American Carrier-Call Corporation, 29 West 60th Street, New York—Selling Sound—see also adv. p. 15.

★ Extensive alterations are being made at the big electrical store, McCoy's, at Norristown, Pa. Head man at the place is Earl L. McCoy.

METALEX HORNS

A Boon to the Sound Engineer

Model 2800

★ "EX" for Objectionable Resonances

The enthusiastic expression we are receiving regarding the Metalex Horn makes us want everyone interested in public address work to try one.

These efficient exponential horns should not be confused with the so-called parabolic units. Spun from steel and coated with the material "EX", these Metalex horns give almost unlimited wear and have no objectionable resonances. Stocked in 3 sizes.

"The Model NEX2800-12" hocket speaker installed in a Metalex Horn gives almost unbelievable reproduction.

Write for interesting literature.

Wright-DeCoster Distributors are always anxious to cooperate.

WRIGHT-DECOSTER, Inc.

227 University Ave., St. Paul, Minn.


Wm. F. Kelly Co., Toronto, Ont., Canada.

Taylor & Pearson, Ltd., Edmonton, Alta., Canada

SOURCES OF SOUND SUPPLIES

An alphabetical list of sound manufacturers whose advertisements appear in RADIO TODAY or SELLING SOUND. Manufacturers offering advertisements in this list are listed in the ADVERTISERS' INDEX, P. 23.

Amplifiers .......... AMP
Inter-Communicating Systems INT
Kits (Amplifier) K
Microphones
Record Lugs & Recording Equip. RP
Speakers .......... S

ALLIED RADIO CORP., 533 W. Jackson Blvd., Chicago, 0.-AMP, INT
AMERICAN CARRIER CORP., 36 W. 60th St., New York, N. Y.-INT
AMERICAN MICROPHONE CO., INC., 1515 South Western Ave., Los Angeles, Calif.-S
AMPERITE CORP., 561 Broadway, New York, N. Y.-S
ANSLEY RADIO CORP., 240 W. 23rd St., New York, N. Y.-S
ARISTON MFG. CORP., 1015 Divery Ave., Chicago, 11-AMP
ASTATIC MICROPHONE LABORATORY, Inc., 40 Hubbard Rd., Youngstown, Ohio-AMP
ATLAS SOUND CORP., 1531 36th St., Brooklyn, N. Y.-AMP, INT, N. M, S
BOGEN CO., INC., DAVID, 663 Broadway, New York, N. Y.-AMP, INT
BRUSH DEVELOPMENT CO., 33rd & Perkins Ave., Cleveland, Ohio-INT, S
CENTRAL COMMUNICATIONS DEVICES, 140 W. 24th St., New York, N. Y.-INT
CINEMAGRAPHE CORP., 110 E. 69th St., Standard-INT
CONSOLIDATED RADIO PRODUCTS CO., 615 W. 45th St., Chicago, 0.-INT
CONTINENTAL CARRIAGE, Inc., 13000 Lorain Ave., Cleveland, Ohio-INT
CONTINENTAL MOTORS CORP., 13001 S. Jefferson St., Detroit, Mich.-INT
CORNER WIRE CO., INC., 20 Church St., New York, N. Y.-amp, INT
DICTOGRAPH PRODUCTS CO., INC., 500 Fifth Ave., New York, N. Y.-INT, S
EASTERN MICRO-STAND CO., 56 Christopher Ave., Brooklyn, N. Y.-S
ELCA-CHEMICAL CORP., 470 Madison Ave., New York, N. Y.-S
ELECTRO-AKU-SOUND, INC., 470 Madison Ave., New York, N. Y.-INT
ELECTRO-VOICE MFG. CO., 828 South Fourth St., Dayton, Ohio-AMP, INT
ELECTRONIC DESIGN CORP., 161 N. 5th St., Chicago, Ill.-AMP, INT
GENERAL INDUSTRIES CORP., 837 Taylor St., Elkhart, Ind.-INT
INSULINE MFG. CO., 719 Park Pl., New York, N. Y.-INT
JESEN RADIO MFG. CO., 6001 S. Lakeview Ave., Chicago, Ill.-INT
KREIGLER COMMUNICATIONS, INC., 250 W. 5th St., New York, N. Y.-INT, S
LEUTHEN RADIO CORP., 63 Dey St., New York, N. Y.-INT
MARCOPHONE, INC., 679 Madison Ave., New York, N. Y.-S
MILES REPRODUCER CO., INC., 412 Broadway, New York, N. Y.-INT, K. M, RP, S
OPERADIO MFG. CO., 13th & Indiana Sts., St. Louis, Mo.-INT, S
OXFORD TALKIE RADIO MFG. CO., 913 W. Van Buren St., Chicago, Ill.-INT
PHILCO RADIO & TELEVISION CORP., Toronto, Ont., Canada-INT, INT, INT, S
PILGRIM ELECTRIC CORP., 44 W. 15th St., New York, N. Y.-INT
PORTMATIC CORP., THE, 1013 Madison Ave., New York, N. Y.-INT, S
PRESTO RECORDING CORP., 139 W. 19th St., New York, N. Y.-INT
QUAN-NICHOLS CO., 53rd Pl. & Cottage Grove Ave., Chicago, Ill.-INT
RADOLEK CO., 601 W. Randolph St., Chicago, Ill.-AMP, INT
RADIO RECEPTOR CO., INC., 251 W. 19th St., New York, N. Y.-INT, S
RADIO SPEAKERS, INC., 1333 S. Michigan Ave., Chicago, Ill.-INT
RCA MANUFACTURING CO., INC., Front & Cooper Sts., Camden, N. J.-AMP, INT, M, S
REGAL AMPLIFIER MFG. CO., 114 W. 17th St., New York, N. Y.-INT
RENNER CO., LTD., 2101 Bryant St., San Francisco, Calif.-AMP, INT, M, RP
SHURE BROS., 221 W. Barney St., Chicago, Ill.-INT
SIFURER MFG. CORP., 2900 S. Michigan Blvd., Chicago, Ill.-INT, S
SIMPLEX RADIO CORP., THE, Enchanted, Calif.-INT, S
SOUTHERN ELECTRIC PHONOGRAPH CO., INC., 160 Varick St., New York, N. Y.-INT
SOUND PRODUCTS CO., 19 Rector St., New York, N. Y.-INT
STANDARD TRANSFORMER CORP., 830 Blackhawk St., Chicago, Ill.-INT, S
STROMBERG-CARLSTAD TELEPHONE MFG. CO., 100 Carson Rd., Rochester, N. Y.-INT, M, RP, S
THORDARSON ELECTRIC MFG. CO., 500 W. Huron St., Chicago, Ill.-INT
TRANS-CORDER CO., 33 Rockefeller Plaza, New York, N. Y.-INT, S
TRANSFORMER CORP. OF AMERICA, 69 Wooster St., New York, N. Y.-INT
TROY RECORD MFG. CO., 1112 S. Olive St., Los Angeles, Calif.-INT
UNITED SCIENTIFIC LABS, 62 W. 14th St., New York, N. Y.-INT
UNITED SOUND ENGINEERING CO., 2235 University Ave., St. Paul, Minn.-AMP, INT, INT
UNIVERSAL MICROPHONE CORP., LTD., P. O. Box 290, Indianapolis, Calif.-AMP, INT, M, RP
UTAH RADIO PRODUCTS CO., 830 Diversey St., Chicago, Ill.-INT, INT
WARD & CO., MONTGOMERY, W. Chicago & N. Larr St., Chicago, Ill.-INT
WARD PRODUCTS CORP., 1233 E. 45th St., Cleveland, Ohio-Amp, INT
WEBSTER-CHICAGO, 5622 Bloomingdale Ave., Chicago, Ill.-AMP, INT, M, RP, S
WEBSTEER ELECTRIC CO., Racine, Wis.-INT, INT, S
WESTERN ELECTRIC CO. (Stewart Co.), 130 W. 23rd St., New York, N. Y.-INT, INT, S
WORLD-WIDE OPTICAL & SUPPLY CO., 100 Sth Ave., New York, N. Y.-INT, INT, K
WRIGHT-DECOSTER, INC., 2273 University Ave., St. Paul, Minn.-INT

RCA MANUFACTURING CO., INC., Front & Cooper Sts., Camden, N. J.-AMP, INT, M, S
REGAL AMPLIFIER MFG. CO., 114 W. 17th St., New York, N. Y.-INT
RENNER CO., LTD., 2101 Bryant St., San Francisco, Calif.-AMP, INT, M, RP
SHURE BROS., 221 W. Barney St., Chicago, Ill.-INT
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UNITED SOUND ENGINEERING CO., 2235 University Ave., St. Paul, Minn.-AMP, INT, INT
UNIVERSAL MICROPHONE CORP., LTD., P. O. Box 290, Indianapolis, Calif.-AMP, INT, M, RP
UTAH RADIO PRODUCTS CO., 830 Diversey St., Chicago, Ill.-INT, INT
WARD & CO., MONTGOMERY, W. Chicago & N. Larr St., Chicago, Ill.-INT
WARD PRODUCTS CORP., 1233 E. 45th St., Cleveland, Ohio-Amp, INT
WEBSTER-CHICAGO, 5622 Bloomingdale Ave., Chicago, Ill.-AMP, INT, M, RP, S
WEBSTEER ELECTRIC CO., Racine, Wis.-INT, INT, S
WESTERN ELECTRIC CO. (Stewart Co.), 130 W. 23rd St., New York, N. Y.-INT, INT, S
WORLD-WIDE OPTICAL & SUPPLY CO., 100 Sth Ave., New York, N. Y.-INT, INT, K
WRIGHT-DECOSTER, INC., 2273 University Ave., St. Paul, Minn.-INT
David Bogen, maker of sound equipment, uses new Bogen Commun o-phone.

* One of the season's biggest public address jobs in New York City went into the Metropolitan Hospital, Welfare Island, when Wholesale Radio Service Co. recently installed a new Lafayette central system for the institution. The set-up handles 70 loudspeakers distributed throughout wards and departments for radio programs and announcements. Equipment also supplies the P.A. requirements for the main auditorium.

* Central Communications Development Corp. now have new headquarters at 104 W. 22nd St., New York City. The layout includes space for offices, factory and laboratories; the firm manufactures Central-Call intercommunicators for national distribution.

* Regal Amplifier Mfg. Corp., 14 W. 17th St., New York City, have completed an agreement with Electrical Research Products, Inc., whereby they are licensed to make and sell public address and intercommunication equipment under patents owned or controlled by Western Electric and American Telephone & Telegraph Co. Regal products will be merchandised under the trade name of Ramco.

The company makes a complete line of amplifiers, 5 to 100 w., portable and fixed, and also produces intercommunicating systems of both the wireless and wired types. Walter Spiegel is sales and advertising manager.

* American Carrier-Call Corporation, makers of intercommunicator systems, have moved to larger quarters on the eighth floor of 39 W. 60th St., New York City, where the company's research laboratories and its plant for the manufacture and assembly of systems are now combined under one roof. A news operating head of the Carrier-Call organization was announced by President Gatter at a recent meeting at which changes were voted by the board. T. Stockton Gallines was elected executive vice-president. There will be no successor to former sales manager Gottschall, who died soon after his withdrawal from the company.

Leaflets describing microphone floor stands, bases, shock absorbers, etc., as well as new desk and banquet stands, have been released by Eastern Mike-Stand Co., 56 Christopher Ave., Brooklyn, N. Y.

* Amplitone Products Co., 152 Washington St., New York, N. Y., will send on request a new catalog on Amplitone amplifiers.


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Radio Today, September, 1937
SOUND NEWS

Shure "ULTRA" offers you the highest performance available today in general purpose microphones. 8 exclusive built-in features give thrilling life-like reproduction and steady dependable service...yet "ULTRA" is unusually low in price. Because of this, "Ultra" Crystal Microphones are standard equipment with nationally known sound equipment manufacturers and eminent sound engineers everywhere. Available in Uni-Directional, Bi-Directional and Spherical models.

List Price, complete with 7 ft. cable, $25

★ SHURE "TRI-POLAR"

31
Uni-Directional Bi-Directional Non-Directional

All in ONE Crystal Microphone

Here, for the first time, is one microphone that does everything! Give you all three directional characteristics (1) Uni-Directional (2) Bi-Directional (3) Non-Directional—in one unit, each instantly available through a 3-point selector switch.

The Shure "TRI-POLAR" is the most advanced microphone available anywhere at any price! It enables you to select just the sound you want...gives you better results under adverse acoustic conditions.

Model 722A, complete with 25 ft. of cable, List Price, only $39.50

ZEPHYR CRYSTAL PICKUP

The Shure ZEPHYR "Balanced-Tracking" Crystal Pickup reduces record wear...increases record life. Improved wide-range response gives high reproduction.

Model 99B, List Price...$12

Specially designed Arm-Rest available at 50c. List additional. Pins arm down on post to lock. Releases when lifted.

For complete details ask your jobber, or write for Bulletin 145F today.

Shure patent pending. Licensed under patents of the Brush Development Company.

★ Universal Microphone Co., Inglewood, Calif., is under way with the production and distribution of a line of crystal microphones, incorporating the crystals of the Brush Development Co. First model is called the Handi-Mike and others will follow.

★ Epiphone, Inc., 142 West 14th St., New York City, makers of tube-amplifier musical instruments, have announced their exclusive national distributorship for DuMont Laboratories' new Resonoscope, an instru-

ment for determining the pitch of musical instruments or the voice.

★ A carbon microphone is offered by the Electro-Voice Mfg. Co., 338 E. Colfax Ave., South Bend, Ind., as a prize for suitable questions for the newly published Electro-Voice fun publication. First volume of this new publication carries a list of 20 questions with the multiple-choice type of answers.

★ H. A. Kapit, president of Atlas Projector Corp., and also head of W. O. Guttho, Inc., jobbers of 18 mm. sound-on-film, has announced that early this Fall, they will market a popular priced portable 16 mm. sound projector. The equipment is described as ideal for home and classroom use.

BOGEN SOUND SYSTEMS

ALWAYS FIRST WITH THE LATEST

This organization has not been content merely with keeping abreast of modern trends and developments. Repeatedly we have been "FIRST WITH THE LATEST" in keeping with this policy, we will present for the first time in commercial sound equipment...

BINAURAL AMPLIFICATION AND ELECTRONIC TONE CORRECTION

Don't fail to hear these radical and different methods of sound amplification.

On display at EEOH NO. 14 COMMERCIAL HALL NATIONAL TRADE SHOW N. Y. C., OCTOBER 1-3

DAVID BOGEN CO., Inc. 663 Broadway New York City

PIONEERS IN PUBLIC ADDRESS DEVELOPMENT

SELLING SOUND
DISTRIBUTOR-DEALER PROBLEMS
(From page 9)
6. By all means, never "build your own"—at least for sales purposes. You are a thousand per cent better off to offer a factory-made outfit, for several good reasons. Such a product has a resale value. It offers good design, which the average man cannot possibly give. This may hurt the average sound man's ego, but if he is after profit, he had better heed this.

7. Sound equipment has a rather rapid depreciation. For this reason at intervals sell your obsolete equipment, or even junk it—you will be money ahead to "keep up with the parade."

8. Price your service and equipment properly, and then if some other firm wants to underbid you, let them have the job. Underbidding them will only cause them or you to lose money. Better let the other fellow be a victim to his folly.

9. Watch your accounts. Credit only those whom you know to be "good." Service to a dead beat means your time and money thrown away.

Jobbers see rapid growth

"Our own opinion is that unit sales of sound equipment are perhaps 100 per cent larger now than they were last year," says Seattle Radio Supply Co., Inc., Seattle, Wash. "We notice that the over-all dollar volume in the business is increasing rapidly."

"Out here in Wisconsin, sales of sound equipment look to us about 100 per cent better than they were last year," reports Valley Radio Distributors, Appleton, Wisc. "The over-all volume done in the business is definitely on the increase."

"We will say that sales of sound equipment are about twice as good as a year ago," writes J. H. Larson, Hudson, Wisc. "And the activity is such that total dollar volume done in the business here is certainly increasing."

SELLING AN AUDITORIUM JOB
(From page 17)

116 db. (80+30+6), as shown in accompanying chart.

In earlier paragraphs mention was made about absorption characteristics and acoustics. As a general rule most auditories which haven't been treated acoustically have a high reverberation time at the low frequency end. That's why when a flat system is used it sounds boomy and unnatural.

Too much bass objectionable

One of the most recent P.A. jobs that is really good, used horns that didn't have any response below about 400 cycles. You may recall some of the older type horns that didn't sound so natural. One of the reasons was that a lot of people tried to make low frequencies come out of those horns and others tried to squeeze too much power out of them.

It is surprising what improvement can be made both in the singing point of a system and the naturalness of the sound if an equalizer (adjustable if possible) is used to attenuate the lows. It is preferable to insert it in near the input stages or right after the mixers. Sound picture recording engineers use them most all the time and they call them—dialogue equalizers. By taking the auditorium characteristics into consideration, one will save a lot of trouble and save the customer a lot of expensive acoustical treatment.

One of the most practical ways to determine what equalizing is needed is to turn up the gain until the system sings. The frequency it sings at is the natural peak of the auditorium characteristic if a substantially "flat" sound system is employed. With a set of tuning forks (can be borrowed from local high school) or a frequency record or piano the value of the frequency can be determined. Then attenuate that part of the frequency band with a resonant circuit if necessary. Put in just enough attenuation to make the system sound natural and the singing frequency will be high enough to avoid low frequency difficulties.

Radio Today, September, 1937

5 MINUTE TONE TEST

Try it with a "Bullet" Microphone!

- Believe your own ears! Try the five minute tone test. Here's what you do. Listen to sound reproduction using any velocity or crystal mike comparable in price to a "Bullet" model. Listen to it for a full five minutes. Then disconnect it and immediately hook up a "Bullet" mike . . . and listen. You'll be amazed at "Bullet" superiority! Nothing we could say would be as convincing as this testimony of your own ears. Try the tone test and you'll agree that "Bullet" is the big buy in mikes.

When our engineers created the new 1938 "Bullet" dynamic microphone they built a line unsurpassed in quality and performance. "Bullet" mikes are remarkably sensitive, rugged and dependable. You who appreciate fine quality in sound reproduction will do well to get complete data on the new "Bullet" line. Models TR-5, 7, 9 and 11 range in list price from $27.50 to $100.00. There's a model to fill your need. For complete data and prices, write new address Dept. 88.

"BULLET" MICROPHONES
Made only by

TRANSUDER CORPORATION
30 Rockefeller Plaza
New York

SOUND PRODUCTS COMPLETE LINE OFFERS

MORE QUALITY PER STYLE PER POWER PER

TERRITORY OPEN FOR JOBSTERS AND DEALERS

THIS COMPLETE
20 WATT
BEAM POWER ULTRA MODERN SYSTEM
$150.00

READY TO OPERATE
- 1-Dynamic microphone
- 1-Flip stand
- 2-10" P.M. Speakers
- 2-Speaker boxes
- 1-P.A. 20 amplifier

SOUND PRODUCTS
"ARE SOUND PRODUCTS*

704 N. CURSON AVE.
HOLLYWOOD, CALIF.
DO YOU KNOW YOUR DECIBELS AND ACOUSTICS?

Here is the only magazine and handbook devoted solely to the business of Selling Sound

Published Semi-annually as Part II of Radio Today.

NOW that you have your first issue of Selling Sound—and it will speak for itself—you owe it to yourself to take two important steps that will serve your own self-interest. First, read it from cover to cover, in order that you will know what it contains and how to put it to work.

Second, make sure of getting all future issues of Selling Sound, because each succeeding issue will be even better than the first, and you must keep abreast of things if you don't want to be at a competitive disadvantage.

This publishing service puts in your hands a continuous and complete source of information on sound. Every month RADIO TODAY brings you feature articles and news of sound—new merchandise, technical and installation data, selling hints, etc.—and semi-annually, you receive a complete specialized service in an all-sound magazine.

How to Get the All-Sound Magazine and Handbook

Selling Sound will be sent only to paid subscribers of RADIO TODAY whose subscriptions include the months in which Selling Sound is published, viz.: September and March.

For example, if your subscription to RADIO TODAY expires with the September issue, you must renew your subscription in order to receive the next issue of Selling Sound.

If your subscription expires with the February issue, you must renew it promptly or extend it now. Otherwise you will miss the March issue of both magazines.

If you are not a paid subscriber to RADIO TODAY, you can enter your subscription now and receive all issues of both magazines for one year. In addition, you will be entitled to one free copy of the Radio Dealers' Handbook or the Radio Trade Directory, whichever you choose.

12 Issues of RADIO TODAY
2 Issues of SELLING SOUND
1 Copy of Radio Dealers' HANDBOOK
or RADIO TRADE DIRECTORY

Caldwell-Clements, Inc., 480 Lexington Avenue, New York, N. Y.
RECOGNITION—the REWARD FOR ACCOMPLISHMENT

CINAUDAGRAPH CORPORATION, with its extensive background of engineering experience and modern manufacturing facilities, has justifiably earned leadership recognition from the entire radio industry. This is because its line of speakers is outstanding in performance, quality of materials and workmanship. CINAUDAGRAPH Speakers are styled and built to meet today’s requirements—they are sold on a competitive price basis.

MODEL SUA—A powerful exponential unit with 3½" voice coil—the ultimate in air column sound projectors.

CINAUDAGRAPH will continue to set the pace in Speaker design, improvement and efficiency. Send NOW for latest descriptive literature.

A complete line of Magic Magnet Speakers ranging in size from 5 to 18 in.
ANOTHER RCA FIRST
REMOTE ELECTRIC MIXING

† (at left) The most important and valuable item ever developed for use in connection with PA equipment. Permits mixing of input circuits at any desired point remote from the amplifier. Shielded signal circuits not required. An absolute requisite for ball park, auditorium and similar installations.

† (above) A new high gain, general purpose, quality amplifier at low cost. Beam power output. Excellent frequency response...continuously variable tone control, reverse feed back circuit...microphone and phonograph inputs...wide variety output impedances...attractively finished in silver gray and aluminum. MI-4264, Price $36.50 (Less Tubes).

† (above) A de luxe, 24-watt amplifier with remote electric mixer. Splendidly shielded and cushioned input circuits insure quiet operation. Inverse feed back circuit...continuously variable tone control...automatic bass compensation for phonograph reproduction...two 250 ohm and two 0-5000 inputs...variable output impedance 4 to 250 ohms...finish, silver gray and aluminum. MI-4284, Price $133.50 (Less Tubes and remote electric mixer unit).

† (above) A remarkably efficient 12-watt amplifier. Operates from either 110 volts AC or 6-volt dynamotor. Excellent mobile unit for sound trucks, buses, etc. 250 or 500,000 ohm inputs. Finished in silver gray and aluminum. MI-4274, Price $78.60 (Less Tubes).

† (above) A universally adaptable PA System. Operates from 110-AC or 6-volt storage battery and dynamotor. Permanent or mobile installation. 12 watts output, two powerful dynamic speakers with RCA velocity microphone. Provides a highly efficient PA System for numerous locations where good sound is paramount. PG-112, Price $199.50.

† (above) RCA quality at low cost. Here's a portable RCA unit that will find numerous ready buyers because of its highly efficient, general purpose amplifier. Record reproduction alone, or as a background to voice. Complete in every respect, as illustrated. PG-111, Price $99.50.

† (above) Two ace microphones for PA use. Left, RCA Junior Velocity "Mike." Provides real reliability and long life. New alnico magnets—marked increase in sensitivity, much higher signal to noise ratio. High, intermediate, or low output impedance. Adjustable mount, highly flexible. Uneffected by temperature or pressure changes. Bi-directional with null plane. MI-4036, Price $45.50. Right, RCA Aerodynamic "Mike." Small enough to fit the hand. Excellent frequency response. High sensitivity. Excellent for close talking. No external excitation or power required. MI-6226, Price $26.50.