Radio and Television Today

The New Television Sets—How to Sell, Install, Service
"Selling Sound"—Sales Ammunition and Equipment

April
THE MOST SIGNIFICANT NAME IN TELEVISION!

Philo T. Farnsworth, Pioneer in Television and Founder of Farnsworth Television and Radio Corporation.

FARNSWORTH

The only organization which has devoted its entire attention to ELECTRONIC TELEVISION RESEARCH and DEVELOPMENT over a period of 13 YEARS.

1922 — Farnsworth conceives the basic principles of modern Electronic Television.
1926 — Farnsworth laboratories for developing Electronic Television established. (October)
1927 — Farnsworth transmits a wholly Electronic Television picture.
1928 — Farnsworth transmits motion pictures by Electronic means.
1929 — Farnsworth Television Incorporated is formed. (March)
1934 — Farnsworth gives general public demonstration of Electronic Television at Franklin Institute in Philadelphia. (August)
1938 — Farnsworth Television & Radio Corporation formed, succeeding Farnsworth Television Incorporated. (December)
1939 — Farnsworth acquires factories to manufacture television transmitters, receivers and allied products. (March)

TODAY, with the advantage of 13 years of unrivaled research and development, Farnsworth enters the field of manufacturing, prepared to create a position in the new industry commensurate with its leadership in research.

Organization is rapidly nearing completion at the Farnsworth factories in Fort Wayne and Marion, Indiana, for production of television transmitters and receivers, radio sets, radio-phonograph and other allied products.

FURTHER ANNOUNCEMENTS will be made which will be of vital interest to forward-looking DISTRIBUTORS and DEALERS.

FARNSWORTH TELEVISION & RADIO CORPORATION

3700 Pontiac Street Extended
FORT WAYNE, INDIANA
Look Inside this FREE Booklet

The New

MALLORY

Replacement Vibrator Guide
Gives All the Answers on Auto Radio Installation and Service

- Complete and up-to-date vibrator replacement chart for all makes and models of auto radio and battery operated household receivers.
- Complete cross-reference of Mallory Vibrators by make and model of receiver.
- Practical vibrator servicing and testing information with "scope" pictures.
- Auto radio installation and interference elimination in 1939 cars.
- Vibrator connection charts.

See your distributor for a FREE COPY TODAY

and remember . . .

Only the Second Edition Mallory-Yaxley Radio Encyclopedia gives you complete replacement data on controls, condensers, vibrators, tubes and transformers. It covers every servicing problem...you cannot afford to be without it. Ask your distributor.

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

Use P. R. MALLORY & CO., Inc.
REPLACEMENT CONDENSERS...VIBRATORS

P. R. MALLORY & CO., Inc.
REPLACEMENT VOLUME CONTROLS

Subscription price U. S. and Latin American countries, 1.00 for 2 years; Canada: $1.25 for 2 years. All other countries, $2.00 for 2 years, single copy, 15c. Entered as second-class matter July 24, 1936, at the post office at New York, N. Y., under the Act of March 3, 1879. Printed in U.S.A.
Member of A. B. C. Copyright 1939 by Caldwell-Clements, Inc.
I-2-3 DEPENDABILITY

SYLVANIA RADIO TUBES occupy a prominent place on the shelves of thousands of modern radio stores and service shops throughout the United States. The reason? 3-way dependability! Today's progressive retailers know what the name "Sylvania" signifies: a dependable company ... that manufactures a dependable product ... that sells at a dependable profit.

HERE'S THE PROOF:

1. COMPANY DEPENDABILITY: Sylvania's owners are actively engaged in the company's management! Sylvania does business in 121 countries! Sylvania maintains one of the industry's largest and finest engineering staffs!

2. PRODUCT DEPENDABILITY: Every Sylvania tube is the result of scientific design and development! All Sylvania materials are critically analyzed before use! Experienced engineers supervise every step of Sylvania manufacture!

3. PROFIT DEPENDABILITY: Sylvania is one of the world's largest-selling tube lines! Sylvania policies tend to establish freedom from price cutting! And Sylvania's complete line means no lost sales!

SELL SYLVANIA

SET-TESTED RADIO TUBES

DEPENDABLE ALL WAYS

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

RADIO TODAY
Riding the Crest of a Great New Trend...

Emerson

... Comes Through with 3 New Leaders!

All America is going “Portable”—and Emerson is in the lead with Style, Performance, Value and Profit-Making Promotion for the trade. Look over these “bonanzas” and get in touch with your Emerson distributor NOW!

Self-Powered Portable
At a New Low Price


COMPLETE WITH BATTERIES $19.95


$17.95


COMPLETE WITH BATTERIES $24.95

Ask Your Emerson Distributor for Complete Details.
Other Emerson Models from $6.95 to $219.95.

EMERSON RADIO AND PHONOGRAPh CORPORATION • 111 Eighth Avenue, NEW YORK, N. Y.

World’s Largest Maker of Small Radios

APRIL, 1939
STROMBERG-CARLSON HAS BEEN MANUFACTURING HIGH GRADE VOICE TRANSMISSION AND RECEPTION APPARATUS FOR 45 YEARS...

NOW IN TELEVISION

There is nothing finer than a Stromberg-Carlson

SINCE 1894, Stromberg-Carlson has been preeminent in the manufacture of telephone and radio apparatus. Today, Stromberg-Carlson is proud to announce its new Television Receivers... engineered to the same high standards, tested to the same exacting requirements, and merchandised with the same respect for dealer profits for which Stromberg-Carlson is well known.

Stromberg-Carlson Dealers will have a real Television selling feature in the Labyrinth, for the size and number of parts in a console type Television Receiver necessitate a roomy cabinet, so big that, without the Labyrinth, booming sound vibrations spoil tone and rattle delicately adjusted components.

Showings of the actual Stromberg-Carlson models are now being scheduled.

STROMBERG-CARLSON TELEPHONE MFG. CO., 100 CARLSON ROAD, ROCHESTER, N. Y.
The beacon light is always flashing from the lighthouse—that is the basic tradition of the Service. The captains of windjammers and luxury liners know they can depend upon these warnings.

For that reason the U.S. Lighthouse Service takes no chances. Its gear and equipment is all tested and retested, time after time, to prove that it will uphold the reputation of the Service. Nothing but the best can get inside a lighthouse!

For that reason, we are proud that RAYTHEON is the tube you will find in communications receivers the Service depends upon!

That same quality and dependability are the reasons why the better servicemen—those who are in business to stay—feature RAYTHEONS in their service work. And they cost no more than the second-best tube!

RAYTHEON PRODUCTION CORPORATION
Newton, Mass. ¦ New York ¦ Chicago ¦ San Francisco ¦ Atlanta
Crosley Special "SHELVDORS"

are the easiest refrigerators to sell this season because customers easily see they are the BEST values on the market!!

LA9-60
6 cu. ft.
SPECIAL SHELVDOR
$132.50

LA9-40
4 cu. ft.
$112.50

LA9-50
5 cu.ft.
$122.50

Crosley Special Shelvadors are an achievement in quality refrigeration, designed and manufactured to give STANDARD service at lowest possible prices. The hermetically sealed Electrosaver insures minimum operating cost. The Shelvador assures greatest efficiency in use—savings in steps, food and energy—long and lasting satisfaction—to which thousands of women are testifying throughout the world.

THE CROSLEY CORPORATION
CINCINNATI

POWEL CROSLEY, Jr., Pres.

RADIO TODAY
Now, you can get the complete new Utah catalog. 32 pages of illustrations and descriptions of Utah SPEAKERS—VIBRATORS—TRANSFORMERS and UTAH-CARTER PARTS, just off the press.

The new Utah catalog is packed with important information, from cover to cover. Every active radio dealer, serviceman and jobber should have a copy. It may cost you time and money to be without it—don’t take the chance. Mail the coupon today for your FREE copy.

UTAH RADIO PRODUCTS CO.
CHICAGO, ILL.
CABLE ADDRESS: UTARADIO—CHICAGO

Utah Radio Products Co., 816 Orleans St., Chicago, Ill.
Please send me without obligation a copy of the new Utah catalog.

Name: ____________________________
Address: __________________________
City: ____________________________ State: ___
PHILCO will present SHORTLY, to a Convention of its Distributors, a complete New Line of TELEVISION RECEIVERS

PHILCO has announced Television. Since February 16th, Philco dealers and their friends at various key centers of the country have witnessed demonstrations of the mobile television transmitter and television receivers developed by Philco. These instruments are the result of many years of pioneer research in the field of television which has been conducted in the vast Philco laboratories.

Philco television receivers have been sufficiently advanced for practical demonstrations since 1936. At that time, over two thousand Philco dealers and distributors had the opportunity to view in Philadelphia a television picture whose superiority was even then widely acclaimed in the press. Much progress has been made since that time. The results being demonstrated throughout the country today are evidence of the fact that Philco still remains at the forefront of television research.

But, the television receivers which will be announced to Philco distributors at their convention—in June—will be news to them, news to the trade and news to the world. We refer to them as a new line in relation to those which are on demonstration today, and which represent the limit of achievement thus far announced in the industry. THEY WILL BE NEW IN PERFORMANCE, NEW IN APPEARANCE AND WILL PRESENT A DEFINITE ADVANCE IN THE ART OF TELEVISION.

In television research, Philco has given evidence of the same characteristics which have made it the leader in the scientific progress of radio. The art of television today bears the definite impress of Philco engineering. Philco believes in television as an industry... and as a BUSINESS for the radio dealers of America.

Philco focuses its attention on the fact that the radio dealer will be the medium through which television will reach the consumer. For that reason, the dealer must be the first to see, know and understand it. And because television can become a true source of profit to the dealer only with the spread of broadcasting to the large centers of population, Philco feels that the best way to promote action toward that end is to bring television to those cities...to create a desire for television service among the civic leaders of those communities by allowing them to see it locally in actual operation.

That's why Philco is showing television to the radio dealers in the key centers of America today. That's why Philco distributors, assembled in Convention—in June—will be the first to see Philco's new line and new developments in television.

PHILCO RADIO & TELEVISION CORPORATION
"Experimental television service to the public"—as defined by RMA—begins in the New York area this month. Its coming brings two distinct sets of problems to the radio trade—one set for dealers in television areas; another lot of problems for the larger part of the trade beyond television transmissions.

Most radio dealers inside the limited television areas see in television a stimulating new business opportunity for expanding sales of larger units, under the glamour of intense public interest. Yet even here, a note of caution is sounded in Radio Today’s survey of the plans of metropolitan merchandisers which appears on following pages.

TELEVISIONLESS TERRITORIES

But to the three-quarters of our radio dealers who will be without television broadcasting for some time to come, television talk in the newspapers and popular magazines, is bringing an immediate hazard to radio-set sales. People will want to “wait.” Then it will be the dealer’s job to urge such buyers not to hold off getting a radio, but to enjoy the good things that are on the present broadcast channels. To show the customer that a good radio is still as good an investment in home entertainment as it ever was.

It will require skill and convincing argument to point out the limitations of television transmission. In televisionless Omaha, one dealer has even bought a television set for his salesroom to clinch this point. When customers start talking about “waiting for television,” he leads them to this dark and silent television set. “There you see, we have a set—but try it for yourself,” says the salesman. “Well, if that’s all it will do,” concludes the customer after a minute’s fiddling with dials, “I guess you’d better show me a nice radio console.” That incident sounds the keynote: In areas without television, radio sales must still go on!

KNOW THE FULL FACTS

Yet, even radio dealers and distributors in televisionless territories will want to inform themselves all about the new art. For that reason they will find especially valuable the pages that follow, showing the new television sets, the television channels, and plans for selling and servicing television receivers. Eventually, these problems of television service will be theirs also. But how soon, nobody knows.

Radio Today believes that television eventually will be a nationwide service, and that, as in the case of present broadcasting, the way will be found to make television economically sound for all involved—television broadcasters, manufacturers, distributors and dealers.

"RADIO BUSINESS AS USUAL"

But at the moment, the press, manufacturers, and distributors have a double duty:

1. In the television areas, to push the “public-television” experiment to a sound conclusion enlisting the widest possible purchases of televisions, in order to test television on an adequate scale.

2. In televisionless areas (which still far outnumber video areas) all hands must cooperate in telling the truth to public and trade, and push regular radio sales to the limit! Future articles in these columns will tell results of aggressive selling of radio in the face of television. Radio Today proposes to keep radio sales going ahead full steam, also. “Radio business as usual.”

Television is coming. But radio is here to stay!

It is in such terms that we mean: “Let’s sell television right.”
Father's day for extra sales

Father's Day, June 18, will offer dealers a tie-in with a national publicity campaign and a chance to boost sales. A doting family can be readily interested in an office or bed-room radio for its broadwinner, and there is always the possibility of a console sale. For a true music lover, nothing could be more appropriate than a phonograph combination or attachment. Record albums of "his" favorite composer should be a big seller too.

In cooperation with this campaign, Henry C. Bonfig of RCA Mfg. Co. is the co-chairman for the radio industry. Dealer posters and other helps can be obtained from the Nat'l Council for the Promotion of Father's Day, 32 E. Fifty-seventh St., N. Y. C.

Rural radio in use

Sixty-nine per cent of America's 13,721,000 rural families own radios, according to the Joint Committee Study of Rural Radio Ownership and Use. Over 20 thousand interviews were made with farmers and residents of towns under 2,500 in population (also classed as rural).

Rural Radio Ownership
Total rural families 13,721,000 100 %
Total radio families 9,476,900 69 %
Radio homes with 2 or more sets 548,312 5.8%
Median no. of years radio families owned sets 7 years
Radio families owning Auto-Radios 1,269,101 13.4%
Median hours of daily use of radio
Based on all sets owned 4.47 hours
Based on sets in use some time during total day 5.18 hours

Amplifier sales boost seen in tag plan

Amplifiers made by members of RMA soon will carry a "certificate approval." Plans were made by Chairman J. McWilliams Stone of the sound system committee and approved by the directors at a recent Chicago meeting.

Performance of amplifiers will be checked at a testing laboratory chosen by RMA, following which a tag of approval will be given. Great things are expected of this scheme to up PA sales, since the tag will assure buyers that the amplifier is true to specifications and ad claims.

Television witnessed coast-to-coast

A television caravan is making a cross-country tour of the United States in an attempt to acquaint the entire country with both television receiving and broadcasting at first hand.

The traveling demonstration is made possible through the development of Philco's new portable television transmitter which stands less than six feet high and is completely mobile.

In most of the cities scheduled for visits the demonstrations will be the first television witnessed by the public.

An itinerary is planned which would take the television caravan through the Western and Southern areas of the U. S., with journey's end at the Pacific Coast. The itinerary included Washington, Baltimore, Boston, Pittsburgh, Cleveland, Miami, New York and Philadelphia. Some future stops are:

April 18-21 St. Louis
April 23-28 Chicago
May 2 Milwaukee
May 5 Minneapolis
May 9 St. Louis

Demonstrations will be given in collaboration with the local distributor for Philco dealers and guests throughout the distributor's territory.

Dealers asked to help "sell radio"

Radio dealers are to play important roles in the big new industry promotion campaign being developed by the National Association of Broadcasters with the help of an RMA committee made up of Sayre Ramsdell, Philco; Frank Mullen, RCA, and Bond Geddes, RMA executive.

Purpose of the all-radio campaign is to enlist co-operation of all radio manufacturers, distributors, and retailers, broadcasters and networks—to increase listening, increase number of sets in use, improve reception, and "sell" present programs and "the American system of broadcasting."

Networks will contribute one program a week to the campaign, and transcriptions will be furnished non-network stations. Through manufacturer co-operation, dealers are asked to distribute NAB literature, such as new "ABC of Radio", with all sets sold, and to develop special window displays. Radio advertising will coordinate with retail efforts. Details of campaign are now being explained at dealer meetings.
How many television sets will be sold in '39?

No question posed in radio has caused more discussion or resulted in a wider variety of answers than that which appears on our front cover, and also at the head of this item. How fast will the curve on the cover rise, and where will it stand by the end of 1939?

Answers have ranged all the way from 10,000 receivers—up to 75,000 and 100,000 receivers. Middle-of-the-roaders strike a figure somewhere around 25,000 to 40,000. Those who have inspected English television, think that 10,000 receivers can be absorbed by the New York area to supply restaurants, bars, hotels and stores, alone—with many more going into homes and apartments. Others who see the installation problem, say the limit is not the number of willing purchasers or even the production lines of the factories, but is set by the difficulty of training service men to make antenna installations which will give satisfaction.

Because of the interest in the final result, the publishers of Radio & Television Today propose a contest in connection with this figure, details of which will be announced later.

Farnsworth getting ready at Fort Wayne, Ind.

The Farnsworth Television and Radio Corporation has opened factory headquarters at 5700 Pontiac street, Fort Wayne, Ind., where it will begin the manufacture of television and radio transmitters and receivers, radio-phonographs, and other products.

The company takes its name from inventor Philo Farnsworth who first conceived electronic television while a student in high school in 1922. His development laboratory was established in 1928, and in 1928 he made the first demonstration of television by means of an electron discharge. He has taken out many patents and has contributed many articles to the scientific press on television topics. A second Farnsworth factory is located at Marion, Ind. E. A. Nicholas is president of the company, and Philo Farnsworth is vice-president in charge of research. Ernest H. Vogel has just been appointed general sales manager, after a long merchandising experience in radio with both RCA-Victor and General Electric Co.

Schools fine prospects for quality sets

Robert Herr, Philco's parts and service division manager, believes schools and students offer a fertile sales field for radio. Educational programs have made schools more radio conscious, while students are sold on the entertainment values of a receiver, he believes.

"A vast number of schools would be open to sales of radio-phonograph combinations if they knew how good they are these days for the price," he says. "That is the dealer's job. He can show it in no longer necessary to think in terms of $500 for one set for music appreciation."

Quality, looks and performance can be obtained in a set for $150, Mr. Herr holds, and an enterprising dealer can sell three of these instead of one at $500. Thus, schools can be sold on four or five combinations, especially where there are more than 500 students.

Hours for Chicago parts show

Following is a schedule of the show hours at the 1939 National Radio Parts Trade Show at the Stevens Hotel, in Chicago, June 14-17, inclusive:

Wednesday and Thursday, June 14 and 15, 10:00 a.m. to 6:00 p.m.
Friday, June 16, 2:00 p.m. to 11:00 p.m.
Saturday, June 17, 2:00 p.m. to 10:00 p.m.

Closing the trade show at 6:00 p.m. on Jobber Days will open the way for the manufacturers and their jobbers to attend the RMA banquet on Wednesday evening, and to participate in various festivities and business conferences.

Stromberg-Carlson’s production control board. From left to right around the table: F. C. Young, mgr. engineering; G. E. Eyer, genl. superintendent; Lee McCamme, secretary and radio sales manager; L. L. Spencer, general sales manager; G. A. Scoville, vice president and general manager; E. A. Hanover, vice president; W. M. Angle, president; S. R. Curtis, purch. agt.; Dr. R. H. Manson, vp, chief engineer; W. F. Cotter, chief radio engineer.

Perry Hadlock who has been appointed radio sales manager for the General Electric Company, Bridgeport, Conn., succeeding Ernest Vogel.

Sayre Ramsdell, Philco vp, announces that Philco’s television line will be shown at French Lick, Ind., Philco convention in June.

A P R I L, 1 9 3 9

11
New Television Receivers

Just in time for the official television debut on May first comes the announcement of some twenty-odd television receivers by half as many manufacturers. Models range from kits with a 5-inch tube for the amateur and experimenter to consoles with 14-inch tubes providing an 8 x 10 inch picture. Sight receivers utilizing the audio system of a standard broadcast receiver are offered in the lower-priced brackets, while sight-and-sound sets with all-wave pick-up on sound await those willing to pay the higher prices. Tuning to stations is accomplished generally by pre-tuned circuits that are selected by push-button or rotary switches. A trimmer condenser often is employed to permit exact adjustment of the circuits to resonance. Three or more television channels are provided for. Both mirror-reflected and direct-

Andrea's model 1F5 sight and sound receiver with 5-inch tube is available wired or as a kit. Tunes 2 bands—in table cabinet $189.50.

GEVISION!

GE Electric maintains the largest World's Fair organization in the entire electrical industry. The new art of television-receivers includes seven models, four of which are illustrated. The General Electric Television program, at the General Electric Building, Research, and World's Fair.

During the fair, television sets begin the television market with programs every hour.

When you're ready to see television, serve your family with G-E!

**CONSOLE MODEL**

**TABLE MODEL HM-171**
When the curtain rises on the New York World's Fair, April 30, General Electric makes its public debut in television. In this new art G.E. has carried on intensive research since 1922. In 1926 Dr. Alexanderson presented the first television program ever produced in the G-E Research Laboratories at Schenectady.

During the month of May, General Electric begins the distribution of its outstanding line of television receivers in the New York market—the only market where television programs will be available at this time.

When television transmission facilities are ready to serve your market, G.E. is ready to serve you with a complete line of receivers—backed by a unique and effective sales and merchandising program.

Unlike radio broadcasts, television programs cannot be sent out over network hookups. The effective range of a television transmitter is only forty to fifty miles. Hence, vast areas of the country must wait for years, perhaps, before television programs are available.

Even when programs are available everywhere, television will not supplant radio. It is distinctly a supplementary service. It can no more replace radio than could radio displace the theatre and motion picture.

It may even be reasonable to predict that radio sales volume may be maintained and actually increased as television is better understood by the public. Intriguing as television is, radio dealers must depend upon radio for their real profits perhaps for a long period to come.

Those dealers who can qualify to sell television sets this year will find the G-E line unsurpassed in performance, cabinet styling and dollar values.

In this new field the public will choose those products in which it has greatest confidence.

General Electric Television receivers carry the best known trademark in the entire electrical world. And television, remember, is a product of electrical science. Television depends upon research. General Electric maintains the largest research organization in the entire electrical world.

The G-E line of television receivers includes five standard models, four of which are illustrated. See the General Electric Television Demonstration, General Electric Building, New York World's Fair.

**CONSOLE MODEL HM-275**
High Definition Television Receiver and All-wave Radio.
12" Picture Tube. Cabinet—height 30½" — width 42" — depth 20½". 30 tubes (including picture tube).

**CONSOLE MODEL HM-223**
High Definition Television Receiver, 9" Picture Tube. Cabinet—height 40½" — width 28½" — depth 17½". 22 tubes (including picture tube).

**CONSOLE MODEL HM-185**
High Definition Television Receiver 7" Picture Tube. Cabinet—height 23" — width 17½" — depth 18½". 16 tubes (including picture tube).

**TABLE MODEL HM-171**
High Definition Picture Receiver with Sound Converter, 5" Picture Tube. Cabinet—height 17½" — width 10½" — depth 18½". 17 tubes (including picture tube).
viewing models are being featured. With the larger picture sizes, the use of a mirror permits vertical mounting of the tubes, thereby decreasing the depth of the set.

Upwards of 16 tubes are used in the tele-sets. Several units without a sound channel use 17-19 tubes. The receivers having 12-inch or larger cathode-ray tubes have 22 or more tubes, and when an all-wave receiver is included the number swells to as high as 32.

The sensitivity of the receivers ranges from 100 to 500 microvolts. It is expected that television signal strengths many times greater than this value will be obtainable in most locations.

Pictured on these pages and page 22 are television receivers that have been announced to date. They are as follows: American Television, Andraea, DuMont, Garod, General Electric, Meissner, Pilot, RCA-Victor, Stewart-Warner, and Westinghouse.

Additional announcements that will be included in future issues are Farnsworth, National Television, Philco, Stromberg Carlson.

To date definite prices have not been generally established, nor have the discount schedules.

Lowest prices range from about $125 (net) for the experimenter’s kits to $200-$250 for sight receivers with sound converters. Complete sight and sound receivers start around $300-$350 and continue up to around $1,000.

More pictures of television receivers appear on page 22.

Westinghouse’s model WRT-700 with 5-inch kinescope makes use of the audio section of a standard set for sound.

Above is RCA’s table model TT-5 television attachment. Has 5-inch picture tube—uses audio amplifier of regular radio.

Meissner’s television kit is available with metal or wooden cabinet. Uses 17 tubes including 5-inch cathode ray. Net $125 complete.

viewing models are being featured. With the larger picture sizes, the use of a mirror permits vertical mounting of the tubes, thereby decreasing the depth of the set.

Upwards of 16 tubes are used in the tele-sets. Several units without a sound channel use 17-19 tubes. The receivers having 12-inch or larger cathode-ray tubes have 22 or more tubes, and when an all-wave receiver is included the number swells to as high as 32.

The sensitivity of the receivers ranges from 100 to 500 microvolts. It is expected that television signal strengths many times greater than this value will be obtainable in most locations.

Pictured on these pages and page 22 are television receivers that have been announced to date. They are as follows: American Television, Andre, DuMont, Garod, General Electric, Meissner, Pilot, RCA-Victor, Stewart-Warner, and Westinghouse.

Additional announcements that will be included in future issues are Farnsworth, National Television, Philco, Stromberg Carlson.

To date definite prices have not been generally established, nor have the discount schedules.

Lowest prices range from about $125 (net) for the experimenter's kits to $200-$250 for sight receivers with sound converters. Complete sight and sound receivers start around $300-$350 and continue up to around $1,000.

More pictures of television receivers appear on page 22.
Selling Radio Up

Practical pointers on pushing up unit sales, from the experience of H. L. M. Capron, former Wanamaker and Macy store executive, now merchandising editor of Radio Today.

With radio prices seeking new low levels, with margins shrinking, and the "cost of doing business" standing still, or increasing, we've got to "sell up" or "close up."

So much of the actual expense of small dealers is fixed in dollars, that as the unit price of radio goes down, the "expense per cent of sales" will go up fast, if the number of units sold is not greatly increased.

The $9.95 and $6.95 radio does have a place in our trade by popular demand. But we have got to sell up from these units, in every way we can, to prevent them from becoming the first, or even the second, radio in the home, and thus reducing the radio business to an over-the-counter package business.

These sets will go into the hands of countless children, and in many bedrooms, where there would otherwise be no radio, and as such, represent an expanded market which we can use to advantage, as plus business.

SHOW COSTLIER SETS

In the store, compacts selling for under $20, should be displayed side by side with those priced from $15 to $35, that is—show $6.95 and $9.95 with $12 and $15 sets—$15 and $20 with $25 to $35 sets—so that no customer can even see the low-priced job without also seeing the better ones.

In demonstrating these low-priced sets, make sure the customer hears the higher priced ones also.

Refer to these little sets as "cute," and "not bad at all, considering their price." Bring home to every purchaser that they are little radio in more ways than one, and more people will buy a better radio.

A "wireless" record player is a good unit to build up any sale with, except a combination of course, and can be sold with a surprising number of compacts. Keep the microphone connected, let the customer hear her own voice through a radio, and you have made the sale much easier, for the customer can see lots of uses for such a versatile unit.

GROUP DISPLAYS

Display compacts and consoles in groups of one low, two medium, and one higher priced units, so that every customer must see the higher priced units, and every higher priced console purchaser is exposed to a compact as a second set.

Keep your lowest priced compacts displayed in the rear of the store, so that every prospect for these sets is exposed to your selling displays of better sets.

Show your better radio first, and work down if you have to, because when you have sold a low priced unit it will be much harder to go up than
to come down when a customer can’t afford, or doesn’t want the higher priced unit you want to sell.

Learn all the advantages of appearance, quality, performance, tone, service, of your better sets, and appeal to pride of possession or, these points of superiority in selling up from the lowest priced sets.

"PORTABLE DAYS" COMING

Particularly, during the summer months, show a battery portable to every prospect, for the picnic, for the vacation, for the beach, or mountain week-end. Point out the many places where this set can bring music, news and other favorite programs where there is no current to operate the other compacts. Play up the return of the battery operated portable by popular demand to meet these many uses where no other radio will operate, and many a prospect will be converted

(Continued on page 55)
The fundamental idea of television was first recorded in 1873. Yet here is one of the first announcements of marketable television receivers. In 66 years uncounted millions of dollars and the tireless efforts of American genius have been expended to make new horizons practical over the electrical waves.

Westinghouse Electric Supply Company enters the marketing of television sets conservatively. We are more concerned to have each single customer a permanent friend of television than we are to seek volume sales and broad dealer coverage. Therefore, initial televisions will be limited in quantity and found only at responsible retailers.

The first four models bearing the Westinghouse name stand in the forefront of the industry today and represent quality in every particular. Here they are—

**4 HIGH QUALITY TELEVISION SETS**


WRT-702 — Direct-viewing Console Televisor. Casts pictures directly to front of cabinet from 9" kinescope. Includes 12-tube radio, as above.

WRT-701 — Direct-viewing Console Televisor with 5" kinescope. Includes 8-tube, 3-band radio receiver. Otherwise similar to WRT-703.

WRT-700 — Model below with 5" kinescope is table model attachment for operation with radio receiver. Broadcast is viewed from WRT-700 and heard from radio receiver.

These Authorized Distributors in Metropolitan New York Area Offer Complete Sales and Service Information

TIMES APPLIANCE CO.  
333 W. 52nd St., N. Y. City

R. H. McMAN, INC.  
12 Warren St., N. Y. City

WESTINGHOUSE ELECTRIC SUPPLY CO.  
49 Liberty St., Newark, N. J.

Merchandise Headquarters—Westinghouse Television—150 Varick Street—New York City
How Television Will Be Sold


With television an actual reality in New York on April 30 and interest rampant all over the country, men in the metropolitan field are thinking and planning methods and means of best handling the sale of this newest of radio merchandise.

Radio Today has made an intensive survey among those who will sell television in Metropolitan New York, including independent dealers large and small, chain and department stores.

Radio men who remember the birth pangs of radio, and experienced the growing pains attendant upon the phenomenal growth of broadcasting, all feel that television can be the answer to many prayers, and hope it will not bring a crop of headaches.

The general consensus of these practical opinions may be summarized:

1. Television has tremendous public interest—but public buying demand may be slow to develop.
2. Dealers will capitalize on the public interest to attract attention and build store traffic with demonstrations and window displays.
3. Price will not be used as a factor to increase sales.
4. Home demonstrations are "out".
5. Television must not be oversold.
6. Television must not interfere with radio sales.

Many dealers, and customers too, remembering radio's infancy, have the fear that some radically better models, some distinct improvement in method, may be put on the market soon, and so obsolete early receivers.

Conservative dealers are taking such possible factors—with the resultant effect on their time-payment paper, and consumer goodwill—into consideration in formulating their selling plans.

All local outlets agree they are going to capitalize on the public interest and squeeze out the last drop of indirect sales advantage.

DEMONSTRATION ROOMS

Store demonstrations are the rule, with many special rooms being prepared. And at least one store is building an air-conditioned room, the better to demonstrate television, under comfortable conditions for the customer, and with a minimum of conflict with the display, demonstration and sale of radio.

Some stores are planning hooded shadow-box window demonstrations and displays. At least one department store is seriously thinking of having several demonstrations in various parts of the store. And one outstanding independent dealer is planning to hold public demonstrations by invitation, at intervals, in various suburban locations, entirely independent of his store.

PRICE CUTTING DEFERRED

Most store owners, sales managers, and company executives are of the opinion that in the early months of selling television there will be no price cutting to force sales volume, but many dealers express the view that there may be plenty of cut prices later, and worse headaches, resulting from changes in transmission methods or picture size, which would obsolete not only those televisions sold, but those in stock as well.

As a result, the almost unanimous feeling is that dealers should buy very cautiously, and turn their stock over as frequently as possible, keeping their demonstration sets going into the hands of consumers at very short intervals. In fact, several expressed the intention of buying only demonstration sets without supporting stock for deliveries—rebuying only to replace the demonstrator when sold.

NO HOME DEMONSTRATIONS

Because of the great problems of installation in apartment houses, and the time and cost involved in locating the best spot for the antenna, so as to deliver the signal to the televison strong and free of interference, almost every dealer turned thumbs down on home demonstrations.

With the very limited program service now scheduled, and the basic requirement that the television program have undivided attention, it was the general feeling that the first flush of enthusiasm and pride of possession...
might soon wear off the new customer, and it was the common feeling that television should not be oversold. In fact most dealers questioned were of the opinion that positive action would have to be taken to undersell the merits, not the price, if dissatisfied customers were to be avoided.

Many dealers felt radio manufacturers and wholesalers should unite, to advertise to the public the real facts of the limitations of television, as well as what to expect. All were agreed that television must not be permitted to interfere with radio sales. This too, seemed to call for a manufacturers' advertising campaign to point out that television complements, but does not supersede, present audio broadcasting or receivers.

**WANAMAKER PLANS**

Wanamaker's plan to use the RCA program service to demonstrate television sets to the public, with newspaper space and direct mail calling them to public attention. Television will be displayed and demonstrated in a separate section of the radio department where the room can be darkened, and there will be no interference with the sound.

Mr. Simpson, the department manager said, "When we invite the public, it probably will be necessary to schedule the demonstrations to take care of the interest already manifested. Dealers will find." continued Mr. Simpson, "that small radio, including battery portables and radio-phonograph combinations will be the big sellers in the next few months, but when programs, installation, and selling methods are perfected, the outlook for television is extremely optimistic."

"Television will no doubt help the radio industry," said Henry Benjamin, v.p. Davegna-City chain of stores, "but people must not be misinformed.

People must understand that it will not make other radios obsolete. If television is oversold, it will hurt the sale of radio and do more harm than good. Be honest about television, promote it, but make sure the very name does not become a disappointment because of overanxiousness, or hasty and unfulfillable promises."

Bamberger's, who were one of the real pioneers in merchandising radio, already have a display of television and facsimile sets. They plan to give demonstrations of both, using the facsimile programs of their own WOR, and thus, to build up a dual interest which they hope to translate into sales for themselves through word-of-mouth publicity. The department manager could not be quoted, but it is certain that newspaper space, direct mail, and window displays will invite people to witness these dual demonstrations.

**KEEP ON WITH RADIO**

Percy Peters, a large radio dealer in Brooklyn, expressed the opinion that he was going right on selling radio as hard as he could, with store demonstrations of television perhaps, but no real promotional efforts until the problems of programs, installation, and service were better understood.

One manufacturer who is supplying knock-down kits, as well as complete receivers, is finding a ready market among service men, and dealers themselves, who feel they will be in a better position to honestly sell television after they have actually put a set together, and played with it.

**USE TELE TO PUSH RADIO**

C. W. Perdue, head of an exclusive, high-class radio store in Northern New Jersey, says, "I can pack my store with television demonstrations, as I did with the Philco mystery-control demonstrations; public interest is very high. At least in the next few months, I am going to invite my own customers in particular, and the public in general to witness store demonstrations at stated times and expose them also, to my displays of summer radio, battery portables, compacts, record players, portable combinations, etc. I'll change my selling policies as experience may indicate, but during the summer I'm going to keep right on selling radio."
Installation of Television Sets

Basic principles to be followed when setting up and installing television receivers. Correct antenna an absolute necessity. Recognizing common forms of interference.

So important is proper installation of a television set that one of the leading manufacturers made the following statement, "The best receiver we know how to build can easily prove unsatisfactory, unless the receiver installation is equipped with the correct type of antenna properly installed."

Correct installation of a television set is not generally so difficult as commonly thought—in most cases it is merely the application of straightforward engineering principles. Occasionally, there will be some tough nuts to crack, and the serviceman should be prepared to handle them. While this article will in general apply to all receivers, the serviceman is urged to follow the manufacturer's instructions insofar as specific procedure is concerned.

INITIAL SET-UP

First of all is the initial adjustment of the television receiver after it has been unpacked. Some manufacturers will be shipping the picture tubes separately to guard against breakage. If the tube is enclosed in a protective sleeve, the sleeve should not be removed until the tube is ready for placement in the receiver. One type of sleeve that is being used is so designed that the sleeve remains on the tube after installation in the set. The top portion or cover is removed after the tube is fitted into the socket thus insuring maximum protection against injury from breakage.

Some manufacturers are suggesting that the serviceman wear gloves and goggles whenever handling the picture tubes.

After the tube has been inserted in the socket, the high-voltage lead or leads should be clipped into place according to manufacturers' instructions.

KEEPING PIC CLEAN

When the tube has been installed, the viewing end or screen should be wiped clean and lint-free. "Windex" or similar preparation and a soft cloth are recommended.

Before the protective glass over the viewing end of the tube is set in place, the inside surface should be cleaned and polished. Likewise, before the set is put into operation, the outer surface of the glass should be cleaned. If a mirror is employed, that too must be kept clean so as to insure clear pictures.

Before the receiver is tuned in on a signal, there are several preliminary adjustments that should be made on the receiver. In the case of a set using a magnetic deflecting yoke, there is a yoke adjustment that might have to be made. With the set turned on, the sweep signals will paint an image of lines that is suitable for preliminary adjustments.

PRELIMINARY ADJUSTMENTS

Movement of the yoke along the axis of the tube affects the size of the image on the screen. The further the yoke is away from the screen, the smaller the image will be. If the yoke is too near the screen, there may be cutting at the corners of the picture. Generally speaking, the yoke should be as near the screen as possible without cutting of corners.

The horizontal and vertical size controls also affect the size of the image. These controls should be adjusted so that the image almost fills the screen. The yoke is rotated so that the edges of the image are square with the mask. This is known as orientation. In the case of electrostatic deflection, the tube itself is turned.

The centering controls will permit placement of the image in the center of the tube. With an image slightly smaller than the mask, the image is centered so that the margins at the top equals that at the bottom. Also the margins on the side should be equal.

TESTS WITH RECEIVED SIGNAL

The size controls are later adjusted so that the image just fills the screen when a signal from the television station is tuned in. The image from a television station is slightly less in size than the image painted by the sweep circuits alone.

The installation up to this point has been handled without the aid of a signal from the air. Whether or not the dealer does this work in the store or the customer's home is a matter of choice. If it is done at the store, the serviceman will have a chance to test the receiver connected up to an aerial, thereby checking the entire receiver before delivery to the customer's home. Then, if there is any trouble at the home in getting a good picture, the serviceman will know definitely that the trouble is external to the receiver.

ROOM ILLUMINATION

Wherever possible the receiver should be so placed in the home that a direct glare from either natural or artificial light does not fall upon the face of the cathode-ray tube. The received pictures may be viewed under a variety of conditions where it is not always convenient to darken the room completely. Adjustments made to meet these conditions will not cause damage to the receiver. Viewing the pictures in as dark a room as possible is always at an advantage as it permits the setting of the Intensity and Contrast controls in a manner that will give picture tone values more correctly relating to those actually used in the studio from which the picture is transmitted.

ANTENNA INSTALLATION

The antenna installation is the greatest unknown. Only by actual trial will one discover whether or not satisfactory pick-up can be obtained at a particular location. When a line of sight to the transmitter antenna is obtainable, it is generally possible to obtain good pictures. In certain instances reflections may occur that cause more than one picture to appear on the screen from one station.

The cure for the reflected signals that cause ghost images is to place the antenna in such a position that only the main signal goes to the receiver. Elimination of ghosts will be discussed further along in this article.

The first step in locating the aerial, which generally will be the dipole or doublet type, is to find a high point on the roof from which the television transmitting aerial is visible. The receiving antenna is placed so that the dipole is at right angles with the line of sight to the transmitter. If visibility is poor or there are obstructions, the directions can be determined from a map.

After the aerial has been placed and the transmission line run to the receiver, the receiver is tuned to a station and the image on the receiver. The image should be sharp. The size controls
should be adjusted so that the transmitted picture just fills the screen on the tube. Adjustment of the vertical and horizontal hold (synchronizing controls) should produce a steady picture.

With the receiver picking up a signal from the transmitter, the antenna should be rotated for the best possible picture—which is maximum signal when no ghosts are present.

If ghosts or multiple images are present, rotation of the dipole may eliminate the difficulty. More generally, it will be necessary to move the antenna about on the roof, in an effort to find a location where reflected signals are non-existent.

**ELIMINATING GHOSTS**

Since it is essential to watch the picture on the receiver while moving the aerial, two servicemen using a telephone may be necessary. Where the distances are short, it will probably be possible to shout back and forth. When it is impossible to eliminate the ghost by positioning the aerial, direct currents may be necessary. These types of aerials are extremely directional and will cut down reflections arriving at large angles to the line of sight and at the rear.

If a single image is obtained that seems weak, it may be necessary to find another location on the house where a stronger signal is obtained. Because of these "ifs", it is best to make the installation temporary until it has been determined that a satisfactory (and best possible) image is obtained.

Haywire installations will not be satisfactory for television. The lead-in cable or transmission line should be securely fastened for swaying may have an adverse effect on the picture. In order to keep the transmission line out of the field of the doublet, the lead-in should run down at right angles to the doublet for at least 1/4 wave-length. For a 6 meter signal, this is about five feet.

**CONFORM WITH LOCAL LAWS**

In many cities there are local ordinances that require that all wires be 7 or 8 feet off the roof. Care should be taken that the antenna and transmission line be kept high enough off the roof so as to conform with the law and prevent damage.

At the window where the transmission line enters the room, a double type lightning arrester makes an excellent terminal block as well as conforming with the Underwriters' regulations. Inside the home, light-colored wire may be used to harmonize with the surroundings. Because of the extremely high frequencies of 44 to 108 megacycles, care should be taken to use nothing but the highest grade of transmission line, in order to keep line losses at a minimum.

When the manufacturer supplies a ground terminal on the set, the serviceman should be sure to provide a ground for the receiver. Neat triple sockets and plugs are available that accommodate the two aerial wires and the ground connection thus making it simple to disconnect the house receiver when it is necessary to move the set for house cleaning, etc.

**TYPES OF INTERFERENCE**

After the set has been installed, it is possible, but not likely, that various forms of interference may be present at certain times. The serviceman should be able to recognize the common forms of external interference.

Diathermy is the one form of interference for which there is no cure, unless the offending machine can be located. It makes its appearance in the form of wavy streaks of varying widths that may move up and down on the screen. Illustrated hereon are two conditions of diathermy interference. One is when the diathermy signal is comparatively strong, and the other when it is extremely bad. The interfering patterns move about on the screen.

A second form of interference is auto ignition. It creates globs of white on the image. Placement of the antenna as far away from the travelled roads may reduce the interference. The only cure is to equip all cars with suppressors, an impossible procedure unless laws are passed to this effect.

Tube hiis on a weak signal gives a snowstorm effect when viewing the image. The cure is to increase the signal strength.

Beats from an amateur transmitting station cause the formation of fine lines, a sort of cross-hatch pattern—that drifts across the picture.

When the receiver is improperly tuned, the video tuned between the sound and picture carriers—a fine cross-hatch pattern is the result. Cure is to properly tune the receiver.

Cross talk between the sound and picture signals causes relatively coarse black and white horizontal bars.

When tuning the receiver the sound channel of the station is tuned in. The sound channel is fairly broad in tuning, so it is possible to adjust the receiver slightly for the best possible picture.

**DANGER—HIGH VOLTAGE**

Because of the high voltage in these receivers—it is urged that servicemen do not make adjustments inside the receiver while the power is on. Protective interlocks that remove the primary power when back is removed will be used on most sets. And on the service bench the servicemen should be extremely careful not to contact the high-voltage circuits. If voltage measurements are necessary, be sure the insulation in the test leads and instruments is adequate. A good procedure to follow would be to check circuit continuity and parts values with no power on when loss of supply voltages to the picture tube is suspected.
TELEVISION WAITS ON BROADCASTERS

Sagre Romsdell, Vice-president,
Philo Radio & Television Corp.

Reception is not the chief problem confronting television as an industry. The real problem is largely in the hands of those concerned with television broadcasting. Television, from the point of view of reception and receivers, is ready to assume its role as the giant industry it should become. However, the problems of broadcasting television have been slower in solution, and the progress in the broadcasting end has fallen behind that attained in reception.

Television receivers will be sold to the public through radio dealers, whose experience and facilities, from both a merchandising and technical standpoint, make them an ideal medium on a nationwide basis. Television receivers can be sold on such a nationwide basis, but as yet, television broadcasting cannot follow them and so is limited to a handful of metropolitan centers. Television as an industry must wait for the broadcasters.

MIDDLE ROAD ON PRICES AND DISCOUNTS

Gen. A. Scoville, General Manager,
Stromberg-Carlson Telephone Mfg. Co.

With respect to Radio Today's question whether television discounts should be reasonably short, I would recommend a middle road.

Prices should not be held too low. Frankly, I do not believe that the price being high or low will prevent newcomers or over-production.

Our policy, of course, is to work through selected high-type dealers, and we believe that would be the right move.

It is all right to include an antenna in the price of the receiver, if you know what you are doing. However, I am confident that we don't know enough about antenna costs to include them and, above all, I would vote against installation being included in the price. The installation should be on the normal cost basis. After we know what the antenna and installation problem is, then, if somebody wants to include them, they would have some facts with which to work.

CONSTRUCTIVE COOPERATION DESIRABLE

B. Abrams, President,
Emerson Radio & Phonograph Corp.

The matter of discounts will, in my opinion, be largely predicated upon the service the dealer is called upon to perform with respect to selling television sets. For example, if the dealer is required to make his own installations and to do his own servicing, the discounts must of course be greater than otherwise. The price to the consumer will naturally be predicated upon the discount fixed for the dealer.

Distribution will necessarily have to be limited to certain types of dealers by reason of the fact that television involves a high unit sale and an instrument which requires handling by an experienced radio dealer.

The inclusion of the antenna and installation in the price of the receiver is, in my opinion, the most desirable way of handling the sale of television sets until more experience is gained by dealers.

Radio Today's suggestion that manufacturers get together and determine policies for the merchandising of television sets is an excellent one, but in the light of past experience, is a little too much to hope for. Emerson would be glad to cooperate with any constructive program which would tend to start this great new industry on a sound and profitable basis for all concerned.

NOT YET READY FOR PUBLIC

Commander E. F. McDonald, Jr., Pres.
Zenith Radio Corporation.

Zenith has television sets, but today Zenith's television receivers are loaned not sold.

Zenith believes it is unfair to the public and knows it is unfair to dealers to ask them to finance the television industry's experiments.

Radio dealers have been penalized and punished by premature television publicity starting last Fall.

Prospects were led to believe that television would cover the country overnight. Zenith will not break faith with its dealers.

When Zenith believes television is ready for general use in the store and the home . . . Zenith will supply dealers with television receivers and not before.

HOLD DOWN DISCOUNTS, QUALITY DEALERS

M. A. D. Andrea, President
Andrea Radio Corp.

Our discounts on television equipment are much smaller than the discounts which have prevailed in the trade on broadcast receivers. We feel there is no need for quoting large discounts in order that discounts can be granted to retail customers. In fact, our Feld-Crawford contract calls for resale at full list prices, without trade-in allowances or discounts. The contract gives us the right to cancel the dealer's contract within ten days and, at our option, to remove Andrea equipment from his store, by repurchase, at the time the notice of cancellation is served.

Prices to consumers should be held as low as possible, but that is a relative matter, and one which will be determined to a considerable extent by the rate at which the individual manufacturer charges off his investment in research and development.

Our own plan is to limit retail distribution to the highest type of dealers. By that I mean those of strong financial standing, and those who are really merchandisers.

(Continued on page 42)
New Portable Receivers

Latest summer merchandise offerings of radio manufacturers provide opportunity for extra profits.

Leather portables

“Pick-Me-Up” battery portable radios now available in three types of leather-covered cases. 4-tube superhet chassis. Aniline cowhide covered model lists at $39.95. Dark brown, genuine shrunken buffalo leather $42.50 and cream colored natural rawhide $44.50. RCA Mfg. Co., Camden, N. J.—Radio Today.

Portable with movable loop

★ Five-tube portable operates either self-contained batteries or on AC. Has directional loop antenna, adjustable away from batteries. Tunes two bands and comes with dynamic speaker in weather-proof aero-luggage case. Setchell-Carlson, Inc., 2233 University Ave., St. Paul, Minn.—Radio Today.

Portable and carrying case


Highly-styled portables

★ Five 1½ volt portable battery sets in fine luggage motif. Equipped with hinged cover, sturdy handle and modern luggage hardware. Three models have airplane cloth covers, one has synthetic white rawhide and the other in genuine top grain cowhide. All have built-in aerials. Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill.—Radio Today.

AC-DC portable


Sonora portables


Bob Hope and Shirley Ross, film stars, prefer this Philco 504 portable combination to the piano.
RCA-Victor TRK-9 receiver with 9-inch kinescope and 12-tube all-wave chassis.

G-E model HM-225 for sight and sound. Uses 22 tubes including 9-inch cathode ray.

18-tube General Electric model HM-185 with 5-inch tube.

Model WRT-703 by Westinghouse has a 12-tube sound set and video chassis.

5-inch kinescope featured in this RCA model TRK-5 sight and sound set.

American Television's Kinet is an extension type unit.

Dumont's table model features a 14-inch tube giving an 8 x 10 inch picture.

Garod model 100 televisor using a 5-inch tube. Also in kit form.
RADIO DEALERS!

ZENITH

HAS TELEVISION SETS

ZENITH'S television transmitting station W9XZV is operating daily and is the only television transmitter licensed by the Federal Communications Commission in the whole Chicago area.

Today ZENITH'S television receivers are loaned . . . not sold.

ZENITH IS READY---
BUT TELEVISION IS NOT

Even government television standards are not yet established.

The Federal Communications Commission, in its annual report to Congress in January this year, stated: "However, it is generally agreed that television is not ready for standardization or commercial use by the general public."

ZENITH believes it is UNFAIR to the public and KNOWS it is UNFAIR to the dealers to ask them to finance the television industry's experiments.

RADIO DEALERS have been penalized and punished by premature television publicity starting last Fall.

Prospects were led to believe that television would cover the country overnight.

ZENITH will not break faith with its dealers.

When ZENITH believes television is ready for general use in the store and the home . . . ZENITH will supply you with television receivers and not before.

E. F. McDonald
President,
Zenith Radio Corporation

April 5, 1939
Auto Radio Selling Tips

Radio men have edge on car dealers. Displays to boost tube and antenna replacements.

Optimistic 1939 predictions of soaring auto-radio sales are now becoming a fact. Equally important and encouraging are the reports of increased income from sale of accessories, servicing and installation.

While the trend of auto-radio sales has been much in favor of car dealers, many radio men believe that they can wean much of this business away by concerted effort and ingenious sales ideas. After all, when the car is sold, the automobile dealer has little contact with the owner, since he is not equipped to service the set should trouble develop.

The auto-radio man is then in a position to advise standard installations rather than a custom built radio when the next car or set is purchased. He can back this advice up by proving to customers that custom-built sets cannot be transferred to a different car without an expensive change-over; that he has a much wider variety of models from which to choose; and that, in some instances, he may get more features for less money. Add to this the guarantee of expert service and a prospect is hit with a pretty powerful sales story.

Several far-sighted radio men have gone into the field not only extensively, but exclusively; catering only to the market for auto-radio sales, service, installation, parts and accessories. A good representative of the trade is "Mac" McCullough, of the MacAdams Equipment Co., New York City, one of the leading auto-radio specialists for many years. He is at present chairman of a newly formed Auto-Radio Dealers Association in New York and outlines for Radio Today some of the necessities for the successful auto-radio dealer.

FLAT-RATE SERVICE CHARGES

Service charges must be fixed and adhered to. A good basis to work on is a $1 charge for removing the set and replacing it in the car. This charge is made for every repair job, large or small. The customer can actually be shown that removing the set will cost him less money than a haphazard, time-consuming job in the car. The serviceman is also in a better position to sell him necessary parts when the job is on the bench.

Further standard service charges may be obtained by adding seventy-five cents for a minor repair job (such as tubes or a vibrator), and $1.75 to $2.00 for a major repair (such as volume control or transformer), to the $1.00 removal and replacement charge. To each of these charges is added the cost of parts. With a good selling job customers won’t feel this is too much.

GRAPHIC DISPLAYS SELL SERVICE

The supplying of parts and equipment is a sweet market if plugged right. Seventy-five per cent of auto-radios, one year old or over, need one or more new tubes or a new vibrator, and antennas become inoperative due to wear and tear. The cue here is to sell a new antenna, rather than repairing the old one—selling the customer on better performance over a long period—not the cost.

Graphic methods of showing customers the need for tube check-ups and antenna inspection are used by MacAdams. A large crate with the slogan "Worn-out tubes, watch the pile grow," contains over 2,000 old tubes, and is used to point out to prospects that so many radios need new tubes that it would be wise to have theirs checked. Antennas are promoted by the display of an old automobile with the worn-out parts made plainly visible. Customers are shown how their antenna may be worn and the advisability of replacing it with one of the excellent new rods now on the market.

News of another alert auto-radio dealer comes from Evanston, Ill. William J. Becker of that town has established a business that keeps three men busy selling radios at wholesale to local auto-dealers, then paying them a small commission for each installation job which they send him. This has proved a profitable method of capitalizing on the trend of buying radios through car dealers, and aided by emphasis on his ability to service and install auto-radios, has catapulted Mr. Becker into a profitable, specialized business. He now takes care of Evanston automobile dealers and four radio stores not equipped to handle installation and service themselves.

RCA-Victor’s model M-70 has a combined speaker and power unit thus reducing size of control unit to a minimum.

ABC Lab’s short-wave police converter tuning 1,600-2,500 KC for use with standard set.

Crosley’s 5-tube Roanio feautures Magnature push-button control and lists at $19.99.

"Teeny-Weeny" 5-tube set by Sonora is the smallest one yet built.

7 in 1 socket wrench manufactured by Star Machine for auto-radio installation.
PHILCO creates a new kind of AUTO RADIO!

Again Philco leads in radio progress. Engineers develop New Convenience in Auto Radio Tuning.

ONE Push-Button Tunes 5 Stations!

New Sales-Making Invention!

At last, the perfect way to tune a radio in a car! Instead of several push-buttons, you tune in five favorite stations with just a single button! Each time you push the button, a new program comes in instantly...and you choose the one you want to hear. Not even a glance at the dial. Quick, simple, effortless. No fumbling, no groping. The easiest, most convenient auto radio tuning ever invented!

Here's your opportunity to put pep, punch, novelty— and dollars into your auto radio sales. Feature the new Philco Model 933 with this sensational new invention. It's a perfect "step-up" weapon to increase your unit sale and boost your auto radio profits. Get full details from your Philco distributor today—write, wire or phone!

PHILCO AUTO RADIO MODEL 933 $39.95


Other New Auto Radios—$29.95 to $69.95

PHILCO ALL YEAR 'ROUND

APRIL, 1939 25
More New Things

Latest news of radio products from manufacturers

Lightweight portable


Compact "B" batteries


Regulated power supply

* A regulated power supply designed to replace batteries in test work. Has two continuously variable voltage outputs, 90 to 160 volts at 40 milliamperes maximum load and 160 to 300 volts with a 100 milliamperes maximum load. Internal AC impedance is 0.1 ohm. Has voltmeter in front panel. Supplied in either table or rack mounting. Model 40-B. National Television Corp., 480 Lexington Ave., New York, N. Y.—Radio Today.

"Limited Editions" models


New Fada models


Battery bantams

* Bantam radio tubes are now available in 1.4 volt series for use in portable where space economy is more essential than in home sets. Obtainable in types necessary for portable operation. Hytron Corp., 76 Lafayette St., Salem, Mass.—Radio Today.

Wireless remote control

* "Mystic Tuner" operates any radio without attachments or adjustments. Complete selection of the standard broadcast stations and control of volume are possible. $19.95 list. Dynamic, high-impedance mike for home broadcasting available for additional $3.00. Pathe Radio & Television Corp., 2241 Indiana Ave., Chicago, Ill.—Radio Today.

Midget Arvinet

* Small AC-DC receiver with two double-purpose tubes, electro dynamic speaker, unbreakable cabinet in ivory or walnut enamel. Power output 1½ watts. 20 ft. aerial attached. $6.95 list. Good dealer profit margin. Noblitt-Sparks Industries, Inc., Columbus, Ind.—Radio Today.

Air-Pal radio

* AC-DC super-het with built-in antenna and full dynamic speaker. The set is 9 in. wide and 3 in. deep, finished in walnut and ivory. Stewart Warner Corp., 1826 Diversey Pkwy., Chicago.—Radio Today.
Personal radios


Auto aerials

* Telescopic auto antennas have newly patented “anti-rattle” feature to improve set performance and end “customer comebacks.” Now standard on all Ward auto-aerials, no extra cost. Ward Products Corp., 1523 E. 45th St., Cleveland, Ohio.—Radio Today.

Gas-engine generator

* Type 3AP6 light plant will light twelve 25-watt lamps or operate AC radio and 8 lamps. Can be used to charge 6-volt batteries. 4-cycle, single cylinder, air-cooled ½ h.p. High-tension magneto ignition, push-button starter. Elecor, Inc., 515 S. Laflin St., Chicago.—Radio Today.

Candid camera and range finder


Radio Library


Push-button radio


Facsimile kit

* Kit containing all parts necessary to build Reado facsimile printer. Uses Finch method. Operates in connection with radio receiver, Crosley Corp., 1329 Arlington St., Cincinnati, Ohio.—Radio Today.

Volume, tone controls

* Controls for 90 per cent of replacement requirements. Resistance ranges from 5,000 to 1,000,000 ohms in 5 types, including topped units. Illustrated is model VTC—with S.P.S.T. switch. Consolidated Wire & Assoc. Corps., 516 Peoria St., Chicago, Ill.—Radio Today.

Hearing aid


Philco's new model 31-XK features inclined panel, dual-band coverage and push-button tuning for 8 stations.
**New Things**

**5000-volt multiplier**

* Unit for converting Weston 772 multi-range meter for use at potentials up to 5000 volts at 20,000 ohms per volt. Multiplier unit mounts in compartment of tester—total resistance of 100 megohms in circuit. Supplied with test leads insulated to withstand 11,000 volts in accordance with AIEE safety standards. Telereter available from Weston Elec. Instrument Corp., Newark, N. J.—Radio Today.

**Rack and panel Chanalist**


**Quietone filter unit**

* All wave filter for use on 110 volts AC or DC, 5 amp. maximum capacity. Replaces old CD type IF-1. May be used to eliminate interference carried by power line. Equipped with metal case and binding post for ground connection. Catalog 165A on request. Cornell-Dubilier Electric Corp., S. Plainfield, N. J.—Radio Today.

**Ferrule terminal resistors**


**Poly-pedance transformers**


**Television antenna system**


**Signal generator**

* Features of Triumph signal generator include: 2 calibrated scales for all six bands, ten to one vernier. 100 K.C. to 96 M.C., expanded scales 35° rotation, straight line freq. 400 cycle modulation, variable from 0 to 75 per cent. May be modulated externally. 400 cycle audio 0 to 2.5 volts. R.F. output from 0 to approx. ½ volt. Removable output plug. Single-ended tubes. Model 130, net price $28.95. Triumph Mfg. Co., 4917 W. Lake St., Chicago.—Radio Today.

**Television tube fluorescent material**


**Electric shaver-filter**

* Filter consisting of two dual-lateral wound chokes of 2MH inductance and condenser of .03 mfd. Circuit provides exceptionally-high degree of attenuation, and eliminates need for ground connection. Moulded rubber enclosure makes filter unbreakable and prevents shock to user. J. W. Miller Co., 5917 S. Main St., Los Angeles, Cal.—Radio Today.

**P.A. tuner kit**

A tidal wave of interest and enthusiasm about Television just getting started, a wave that will sweep extra profits into the pockets of the alert dealer! Be prepared for it with the first practical Television Kit—designed and offered by MEISSNER!

For years Meissner has worked with Television, just to be prepared when Real Television arrived. It's HERE NOW—and the MEISSNER Television Kit is Ready for your rapidly growing Television market, with Meissner quality at a moderate price!

Be prepared for the Television market! See it at your parts jobber or mail the coupon today for complete information and dealer prices!

**CASH IN ON TELEVISION!**

**Sell the Meissner TELEVISION KIT!**

**THE FIRST PRACTICAL TELEVISION KIT!**

- Sound as well as Video—both in one unit!
- New SHOCK PROOF Design!
- 5-inch tube!
- Walnut Cabinet available at slight additional cost.
- Meissner Quality at a price any one can afford to pay!

**FOR COMPLETE DETAILS MAIL COUPON!**

MEISSNER MFG. CO., Dept. T-4, Mt. Carmel, Ill.

Please rush me complete information on Television Kits with dealer prices.

Name

Address

City State

A FAMOUS NAME FOR TWO DECADES

APRIL, 1939
Television Dynamic Testing

By Vinton K. Ulrich, Managing Editor

Basically there is no difference between dynateting a sound receiver and a sight receiver. In both cases the serviceman is confronted with the problem: "Is the voltage output of a stage great enough to meet the requirements of the following stage or device—and is the quality (waveform) suitable for the desired purpose?"

From some viewpoints television servicing is simpler than corresponding tests in a sound set. This is because of the presence of the cathode-ray picture tube, and because the eye is more critical and has a better memory than the ear.

CHECKING OPERATION BY EYE

When listening to a sound receiver, it is extremely difficult to determine what sort or distortion is present, if any; and where it might occur without staging a series of tests. With video, on the other hand, it is often possible just by viewing the picture to tell what sort of trouble is present and where it occurs.

In future issues of Radio Today it is planned to publish a series of television images with the standard test patterns to illustrate various difficulties that may occur.

Two block diagrams of television sets are shown on these pages. One diagram is for the radio frequency and intermediate frequency circuits and includes all circuit elements up to the video and audio second detectors. The other is the video section comprised of the video voltage amplifier and the sweep circuits. The two high-voltage power supplies have been omitted.

TEST FROM TUBE TO ANTENNA

As in audio dynamic testing, the writer prefers to work backward from the cathode-ray tube in video testing. First all, by adjustment of the brightness control, it should be possible to illuminate the screen without any signal being fed into the set. If this is possible, it indicates that the high voltage is present as well as sweep frequencies.

If a single vertical trace is obtainable, it means the horizontal sweep is not being applied to the tube. Likewise if a horizontal trace is the only image, the vertical sweep is absent. If only a white spot near the center of the tube is present, no sweep voltages are available. Incidentally, these tests for sweep voltages are identical to those used with any cathode-ray oscilloscope.

If a perfect image is obtainable on the screen when tuned to a station, the set can be pronounced perfect, without further tests. Should the image slide around on the screen, then something is wrong with the synchronizing circuits (or even the transmitted signals).

SWEEP OSCILLATORS

Referring to the block diagram of the deflection chassis, one sees that the video signal is fed into the sync amplifiers. After being amplified, the sync pulses are separated into the 60 (vertical) and 13.230 (horizontal) channels by means of filter circuits. The synchronizing signal is then applied to the respective sweep oscillators to hold them in step with the oscillators at the transmitter.

So if difficulty is had in keeping the picture synchronized, the stages between the video input and the sweep oscillator are checked.

When the picture is completely absent, the two most obvious troubles are absence of proper voltages on the tube or a defective tube.

A quick method of checking the video amplifier, when no picture can be obtained, is to tune in the audio signal on the audio circuits, and then tie the two second detectors together.

If the video amplifier is operating the sound signals will be fed into the picture tube and form some sort of a rapidly moving pattern. If no image results, this is a sure sign that the video amplifier is inoperative.

CHECKING VIDEO AMPLIFIER

With a dead video amplifier, the dynamic testing procedure is similar to that used in the audio amplifier and described in previous issues of Radio Today.
TODAY. Of course, the video amplifier must be capable of handling signals whose frequencies range from a few cycles to several megacycles. More about the specific procedure in future issues.

While three video amplifier stages are shown, it is likely that the small sets will use less. Likewise is true of the amplifiers in the synchronizing and deflection circuits.

Naturally sets using large picture tubes, will have more amplifier stages, since higher deflection voltages are required when higher accelerating voltages are applied to the tube. Consequently, the step from a 5-inch tube with 2,000 volts to a 12-inch tube with some 5,000 or more volts involves much more than just changing the tube and increasing the voltage on it.

MAGNETIC AND ELECTROSTATIC DEFLECTION

Both magnetic and electrostatic deflection are being used in the receivers that have been announced. In the magnetic type, the deflection voltages are applied to coils that have a magnetic effect on the electron beam, thereby causing deflection. The electrostatic sets have plates inside the tube, to which the deflection voltages are applied. Incidentally, electrostatic is the type of deflection used in all commercial test oscillographs.

The deflection of a tube and deflecting yoke if used, can be easily checked by applying AC voltages of proper magnitude to the deflecting coils or plates of the picture tube.

The I.F. circuits can be checked by working backward from the detector as in the case of a sound receiver. Some variations in the procedure will be necessary since the I.F. frequency for the video signal is on the order of 50 megacycles. The audio I.F. will be exactly 474 megacycles away for single-sideband transmissions or 3.74 megacycles for double-sideband signals. If the high-frequency oscillator is higher in frequency than the signal, the audio I.F. will be lower in frequency than the video I.F.—and vice-versa.

**SINGLE H.F. OSCILLATOR FOR VIDEO AND AUDIO**

Working back to the first detector, one finds that the output divides into two channels. One for the video, the other for the audio. A single oscillator is used to provide the two I.F. signals from the two transmitted carriers.

Ahead of the first detector, both the video and audio carriers and modulation are amplified by the same circuits simultaneously. In some sets an R.F. amplifier stage will be used, so it is shown on the block diagram. Since the signal frequencies range from 44 megacycles to 108 megacycles (channels A to G), special signal generators will be needed. For overall set testing independent of transmitted signals, some sort of a special modulator is also essential.

For a discussion of the types of interference that may create havoc with telecasts, the serviceman is referred to page 19 of this issue.

For a proper understanding of television circuits and how they work, the reader is urged to study and master basic principles. With a thorough understanding of such concepts, television is not so hard—in fact, as the writer sees it, television is merely the same old principles expanded and applied in new ways.

**Television terms explained**

With the birth of commercial television, the radioman, either technical or sales-minded must learn the new lingo. Dozens of new terms or words are being added to the radioman’s vocabulary—and many other words are being given new meanings by television. At present many manufacturers have their own exclusive names for certain developments. As a beginning on the list of television terms we present those compiled by Allen B. Dumont Labs.

Audio—Pertaining to the sound section of the receiver.

Amplitude—A term synonymous with gain or size.

Axis—In television the horizontal plane is called the X Axis and the vertical the Y Axis.

Cathode-Ray Tube—A vacuum glass tube comprised of a structure for producing and focusing a stream of electrons upon an internal screen.

Coaxial Cable (or line)—A special cable for conveying television signals with as little loss as possible.

Contrast Control—A control on the receiver adjusting the contrast between high lights and shadows in the picture.

Deflection (Magnetic)—A system where the motion of the spot is produced in producing the picture is controlled by magnetic fields.

Deflection (Electrostatic)—A system where the motion of the spot in producing the picture is controlled by the static action of the deflection plates.

Deflection (Plates)—These plates are located inside a cathode-ray tube and provide for electrostatic deflection of the beam.

Deflection (Coils)—Coils mounted externally about the cathode-ray tube to produce magnetic deflection of the beam.

Dipole—An aerial comprised of two separate rods.

Double Image—Where two images appear separately on the screen, one of the sweep circuits is adjusted to half its correct speed. If the horizontal sweep is at fault the images will appear side by side, conversely if the images are vertically displaced the vertical sweep is at fault.

Field—In the RCA Television System there are two fields to each frame. In other words each picture is composed of two fields scanning alternate lines.

Frame—One complete picture, thirty of these a second are thrown on the screen.

(Continued on page 56)

The video low-frequency circuits are comprised of the video amplifiers, synchronizing amplifiers, sweep oscillators, and deflection voltage amplifiers.
New Things

Battery table set
* 4-tube super operates with single pack batteries and 1½ volt tubes. Covers standard broadcast and police calls, has full AVC and 6-inch P.M. speaker. Set is manually tuned. Walnut cabinet. Continental Radio & Television Corp., 3860 Cortland St., Chicago—Radio Today.

Reflex cameras
* Dual reflex camera, pocket size, may be used as candid camera. R511 equipped with 5mm. Eyvar lens $4.95 list: 512 with 50mm. Eyvar lens and three diaphragm openings—$5.95; 513 with 77 lens and 4 diaphragm openings—$7.50. Tri-reflex camera has automatic lens adjustment, time bulb, and instant shutter speeds to 1/200th of a second; choice of F3.5 or F4.5 lenses. Model R514 $19.95, R515 $25.00. Use 127 film—16 exposures. Irwin Corp., 27-33 W. 20th St., New York, N. Y.—Radio Today.

2-inch speaker

Two-stage preselector
* Two-stage preselector designed for use with any communication receiver. Uses two 6K7 RF amplifiers. Three tuned circuits on each of five bands with coverage of 530 KC to 32.4 MC. Sensitivity control and antenna-switch provided. Also available are two conversion kits for midget battery receiver, containing all necessary parts for changing one-tube set to two-tube (No. 10-1125, 75) and everything to convert two-tube receiver to three tube set (No. 10-1127, 1 $1.85) Meissner Mfg. Co., Mt. Carmel, Ill.—Radio Today.

Supreme tube & set tester
* Portable 4-in-1 tester including roll-chart tube tester, 29-range multi-meter, electrolytic condenser and electrostatic leakage testers. Checks all tubes including 1A, 35, and 50 volt A.C-D.C. volts to 2500, 2% on D.C., 3% on A.C. Model 504. Supreme Instruments Corp., Greenwood, Miss.—Radio Today.

Panel lamps

Detrola candid cameras
NATIONAL TELEVISION CORPORATION has blazed its own trail in television

YEARS of intensive, independent research have brought important developments in transmission and reception.

The extent of our preparedness for television today, is shown by these products, now available, singly or together.

- CAMERA CHAINS for transmitting stations, schools, colleges, etc.
- SYNCHRONIZING GENERATOR for transmitting stations.
- SPECIAL TYPE SWEEP CIRCUITS.
- SPECIAL TEST EQUIPMENT for television receivers manufacturers.
- TEST EQUIPMENT for television service.
- TELEVISION VIDEO VOLUME CONTROLS.
- REGULATED POWER SUPPLIES especially adapted for television transmission, schools, laboratories, etc., where very accurate DC voltage regulation is required.
- HORIZONTAL DEFLECTING TRANSFORMERS.
- BLANK OUT GENERATORS.
- SQUARE WAVE GENERATORS.
- TEST EQUIPMENT for radio and service.
- TELEVISION RECEIVERS.

Few have gone as far as National Television Corporation

In the television products of this company there is a great backlog of development. Years before television showed promise of becoming an industry, we had started our original research.

Continuously since 1931, when the company was incorporated, we have had a staff of engineers at work on various phases of television research and we maintain well-equipped laboratories at this address.

This research has intensively covered the field of both mechanical and electronic television.

Numerous patents have been granted to this corporation—and numerous others are pending in the Patent Office.

In recent years we have had complete camera chains in operation and, throughout the past year, have produced regular programs showing 441-line high definition pictures, using special transmitting equipment, designed and built by us, and specially designed receivers embodying our own inventions and development work.

While the company is now prepared to supply any or all of the units listed above, a further announcement will be made in the near future, relating to A LINE of television receivers.

When announced, these products will incorporate what we believe to be a very valuable improvement, developed by this corporation, to simplify operation and servicing and to make television receiver-performance even more reliable.

Inquiries Invited from Broadcasters, Manufacturers, Distributors and Dealers

NATIONAL TELEVISION CORPORATION

Offices: 480 Lexington Avenue, New York

APRIL, 1939
On the Record

Children's dept. to boost record sales

Taking a tip from the cereal manufacturers who have boosted sales by appealing to parents through their children, The Boston Store, Milwaukee, has established a record department solely for children.

Naming it "The Little Record Shop," Mrs. Lela Hansen, who is in charge, has worked out a program to amuse as well as musically educate children from two to ten years. Starting with musical nursery rhymes and progressing to semi-classics and children's operas, Mrs. Hansen has built up an excellent repeat business.

The newspaper list of births and a scrapbook signed by all the little visitors are used for direct mail promotion. This is supplemented by an advertisement in the Sunday edition of the leading newspaper. Hundreds of records have been sold after only three months of operation.

Hotel man records voices of his noted guests

Manager Bud Morriss of Los Angeles' Clark Hotel uses a portable recording machine from Universal Microphone Co. to build up a library of remarks and speeches by his notable guests. In years to come, he believes, historians can turn to the guest register for famous signatures, then go through his collection of disks and hear actual voices.

Bluebird in first swing album; Shaw shines

There'll be no paupaws for Artie Shaw's rendition of ten standard swing classics in the newly-famous young maestro's matchless style. Due to swingsters' increasing demand for Shaw records, RCA-Victor has combined the favorite Carioca, Bill, The Donkey Serenade, My Heart Stood Still, Lover Come Back to Me, Rosalie, Zigeuner, Supper Time, the Man I Love and Vilia, into the first swing album. The five-record Bluebird set sells for $2.25.

For the record

Three news notes of interest to record sellers come from the up and coming CBS affiliate, American Record Corp., makers of Columbia, Brunswick and Vocalion discs.

Vocalion will re-issue "hot" records that were favorites years ago. First of them is "Dinah" and "Indiana" as played by Red Nichols and his Five Pennies. That was when the Pennies included Benny Goodman, Gene Krupa and Jackson Teagarden, all well-known band leaders today and favorites of the jitterbugs.

Second, John Henry Hammond, noted but youthful authority on "le jazz hot" has been named talent scout and associate recording director. Third, Jimmy Lunceford's ace 15-piece band has been signed, and his first recording "Taint What You Do But the Way that You Do It" has just been released.

Wax worth watching

EDDIE DELANGE and his orchestra playing Simple Simon, with VR by Elzie Cooper, and All De-Day, with VR by Miss Cooper and chorus—Bluebird 10181.

RICHARD HIMBER and his Rhythm Pandas playing I Promise You and Blame It on My Last Affair with VR by Stuart Allen—Victor 36177.

JIMMY DORSEY and his orchestra playing This Is It with VC by Bob Eberly and chorus, and It's All Yours with VC by Helen O'Connell and chorus—Decca 23332.

COUNT BASIE at the piano playing Bongie Woogie and How Long Blues, with guitar, bass and drums—Decca 23555.

DICK ROBERTSON and his orchestra playing Penny Serenade and I Promise You, both with VC by Mr. Robertson—Decca 2354.

NANO RODRIGO and his Harlem-Madrid orchestra playing Begin the Beguine and Oye Tu, with VR by Arturo Cortes—Victor 26203.

"FATS" WALLER and his Rhythm, 'Tain't What You Do and Some Rainy Day—Bluebird 10192.

HAL KEMP and his orchestra playing Three Little Fiddles, with VR by "Sixty" Dewell, and The Chestnut Tree, with VR by The Smoothies—Victor 26204.

Leonard Joy, conductor-arranger, is new RCA Victor Artist Mgr.

Albert Bates brings 20 years of record experience to his new job as N. Y. Mgr. with American Record Corp.

Analey Radio Corp., 4277 Brex Blvd., New York City—19 models are listed in 24-page illustrated brochure. Radios and combinations in console and table sets are shown in period and modern styles.
RCA TELEVISION will be introduced this month in the New York metropolitan area. Television programs, broadcast from the lofty NBC mast at the top of the Empire State Building, will cover an area approximately fifty miles in all directions from that building. Programs from NBC television studios will be sent out initially for an hour at a time, twice a week. In addition, there will be pick-ups of news events, sporting events, interviews with visiting celebrities, and other programs of wide interest.

How Television will be received!

To provide for the reception of television programs, RCA Laboratories have developed several receiving sets which are now ready for you to sell. These instruments, built by RCA Victor, which you will see on ensuing pages include two of the three models for reception of television pictures and sound, as well as regular radio programs. There is also an attachment for present radio sets. This latter provides for seeing television pictures, while the sound is heard through the radio itself. The pictures seen on these various models will differ only in size.

Television—A new opportunity for dealers

RCA believes that as television grows it will offer dealers an ever expanding opportunity for profits. You, who are in a position to cash in on its present development, will find that television goes hand in hand with your radio business.

In Radio and Television—It’s RCA All the Way
A New Industry is Born as RCA and NBC Present
TELEVISION

Television Broadcasting Begins on April 30 in New York Area

...and RCA Victor Television Receivers are Ready!

Years of patient effort in RCA Laboratories... millions spent on research... now convert a fantastic dream into a splendid reality.

April 30th marks the birth of a new industry—television. On that day radio will take on another dimension. Sight will join with sound to bring the public a wealth of new experiences.

Television is something everyone wants. Those living in the New York metropolitan area can have it right now. No prediction can be made as to how soon it will be available throughout the country, but RCA is bending every effort to meet the nationwide desire as soon as possible.

The development of television by RCA and its various subsidiary companies is an example of RCA's policy of always looking ahead. About ten years ago, RCA established experimental television station W2XBS. Shortly thereafter, television research laboratories were set up in Camden, N. J., so that all of the resources of RCA in transmission, broadcasting, reception and sound reproduction could be applied to this new art.

Out of this RCA television research came the Iconoscope, the "eye" of television, and the Kinescope, the "screen." These are the bases of RCA electronic television, and have been made available to the entire industry. RCA has also spent more than two million dollars in practical field tests of television in New York alone over the past three years. Thus, RCA and its various subsidiary companies have been and are engaged in every phase of television—research, engineering, manufacturing, installation, broadcasting and service. This experience is unmatched. This is an important sales feature that RCA Victor dealers should remember and use in selling current and future merchandise.

RCA Victor "look ahead" planning did not stop at the scientific development of television. It covered the sales end—your end—of the picture, too. As a result, RCA Victor Television Receivers not only perform with sales-compelling perfection but are priced lower than might be expected. In addition, RCA also looked ahead in the development of the RCA Victor Television Attachment for use with present radios, which offers you an opportunity for volume profits when television reaches your city.

The ability of RCA Victor to look ahead has been demonstrated before. The long chain of improvements in RCA Victrolas and in recording processes... the ceaseless promotion of RCA Victrolas... the introduction of the Record Player... the formation of the Victor Record Society—all are examples of RCA Victor "look ahead" planning that has meant profits for dealers.

And now RCA Victor opens a new era of profits for you. Look ahead yourself. Start now to grow with RCA Victor Television!

FACTS YOUR CUSTOMERS WILL WANT TO KNOW ABOUT TELEVISION!

1. How many television stations are now in operation? In the near future indications point to the operation of three stations in the New York area. Also one at Schenectady, N. Y., and one at Los Angeles, Calif. 2. Can a radio receiver be used to reproduce television sound? Yes, most new RCA Victor sets are designed so that they can be connected to an RCA Victor Television Attachment. 3. What is the cost of operating a television receiver? At the average price of electricity about 1 cent an hour. 4. How do television pictures compare in quality with a home movie? An RCA Victor television picture compares favorably. 5. How many hours a day will television programs be available? In New York, NBC, in addition to two one-hour studio programs per week, starting April 30, will provide special pick-ups of sport events, visiting celebrities, etc. 6. Will television take the place of radio? No. You will continue to enjoy your radio just as before. Radio reception is an integral part of RCA Victor Television Receivers, or if you select an RCA Victor Television Attachment your present radio will continue to bring you radio programs as usual.
RCA Victor Television Model TRK-5 is the lowest priced console in this new line. Will reproduce a picture 7/8" by 9/8" in size. It features indirect viewing through mirror, has 36 tubes not including kinescope, offers a choice of 5 television channels, and has many other important points that will help make this instrument profitable for you.

RCA Victor Model TRK-9 (not illustrated) is similar to Model TRK-12, except that it is direct viewing and uses a 9" Kinescope.

RCA Victor Television Receivers are the only ones backed by a $2,000,000 field test.
New RCA Victor Radios and Victrolas

NEW RCA VICTOR RADIOS
On these pages are presented two of the new RCA Victor Radios—and three new Victrolas—all designed for use with television.

RCA Victor's new sales policy discards the old method of an annual introduction of new radios and Victrolas... eliminates usual big push and dealer loading and assures you A YEAR ROUND MERCHANDISING, SALES AND ADVERTISING PROGRAM THAT WILL BRING YOU NEW MERCHANDISE VALUES, NEW SALES AND ADVERTISING PROGRAMS EVERY MONTH OF THE YEAR! That's why now—more than ever—it will pay you to push RCA Victor!

Don't let the arrival of television worry you over your radio and Victrola business. "Look ahead" planning by RCA Victor enables you to offer television as an extra attraction in new radio and Victrola models.

ON THE TWO PRECEDING PAGES RCA Victor has announced its first television receiving models. One of these, the Television Attachment, is designed to operate with the new RCA Victor Radios and Victrolas. As a result, your customers will not hesitate to buy these new instruments now. Because they can add television to them at low cost when telecasts are available in your locality.

How? It's easy! The Television Attachment illustrated on the preceding pages can be readily attached to these new models—and presto! A telecast may be received. The picture appears on the Television Attachment... the sound comes from the radio's loudspeaker.

"Look ahead" planning by RCA Victor enables you to offer the amazing Television Jack in these new instruments. It is planning that reflects RCA Victor's constant efforts to make more money for you. Planning that really "looked ahead" when the new models were merely blueprints many months ago. Planning that now makes the advent of television profitable for you.

The Television Jack is a great sales feature—will help your RCA Victor sales. Feature it!

DESIGNED FOR USE WITH TELEVISION! Little Nipper Model 9TX31... New edge-lighted dial, Plug-in for Victrola or Television Attachment, new low drain RCA Victor Tubes, powerful superheterodyne circuit, built-in antenna, AC-DC operation, electro-dynamic speaker, only...

DESIGNED FOR USE WITH TELEVISION! 1938 Victor Model 98K2... an 8-tube, 3-band instrument with Electric Tuning, Magic Eye, RCA Victor Metal Tubes, Plug-in for Victrola or Television Attachment, and many other features. Only $89.95

New RCA Victor Money Maker!
New RCA Victor Auto Radio Model M-70 will pep up your Spring and Summer sales! Fits any car—regardless of make, model or year... may be easily transferred from one car to another—and is loaded with sales features which include push-button and manual tuning, 8" speaker, 7 RCA Victor Tubes, and many others. Requires no special plates. Only $44.95


RCA Victor RADIOS AND VICTROLAS
RCA Manufacturing Co., Inc., Camden, N. J.
Designed for Use with Television!

A Double

RCA Victrola Attraction!

1. Designed for use with Television
2. Powerful new promotion

One of the greatest values in RCA Victor history, yet this RCA Victrola Model U-123 is offered you at full dealer discount! Ordinarily you wouldn't be able to offer such an active model until June... but RCA Victor's new sales policy brings it to you now. This means many added weeks of selling.

Here's a promotion that promises even more profits than resulted from last year's sensational sales. Get behind it... and push the other great RCA Victrolas featured here, too. They also are designed, styled and priced to make this your big RCA Victrola year.

RCA VICTROLA MODEL U-123

$129.95*

You can offer your customers:

1. All-Time Low Price for RCA Victrola with Automatic Record Changer.
2. Bonus of $17.50 in Victor or Bluebird Records plus benefits of Victor Record Society membership and subscription to Victor Record Review.
3. Extra Liberal Trade-in.

RCA Victrola Model U-123. Has Gentle Action Automatic Record Changer for 10" and 12" records, Feather-touch Crystal Pick-up, New Top-loading Needle Socket. Radio has RCA Victor Electric Tuning... Push a Button—there's your station... 12" Dynamic Speaker... and many other features.

DESIGNED FOR USE WITH TELEVISION! RCA Victrola Model U-121. An outstanding instrument with Feather-touch Crystal Pick-up, True-Tracking Tone Arm, RCA Victor Electric Tuning, and many other features. A value that creates a real sensation at the amazing low price of only $79.95*.

DESIGNED FOR USE WITH TELEVISION! RCA Victrola Model U-129. A glorious instrument in superb cabinet of modified modern design. Offers such outstanding features as Gentle Action Automatic Record Changer, Crystal Pick-up with Top-loading Needle Socket. Has a 10-tube, 3-band radio with Electric Tuning... $185*.

Victrolas

A Service of the Radio Corporation of America

APRIL, 1939
Engineered and Made by the Same Organization that Brings Television to America!

Your customers will have confidence in these tubes that come from Radio and Television Headquarters!

Here's a radio tube sales story that will bring you extra RCA Victor Tube business! Tell it to your customers—and they'll buy!

RCA Victor Radio Tubes are made by the same men who now bring television to America. To create today's television, RCA tube engineers had to conceive and build the complicated tubes that are the basis of the art. It took years of research, sound thinking and skillful engineering to do this. But it was done. And this same research, thought and skill is applied to the manufacture of every tube bearing the RCA Victor name. As a result, your customers will accept the idea that they will naturally get better quality, finer performance, when they use RCA Victor Tubes in their radio.

Tell this story. It will pay you.

Methods That Clicked
What successful dealers are doing to promote the sale of more and better radio sets

Street car advertising sells small sets

A major selling job on miniature radio receivers for the six Wieboldt department stores, scattered through Chicago and suburbs, is credited to "bulkhead" advertising in Chicago street cars during the entire month of March. Offering two models of the Aeroscope line of the Admiral radios, at $9.95 and $16.95 on payment of $1.00 down and $1.00 per week, the big "ads" helped to push up the total sales for the month to unexpected levels, according to R. L. Hirsch, radio sales and advertising manager.

Not content with using the ordinary car card placed in the customary lineup of cards above the windows of a street car, the Wieboldt stores adopted a large vertical card (almost twice the area of the ordinary horizontal card and reproduced on this page) to be hung against the "bulkhead" partition separating the main interior of the car and passengers from the front or rear platform. Passengers facing the partition could not fail to see and read the big cards, attractively illustrated and worded with a brief message certain to stick in one's memory.

During the month, these "bulkhead" cards were displayed in 1,100 street cars (40 per cent of all Chicago's cars) and were seen by an estimated riding population of 1,500,000 daily. Under present advertising policies, the Wieboldt stores run newspaper "ads" every week in the entire year, but do not carry newspaper copy and car cards on the same merchandise at the same time. Additional copies of the "bulkhead" cards were displayed in all departments of all the stores during the month's drive to sell the radios.

"About 65 per cent of our total radio sales are the smaller receivers," said Mr. Hirsch. "Console types of receivers run about 35 per cent. We find a ready market for the smaller radios, like those of the Admiral Aeroscope line. It is not difficult to sell console receivers priced from $50 to $95 but we do not find a ready market for receivers that sell for more than $100. We handle three lines of the larger radio receivers and their sales are satisfactory. It is quite evident, however, that the appeal of "no aerial, no ground" has stepped up sales on the smaller radios.

"Practically all of our sales are made in the stores, since we do not maintain outside sales crews on radios or other electrical appliances. Some of our salesmen may occasionally make outside sales but they do it on their own time and to prospects first contacted in the store."

Wireless player brings 'em into store

Several dealers in the New York area have found the new RCA wireless Victrola attachment a booster for floor traffic and general interest leading to sales. Priced at $17.95, it is a tiny transmitter which permits the record to be played within a radius of 20 feet of any radio set and the music to come directly from the radio without any wires or connections.

One stunt being used is to set the reproducer up just outside the store entrance, weather permitting, and invite the curious to come inside and hear the music coming from a set in the store.

Another dealer took a unit into a next door delicatessen, and with one of his clerks operating it, was successful in getting a number of potential customers from the delicatessen to come into the radio store. Looks like a natural to us!

8 sets on one antenna helps buyer choose

Roy Chandler of Delake, Oregon, has worked out a plan to help display radio sets with little fuss in shifting antenna. He reports that customers are much pleased with it. Chandler uses a Philco 8-station push-button selector switch as shown in the picture herewith. Press one button to connect any one of eight sets to the antenna; push another to connect a second set and automatically disconnect the first.

"This affords a convenient method of comparing various models," says Chandler, "as sets can be tuned to the same station, the volume adjusted. Then, by merely pressing the correct buttons, the change can be made instantly and the customer can readily decide."

With this simple selector, Roy Chandler connects eight sets to one antenna for demonstration in his store.

Reproduction of the card used by Wieboldt's for street car advertising in Chicago.
Looking ahead in television
(Continued from page 20)

TRAINED MEN NEEDED IN FIELD

J. E. Smith, President.
National Radio Institute

Guess-and-try methods for servicing television receivers are definitely out. Television receivers have from twelve to twenty-five or more tubes, plus a cathode-ray tube which requires electrode voltages in the order of thousands of volts. Each part and circuit is carefully designed to give the highly complex circuit action required to make an electron beam create an acceptable picture. All this means that an untaught technician can do no harm to a television receiver in five minutes than a trained man can correct in an equal number of hours. Furthermore, this same tinkerer can do no harm to himself in a split second than all the doctors in the world can correct in an infinite number of hours. Yes, television is no place for untrained men.

Effect-to-cause reasoning, sometimes called dynamic testing, will be the backbone of the techniques employed by N.R.I-trained Teletricians for servicing television receivers. To these men, each observable fault in the reprinted image will tell its own story, pointing to trouble in a particular section, stage or part.

More about frequency modulation

Editor, Radio Today:

In your issue of February, under the heading "Frequency Modulation Still Experimental," you publish an article in which some very serious errors of fact are made.

Referring to the use of frequencies of greater than 30,000 kilocycles by this system, the statement is made:

"Use of these frequencies restricts operation to the limit of the horizon as with television. Antenna installations are absolute necessities and involve many of the problems found in television."

This statement is not true.

None of the difficulties involved in television have been encountered in the transmissions from my station at Alpine, nor is reception in any sense limited to the horizon. Several observers located at distances ranging between two or three horizons from the Alpine transmitter have obtained uninterrupted reception at all times for the past year (three horizons is approximately 100 miles). The service is vastly superior to that rendered by the existing 50-kw. broadcast stations.

The statement that antenna installations are absolute necessities in television transmission is likewise not in accord with the facts. Perhaps the best answer to this assertion is the demonstration which was made on March 23rd, 1939, before the Radio Club of America, where a few feet of wire lying on the desk of the lecture hall gave perfectly clear reception.

Yours very truly,

Edwin H. Armstrong.
Columbia University, New York
**Selling Sound Section**

Sales ammunition with hundreds of facts in convenient table form for quick, easy use by sound and radio men

Listed below in the chart are some 50 reasons for using sound and interphone systems. Soundmen everywhere can use these pointers as sales ammunition when contacting prospects. For each of 4 dozen types of installations, the appropriate sales arguments are indicated by a solid black dot.

When used with the tabulation of suggested equipment requirements appearing on page 45, this material provides an analysis of practically every type of sound installation.

Compiled by Radio Today these tabulations are condensed for ease in use and convenient handling. If published in usual text form, dozens of pages would be needed to convey the same information. Save these installation and selling hints for future use—use them in your everyday work for greater profits.

<table>
<thead>
<tr>
<th>SUGGESTED SELLING ARGUMENTS</th>
</tr>
</thead>
</table>

| TYPE OF INSTALLATION | Accomplish your purposes | Attract individual attention | Amount your business | Better business | Better sales results | Correct channels | Create pleasant atmosphere | Distribute radio programs | Drive traffic | Easily recalled memories | Enhance organization | Increase capacity | Intercom facilities | Make guests happy | Order line for service | Prevent service | Reduce loss rates | Expand advertising | Schedule services at will | Social relations improved | Social status | Speed up service | Stock special sales | Supply background music | Use sound effects | Widen scope of activity |
|-----------------------|--------------------------|-----------------------------|---------------------|-----------------|------------------|------------------|--------------------------|--------------------------|---------------|---------------------|-------------------|-----------------|-----------------|-------------------|----------------------|-----------------|----------------------|------------------|-----------------------------|-------------------|-------------------|------------------|---------------------|-------------------|------------------|
| Advertising trucks    |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Airports              |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Alarm systems         |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Athletic fields       |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Auction rooms         |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Audition studios      |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Auditoriums          |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Band stands          |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Bathing beaches       |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Beer gardens          |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Cabarets             |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Cemeteries           |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Churches             |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Civic centers        |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Colleges             |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Court rooms          |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Dance halls          |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Eating places        |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Exchanges            |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Exhibitions          |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Factories            |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Fairs                |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Gymnasiums           |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Hospitals            |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Hotels               |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Lawn fets            |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Lodges               |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Markets              |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Military posts       |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Naval bases          |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Offices              |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Orchestras           |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Playgrounds          |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Prisons              |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Race tracks          |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Schools (Classrooms) |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Ships                |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Skating rinks        |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Sound trailers       |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Sporting clubs       |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Stadiums            |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Steamship piers      |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Stores               |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Swimming pools       |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Talking displays     |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Theaters            |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Transportation terminals |                    |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Undertaking parlors  |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Weighting stations   |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |
| Yachts              |                          |                             |                     |                 |                  |                 |                          |                          |               |                     |                   |                 |                 |                   |                      |                    |                      |

© 1939 - Selling Sound

April, 1939
**Now... 5 VITAL FEATURES COMBINED AND UNIFIED IN THE AMPERITE VELOCITY WITH ACOUSTIC COMPENSATOR**

**it's a VELOCITY**
**it's a DYNAMIC**
**it's UNI-DIRECTIONAL**
**it's NON-DIRECTIONAL**
**gives HIGH OR LOW PITCH**

By moving up the Acoustic Compensator, you change the Amperite Velocity Microphone to dynamic operation—without peaks. At the same time you reduce the feedback pickup, making the microphone practically uni-directional.

With the Acoustic Compensator down, the microphone is bi-directional...120 degrees front and back without frequency discrimination. Rotating the microphone until it parallels the ceiling makes the microphone non-directional.

THE ACOUSTIC COMPENSATOR is a regular feature of these models: RHJK (hi-imp); RJMK (200 ohms). LIST $42.00. RJHK (hi-imp); RBSK (200 ohms), $32.00 LIST.

---

FOR TOP-NOTCH QUALITY, AND AMAZING RUGGEDNESS, AT LOW COST specify Model RA (or RA1).

Here's why this popular Amperite Velocity Microphone leads the low-price field: (1) it is excellent for both speech and music; (2) has flat response without undetectable peaks; (3) reduces feedback; (4) stands up under rain, wind, heat, and rough handling. Frequency range 60 to 7500 CPS. Output, 58 db.

MODEL RA (hi-imp), with 1/2' of cable; MODEL RA1 (200 ohms), with 8' of cable...$23.00 LIST.

---

SELL "CONTACT MIKES" to Professional and Amateur Musicians. New high output model can be used in the home.

Professional musicians are buying Amperite "Contact Mike" because "it makes an ordinary violin sound like a Strad." Now amateurs, too, can benefit by the "Contact Mike." The new HIGH OUTPUT MODEL SKH can be used in the home. It operates on most radio sets made since 1935. It is non-directional. It is now the standard microphone on sound equipment. It is the mike easy to attach to guitars, ukases, etc.

MODEL SKH (hi-imp), SKL (200 ohms) $12.00 LIST. Any number up to 5 SKH's can be put in parallel and fed into one input.

NEW FOOT PEDAL, $12.00 LIST. CLAMP for Contact Mike, $1.00 LIST.

---

Sales Aids for the P. A. Man

(1) FREE Window Decal advertising your Sound Service. Size 5 1/4" x 9 1/4", finished in 4 colors. (2) FREE Window Display, 11" x 17". (3) Special Sound Equipment Letterheads. Samples and prices on request. (4) FREE use of cut for printing business cards, etc.

AMPERITE CO., 561 BROADWAY, N. Y. U. S. A. CABLE ADDRESS: ALBEM NEW YORK
Sound Installation Requirements

Checklist for all types of sound systems. What equipment to use, what accessories to suggest, so as to insure more profits and satisfied customers.

With sound embracing an ever-widening field, it is desirable that the sound and radio men have an equipment checklist that will help in specifying the proper units for each type of installation.

The accompanying chart of sound installation requirements was compiled with the idea that it suggest the various types of apparatus that might be sold. To show the relative sales possibility or need of the various units, the codes A, B, C are employed - A signifying absolute necessity of first choice, B indicating probable need or second choice. C is indicative of a rather remote possibility.

As in any chart where items are grouped together, the interpretation is in the term of averages. For example, the requirements for a school are the average of those found in typical cities. Naturally any specific school has its unique problems that will vary from the average. This chart, however, will help the sound man determine the exact requirements since it supplies the basis on which to make the survey.

Some sound systems will be a combination of several of the locations listed on the chart. A school may have the classroom system, an auditorium system, one for the gymnasium, and possibly sound on the athletic field. Depending on the needs and the physical layout, some of the systems may be combined so as to use the same amplifiers and pick-up equipment.

By using this chart the sound specialist and radio man will be sure that he is suggesting a complete amplifier installation—resulting in more profits and better customer satisfaction.

Central address system as school aid

A plan to provide classrooms of 50,000 pupils of the New York area with amplifiers is being tested by the administration of the 240 parochial schools of the Roman Catholic Archdiocese of New York.

The sound systems will be connected by telephone circuits to a broadcasting studio. Addresses, lessons, announcements and musical programs are some of the uses to which the system will be put.

While the installation and maintenance cost of such a system would be high for one school, it is made comparatively low by having many schools use the facilities. It is expected that sponsors will be found to defray the expense and that a high grade of programs can be provided.

Dealer sells every garage in town

"When I go into a place of business, I do not try to sell sound systems at all—I just try to get a demonstration and let the customers sell themselves." With this kind of an attitude, L. I. Spicer of Spicer Sound Co., Monmouth, III., went out and successfully sold every garage in his town on the idea of using a combined paging and intercommunicating system. Mr. Spicer convinced the garage men that the system was a money-saver, that he was the man to install it properly, and that the price was reasonable. He showed the auto houses that it was a smart idea to provide dependable and economical communication between the various departments of the business—specifically, the stock room, the parking lot, the mechanic on the floor.
The almost miraculous accomplishments of Sound at the New York World's Fair are but a few indications of future sound developments. After hearing the successful application of sound, millions of persons will become "sound" conscious, thereby greatly increasing the demand for amplification in all fields.

Soundmen everywhere can obtain tips from the installations at the fair. While a few of the features to be described are too complex for usual sound systems, simplified versions will find many applications.

The sound system installed at the World's Fair will be capable of the simultaneous origination, monitoring, volume control and switching of six independent programs, with separate distribution to four public-address channels and two radio channels. It will be capable of picking up either electrical transcriptions, radio programs, or remote pickups and will transmit these programs through the four studios to the 16 outlets on the Fair grounds, one of which is illustrated on opposite page. The Center is located in the Communications Building and consists of four studios and a master control room. The entire center is enclosed in glass so that it will also serve as a functioning exhibit.

**MASTER CONTROL**

A master control console contains all the operation controls for program selection, control, and the distribution to the sound system. There are five individual panels—one for program distribution, one for program selection and one for program control, plus an order wire panel and a secondary program distribution panel.

The program selection panel contains controls and indicators for an automatic pre-set relay system which permits independent switching to any of six program channels, and any of ten console input lines. The relay system is designed so that a desired program line may be pre-set on the controls prior to actual switching, without disturbing a previous input line which may still be in use and switched by means of a master key.

The pre-setting and switching operations are entirely independent for each of the six channels. The grand master key provides a changeover of the desired channels simultaneously. "On" indicator lamps show on which line each channel is operating, while "Pre-set" indicator lamps show which line is pre-set.

**PROGRAM CONTROL**

The program panel contains controls and volume indicators for the six program channels. Each of these channels is of the bridging type, providing individual means for amplification, level control, level indication and monitoring. The busses of four channels may be used to feed any combination of 50 P.A. program lines. These lines serve the various public address outlet stations at the Fair. Each of the 50 program lines has an individual control panel with a four-point selector switch for connecting it to Channels 1, 2, 3, 4.

**CENTRALIZED DISTRIBUTION CONTROL**

These panels each contain 25 individual P.A. outlet control panels. The total of 50 panels controls level and AC power to various remote P.A. outlets. A switch operates a relay installed at the sound outlets, opening the circuit when the pointer reaches zero. The relay turns off the AC to the equipment at that point.

The output fidelity of the New York World's Fair sound equipment will be of the highest quality obtainable. The frequency response from the input of any console to the output is within plus or minus 2db. from 30 to 10,000 cycles without frequency compensations. The total harmonic amplitude distortion will be less than 1 per cent.

Each P.A. outlet consists of a loudspeaker system and an amplifying system. The average length of the lines running to the loudspeakers is a mile and a half, and the longest distance is three miles. The volume of each loudspeaker of the various groups is adjustable by means of an individual volume control, recessed in the front panel.

A typical outlet embodies two specially developed RCA cube loudspeakers driven by four 50-watt amplifiers. The new cube loudspeaker measures 36 in. on each side and contains separate low and high frequency driving units and an associated crossover network. Both units are of the permanent magnet type.

The most spectacular aspect of the sound program at the New York World's Fair lies in the fact that for

---

Four speaker units are used in the lagoon for 360° stereophonic sound reproduction.

A close-up of one of the 500-watt stereophonic speakers. High-frequency reproducers shown in upper section. Entire unit about 5 feet high used for low-frequency sound distribution.

---

**Sound at N.Y. World's Fair**

Network of 16 sound outlets provides regular program service. Centralized distribution gives unusual control. Unique installations in Perisphere and Lagoon of Nations.
Concealed speakers are the motif at the N. Y. World's Fair—note grille between flag poles.

The Fair theme—sound will issue from the mouth of a horn formed by the outer curving surface of the 200-foot Perisphere and the flat surface of a 320-foot pool of water beneath the giant globe. By this arrangement, the over-all appearance produces in the audience, an impression of the music as if in an outdoor amphitheater.

The sound is produced in a chamber constructed beneath the Perisphere in an acoustical pit 12 ft. deep and 22 ft. in diameter. This is the first exponential reflex horn ever constructed from concrete and 4 in. x 8 in. planking. Mounted on a wooden baffle erected in this sound chamber are 24 100-watt low-frequency horns, and 12 25-watt high-frequency horns. See illustration.

2,700-WATT REPRODUCER

Pointed downwards, the low-frequency horns project their sound into the bottom of the pit. From this point the waves are deflected upwards and outwards, mingling with the high-frequency waves at a middle-point in space between the bottom of the Perisphere and the top of the grill which covers the pit. The high-frequency horns face directly outwards and emit waves at a tangent to the sphere's curve. This illusion produces as the sound is sprayed out in every direction is that of sound originating in space without any apparent source, as the grill on the pit is so constructed as to simulate the appearance of the surrounding watersurface. This illusion was held vital to the dramatic quality of the "Music of the Spheres" which will be reproduced by this sound system.

This unique system is capable of the highest quality and widest range of sound reproduction, having an overall acoustic response flat over the frequency range from 20 to 8,000 cycles.

The pyrotechnic display which takes place nightly over the Lagoon of Nations, is really a symphony of smoke, fire, water, and light in rhythmic motion with a music or sound accompaniment. A closer correlation between the sound and the other elements of the display is developed only when all the elements have a common source or point of origin. Obviously musicians could not be located in the midst of the fountains, gas jets, and fireworks, mortars. The sound of the musical ensemble must therefore be electrically transferred from the auditorium where the musicians perform to the area surrounding the Lagoon.

A huge sound projector, second only to the Perisphere horn in power, has been installed in four circular structures located two on each side of the center fountain ring. The four elements taken together are equivalent to a horn with a mouth opening 30 ft. square. There are eight speakers in the sound projector which are capable of reproducing faithfully the lowest fundamental musical tones, and the highest audible harmonics. Each reproducer is comprised of a separate low-register and high-register element. The audible spectrum is divided into two parts, the separation occurring at about middle "C". Separate amplifiers are employed to drive the units of the two registers in order that the reproduction be so faithful that it cannot be distinguished from the original.

The four bass loudspeakers combined, are equivalent to a horn with a mouth opening thirty feet square. This huge bass loudspeaker is actuated by eight 125-watt loudspeaker units with 24-inch diameter diaphragms and field magnets which weigh 500 lbs. each. The treble units are smaller but handle an equivalent amount of electrical energy. The total energy required to drive the sound projector is 2,000 watts. This tremendous audio energy is required to produce the natural volume level of a large pipe organ or band, so that it may be heard above the noise of the fountains and fireworks.

(Continued on page 49)

Close-up of the speaker units in the center of the horn unit. Two of the high frequency horns have been removed to show the inside and placement of the low-frequency units that connect to the central part of the reflex column.

April, 1939
It's your show... this year more than ever!... A mighty gathering of the Radio Parts Industry... planned for you and streamlined for action... up and down the streets of Radio Parts City and its exhibits.

Two days will be devoted to jobbers—and two days to Servicemen, Retailers, Amateurs and others in the trade... insuring fullest attention and maximum benefit for each of you.

**JOBBER DAYS**... Wednesday, June 14 and Thursday, June 15. In cooperation with all branches of the Industry, these two days will be devoted to jobbers only.

**SERVICEMEN DAYS**... Friday, June 16 and Saturday, June 17. The Convention of the Radio Servicemen of America will open on Friday, June 16—with special lectures, meetings, and exhibits of new parts and apparatus for the Servicemen.

**AMATEUR DAY**... Saturday, June 17. This will be a big day for all the Hams. There'll be new Ham Gear to see, new developments to discuss with factory men, engineers, and fellow-hams. Booths manned by technical men on Servicemen and Amateur Days.

**NEW PRODUCTS . . . NEW IDEAS . . . NEW EXHIBITS**

It's your one and only opportunity of the year to meet the complete Parts Industry—face to face... to make personal contacts with Manufacturers, Jobbers, Engineers, Sound Specialists, Servicemen and Amateurs—from all parts of the world... to see all the very latest developments in Parts and Apparatus, Public Address, Ham Gear... and get valuable ideas you can use in your own field.

**IT PAYS TO ATTEND THE TRADE SHOW**

This is your Annual Homecoming. You owe it to yourself to come. Make your plans now—and don't let anything stop you!

**Stevens Hotel, Chicago**

**National Radio Parts Trade Show**

Sponsored by Radio Manufacturers Association and Sales Managers Club

*Executive Office—53 West Jackson Boulevard, Chicago, Illinois*
Future of sound bright

Editor, Radio Today:

I've been thinking about the Sound Business trends during the next five years. Here are some of the conclusions I've come to:

1. Wherever groups of a hundred or more people gather, whether for work, amusement or instruction, Sound will be as essential five years from now as electricity is today.

2. I look for Sound to do its greatest expanding among the "little businessmen"—operators of retail shops.

3. There are many persons excellently equipped to act as Sound distributors. I believe the next five years will see them climb on the Sound bandwagon, at a nice profit.

We are approaching this group now through advertising. We are expanding our P.A. facilities...streamlining our line. We are going to be ready for the Dawn of a New Day in P.A.

H. J. Tauber
Wholesale Radio Service Co.,
New York, N. Y.

Music on a menu

Cafeterias, lunch rooms or dining halls operated by manufacturing concerns for their employees, have appeared as likely prospects for sound salesmen to work on. For the 3,000 employees who dine at the Westclox Mfg. Co., P Comria, Ill., a big P.A. system has been installed to feed recorded music and amateur talent into the lunch quarters. This system, by RCA; uses a 50-watt amplifier and has 14 loudspeakers.

The idea is also working successfully at RCA's own plant in Camden, N. J., where five "high fidelity" sound reproducers were recently installed in the company's big lunch room. Here, popular music, classical recordings, speeches and announcements are amplified for the employees.

At the National Corn Husking contest last fall a 100-watt Webster amplifier and six University reflex trumpet speakers were used for covering a square mile with 126,000 persons. Power City Radio Co. of Sioux Falls, S. D., set up the sound system.

BEGIN PAGE 48

360° STEREOHONIC SOUND REPRODUCTION

The four elements of the sound projector and the associated amplifiers are so arranged that the distribution is stereophonic, which is an extraordi

nary effect with sound, comparable to that which is observed in viewing stereoscopic pictures. The listener hears music of the band exactly as he would if the band itself were present and the relative location of the various instruments is plainly discernible.

This presentation is the first known example of acoustic perspective of stereophonic distribution outdoors in four directions, or over a 360 degree area. The microphones and amplifiers are arranged in two or four distinct channels.

In the control room on the top of one of the Government Buildings, located near the southeast edge of the Lagoon, a control desk and four separate 500 watt amplifiers are located. The specially constructed amplifiers were laboratory designed and built throughout, and employ a laboratory precision circuit commonly known as balanced resistance-coupling with two tubes, per-stage, amplifying both sides of the electric wave picture. Each of the 4 amplifiers comprises two separate output amplifiers, so that the bass and treble may be amplified separately and with a minimum of distortion.

There is so little distortion that only the highest trained ear could distinguish the difference between the original and electrically transferred sound.

A radio receiver and two synchronized studio-type transcription turntables and the associated pick-ups for both vertical and lateral recordings are built into the control desk. Eight mixers are employed to regulate and segregate the many electrical pictures of sound from any one of the different sources, including a special Hammond electronic organ. Four master gain controls, are interlocked so that they may be operated as a unit or in two groups of two each. This provision makes possible the production of echo and antiphonal musical effects in the area surrounding the "Lagoon of Nations."

MAKE REAL PROFITS

Selling Loud Speaker Inter Communication Equipment

It's not difficult to sell an extension of a Known and Valued Existing Service! That's the relationship in any Going Business between their telephone service and selling their Inter Communication Equipment. It's a simple, valuable and easy-to-understand. Extension of the Known and Established Service they already enjoy!

AN OPPORTUNITY FOR RADIO SET and PARTS JOBBERS—DEALERS—

and SERVICE MEN!

Let us show you how simply and easily you can get into the profitable Loud Speaker Inter Communication Business. Under the Bank's Plan you need make only a small cash investment! And we show you every step of the way to develop a Substantially Profitable New Business! Easy to learn because it is so closely related to your present work!

IF YOU NEED NEW SOURCES of PROFIT—

Where Profit Margins can be maintained—

write now for the Bank's Profit Plan! If you're a worker and will follow the Easily Understood Plan we offer—Substantial and Maintained Profits are assured. Write Today!

PRESENT LICENSEES UNDER the BANK PATENT

The following firms are licensed to build Inter Communicating Loud Speaker systems under the Bank Patent.

Loud Mfg. Company, Chain River, Calif.
National Multiphone Company, Chicago, Ill.
Pathé Radio & Television Corp., Chicago, Ill.
Transformer Corp, of America, New York, N. Y.
Interoffice Communications, Inc., Chicago, Ill.
The Webster Company, Chicago, Ill.
Webster Electric Company, Racine, Wis.

Other firms manufacturing and retailing two-way Loud Speaker Systems should be licensed. CONSULT US IMMEDIATELY.

BANK'S MANUFACTURING COMPANY

Maurice Bank, Consulting Engineer, Licensee Manufacturers of Quality Intercommunication Systems

5019 North Winthrop Ave., Chicago, Ill.

FILL IN, PASTE ON PENNY POSTCARD, AND MAIL TODAY!

BANK'S MFG. COMPANY
5019 North Winthrop Avenue
Chicago, Ill.

Without obligation, send me your Bank's Profit Plan. I'm interested in New Ways to Make Money.

NAME

STREET ADDRESS

CITY and STATE

I am O Jobber O Dealer O Service Man
New Sound Products

Instantaneous recorders
De luxe console and low-cost portable recording and instantaneous playback instruments. Console records and reproduces at 78 or 33 1/3 r.p.m., uses 10, 12, 16-inch records, outside-in or inside-out; has visual indicator meter, high-fidelity amplifier and loudspeaker, volume and tone controls, specially-designed motor eliminating "wow." MI-12700, $475 list. Portable takes 10 or 12-inch records at 78 r.p.m., outside-in recording. Comes complete with amplifier, loudspeaker, visual indicator and microphone. MI-21701, $179. Broad frequency range both models. RCA Mfg. Div., Camden, N. J.—Radio Today.

Shure dynamic mikes
* Uniadyne Dynamic microphone with cardiod uni-directional characteristics. Pick-up uniform at front and sides with deadspot at rear. Model 55 at left—high and low impedances. List $42.50 to $45. Rocket unit provides quality pick-up from 70 to 7,000 cycles. Semi-directional characteristics. Directional battle available. Model 50—list $27.50, Shure Bros., 225 W. Huron St., Chicago, Ill.—Radio Today.

Tone equalizer
* Adjustable tone-compensation network for crystal phonograph reproducer varies response characteristics to suit. Equalizer with small loss of power, has four position dial, threaded mounting shaft. Rotary switch controls different equalizing circuits; weighs only 2 ounces. Model E4P, $3.25 list. Astatic Microphone Lab., Inc., Youngstown, Ohio.—Radio Today.

Kontak unit
* A unit with hand control may be connected in parallel in numbers up to five. Volume of any instrument may be varied with no effect on others. Output is —40 db. Can be operated into any standard amplifier, electrical guitar amplifier and most radio sets. Model KKH $18 list. Amperite Co., 561 B'way, New York, N. Y.—Radio Today.
Instantaneous recording disc

Light-weight plastic flexible recording disc not affected by moisture or reasonable change in temperature. Shavings are non-inflammable. Steel, sapphire, or satellite cutting style may be used. Flex Record Co., 9 Rockefeller Plaza, New York, N. Y.—Radio Today.

Auditorium—night club system

Ten watt amplifier with two electronic mixed inputs, high gain, beam power design. Velocity microphone and floor stand, with one or two 10-inch permanent magnet speakers in modernistic acoustic speaker chambers. One speaker Model RR102N1, $115.00. Two speaker Model RR102N2, $132.50. Ray-Lab, Inc., 211 Railroad Ave., Elmira, N. Y.—Radio Today.

Auditorium speakers

18-inch permanent-magnet auditorium speakers are offered with four types of response characteristics to meet all needs. Model BR-18 perl-dynamic enclosure available for the new units. Literature available. Jensen Radio Mfg. Co., 6601 S. Lamarie St., Chicago, Ill.—Radio Today.

Radio and talk-back system

Desk-type radio and talk-back system embodying 8-inch monitor speaker, 25-watt amplifier, radio tuner and phonograph turntable. Outlets are controlled by key-type individual switches with a master switch for emergency use. Amplifier has bass and treble compensation. Unit can be furnished with any type of phone equipment. Bell Sound Systems, Inc., 1183 Essex Ave., Columbus, Ohio.—Radio Today.

Streamline amplifier


Home recorder

Unit to make recordings from microphone or radio. May be used as electric reproducer or p.a. system. Recorder comes complete with amplifier, speaker, crystal mike, collapsible floor stand, diamond needle for aluminum and steel recording and steel needle for "acetate" discs.
gives new Pick-up Control

IT'S the Western Electric 639A Cardioid Directional Mike—combining dynamic and ribbon units in one mike—giving you clarity, fidelity and control unmatched by either type alone! With both units in operation, its pick-up is equally good through 120°. By turning the 3-way switch, you make it either a dynamic or a ribbon mike. In addition to its recognized superiority for studio pick-up, it is also particularly good for Public Address work because it reduces feedback. Send for full details.

Western Electric

CARDIOID DIRECTIONAL MIKE

Graybar Electric Co., Graybar Building, New York, N.Y.

NAME

ADDRESS

CITY STATE

Please send booklet describing Western Electric's New 639A Mike.

 QUALITY SOCKETS

and ADAPTORS

FOR NEW LOCTAL TUBES

NAALD Parallel Precision Contacts provide easy insertion and dependable sure contact—they have met test of more than 1,750,000 repeated insertions without contact failure.

Write for special offer on this kit, including loctal adaptors for analyzer plug and panel socket.

Dependable sockets and adaptors are more important than ever before because of the increased demands on the octal and loctal tubes. Naald Patented Parallel Precision contacts meet the demands of this increased service placed on test equipment.

NAALD Toggle-Lock Analyzer Plug and associate adaptors provide the most sturdy, compact kit available.

Its smaller size is appreciated; its dependability insures perfect operation over long life period.

Place your order with your jobber, or direct, stating what checker or analyzer you are using.

ALDEN PRODUCTS COMPANY

Dept. RT-5

Brockton, Mass.

RADIO TODAY
Mobile p.a. system

* Universal combination in one case with all controls on one dial plate. Adapter plug throws genemotor into operation for battery use, completes circuit for AC operation. Three switches are used for battery economy. One each for tube filaments, genemotor battery supply and phono-motor battery supply. Operadio Mfg. Co., 18th and Indiana Sts., St. Charles, Ill.—Radio Today.

Electric carillons

* An electric carillon system to reproduce music equal to 5-note Westminster chime that is compact, easily operated from keyboard. May be installed with any p.a. system or electric organ amplifying unit. 26-note electric carillon system also available. RCA Mfg. Co., Camden, N. J.—Radio Today.

Modernistic 20-watt amplifier

* Streamlined 20-watt amplifier using beam-power tubes has gain of 114 db. Frequency response ±1 db from 30 to 15,000 c.p.s. Less than 5 per cent distortion. Output impedances of 2, 4, 6, 8, 250 or 500. In-

puts provided for two microphones, and one phono or R.F. tuner. All may be mixed and controlled independently. Brushed steel control panel. Catalog 600-D for complete details. Thordarson Electric Mfg. Co., 500 W. Huron St., Chicago. —Radio Today.

Electric etcher

* Tool for making permanent markings on all materials. Uses diamond point which permits markings on materials up to 60 Rockwell hardness. Cuts on steel, glass, bakelite, ceramics, etc. Ideal Commutator Dresser Co., 4032 Park Ave., Sycamore, Ill.—Radio Today.

34 watt amplifier

* High-fidelity beam-power amplifier incorporates high and low frequency equalization. Features ten tubes, push-pull 6V6 beam power drivers, automatic volume expansion and compression. Universal output for 500 to 3 ohms. 5 stages: 135 db max. gain; response ±1 db 20 to 20,000 cycles; noise 60 db below max. output. Available for all power line voltages or frequencies, also with remote control feature. $175, list. Amplifier Co. of America, P. A. Div., 19 W. 20th St., New York, N. Y.—Radio Today.

Phono-motors

* Phonograph motors for operation on 110 or 220 volt, 50 or 60 cycle source. Model 60 (14 watts) is self-starting, has large bearings, bakelite helical-cut gears completely enclosed. Model 70 (15 watts) has friction rim drive, shock-mounted motor. Alliance Mfg. Co., Alliance, Ohio.—Radio Today.
More sound products

(Continued from page 53)

Frequency test record
* 12-inch pressing recorded at 78 rpm with recording in three parts; a glide frequency run with breaks at frequent intervals when the freq. is announced; a 1,000 note in 2 db. steps from plus 8 to plus 18, breaks between steps; a 400 cycle note at plus 18 db. level. Zero reference is background level of recording when using standard playback needle. Universal Microphone, Ltd., 424 Warren Lane, Inglewood, Cal.—Radio Today.

Rim-drive phono-motors
* Rim-drive type of turntable motor operates at relatively low speed, drives turntable rim through a larger pulley acquiring lower angle of velocity. Eliminates turntable vibration due to resonance. Turntable covered with “flock” is obtainable in variety of colors to match cabinets. Webster-Chicago, 5622 Bloomingdale Ave., Chicago.—Radio Today.

20 watt amplifier

Beet frequency audio oscillator

Radial cone projector

3-way microphone

Portable playback
* AC-DC operated unit with two-speed motor, takes discs up to 17 1/4 inches. Crystal pick-up, 10 inch PM dynamic speaker and amplifier using six tubes with output of 6 watts are other features. Microphone jack provided. Terminal Radio Corp., 68 W. 45th St., New York, N. Y.—Radio Today.

THORDARSON AMPLIFIERS for 1939
Let your EYE and EAR decide

NEW 20-WATT
A Jewel in Steel

- Quality at . . . $75.00 LIST
- Beauty at . . .
- Performance at . . .
- Compactness at . . .

Model T-25W20
Controls: Two microphone, one phono, one treble and one bass.

See your parts distributor or write factory direct for free Catalog No. 600-D on the full line. Lists eight models including a new 28-watt mobile unit.

THORDARSON ELECTRIC MANUFACTURING COMPANY
AMPLIFIER DIVISION
500 W. HURON STREET CHICAGO, ILLINOIS

RADIO TODAY
Selling radio up
(Continued from page 14)

to this higher priced unit. Build attractive window displays around this merchandise and these uses.

Selling up is, after all, just the art of selling. By display, by assortment, by your demonstration, by your selling talk, create the desire to own the better radio, because it is better, show your enthusiasm with demonstrable points which the customer can see, hear and recognize.

DEALER CAN GUIDE SALE

Because there is a demand for lower priced small sets, you must expect customers to be interested in them. Show your interest in your customers by showing them these low-priced units in your windows, and in your store, but don't let them buy one until they have seen, heard, and know about the better ones. Most customers will be guided to a large extent by your opinions, and advice.

You will have to take orders for these low priced sets, because there is a demand for them, and by the same token, you have got to sell the higher priced ones harder, and more scientifically because you are selling up from the demand.

Non-directional speaker hangs from ceiling

Chandelier baffles (Atlas) provided uniform sound coverage at a recent dance at Rensselaer Polytech. Dolly Dawn, vocalist, for George Hall's ork was very pleased with results of the installation.

The Kind of Letters Manufacturers Dream About But Seldom Get:

"The Chanalyst will do all you claim for it and also the following things. In conjunction with the instruction book the Chanalyst affords the best education in aligning and tracking, in all its phases, that I have yet encountered. It also clarifies all those mysterious circuits which were as much of a headache to servemen, such as various oscillators, A.F.C. circuits, audio degeneration and regeneration, inverse feedback, phase inversion, etc. One can test all these circuits, their effects, defects, components, etc., just as easily as he can check an ordinary T.R.F. set. The instrument is so simple to use that in a short time a serviceman can become quite adept with it and, as he goes about measuring voltages and checking circuits he never dreamed possible, it's so natural and easy he just takes it for granted that all this has come to pass. I like the Chanalyst and don't know how I got along without it before and would never do without it now. It is not only an instrument, it's an education."—Walter Stepanovich, Steubenville, Ohio.

"This instrument will be the only thing that will not become obsolete. Sure can find intermittent and noise quickly."—Carl Becker, Scotland, S.D.

"The speed with which trouble can be located with the Chanalyst and the ease of operation is amazing."—Leonard Roberts, Jr., Precision Radio Service, Steubenville, Ohio.

"It has taken the nightmare out of my radio servicing, have seen nothing to equal it in my twenty years of servicing."—R. H. Reed, Waco, Tex.

"The best instrument in my shop, it becomes more useful as I learn more about it."—John A. Thomas, Enwood, Pa.

"The Rider Chanalyst is the instrument of today and tomorrow. I like every part of it and all the channel circuits are very good."—Joseph Underwood, Nashua, N.H.

"I do not see how anyone could do without a Chanalyst. It certainly is a big time saver. Your instruction book is the most complete I have ever seen with any instrument."—C. L. Vannever, Highland Park, Mich.

The Rider Chanalyst

The VoltOhmyst is unlike anything heretofore available to the servicing industry. It will remain useful for years to come in the servicing of radio receivers, television, facsimile, sound and such equipment.

This New Electronic D-C Voltmeter-Ohmmeter measures voltage wherever you wish, without your being concerned with its value and irrespective of circuit complications. For, the Rider VoltOhmyst has one scale—one zero adjustment. You just put the proper probe at the point to be measured and look at the single scale. The VoltOhmyst has an extremely wide range—0.05 volt to 5,000 volts d-c, 0.1 ohm to 1,000,000,000 ohms.

Send today for complete specifications and literature. See your jobber for a demonstration.

The Rider VoltOhmyst

Net Price $57.50 25-60 cycle, Power consumption 12 watts.

SERVICE INSTRUMENTS, INC., 404 Fourth Avenue, New York City FOREIGN DIVISION, 145 W. 45th Street, N.Y.C., Cables — "Servicin"
Framing Control—A control for centering the picture.

Focusing Control—A control on the receiver to bring out definition; it actually controls the width and sharpness of the individual lines on the cathode-ray tube.

Focusing (Action)—This is the action of the gun of the cathode-ray tube which concentrates the stream of electrons to a small spot. (This can be accomplished by either electrostatic or magnetic methods.)

Ghost—An unwanted image in the picture which is usually caused by signal reflection.

Gun (Cathode Ray)—The structure or mount inside the cathode-ray tube that produces, accelerates and focuses the electron beam.

Horizontal Tearout—This term describes the breaking up of the upper part of the picture, either to the right or left. The cause is usually poor low frequency response in the sweep circuits or video amplifier.

Interlacing—This refers to the technique of dividing the frame into two fields with displaced lines to eliminate flicker.

Interaction—A term usually used by designers indicating leakage or the mixing of a signal into another circuit.

Line—A single line of the 441 comprising the television picture.

Linearity—Means uniform rate of motion. This is required as the picture will be distorted in non-linear portions.

Modulation—A process of applying the video signal to the modulating or control electrode (or grid) of a cathode-ray tube so as to produce the lights or shadows of a picture.

Paraphrase—A term used in television and English books and is equivalent to the American "push pull."

Phasemercial—A tube for generating television picture signals.

Reflection—Additional rod or rods placed near the antenna to reinforce signals.

Sawtooth—A saw shaped wave of electric current or voltage employed to scan or sweep a cathode-ray tube.

Scanning—(See Sweep.)

Separator—The circuit used to separate the horizontal and vertical synchronizing pulses from each other and the video signal.

Spot—A visible spot of light formed by the impact of the electron beam upon the screen.

Sweep—The action of an electron beam in tracing lines across the screen.

Synchronization—A process of producing synchronism between circuits.

Television—A general term for the transmission or reproduction of visual images by radio.

Teletron—A receiving cathode-ray tube.

Video—Pertaining to the picture section of the receiver or transmitter.

Replace panel lamps

"Make complete replacement of all receiver panel lamps at one time when the customer's set is being serviced."

Hygrade Sylvania Corp. urges service men. "You'll make extra profit and win a satisfied customer, because panel lamp life is unpredictable and the old one you leave in the socket may expire just after you've reinstalled the chassis in the cabinet."

Arvin 9-A auto receiver

The Arvin 9-A auto receiver utilizes a rather conventional 6-tube superhet circuit. A pentode R-F amplifier is used to provide increased sensitivity and image selectivity.

Dual purpose tubes are employed in the first and second detector circuits. I.F. alignment takes place at 170 KC. Location of high-frequency trimmers shown on chassis layout with proper frequencies for alignment.

High-voltage circuits shown in accompanying diagram in extra heavy lines. Arrowheads indicate signal path through set.

Tuning indicator types consolidated

Because of the great similarity among several of the types of tuning indicator tubes, it has been decided to discontinue some of the less popular types in cases where these older types are directly interchangeable with some of the newer, more popular types.

The original tuning indicator tube was type 6E5 which consisted of a cathode-ray tuning indicator section combined in one bulb with a sharp cut-off triode amplifier section.

Soon after this, the type 6G5 was introduced. This type was similar to the type 6E5 except that the amplifier section has a remote cutoff or variable mu characteristic so that the tuning indicator could be more conveniently used in sets employing variable mu.
What Are Your Chances of Getting a Job in Television?

Let's Be Frank

When I started training men for Radio 25 years ago, Radio was regarded as a field of importance. Since then, I have seen Radio expand in many different directions—into broadcasting, aviation, police, transatlantic television, direction-finding, loudspeaker systems, automobiles, industrial electronic devices, and soon Television is Radio's newest development.

Many sensational claims have been made for Television—so many that I feel a frank discussion of Television and how to get into the opportunities it offers, is advisable.

Are There Opportunities in Television Today?

Yes! There are opportunities in the large manufacturing plants which make television transmitters and other radio equipment. There are opportunities in some stations planning to broadcast television programs. There are opportunities in companies now making or planning to make television receivers. There are opportunities installing and servicing Television receivers in New York and a few other cities where Television programs are now being broadcast. But there are not many of these opportunities today and they are going only as fast as technical training and experience. However, this does NOT MEAN THAT TELEVISION IS NOT CREATING OPPORTUNITIES EVEN NOW. It is—for trained men qualified to take over the Radio Jobs formerly held by the men who have gone and are going into Television.

When Will Television Offer More Opportunities?

Very soon, most informed persons believe. Just as soon as Television transmitters are installed in any city—opportunities will come in that city. There will be opportunities in the Television transmitting stations—opportunities for installing and servicing repairing and adjusting Television receivers. These opportunities will continue to grow but nobody knows how far or how fast Television will develop. It’s almost a certainty, however, that it will eventually reach tremendous proportions.

Who Will Benefit from Television's Opportunities?

Only men with good, sound Radio training and experience are needed. Many of the men who will get the early good jobs in Television will be men now in Radio. Others will be men who have Radio training and experience—plus special training in Television. It is safe to say that a man who does not know Radio will not get into Television. Television, after all, is a DEVELOPMENT of Radio, far more complicated and far more technical than Radio, but still a DEVELOPMENT of it. When men now in Radio shift into Television, that will MAKE OPPORTUNITIES—opportunities which may later lead to opportunities in Television.

Can You Do NOW to Get Ready for Television?

First—you must train for Radio. You'll need a knowledge of fundamental Radio principles to understand Television. Second you'll need SPE-

Many Men I Trained

Make $30, $50 and More a Week in Radio NOW

My Training covers all you need to know to get a good job in Radio RIGHT NOW—the type of position which can LEAD RIGHT INTO TELEVISION when Television develops further. Best of all, you DO NOT HAVE TO PAY FOR Television TO MAKE MONEY through my Training. Broadcasting Stations, Radio Repair Work, Radio companies, automobile Radio, commercial aviation, police Radio, loudspeaker systems all OFFER OPPORTUNITIES TO WELL TRAINED—opportunity at good jobs—opportunities which may soon lead you into Television.

Many Make $5, $10, $15 a Week Extra in Spare Time

While Learning

The day you enroll I start sending you Money Job Sheets. They show you how to do Radio repair jobs, how to wash in quickly. They show you how to start making money quickly—and to continue MAKING MONEY UNTIL TELEVISION OFFERS BETTER OPPORTUNITIES in the future.

I Give You This Professional Servicing Instrument

Here is the type of instrument every Radio expert needs—an All Wave, All Purpose Set Servicing Instrument, it contains everything necessary to measure A.C. and D.C. voltages and currents; to compare tubes; check resonances; adjust or align any set old or new, and make modern dynamic receiver analysis. It satisfies your need for professional servicing. Every graduate can help you make extra money servicing sets while training.

Mail Coupon for Television Lesson and 64-Page Book Free

Act Today. Mail the coupon now for your sample copy. "Requirements when Television Receiver," and 64-page book "Rich Rewards in Radio." They’re free to you if you are over 16. They point out Radio’s spare time and full time opportunities and those coming in Television; tell about my training in Radio and Television; contain letters from men I trained, telling what they are doing in Television. Make the coupon in an envelope or paste on a postcard.

J. E. SMITH, President, Dept. 9DFI
National Radio Institute, Washington, D. C.

Without obligating me, please send sample Television lesson "Requirements of a Television Receiver" and your 64-page book which points out the spare time and full time opportunities in Radio and those coming in Television, and explains your method of training at home for them. (Please write plainly.)

Name.............................................. Age...........................
Address...........................................
City.............................................. State............................ S5RIH

J. E. SMITH, President, National Radio Institute, Dept. 9DFI, Washington, D. C.

APRIL, 1939 57
amplifier tubes such as 6D6, 78, etc.

Difficulty was experienced by some set manufacturers because the tuning indicator target current could not be controlled or limited satisfactorily. To remedy this trouble, a modified 6G5 was developed containing an internally connected grid to limit the target current. This new type was known as 6H5. After this type has been in use for a while, it became evident that it was superior to the original 6G5. Consequently, it was decided to discontinue the 6G5 and to brand the new tube 6G5/6H5 to indicate that it would replace both type 6G5 and type 6H5.

All of the above types were made in the familiar dome top bulb, size ST-12.

The increasing popularity of small sets and the demand for more compact tubes resulted in the development of the type 6U5, which is a 6G5/6H5 mounted in a tubular bulb, size T-9. This tube is identical in electrical characteristics to type 6G5/6H5 and is mechanically interchangeable, being the same length and using the same base. Type 6T5 is similar to the 6U5 except that the indicator shadow, instead of being wedge-shaped, is in the form of an annular ring.

The 6U5 may be used as a replacement for types 6G5, 6H5, 6G5/6H5 and 6T5.

Because these types are so nearly alike and are all interchangeable it has been decided to furnish only the newer tubular type. This tube will be branded 6U5/6G5 to indicate complete interchangeability. Please note that tubes branded 6U5 and 6U5/6G5 are identical.

Summary: Use type 6U5/6G5 to replace 6U5, 6H5, 6G5/6H5 and 6T5.

Crosley model 120 Inoperative at low frequencies

Try a new oscillator tube, as the one in the set is not sensitive enough to oscillate at low frequencies. It may be necessary to try several tubes before you find one which is suitable for this circuit.
Buy antenna first, radio afterwards

* My friends are continually asking me what make and type of radio they should buy, since with an engineering background and years of practical radio experience they feel I should know what's best.

Almost invariably, states Radio Today's Service Editor, Vinton K. Ulrich, I have startled them by saying that they should be more concerned with what kind of an antenna to buy and install. In fact I go so far as to advise buying a good antenna (plus installation) and spending the balance for a receiver of any reliable make.

Experience in crowded cities has time and time again shown that a noise reducing aerial is the most important part of a radio set up—it is far more essential than a high-priced receiver. Even the $250 sets perform badly in a noisy building unless a noise-reducing antenna is employed. And it must be properly installed to be effective. Figuring say $7.50 list for the aerial and $7.50 for the installation—and a good job is worth at least that much—means that the customer will have to pay $15 for his signal collector. My preference in a noisy location is a $35 midget with a $15 antenna in preference to a $50 to $100 set with just a wire thrown out the window—after all, isn't clear, noiseless reception important for real enjoyment?

**SUBURBAN REQUIREMENTS**

In suburban areas where noise isn't usually an acute problem, an ordinary outside wire about 50 to 100 feet long with suitable lead-in and properly soldered connections is usually satisfactory. Since signal strengths are usually rather high, a short wire is all that is needed. And contrary to talk in some quarters, an ordinary wire will work okay on short-waves if the noise level is low.

Remote sections—some 40 or more miles from the nearest station need more pick-up than locations near the stations. Usual solution is to use an antenna some 100-200 feet long of the ordinary wire. If short-waves are used frequently, a doublet type antenna will give peak efficiency on these wavelengths as well as keeping the lead-in from picking up noises in the house. With just a little experience any serviceman can determine how simple an antenna will work okay in his neighborhood. By concentrating on that type of antenna the customer will be well pleased since he is getting optimum reception at the least cost. (Continued on page 61)
The factors which insure Tung-Sol dealers full profit are based on selective distribution. If, therefore, you can answer "yes" to the questions below, you are eligible for a Tung-Sol franchise and full profit.

- Is yours a representative service business?
- Is your location free from interference with already established Tung-Sol Agents?
- Can you compete in technical knowledge and service set-up?
- Can you move a reasonable tube stock every three or four months?
- Are your premises adapted to use sales-producing advertising displays to advantage?
- Will you maintain Tung-Sol established retail prices?

TUNG-SOL RADIO TUBES

You're ready for any wire-wound resistance requirement or a quick replacement — when you have Ohmite Adjustable Dividohm resistors handy in your kit. You can quickly adjust the Dividohms to the exact resistance you want and put on one or more taps wherever needed. Available in 7 ratings from 10 to 200 watts; resistances up to 100,000 ohms. Patented percentage of resistance scale. Time-proved Ohmite all-porcelain wire-wound, vitreous enamel construction insures unfailing service.

Ask your Jobber or Write for Catalog 17

OHMITE MANUFACTURING CO.
4874 Flounroy St. * Chicago, U. S. A.

MADE BETTER TO WORK BETTER

- The combination of high tensile strength that assures a lasting bond, and faster, cleaner work made possible by quick acting flux of pure water white rosin, has given Gardiner Rosin-Core Solders an outstanding reputation for efficiency and economy on radio work by expert or amateur. Yet, due to modern production methods and big sales, Gardiner Solders cost less than even ordinary kinds. Made in various alloys and core sizes . . . and in gauges as small as 1/32 of an inch . . . in 1, 5 and 20-lb. spools.

Eastern Sales Office and Warehouse:
DAVID M. KASSON & CO.
401 Broadway New York, N. Y.

Gardiner METAL CO.
4815 S. Campbell Ave. Chicago, Ill.
Service Notes

(Continued from page 59)

RSA news

Members are urged to be present at the Second RSA Convention at the 1939 National Radio Parts Show in Chicago, June 16 and 17.

New Chapters—Denver, Colo. Being formed—Lewiston and Pekin, Ill.; Scranton, Pa.; Toledo, Ohio. Election of Directors to serve on National Board of Directors is now being held. Ballots have been sent to qualified members.

Chicago—Arranged with RCA Institutes of Chicago for exclusive RSA course in television servicing.

Interesting speakers held forth at:

Binghamton, N.Y.—John Rose: “Multi-Vibrator and Use.”


Cleveland—George Jelinek and Mr. McFaul, Galvin: Motorola technical features.

Colorado Springs—Cozy Strang, KVOR: “Modern Broadcast Transmitters.”

Danville, Ill.—Mr. Longer: Causation of intermittent operation on AC receiver; and Mr. Hagley: Car Radios.

Detroit—Ernest Marks: Electronic relays and radio tube outlets in industry.

Duluth—Joe Brier: Unlawful radio interference.

Freeport, Ill.—Don Stover: Vacuum-tube-voltmeter and uses.

Jamestown, N.Y.—Jack Simberkoff, Aerovox: Condensers; Jim Vawter, Repairs Methods, local tubes, auto aerials and vibrators.


Oklahoma City—Third Annual Short Radio Course through University of Oklahoma included demonstrations and lectures on facsimile and television, Business Law in Radio Servicing, Audio Speech Amplifiers.

Springfield, III.—With cooperation of State Police Radio and local newspaper serious source of radio interference was remedied.

Williamsport, Pa.—Radio topics will be furnished to local station in return for RSA “plugs.”

Green Bay, Wis.—“Call an RSA Man” is slogan being used in campaign to tell people about RSA. Radio time, newspaper articles and advertisements are methods utilized.

Refrigeration and air-conditioning service course

A special refrigeration and air-conditioning training course has been prepared exclusively for Philco dealers, servicemen and members of Radio Manufacturers Service. Through a cooperative arrangement between the Philco Radio Corporation and Utilities Engineering Institute of Chicago this specialized educational program in domestic refrigeration and air conditioning is available to members of R.M.S. at special terms.

This educational home study course consists of 62 selected practical lessons covering the domestic refrigeration and air-conditioning and their application to all types of allied equipment. The course, complete in itself, will help to train and service the technical knowledge of these two subjects that is vitally necessary for good, sound service work on these modern appliances.

Interference ordinance passed

The city of York, Pa., has passed an ordinance prohibiting operation of any electrical apparatus that would cause radio interference and a citizen’s committee has been formed to devise ways and means of operating this law. The local radio station has offered fifteen minutes per week for talks on interference.

Edison models Intermittent R1, R2, C2

* First look for opening of the grid suppressors. Sometimes they will short to the trimmer condensers on all gang. To localize this trouble, tune in a station, turning the volume to maximum, and then move each trimmer slightly as well as the suppressors noting any change in reception which will indicate this trouble. No reception will often result from an open three mfd. filter condenser. Check the screws connecting the speaker voice coil to the output transformer making sure that they are tightened. Weak reception may be also due to a leak 26’s, too short an antenna, or improper alignment. See that the nut holding the lug to the antenna binding post is tight as it sometimes comes loose causing considerable trouble.

Book Review
Sprayberry dictionary of radio

The Morse Code, a parallel resistance chart, trouble shooting, resistor and sound charts are included in the handy dictionary of radio, television and electronic terms. It contains over 90 pages of definitions of technical terms used in radio studies, conversion and function tables, and lists of radio drafting and Greek symbols. Tagged at $2.00 it measures 5½ x 8 inches for easy carrying. Published by Sprayberry Academy of Radio, 2548 University Pl., N.W., Washington, D.C.—Radio Today.

Bigger Profits for You

IN SELLING SOUND WITH
Clarion EQUIPMENT

The big money in Sound is being made by members of the Clarion Institute of Sound Engineers, C.I.S.E., is a merchandising plan designed to help you! Find out today how you can join... remember, it costs nothing.

The System behind the Plan

In Clarion you have the 1939's outstanding line of Sound equipment —modern, streamlined, thoroughly engineered and dependable. Clarion "Unified" Sound systems are compact, easy to install, ready-to-operate.

How Clarion Plan works for you

To anyone qualifying, C.I.S.E. offers

1. Direct factory purchasing power... meet all competition!

2. Exclusively sales territory... no one can "muscle in" on you!

3. Free engineering and consulting service—no job too big or too complicated for the C.I.S.E. members.

4. Competition-smashing prices!

A BETTER RCA IN SOUND SYSTEMS

Eye-compelling window streamers identify you as the recognized C.I.S.E. member in your territory... deliver customers to your door. It's the No. 1 value in P.A. today—and your biggest chance to profit!

SEND for new FREE Clarion catalog. Discover the profit-possibilities in P.A. when you sell under the C.I.S.E. banner. NOW—mail coupon for your copy! Get the money-making Clarion story FREE!

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

CLARION INSTITUTE OF SOUND ENGINEERS
69 WOOSTER ST.
NEW YORK, N.Y.

Please send a C.I.S.E. application immediately. This in no way obligates me of course.

Name

Address

City State

April 1939 1939 61
NEW SPECIAL CHEVROLET PLATE

For re-installation of any 1936-37-38 Delco, United Minds, or General Electric radio (except L.E.D.), only this plate is necessary utilizing original control. However die cutting—exact duplicate of original dummy plate makes excellent custom matched installation.

NEW SWEDGING TOOL
The last word in Swedging Tools. Removes fittings from old cables and replaces them on new 1/20 and 1/30 cables and busings. High grade tool steel. Mounts on vice for immediate use. A really great seller to the service dealer. Only $5.50 net.

NEW BASE FOR PERMANENT MOUNTING $3.00 net

Table model radio-phonos

Ham transmitter
Cabinet-type ham transmitter having 325-watt carrier on phone, 450 watts on c.w. Operation on all bands from 10 to 160 meters. Switching on any three bands. Hallicrafters, Inc., 2611 S. Indiana Ave., Chicago, Ill.—Radio Today.

Universal dry electrolytics
* A universal metal tab which may be rotated to any position, adjusted to height, or bent to any angle is feature on Sprague type PTM 450 v. line of small cardboard dry electrolytic condensers. Sprague Prod. Co., North Adams, Mass.—Radio Today.

Bandspread condensers
* High-frequency type condenser with band-setting section and bandspread tuning section. Isolantine insulation. Bracket or panel mounting. Types EU-25-100-AF and EU-50-100-AF. Cardwell Mfg. Corp., 81 Prospect St., Brooklyn, N. Y.—Radio Today.

Multi-range meter
* Push-button type AC-DC multi-range meter. DC volts at 1600 ohms per-volt: 0/2½/5/10/25/50/100/250. AC volts 0/15/150/1500. DC mills 0/1/10/100/1M/10M. Resistance 0/2½M/25M/250M. Aluminum 2-tone panel. 3-inch square meter. Leatherette portable case. Model 1200E—net $13.70. Approved Technical Apparatus Co., 51½ Dey St., New York, N. Y.—Radio Today.

Sylvania television tubes

Turret bandswitch
* Bandswitch to be used with pee- wee plug-in inductors for making rapid bandswitch without removing coils. Uses five-gang three position switch. Inductors wound on threaded Alsming 196 forms— keeping end link, center link, and center tapped without link. 50 watts capacity. Coto-Coil Co., Inc., 71 Willard Ave., Providence, R. I.—Radio Today.

推按钮分析

TUNING CONTROL

Ham radio

Sylvania —

Radio Today
Low-power controls

- Low-power wire-wound controls and rheostats in ranges up to 10,000 ohms. Power dissipation is 2 watts. Available with or without switch in complete assortment of shaft variations. 1 1/2 inches diameter x 9/16 inches depth of case. Catalog on request. International Resistance Co., 401 N. Broad St., Philadelphia, Pa.—Radio Today.

Vibrator tester


Midget transformer

- Replacement power transformer for small receivers is rated to deliver 480 v. CT at 40 M.A., 5 v. at 2 amps, 6.3 v. CT at 2 amps. May be used in half-shell, vertical upright or horizontal upright positions. No. T-13R19. Thordarson Electric Mfg. Co., 500 W. Huron, Chicago.—Radio Today.

DeVauld Phonoscope


Noiseless auto aerials

- Complete line of telescopic auto aerials designed so as to be free from all mechanical (and electrical) noise. Cowl and bling-rod types for all cars. Also available are automatic and manually-operated disappearing type cowl antennas. Colored insulators for side cowl antennas. J. F. D. Mfg. Co., 4111 Ft. Hamilton Pky., Brooklyn, N. Y.—Radio Today.

Inexpensive transmitting condensers


NEW — Out in April

"SERVICING BY SIGNAL TRACING" by John F. Rider

Use the system of servicing which is fastest—most modern—the system you can apply to all receivers regardless of age, type or make—Independent of the kind of circuit or tubes used—Independent of every limiting factor heretofore encountered. In this new book you learn what happens to the signal current—the development of control voltages—and how all receivers are brought to a common servicing level. There is one thing which is common to every radio set—the signal. Read this book and you will be able to service the most complicated set with greater speed and less effort, for "Servicing by Signal Tracing" is based upon the most fundamental thing in any and all receivers, the signal. 300 pages......$2.00

Coming Soon! VOLUME II

THE CATHODE-RAY TUBE AT WORK

by John F. Rider

New applications of the cathode-ray tube during the past five years require that the 1939 serviceman know more about its operation, its characteristics and its performance. The cathode-ray tube as the principal factor in television receiving sets is but one of the applications with which you will soon be faced. The use of the Oscillograph in industry is increasing every day in the testing of vibration, strength, engine pressure, etc. Those industrial users need servicemen to maintain their oscillographs. You must be up-to-date on this vital subject. Watch for date of publication.

VOLUME I

THE CATHODE-RAY TUBE AT WORK

by John F. Rider

This book has established itself as a standard work. It is the most complete and practical book ever written on the subject. If you want to be ready for television you must have the facts contained in this book. This is the only book on the subject written especially for servicemen. Get it today! 336 pages—Over 450 illustrations—$2.50

THE OSCILLATOR AT WORK

by John F. Rider

Eliminate guess work. — NOW! This new book tells all about oscillators that you use as a signal source — those in a receiver or a wireless record player—in fact all oscillators. It not only explains the theory by means of simple illustrations, diagrams and curves, but gives you the practical facts so you can combine theory and practice. Out in May—Place Your Order Now.

"An Hour a Day With Rider" Books—60¢ Each

On AUTOMATIC VOLUME CONTROL

On RESONANCE AND ALIGNMENT

On D-C VOLTAGE DISTRIBUTION IN RADIO RECEIVERS

On ALTERNATING CURRENTS IN RADIO RECEIVERS

AND DON'T FORGET

"You Need All Nine

RIDER MANUALS"

Stop rustling with baffling service problems. You need and will eventually buy Volume IX Why wait? Get it and start benefiting from this vast storehouse of essential circuit data today.

Volume Price Covering
IX..................$10.00...........1938-39
VIII................10.00...........1937-38
VII................10.00...........1936-37
VI..................10.00...........1935-34
V.....................7.50...........1934-35
IV.....................7.50...........1933-34
III....................7.50...........1932-33
II.....................7.50...........1931-32
I.....................7.50...........1930-31

RIDER BOOKS

For Servicemen who want to be "Ready"

John F. Rider, Publisher. 404 Fourth Ave., New York City
EXTRA PROTECTION!

POWER WOUND RESISTORS
(Cement Coated)

That special cement coating on IRC Power Wire Wound Resistors is just as rough and tough as it looks. It is the most durable coating yet developed. It is practically impervious to moisture and heat. It doesn’t peel, chip or crack. It offers EXTRA PROTECTION against the most common causes of resistor failure. It gives you true airplane — submarine resistance dependability — at not one cent of extra cost. Its amazing superiority can be demonstrated by any test you care to name. Ask your jobber. Insist on IRC Power Wire Wounds — the only resistors having this exclusive feature.

A 10-WATT SERVICE HINT

Hundreds of servicemen and amateurs save time and money by using these little 10-watt IRC Power Wire Wounds universally. All low wattage resistor requirements. The 10-watt adjustable (Type AAA) is especially handy. Any desired range up to the maximum of the resistor can be tapped off by moving the adjustable band. A few popular ranges equip you for literally hundreds of jobs.

INTERNATIONAL RESISTANCE CO.
401 N. Broad Street, Philadelphia, Pa.

Sales Helps

Dealers may now broadcast

Crosley Corp. has prepared a series of 13 dramatized, 15-minute, recorded programs for broadcasting that the dealer can put on his local radio station and tie in with his own advertising, name and address. The series is available for twenty-dollars, plus a small charge for each broadcast of copyrighted musical scores. Crosley Radio Corp., 1329 Arlington St., Cincinnati, Ohio.

Combination job ticket and receipt

A single printed card resembling a baggage tag is separated into three parts including; a job ticket for shop use, a receipt with a service guarantee and a job record card for filing as a reference. National Union Radio Corp., 570 Lexington Ave., N. Y.

Animals are used by National Union to illustrate need for new tubes. A dog illustrates a “howling” radio, a mule mimics a “halting” set and “squealing” is shown by an open-mouthed pig.

Display for table models

New floor stand to display Majestic table models is in three colors with ample space on the two steps to display six sets. The stand folds into a compact container, measures 57 inches wide, 52 inches high, and 28 inches deep. Available through distributor or Majestic Radio & Television Corp., 2600 W. 50th St., Chicago, Ill.

Contact microphone display for dealers

New Amperite display for Kontak Mikes is in two colors and measures 11 x 17 inches. Available to all dealers on request.

Jobbers display answers service questions

Personalized counter displays which carry the name of the individual jobber are offered by Supreme Instruments Corp., Greenwood, Miss. Five sales messages make up the group, pushing the new 504 tube-and-radio tester. Question and answer information is printed on the back of the displays answering most servicemen inquiries.

Majestic floor stand uses generous spacing to show six table models to good advantage.
Modernistic clock-sign

An electric sign with illuminated clock is announced by Hygrade Sylvanina Corp., 500 Fifth Ave., New York, N. Y. Done in four colors the sign measures 13\% inches high and 20 inches wide. Modernistic in appearance, with self-starting clock, it is being handled through Sylvanina Jobbers.

A green and black window strip streamer measuring 24 x 3\% inches and recommending Sylvanina tubes is also available to jobbers and dealers.

Better tone for car-radio display

An auto-radio exhibit constructed of wood and tubular steel for better tone while demonstrating is used to display the 929 Philco. Shipped collapsible by Philco Radio & Television Corp., Tioga & C. Sts., Philadelphia, Pa.

Speaker sales boost

Greater speaker sales is the aim of two six-color counter displays. One is directed to consumers with the caption, "Make your old radio sound like new." The other, for jobbers, displays "Oxford speakers for best results." Offered by Oxford Tartak Corp., 915 W. Van Buren St., Chicago, Ill.

Individually designed valance

RCA-Victor is offering transparent, six-color window valance incorporating the dealer's name and the RCA-Victor trade-mark. Made in an individual design for each dealer it is available through distributors at 40 cents per running foot; minimum price $3.20. Including installation and choice of strips advertising RCA products. RCA Mfg. Co., Camden, N. J.

Electric clock shows large sales

A display accommodating nine different sets and an electric clock with the slogan, "Every fifteen seconds, every day of the year, someone buys an Emerson" is available to dealers from Emerson Radio and Phonograph Corp., 111 Eighth Ave., New York, N. Y.

Handy condenser board

A board showing the various condensers in the Amcon line is being distributed to jobbing accounts by American Condenser Corp., 2508 S. Michigan Ave., Chicago, Ill.

Proving kit for car-aerials

A "Performance Prover" kit with necessary display and advertising supplies and a test devise to show prospects better reception with a new aerial, is being sent to dealers for 50 cents by Radiart Corp., Shaw Ave., Cleveland, Ohio.

New...

Short Length Television Tubes

A NATIONAL UNION DEVELOPMENT
for all Builders of Television Sets and Kits

Technical Data on Request to Engineers, Experimenters and Servicemen.

N. U. Quality in Television Tubes carries on the enviable tradition National Union has established for quality in radio receiving tubes. High brilliance . . . Clean sharp focus . . . 441 line definition . . . constant sensitivity. And of course, the new short stem requires less space for mounting and materially reduces breakage hazard.

Just compare N. U. tubes for constancy in characteristics, performance and life.

WHY SERVICEMEN INSIST ON N. U.

Radio service engineers have learned over the years that National Union will never let them down. In quality, protection, price and dependability, National Union has proved it is the serviceman's tube, dedicated to helping servicemen "make more money."

If it's Shop or Test Equipment you need WRITE N. U.

THE TELEVISION TRAINING CORP.
480 Lexington Avenue • at 46th Street
New York City

Offers a complete course in

Radio and Television Laboratory and Classroom Course—Not a Correspondence Course Affiliated with the NATIONAL TELEVISION CORP.

APRIL, 1939
Trade Flashes

Parts Show special train

The transportation committee of the National Radio Parts Trade Show is already receiving names of members to be included on the 1939 Special to Chicago which leaves N. Y. Grand Central Station the afternoon of Sunday, June 11, picking up the New England delegation at Albany.

Fare is the only item travelers on the special will have to worry about since meals, entertainment, smokes and liquid refreshments are furnished free through the cooperation of some of the exhibitors.

All radio men interested in riding the Radio Special are urged by Perry Sattler, of the transportation committee, to notify him at 53 Park Place, New York, N. Y., so that suitable arrangements may be made.

New RMA members

The RMA membership committee under Chairman E. Alschuler is actively engaged in a membership campaign to increase RMA rolls, develop cooperative support and increase sales between RMA member companies. New membership applications have been received from Pierce Aire and Kolomara Labs.

Pix contest for sound men

Crisp five dollar bills are being rustled under the noses of alert sound men by Transformer-Corp-of-America's Clarion Institute of Sound Engineers, in a "best installation" monthly picture and story contest starting in April.

All photos submitted must be at least 5 x 7 inches and will receive better consideration if both engineer and agent are included. The story describing the Clarion installation should have a human interest angle. Five dollars will be paid for the best photograph and story, $1.50 for every picture accepted; all others will be returned."

Keene Appliance Co. formed to sell radios

Announcement of the formation of the Keene Appliance Co., Ann Arbor, Mich., for the manufacture and distribution of radio sets and electrical appliances, is made by W. Keene Jackson, head of the company. Plans are under way for an early presentation of a new line of Keene radios to be marketed through distributors and strong territorial sales organizations.

W. Keene Jackson was for seven years Sales Manager of International Radio Corp., before which he was Sales Manager of one of the largest national radio sales organizations in the country. He plans to concentrate on style leading, quality merchandise at "right prices" and eliminate all fancy trimmings in merchandising, which add to the cost of a product.

"Talking Door" sales boom

New orders for the "Talking Door" intercommunicator are continually pouring in, according to Walter Spiegel of Regal Amplifier Co., manufacturers of the unit. Featuring the slogan "Here is that ounce of protection," Regal has gone out to educate the public to using the talking door as a safety measure. With thousands of visitors in the New York area for the World's Fair countless doorbells will be pushed and "Talking Door" should be an ideal instrument from both safety and convenience angles.
Silver offered with farm radio

Individualized advertising and promotion for distributors and dealers is part of the merchandising plan where in an RCA table-model farm-radio and a chest of Rogers table silver all in one "package" are offered at slightly higher cost than the list price of the radio, including provision for trade-in. Instructions for directing the campaign, including newspaper announcements, window displays and store arrangements, come in a folder from RCA Mfg. Co., Camden, N. J.

3 auto-antennas shown

A two color display measuring 22 x 25 inches is used to carry three leading ICA antennas. Supplied by Insuline Corp. of America, 25 Park Pl., New York, N. Y.

Confidence through guarantee

A "Guaranteed Radio Service plan" is being promoted by Hygrade Sylvanias. Three parts of the plan include: a guarantee certificate for display which gives the serviceman's job guarantee against defects or poor workmanship; a radio check-up form to suggest new parts; and a four page direct-mail piece to advertise the service and build up confidence and prestige.

Radio toys new market for dealers

Promise of a new field for radio dealers to look for revenue comes in the introduction of the RCA sound-effects and electronic kits planned to be shipped in May. Twenty-two different effects may be produced with the first kit, while the electronics set contains parts and instructions for building a p.a. system, a code practice set, a capacity relay and a small radio receiver.

That the market is ready to be tapped is proved by Nellie Griggs' letter to NBC. Nellie is a pupil at P. S. 50, Valley Stream, N. Y., and writes that children in the third grade are having real fun with make-believe broadcasts which they call "Our Guess Story Program".

Mechanical toys long ago proved their popularity with children and radio dealers will, no doubt, welcome this opportunity to expand their merchandising efforts with a low-investment, good-profit medium.

Sales Helps

Camera lines featured

Two new platform displays will soon be ready for dealers handling Mercury cameras. Each provides permanent mounting of demonstration cameras to prevent theft. Selling copy for the 1/100th second candid camera is featured on one, while promotion for the movie camera line is contained on the other. Source is Universal Camera Corp., 2850 W. 23rd St., New York, N. Y.

There's a brand new sector in the scale of instrument quality

SPEAKING of "English reading scales," there is a new sector at the top of testing instrument value today, and the name of this higher plane is SIMPSON!

You will realize this the moment you examine any of the testers illustrated here. Like their larger brothers, these little fellows in the Simpson line have the same beauty of design and unerring accuracy that could only be built into them by Ray Simpson and a group of associates who have made a life study of instrument design and production.

There is an instrument built for you in the broad Simpson line. You will find it built to a higher standard yet priced lower than instruments which cannot match its robustness, its accuracy, or its stamina.

Ask for complete descriptions. See them at your jobber's.

SIMPSON ELECTRIC CO.
5202 Kinzie St., Chicago, Ill.

MODEL 205 — Pocket size, but highest quality. Highest resistance ranges ever made in instrument of this size. 0-500 - 200,000 ohms. 2 megohms. Voltage: 0 - 10 - 50 - 250 - 1000 D.C. volts. 0-10 - 50 - 250 - 1000 D.C. volts: 0-10 - 50 - 250 - 1000 milliamps: 0-500 - 4000 - 100,000 ohms. Your price... $13.25

MODEL 215 — The first small instrument with big 4½ inch meter. Five A.C. and D.C. voltage ranges: DC: 0 - 10 - 100 - 500 milliamps: 0-500 - 4000 - 100,000 ohms. $25.75

MODEL 230 — Smallest A.C. - D.C. Instrument on the market, yet has ranges of 0 - 10 - 250 - 1000 A.C. volts: 0 - 10 - 50 - 250 - 1000 D.C. volts: 0-10 - 50 - 250 D.C. milliamps: 0-1000 - 100,000 ohms. Your price... $14.25

SIMPSON INSTRUMENTS THAT STAY ACCURATE

A GOOD NAME GOES A LONG WAY

The Ken-Rad name has stood for many years for the finest and most technically advanced radio tubes. Ken-Rad Radio Tubes are dependable, KEN-RAD TUBE & LAMP CORP., OWENSBORO, KENTUCKY, U.S.A. Address Export Dept., 116 Broad St., New York, U.S.A. Cable Address: Mithorne, N. Y.

APRIL, 1939
**Trade Flashes**

After losing all stock in the Ohio flood, Farver Supply Co., Portsmouth, Ohio, rebuilt their building and continued to serve a 75-mile radius with Tung-Sol tubes and about 40 other lines. A part of the large stock is shown here.

**Radio dealers successful camera merchandisers**

The aggressive radio dealer has the necessary push to put over a bang-up job of camera merchandising according to F. G. Klock, of Universal Camera Corp., who cites Vim Radio of New York as an excellent example.

Vim has recently ordered 2,000 Univex Mercury cameras after testing the interest of their customers by placing one of the cameras in the window. The interesting angle is that while some Vim radio stores are selling between 40 and 50 Mercury cameras weekly, camera stores in the immediate vicinity are retailing only two or three of the same unit.

Universal Microphone Co. is listed in Air Commerce Bulletin with two microphones approved for scheduled air carrier use.

National Television Corp. has been awarded exclusive rights to the use of a helical mirror drum for television, combined with a linear source of light. In a patent decision recently reached by Patent Office.

The Radio Technicians Guild of Rochester have already laid plans for a meeting on May 28 at Hotel Powers in Rochester. Radio men within a three hundred-mile radius and sections of New England are expected. The theme is educational so they’ve tagged it the "Info-Meet."

Norge reports March shipments at about 36,000 refrigerators. April production goes up 25 per cent.

Niles Trammel, exec. v. p. of NBC, is now a member of the board of directors.

J. C. Callahan may now be addressed as Ad. Mgr. of Majestic.

**Television clause added to RCA recording pact**

An amendment to the standard motion-picture producers agreements, enables RCA's recording licensees to use present movie sound recording for television at no extra charge. They may also make movie sound records especially for television broadcasting. Royalties will be the same as for present movie sound records.

N. B. Noely Radio Enterprises installed remote studios in KFOX, Cal., and appointed Bill Stencil and Richard Hitz as sales engineers.

RCA going into sound in a big way, kept W. L. Rothenberger as Mgr., put in George Ewald as Sales Mgr.

Donald A. Wood became Mgr. of the ad service division of G. E.'s appliance and mds., dept. at Bridgeport.

Universal Microphone likes the attention their professional recording machine is getting at the Golden Gate Exposition.

Edwin Schneeberg, script writer, has joined the radio dept. of N. W. Ayer & Son.

**Hams at fair**

Enthusiasts of the American Radio Relay League have constructed a novel display at the Westinghouse Building at the World's Fair. Action of every part of a radio transmitter will be illustrated by 6,400 flashing lights in various colors which wink on and off as different stages of the transmitter are activated. Ribbons running from the parts to enlarged diagrams will show just what happens when a "ham's" station goes on the air. Co-operating with the ARRL on the display are the American Institute and RCA Institutes.
CHICAGO, Ill.

FIVE types of controls cover 90% of your replacement calls. Resistances range from 5,000 to 2,000,000 ohms. These units are built to the highest standards of quality based upon years of experience gained in engineering special units for special circuits. They are fully guaranteed.

The five types cover units without switches, with or without intermediate tap—with SP-Switch, with or without intermediate tap—and with DP-Switch without intermediate tap. Choose the units for which you have the greatest call and maintain a stock of these individually packaged controls. The investment is surprisingly small.

See them at your jobber’s today!

CONSOLIDATED
Volume and Tone
CONTROLS

For Top Performance
at Low Cost

Philo Farnsworth, v.p. in charge of research, Farnsworth Televis-
ion and Radio Corp., soon starting production.

Vogel named V-P of Farnsworth

E. A. Nicholas, Pres. of the Farns-
worth Television and Radio Corp.,
announces the appointment of Ernest H. Vogel as Vice-President of the cor-
poration, effective immediately.

Mr. Vogel was connected with RCA from 1930 to 1936 in various adver-
tising, sales and merchandising man-
agement capacities.

He joined the General Electric Co. in 1936 and advanced to the position of manager of the Radio Sales Di-
vision, which he resigned to assume new responsibilities with the Farns-
worth Television and Radio Corp.

Mr. Vogel brings with him into his new capacity, a well-rounded admin-
istrative experience covering design, production, merchandising and sales, plus an excellent understanding of television, both technical and commer-
cial, that should prove exceedingly valuable as television progresses.

He has recently returned from an extended visit to the leading European capitals, principally London, where he made a personal study of the tech-
nical, manufacturing and commercial phases of television.

Mr. Vogel will make his headquarters at the principal office of the corpor-
ation—3700 Pontiac Street (ex-
tended), Fort Wayne, Indiana.

That World’s Fair Cover by Alan Foster

So much admiring attention was caused by RADIO TODAY’s March cover, showing the World’s Fair trylon and periscope, that we feel readers will be interested to know this was de-
signed by the famous magazine cover artist, Alan Foster, of 3513 76th Street, Jackson Heights, N. Y. Mr. Foster has produced many striking cover de-
signs for Colliers, Saturday Evening Post, Red Book, and Good Housekeep-
ing.

Robert Robins, secretary of Wald Radio & Television Laboratories, ac-
ccepted the invitation of the FCC to discuss the Wald method of using the present broadcast band for television transmission.
Trade Flashes

The National Television Company, 480 Lexington Ave., New York City, is bringing out a new television receiver for home use which is without oscillators in the sweep circuit. This results in accurate interlacing and a very steady picture which cannot get out of synchronism. Ease of adjustment is facilitated, servicing is simplified, and hazards are reduced for both the user and the serviceman. National has been experimenting with television since 1931 and holds numerous patents at the present time with others pending. They list the following products to show their preparedness in the new field: camera chains; synchronizing generator; special sweep circuits; test equipment for television; video volume controls; regulated power supplies; horizontal deflecting transformers; blank-out generators; square-wave generators; and television receivers.

The National Small Business Men's Assoc. meets June 27, 28, 29 in National Convention.

Contest Judging Div. of Reuben H. Donnelly Corp., Chicago, retained to handle Bendix Comparison Contest.

Kester Solder Co., and its pres., F. C. Engelhart, observed 40th and 50th company anniversaries respectively.

Joseph B. Elliot now special ass't to Fred D. Wilson, RCA Mgr. of Field Activities.

E. W. Beyer becomes ass't in radio dept. of Crosley Corp.'s Export Div.

N. Y. Division of Philco Distributors have awarded the door prizes offered at their All Year Round Convention March 27. Fred Grell, McDowell Radio Service, won a Mystery Control model radio as first prize.

J. W. Walter of Apex Baton says the cruise to Havana May 27 will be grand. Dealer's cost is nil. Wholesale Radio Equipment Co. is cooperating.

Robert S. Sherman has been appointed direct factory rep for Ward Products Corp., Cleveland, Ohio.

Majestic Radio & Television Corp. have announced a "no quota" policy for dealers in their products. William Norins, general sales mgr. states that undue hardship is often caused to dealers by having to purchase a large volume in order to keep a franchise, often resulting in dumping and other harmful practices. Mr. Norins reports that production is up 200 per cent over January '38 and that present Majestic shipments are in line with November, a peak month of last year.

Jack Poppele, Chief Engineer of WOR, is doing a Mrs. Roosevelt showing his Finch facsimile receiver. He covers more territory than a Jobber.

Ward Leonard Electric Co.'s address in Philadelphia is 1600 Arch St., Room 329. Frank Beede is there as District Mgr.

Radio Parts Manufacturers predict a sell-out at the Radio Parts Industry Show in Chicago. Only 25 booths were available April 1, and these only after eliminating space provided for the show's institutional displays. The '39 Show will no doubt set a record for size, diversification of exhibits and novelty of display.

FOR SOUND REASONS USE
Electro-Voice MICROPHONES

Sound men who know sound values acclaim Electro-Voice microphones. Special engineering, advanced design plus a complete line of types assures an Electro-Voice "Mike" for every sound need.

+ VELOCITY TYPES
  V Series
  L Series
+ DYNAMICS
  Blend
  Hand
+ STREAMLINE
  Button Carbons
  Hand
+ ACCESSORIES
  Transformers
  Stands
  Hardware

NOW GET BETTER QUALITY!
You get across better with Electro-Voice equipped sound systems. Investigate at once these better MICROPHONE VALUES.

FREE BIG CATALOG NOW READY
Send now for your FREE copy of the big new ELECTRO-VOICE CATALOG. Lists entire line, gives prices, characteristics, etc. Available at your parts distributor or write...

Electro-Voice Manufacturing Co.
1239 A South Bend Ave., South Bend, Indiana

RCA Victor has named W. Wallace Early manager of recording and record sales.

New 1939
NOISELESS ANTENNA
Mechanically and Electrically Noiseless

J. F. D. Manufacturing Co., 4111 Ft. Hamilton Pkwy, B'klyn, N.Y.
An ultra-high frequency radio transmitter and equipment for the transmission and reception of facsimile has been ordered from RCA Mfg. Co., by Station WBNS, owned by Columbus Dispatch.

United Catalog Publishers, Inc. move May 1 to larger quarters at 230 Fifth Ave., New York City.

Westinghouse reports their radio-interference-proof pin-type testers are beginning to outstrip conventional insulators in popularity so that now they are to be sold at the same price as ordinary porcelain.

Insuline Corp. of America removed to larger quarters at 30-30 Northern Blvd., L. I. City, N. Y. Machinery and facilities doubled.

Proof of the wide spread interest in portable radios was demonstrated at the Chicago Boat & Sports Show. Sentinel reports that their booth was constantly crowded and that visitors were impressed with the compactness, light weight, tone and volume of portables.

Troubadour sets made by Warwick

Through a typographical error in our March issue, “Troubadour” was incorrectly listed as a tradename used by Ultramar Mfg. Co., Chicago. Troubadour radios are made by Warwick Mfg. Co., 1700 West Washington Blvd., Chicago, Ill.

“Tricks With Mueller Clips” contest offers 25 dollars for best ideas. Mueller Elec. Co., 1885 E. 31st St., Cleveland, Ohio, for entry blanks.

Nathan Schnoll has resigned from Solar Mfg. Corp. to organize Industrial Instruments, Inc., in Bayonne, N. J.

Enos Schaffer, American Steel Exporter’s ad mgr., became vice-pres. of the N. Y. Advertising Club Jr. Assoc.—unanimously.

New York Electrical Appliance dealers feel pretty strongly about getting back that buck fifty in the Old Iice-Box Round-Up.

Whipple Jacobs, former v.p. in charge of sales, elected President of Belden Manufacturing Company. He succeeds the late Joseph C. Belden, founder of the company, who died February 17.
Jobbers doing


Ross Electric Co., Brooklyn, N. Y., appointed distributor of RCA radio tubes.

Irving Ginn has hooked up again with Radio Service Lab. of N. H., works in Portland, Me., branch.


A new firm, Stannage, Ltd., of Sydney, Australia, has been formed to distribute technical radio equipment in the British Empire. John Stannage of Wellington, N. Z., heads the company.


Hatry & Young are getting a new outlook at 1172 Chapel St. in New Haven, Conn.

The Smith Distributing Co., RCA distributor for Louisville, added Dillar Zillich to their road force as record salesman.

Edd M. Watkins, Admiral Distributor, says the big Admiral sign on his Electric Supply Co. in Oakland, Cal., is seen by 52,000 motorists every twenty-four hours. That makes his corner second busiest (by cars) West of Chicago.

Ivan F. Brady, Elmira, N. Y., becomes distributor for Stewart-Warner.

Sherman Clay chain of radio retail stores are selling Stewart-Warner radios.

The Continental Radio & Television Corp., Chicago, has started publication of a monthly house organ to promote better relations between it and its distributors.
Representatives

Charlie Cashway and L. G. Winney, Thordarson, visited their New York reps, Charlie Cooper and John DiBlasi.

"The Representatives" welcome these new members: George E. Anderson, Hal F. Corry, and A. L. Berthold of Dallas, Tex.; Roland Moeller, Milwaukee, Wis.; Fred E. Garner, Chicago; Sidney H. Gatty, Philadelphia; and Waldo F. Kelleigh, Boston.

Arthur Freed and Al Sophin have been appointed salesmen for the Automatic Radio Mfg. Co., announced F. P. Atkins, sales v.p. Both men are well known in the trade and will handle the metropolitan New York and northern New Jersey territories.


Stromberg-Carlson's Larry Loveless, representative for Southern New York, won top honors, smashing his yearly quota and registering 250 per cent in sales. Next two top men were Donald E. Lee and James S. Gibson.

Wallace B. Swank has opened offices at 610 Blaine Ave., Detroit, and will represent makers of radio service and amateur parts in Michigan. He formerly was with General Household Utilities Co.

New RCA Sales Managers are George Malsed, Dallas, Tex.; Harold Winter, Kansas City, Mo.


Diamond Braiding Mills, Chicago Heights, Ill., has set up a separate division for its radio and electrical wire business to be known as Diamond Wire & Cable Co.

RCA television gets F. H. Engel to plan and develop: Small Radio Div., acquires J. A. Milling asMgr.

Borg-Warner Corp. says Norge units shipped in March were over 50,000, and their DVS Gas Ranges are 279.2 per cent of Jan.-Feb. '38 orders.

P. Crosley, Jr., feels science halted by FCC stripping WLW to 50 kw.

Bell & Howell has taken over Kodak "Universeal" film releases.

H. C. Brigg and C. B. Shapiro of Howard Radio hit N. Y. C. for console promotion, gloting about the 400 consoles sold in three days in Chicago.

Visitors to N. Y. World's Fair will be able to air their Major Bowes complexes before a television camera in the Westinghouse Bldg.

Sales Manager H. W. Johnson announces that the Turner Co. has discontinued manufacturing amplifier and inter-office equipment to concentrate on microphone equipment.

A.T.A. Leads with Outstanding Value...

Model 740 "Giant" A.C. D.C. Select-O-Tester Unsuitable for value, accuracy and simplicity. "Giant" 9" meter makes readings really a pleasure.

Notice the ranges offered....
0/15/150/750 Volts A.C.
0/15/150/750 Volts D.C.
0/15/150/750 D.C. Ma.
0/15/150/750 A.C. Ma.

Inductance 1/100 hennis.

Watts: 006 to 600.
1000 ohm per volt meter assures good all around accuracy.

Net Price .......................... $18.95

Cover extra .................. 1.00

APPROVED TECHNICAL APPARATUS CO.
5754 FLY STREET, N. Y. Co, N.Y.
Send for New 1939 Catalog

SEND US 50c (IF YOU'RE GAME)

A Radiant jobber will send you a complete Radiant "Performance Prover" Kit, including display and advertising supplies and a test device that shows the improved reception of Radiant's longer, better aerials, right on the customer's own car, through his radio.

This convincing test takes only a couple of minutes.

IT SELLS AERIALS

(Profitable Aerials)

THE RADIANT CORP.
Shaw Avenue Cleveland, Ohio

SEND STAMPS OR COIN
If you don't think it's worth 50c you can have your money back

NEW Three-In-One Mounting Available on the 20 Leading Power Transformer Numbers

BY means of 4 univestally adaptable brackets, packed with each transformer, this mounting gives you a choice of any of the three types shown above.

Inspect on Halliderson Vacuum Sealed Transformers for more lasting satisfaction. The vacuum sealing is positive in action and insures uniform protection of all windings. The result is an effective, skin-tight covering that does not crack, flake off or open up, even in tropical climates. Where servicemen know transformers, you find Halliderson.

Write for Details!

THE HALLIDORSON COMPANY
4500 Ravenswood Ave. Chicago, I11.

Halldorson Vacuum Sealed Transformers

APRIL, 1939
SLOW-MOVING STOCKS—SLOW-MOVING MEN!

Advice to jobbers and dealers on speeding up personnel

In talks to the RCA-Victor distributors at Atlantic City and French Lick, Bob Shannon, general manager of the RCA Manufacturing Co., drew some pointed parallels between men and merchandise in the businesses of wholesalers and retailers. Said Mr. Shannon:

"We take frequent inventories of raw materials and finished merchandise, and we classify them into three groups:

ACTIVE SLOW-MOVING OBSOLETE

It is even more important that we take frequent inventories of our personnel. Here similar classifications apply... and they apply equally to engineering, manufacturing, sales and distributors'-dealers' organizations.

"In the Active classification, there are fewer problems, because here you find the men with characteristics that make for success, personality, enthusiasm, persistence and industry, with complete confidence in the future of the company and themselves. These men are the spark-plugs in any business and it is Management's obligation to see to it that they have full opportunity to exercise their ability and develop the team-work that is one of the basic factors in all successful organizations.

Ability minus vision

"It is the second classification—the Slow-moving group which becomes Management's real problem, because if something isn't done about it, they will eventually work into the third or Obsolete classification. In the slow-moving group there are many people with recognized ability, but they lack enthusiasm and the vision to see future possibilities. The answer to this problem is not one of personnel changes but of education.

"For many months, Management has been conducting an educational campaign in the distribution of well-prepared literature—group discussions, inviting suggestions and criticisms, and the general dissemination of correct information. This educational work must continue and the story repeated over and over, because more than ever before business needs today the type of people filled with confidence in themselves—their work—each doing his job with the sense of assuredness and doing it with such credit to himself that opportunity cannot afford to pass him by.

Some look backward

"When we analyze the third or Obsolete classification, we find that obsolescence is not a question of age, but it fits a minority who are always looking backwards and are unwilling to adjust themselves to changing conditions and requirements. When the attitude of such a group cannot be corrected by education and fair treatment, there can only be one answer and that is to replace them!

"It would seem that with many thousands of distributors and dealers, a similar appraisal of employees would be worthwhile. It would be interesting to know what percentage of sales employees would fall into the three classifications—

ACTIVE SLOW-MOVING OBSOLETE

While this might seem to be a cold-blooded way of appraising the human element, it is better to know the facts about your organization and then deal with it in a humane way.

"In summing up Management's attitude toward men and organization, it is stated briefly thus—putting responsibility where it is sure to be met—insisting on definite results rather than alibis—permitting no favoritism—giving praise where it is merited—putting a premium on fair play and making no promises that cannot be kept—and, finally, developing an organization that is prepared to take the leadership it is rightfully entitled to."

Energy, alertness, confidence are necessary to build profits.
New Booklets


Catalog of Atlas sound products including new 360° speaker and storm-proof Marline Midget speaker. Atlas Sound Corp., 1447-51 39th St., Brooklyn, N. Y.


Kohler Co., Kohler, Wis.—descriptive material on a new 800 watt, 110 volt AC electric plant. Also a bulletin on "Kohler Electric Plants for Every Need."


Precision Apparatus Co., 821 E. New York Ave., Brooklyn, N. Y.—owners of Precision electrometers models 500, 500A, 600 and 700 may obtain late tube charts, Form 7138, free, by writing this company.

Specs for ARC-6 automatic direction finder for aircraft. Lear Dev. Inc., Bldg. 31, Roosevelt Field, Mineola, L. I., N. Y.

Standard Transformer Corp., 1500 N. Halstead St., Chicago—eight pages of transmitting transformers, "the amateur transformer line built to broadcast specifications." Also a new booklet on the Stancor transmitter kit model 20P.

Free television lesson


New company in the recording field is Reel-O-Kut Corp., 254 Canal St., New York, N. Y. George Silber is advertising and sales manager; Walter Silber, president; and Victor Silber, chief engineer.

The company is manufacturing a recording attachment for use with phonographs and turntables. One unit takes records up to 16 inches in diameter. Another model handles records up to 16 inches.

Illustrated booklet and catalog showing new markets for cooling and ventilating equipment sales. Kiseco Co., Inc., 4414-18 W. Papin St., St. Louis, Mo.

Description and specs of Weston Photo-electric cells model No. 594, types 1 and 2. Weston Elec. Inst. Corp., 614 Feiringhuysen Ave., Newark, N. J.

Supplement to Stromberg-Carlson Catalog giving all parts used on 225, 245, and 300 series receivers. Latest prices. Stromberg-Carlson Tel. Mfg. Co., 100 Carlson Rd., Rochester, N. Y.

Victor Record Catalog supplement with complete list of records released since issue of 1939 catalog. RCA Mfg. Co., Front & Cooper Sts., Camden, N. J.

Description and technical data on American DEO dynamic microphone. Bulletin No. 29-A. American Microphone Co., Inc., 1915 S. Western Ave., Los Angeles, Cal.

"The Public Address 'Blue Book,,'" showing Bogen line of sound systems and equipment. Catalog P3-39A. David Bogen Co., Inc., 683 Broadway, New York, N. Y.

"The ABC of Radio," published for public distribution as part of NAB-RMA campaign to "sell America radio." Beautifully laid out, it contains convincing copy designed to benefit the entire trade. National Assoc. of Broadcasters, National Press Bldg., Washington, D.C.

Bulletin No. 70 on PM speaker and No. U-300 with revised prices and data on electro-dynamic unit. Fox Sound Equip. Corp., 3120 Monroe St., Toledo, Ohio.


University loudspeaker line described and illustrated in new catalog No. 8-39. University Labs, 105 Chryste St., New York, N. Y.


The Speaker Sensation of the Year!

The QUAM PERMANIC

Dynamic Performance at 70% of Dynamic Cost!

Radio manufacturers are welcoming the NEW PERMANIC with open arms. Here's a new speaker that offers performance and output equivalent to a small dynamic, with better sensitivity and bass response, all at less than 70% of the cost of a dynamic speaker!

No wonder manufacturers are building their medium priced sets around the PERMANIC! It's the biggest development in speaker design since the Dynamic. Mail the coupon today for complete information!

★ Better Sensitivity
★ Better Bass Response
★ Lower Rectifier Drain
★ No Reduction in Power Output
★ More Compact ★ Less Weight
★ Lower Cost

MAIL THIS COUPON!
QUAM-NICHOLS CO.
Cottage Grove at 33rd Place, Chicago
Please send me complete information on the QUAM PERMANIC Speaker.

Name
Company
Position
Address
Here are the instruments engineered specifically for this new market... soundly designed and built to serve for years.

**Model 772 Television and Radio Analyzer**

The 5000 Volt Analyzer, with sensitivity of 20,000 ohms-per-volt, input impedance 100 megohms on top range. Current readings down to ½ microampere. Breakdown voltage 11,000 volts, in accordance with AIEE standards. Special safety test leads and prods for complete protection. Present owners of Model 772 can bring them up-to-date by purchasing the inexpensive multiplying unit and mounting it in the carrying case.

**Model 669 Television and Radio Vacuum Tube Voltmeter and Signal Detector**

Hear as well as measure the signal with this inexpensive instrument. Measures gain in video and sound amplifying channels – peak voltages in thyratron (saw-tooth) generators in oscillator circuits – grid potentials on cathode-ray tubes – as well as other essential measurements in all sound receivers.

**Model 787 Ultra High Frequency OSCILLATOR for Television**


When buying radio test equipment from now on, be sure you buy equipment which also is good for television. Remember, too, that in television, you'll be dealing with High Voltages and Ultra High Frequencies. You'll need safe, as well as precise equipment. Let us send you complete facts on the instruments you require. Return the coupon today.

Weston Electrical Instrument Corporation
597 Frelinghuysen Ave., Newark, N. J.

Send bulletin describing WESTON Radio and Television Instruments.

Name: ____________________________
Address: __________________________
City: ____________________ State: __________

Weston TELEVISION and RADIO INSTRUMENTS
A WINNING HAND — If You Play It Right — This Summer!
Complete details in this issue.
The selection of Mallory Vibrators, as original equipment, by the set manufacturers who are the very tops in the industry is the best possible evidence of their fine performance. Mallory Replacement Vibrators offer the same outstanding performance that has won the manufacturer’s acclaim. The millions in use testify to their trouble-free, long life.

**FREE! New Mallory 20-Page Vibrator Guide**

Just off the press this new, up-to-the-minute Replacement Vibrator Guide gives all the answers on auto radio installation and service.

It includes complete replacement chart for all makes of auto radio and battery operated household receivers...practical vibrator servicing and testing information with scope pictures...installation and interference elimination in 1939 cars...vibrator connection charts and complete cross reference of Mallory Vibrators by receiver make and model.

*See your distributor for a FREE copy today.*
Reaching New "Highs" Every Day!

Emerson
SELF-POWERED PORTABLES

MODEL CE-263
$24.95
COMPLETE

Cash in on the Growing National Trend with EMERSON — Leader of Them All!

- First an IDEA — then a FAD — now a NATIONAL TREND! This is the history and the merchandising opportunity for YOU with the EMERSON Self-Powered Portables. Three great models — $19.95 — $24.95 — $29.95 — smallest — lightest — lowest cost — cheapest operation — and each a "demand" item, with substantial discounts, with dramatic advertising and sales promotion to swing the trend YOUR way.

ELLIOIT ROOSEVELT
On the Air for EMERSON
Twice a week in his popular program — over twenty-three stations — Elliott Roosevelt is featuring EMERSON Self-Powered Portables. Emerson's broadcast advertising is gradually covering the country.

ASK your Emerson Distributor for details. Feature the EMERSON models in your window, your store, your newspaper advertising. Ask your Emerson salesman for merchandising ideas.

MODEL CT-275
5-Tube Superheterodyne. Engineered with advance radio features. The ideal traveling accessory — fits in with modern luggage. Weighs only 13 1/2 lbs.

$19.95
COMPLETE

There's an EMERSON for every purpose and every purse — from $6.95 to $219.95

EMERSON RADIO AND PHONOGRAPH CORPORATION • 111 Eighth Avenue, NEW YORK, N. Y.

World's Largest Maker of Small Radios


Subscription price U. S. and Latin American countries, $1.00 for 2 years; Canada: $1.25 for 2 years. All other countries, $2.00 for 2 years; single copy, 50c. Entered as second-class matter July 23, 1936, at the post office at New York, N. Y., under the Act of March 3, 1879. Printed in U.S.A. Member of A. B. C. Copyright 1939 by Caldwell-Clements, Inc.
The Most Important

J. B. McCarger
Chairman of the Board

E. A. Nicholas
President

P. T. Farnsworth
Vice President and Director of Research

E. H. Vogel
Vice President

J. P. Rogers
Vice Pres. and Treasurer

B. Ray Cummings
Vice Pres. in Charge of Engineering

F. B. Ostman
Service Manager

M. Cawein
Television Receiver Design

J. H. Pressley
Chief Engineer on Receiver Design

The factory at Fort Wayne, Ind.

R. C. Jenkins
Factory Superintendent

Farnsworth

Radio Today
New Franchise since 1930!

Men, money, merchandise, plants and distributors fall in line under the Farnsworth banner. E. A. Nicholas assembles an executive staff of veterans . . . E. H. Vogel maps general policies, plans and products . . . J. P. Rogers whips the Marion plant into an orderly, smooth, efficient production unit . . . Philo T. Farnsworth guides his staff to perfect present developments that assure modern, advanced television products.

Engineers move in. B. Ray Cummings assigns design specialists to a dozen development programs . . . J. H. Pressley’s fast-moving staff goes on a 24-hour day schedule creating Farnsworth radios and combinations . . . Madison Cawein heads a select group into action on television receivers. R. C. Jenkins assembles his production lines and a skilled factory organization . . . F. B. Ostman lines-up service policies and plans.

A sales force swings into action with E. H. McCarthy, R. E. Kane, Dean Lewis and E. J. Dykstra in the field discussing Farnsworth franchises with alert distributors. Already forward-looking distributors from over 50 leading territories have requested an opportunity to discuss this most important new franchise available since 1930!

The program . . . Farnsworth radios, combinations and television sets for early Fall selling . . . backed with complete advertising and sales promotion plans.

FARNSWORTH TELEVISION & RADIO CORPORATION
Plants at Fort Wayne and Marion, Indiana
Headquarters: 3700 East Pontiac Street, Fort Wayne

The History of Television is the History of Farnsworth
The Most Important New Franchise since 1930!

Men, money, merchandise, plants and distributors fall in line under the Farnsworth banner. E. A. Nicholas assembles an executive staff of veterans . . . E. H. Vogel maps general policies, plans and products . . . J. P. Rogers whips the Marion plant into an orderly, smooth, efficient production unit . . . Philo T. Farnsworth guides his staff to perfect present developments that assure modern, advanced television products.

Engineers move in. B. Ray Cummings assigns design specialists to a dozen development programs . . . J. H. Pressley's fast-moving staff goes on a 24-hour day schedule creating Farnsworth radios and combinations . . . Madison Cawein heads a select group into action on television receivers. R. C. Jenkins assembles his production lines and a skilled factory organization . . . F. B. Ostman lines-up service policies and plans.

A sales force swings into action with E. H. McCarthy, R. E. Kane, Dean Lewis and E. J. Dykstra in the field discussing Farnsworth franchises with alert distributors. Already forward-looking distributors from over 50 leading territories have requested an opportunity to discuss this most important new franchise available since 1930!

The program . . . Farnsworth radios, combinations and television sets for early Fall selling . . . backed with complete advertising and sales promotion plans.

FARNSWORTH TELEVISION & RADIO CORPORATION
Plants at Fort Wayne and Marion, Indiana
Headquarters: 3700 East Pontiac Street, Fort Wayne

The History of Television is the History of Farnsworth

The factory at Fort Wayne, Ind.

R. C. Jenkins
Factory Superintendent

The Marion, Indiana, plant

R. E. Kane
District Sales Manager

D. A. Lewis
District Sales Manager

E. H. McCarthy
District Sales Manager

E. J. Dykstra
District Sales Manager

THE HISTORY OF TELEVISION
WHY THE PREFERENCE FOR UTAH VIBRATORS HAS GROWN WITH THE INDUSTRY!

Utah Vibrators—the first to be used by automobile manufacturers in their auto radios—have maintained their leadership because of the outstanding design and advanced engineering which keep pace with modern radio development.

The most important vibrator developments have originated in the Utah laboratory. Some of them, which contributed largely to the 4-year, 900% increase in auto radio volume were the original introduction, by Utah, of:

- the FULL WAVE Auto Radio Vibrator.
- the Vibrator with armature swinging ACROSS the pole-piece.
- the double parallel side member frame.
- the SHUNT starting vibrator.
- the vibrator reed with REDUCED CROSS-SECTION for graduated flexibility.

These and many other improvements plus Utah uniformity and dependability have won the continued preference for Utah Vibrators as original equipment and for replacement requirements.
Even in far-off Iraq
they know
Raytheon Dependability!

When the modern miracle of radio was added to the royal palace at Bagdad, of Arabian Nights fame, the genie of Aladdin’s Lamp was of no help. But the genius of Raytheon engineers provided Raytheon Tubes, sturdily built for dependable service in any far-off corner of the world.

Dependability is a necessary requirement for this royal equipment—radio servicemen are few and far between in this kingdom of Arabia. So naturally, it is Raytheon-equipped—Raytheon offers the utmost in long life and dependability.

Even a king could find no better radio tubes than you can give your customers—yet they cost no more than the second best tubes. They are your safest and most profitable tube investment.
Company dependability and product dependability—you want them both, in the tube line you sell. But even more important is profit dependability—for profit is the reason why you're in business.

Sylvania brings you "perfect balance"—a happy combination of the three things so vitally important to the success of your tube business... not only company and product dependability, but profit dependability, too!

That is why thousands of enthusiastic retailers are pushing Sylvania. And that's why Sylvania is the tube line for you. Stock—sell—feature Sylvania tubes—and watch your prestige and profit jump up!

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

SELL SYLVANIA

SET-TESTED RADIO TUBES

Meet us at Booth Nos. 18 and 20, Chicago Radio Show, June 14-17.
HERE COMES THE GREATEST LINE OF Portables IN THE BUSINESS

PORTABLE sets are sweeping the country. They are in for a long sales ride. Why? Because they provide a new service that every customer wants. When it comes to portables the public will buy the line which leads in smartness, compactness, light-weight, outstanding performance, most value for the money. This is what it takes. And the new complete G-E CARRYABOUT line has it—more than any other.

You need all four of the new G-E CARRYABOUT models. All are smartly styled in the Country Club manner. All are priced down where the sales are thickest.

Phone, Wire, or Write your order—NOW!

G-E LEADS THE PORTABLE PARADE

G-E LEADS THE PORTABLE PARADE

1. MODEL HB 402—In weatherproof airplane luggage cloth with leather carrying handle. Handbag size—8½ in. high—13½ in. wide—4½ in. deep. Weighs only 9½ lbs. with batteries.

2. MODEL HB 403—In pigskin Fabrikoid. Custom-styled and ultrasmart, 9½ in. high—13½ in. wide—4½ in. deep. Weighs only 10 lbs. with batteries.

3. MODEL GB 400—In weatherproof airplane luggage cloth with leather handle. 9½ in. high—13 in. wide—7½ in. deep. Weighs 16 lbs. with batteries.

4. MODEL HB 408—Portable Radio-Phonograph Combination. Plays 10- or 12-inch records electrically through radio’s loud-speaker—anywhere, anytime. In washable Fabrikoid case with leather carrying handle, 9½ in. high—14½ in. wide—13½ in. deep. Weighs 19½ lbs.

ALL 4 MODELS HAVE

- Self-contained Long-life Battery Power Supply
- Permanent-Magnet Dynamic Speaker
- Standard Broadcast Reception
- Automatic Volume Control
- Superheterodyne Circuit.

MAY, 1939
Dominate the Low Price Market with this NEW PHILCO AUTO RADIO

... the finest ever built to sell at $19.95

Model 931
- Compact Single-Unit Superheterodyne
- Six New Super-Efficient Loktal Tubes
- Full Sensitivity, Tuned Antenna Circuit
- Built-in Interference Filtering
  - Automatic Volume Control
  - Electro-Dynamic Speaker
  - Illuminated Dial

Other New Auto Radios—$29.95, $39.95, $49.95 and $69.95

PHILCO ALL YEAR 'ROUND
Radio Business As Usual?

Today radio offers more to the public, better programs, better reproduction, greater program variety, greater radio receiver values, than ever before.

Today, the radio dealer has a wider assortment of products, and a wider price range, to appeal to a broader market, than ever before.

Radio sales will go on as usual in spite of television, hell or high water. Television is coming, but radio is here to stay.

* * *

So the radio industry, manufacturer, broadcaster, and dealer—must sell radio as it has never been sold before.

Sell programs, continuity of broadcast service, value and entertainment of listening in, spot news, broadcasts, shortwave contacts with foreign lands. Sell these things which the public takes for granted. Tell the limitations of television, how it will add to, but never replace radio. Sell radio every minute, of every hour, of every day—by word, by action, by displays, by advertising—and the radio business will be better than ever.

Television is coming, but it cannot take the place of radio broadcasting. When it comes, it will be just one more thing for the radio dealer to sell. The threat of television is far more fancied than real. Imaginations have run rampant and given birth to fears which will not be realized.

If you stop selling radio, your business may go to the dogs, but radio is here to stay.

* * *

Sell radio, and all that goes to make radio the glorious, glamorous business it is, the greatest benefactor of mankind in all history!

Sell radio in this way, and the radio business will be better than ever!
Sales Managers Club, Joint Session, Friday, June 16, 10:30 a.m.
Radio Parts Manufacturers National Trade Show, Membership Meeting, Friday, June 16, Noon.
Radio Servicemen of America, Friday and Saturday, June 16 and 17, Annual Convention, and engineering lectures jointly with the Chicago Section, Institute of Radio Engineers.

Television sales in N.Y. start slowly

As we go to press, Radio Today's staff has just completed a survey of retail television sales by dealers in New York, Brooklyn, Queens, the Bronx, Westchester and northern New Jersey—the area covered in the experimental television broadcasts beginning April 30.
RCA, Dumont, Andra, American, and Westinghouse sets are shown in about one-quarter of the stores in the region, and through these sets television programs have been demonstrated to an estimated 100,000 people.
As was to be expected, the largest number of people, predominantly women, witnessed the demonstrations in the great department stores. But most sales were made to men, by small radio dealers.

200 TELEVISIONS SOLD

From all sources, it is estimated that 200 of the 7,500,000 residents of metropolitan New York became new owners of television receivers during these first two weeks of May. Only \( \frac{3}{4} \) of 1 per cent of those who witnessed store demonstrations actually bought, with another \( \frac{3}{4} \) of 1 per cent reported as "good prospects."
At an average price of $400 these 200 sales mean $80,000, or about 1 per cent of total radio sales for the same period. Some dealers complained that sets were not actually available as fast as customers appeared.

Dealers are finding that most of the television buyers want to trade-in their old radios, and raise objection to the minimum "$150 installation charge" of one manufacturer. Dealers themselves are feeling none too kindly about the 25 per cent discount to dealers which one manufacturer allows, as compared with the 40 per cent of other manufacturers.

LET PROSPECT "SEE WHAT HE WILL SEE"

Few dealers in the New York area are yet really pushing television. For the demonstration periods during the day film subjects are repeated time and time again, thus quickly raising the whole program question, and making the dealer realize that good judgment will let the customer make his own buying decision, after he "sees what he will see," without pressure.
No dealer reported any customer dissatisfaction and no report was made of any unusual installation difficulty encountered.

Vogel to address wholesalers on television

A talk on television by Ernest H. Vogel, vice-president of Farnsworth Television & Radio Corporation, will feature the afternoon session of Tuesday, May 30, at the convention of the National Electrical Wholesalers Association at Hot Springs, Va.
A recognized authority on the design and merchandising of television receivers, Mr. Vogel's experience in the development of radio and television goes back many years. His talk will cover many points of merchandising which will be of particular interest to wholesalers.
H. L. M. Capron, merchandising editor

H. L. M. Capron, for many years assistant controller of R. H. Macy, New York, manager of the radio departments of Macy's and Bamberger's, and previously executive with John Wanamaker, has been appointed merchandising editor of Radio & Television Today, published by Caldwell-Clements, Inc., who also issue Electrical Week and Radio Year Book.

In contact with radio since 1900, "Cap," as he is familiarly known, has made many contributions to radio design and performance, pioneered better cabinet styling, and introduced many innovations in merchandising, servicing, accounting and stock-control methods. Before joining Radio & Television Today he was engaged as business consultant to dealer groups.

Philco at French Lick, Ind., June 5-8

Philco will announce its new 1940 radio line, and its television receivers for the public, at a national convention to be held at French Lick, Ind., from June 5 through 8, it was announced by Larry E. Gubb, president, adding:

"In addition to the introduction of sensational new advances and innovations in radio, Philco will announce and show for the first time a line of television receivers which will embody startling and previously undisclosed developments in the television field."

Approximately 900 Philco distributors, members of their staffs, and Philco field representatives from every section of the country will attend, as well as executives from Philco headquarters in Philadelphia. Augmented plans for Philco's recently announced air-conditioning and refrigeration lines will also be disclosed.

"Television will supplement and not supplant radio," Mr. Gubb concluded. "At least 90 per cent of this year's market will still be radio receivers, and will remain on an ever-expanding basis with continual new developments creating a constant tremendous demand."

Chicago Trade Show to Feature Television

Radio men will see television pictures at the Trade Show!

Beginning on Tuesday, June 13, continuing through the entire period of the Chicago Trade Show, the latest RCA television apparatus, cameras, studio equipment, and receivers, will be set up and operating. NRC artists and local personalities will be televised as they walk around within the range of the camera in the studio.

Four receivers will be in operation simultaneously in the "Viewing Room." There will be two units with 12-inch tubes; one with a 9-inch tube; and one with a 5-inch tube.

Only the radio trade will be invited to attend the demonstration, the public will not be admitted.

Powel Crosley, Jr., and his $325 4.5 ft. car which has attracted wide attention at N. Y. Wor.d's Fair. Mr. Crosley's company has also developed a novel press camera which has just been put on the market at $7.95.

"Radio Special" to Chicago

The Radio Industries de luxe special train to the National Radio Parts Trade Show at Chicago, will be operated via N.Y.C. RR, under auspices of "The Representatives," Perry Saftler, chairman, 53 Park Place, New York City, will be in charge of arrangements.

The Radio Special is scheduled to leave New York at 3:10 p.m. EST, Sunday June 11, and reach Chicago at 7:20 a.m. Monday June 12. Stops will be made at principal cities.

Arthur A. Brandt, new manager of merchandising for GE Radio, was formerly advertising manager at Bridgeport radio headquarters.

Frank E. Mullen, appointed vice-president of RCA in charge of public relations.

MAY, 1939
Roll Up Your Sleeves - Sell Radio!

"Radio business as usual." How to keep radio-set sales rolling. Radio dealer has more good bets and "hot numbers," than ever. Ideas to move portables and combinations, now!

Radio dealers all over the country are wondering what the effect of television—now that it is operating on an experimental basis in New York—will be on their own radio businesses.

Well, the general consensus of opinion of smart merchandising men, is that television has already done its greatest damage to radio-set sales. Over the last few years, there is no question of the fact that public anticipation of television has been largely responsible for the steady decline in the demand for expensive consoles. But that damage has been done.

From now on, it seems quite likely that the spread of television service will fall so far short of the public’s expectation, that radio sales will be less influenced by television in the next year than they were in the past year.

All over the country, in areas which have television, as well as those which do not, the radio business must go on as usual.

TELL THE TRUTH ABOUT "TELE"!

To carry on in this way, therefore, dealers everywhere must learn as much as they can about the new "tele" art, and then must tell the truth about it—sincerely.

Of first concern to you, probably, in your own local situation, is the fact that it may be many months and even years before television broadcasts will be available to your particular area. You will know from local news and trade talk, whether any television experimental service is being even planned for your territory.

And the most important fact to realize about television is that, even when it comes to your area, it will not take the place of our present audio broadcasting system. Remember that; believe that; talk that; it is a fact.

First—because programs are limited to a very few hours weekly, and the potential program material now in sight is hopelessly inadequate to provide the quantity of program service maintained by present audio stations.

Second—because the cost of producing a video program is so much greater, television service will long be on a limited basis.

Third—because the transmission range is so limited that the cost of providing program service for the entire country through repeater stations or co-axial lines would be so staggering that expansion of facilities will be very slow.

Fourth—because, unlike audio programs, television programs will always require the undivided attention of the viewer and this involves changing the habits of a nation.

And so, even when television does come to your area, radio business will go on as usual.

But make no mistake about it, television is coming someday, and nothing we can do will stop it. So don’t try to stop television. Instead sell radio more enthusiastically, with more emphasis on the programs, on the entertainment value, on the variety and continuity of program service—rather than talking a particular set at a particular price.

During the next few months there are many opportunities for dealers and distributors to do a better radio business than for many years.

The customers are there, with the money to buy. True, they are not flocking to dealers’ stores, demanding merchandise. But there are plenty of alert dealers who are taking their products to potential customers, and are making sales. Actually, the radio dealers have more things to sell than ever before, with all these summer lines.

BEST RADIO BUSINESS IN YEARS

Aggressive sales promotion will “take these summer radios to town” but remember, they can’t go it alone. Here is the summer-selling list:

1. The battery portable, introduced 15 years ago, and now revived by public demand, because it can be used in so many places where socket powered radio cannot be. This is hot.

2. Portable phono-radio combinations, which bring the increasingly popular recorded music to the porch, garden and summer cottage, with radio. This is hot, too.

3. The wireless record player, and microphone, which can be sold to those who have a radio for summer use, and want recorded music too, with the infinite possibilities for fun, with the microphone. This is warm.

4. Small AC/DC radio sets, for the porch, garden or summer cottage, and for the children.

5. Remote control for the console, to bring tuning control of the living room radio to the porch or garden. Warm and coming.

6. Remote speaker, to bring the speaker of the living room radio to the porch or garden. Warm.

7. Automobile radio, to bring news and your favorite programs to you while you’re on the road, enjoying daylight-saving evenings, and sum-
mer week-ends in the country, mountains or at the beach.

8. Phonograph records, build store traffic and give you plus business. This is always good.

9. Intercommunicating systems for the small business and for telling the family on the porch, or in the garden, what is going on in the nursery. This is very warm.

10. Sound systems for amusement parks, churches, auditoriums, garages, stores, and countless other places, are being sold constantly. This is very warm.

DON'T YOU BE "WAITING" EITHER

In selling radio, this summer, remember that the effect of television is more fancied than real, that in your own community you are looked to for practical, sensible advice about radios. Be in a position to give honest opinions and give them! Don't let your own attitude convey to the customer that you are waiting for television.

Your own viewpoint is a factor in determining your action, and your action is a very important influence on your prospects.

Reconcile yourself to the passing of the large console radio only. But recognize the importance of the radio-phonograph combination and the "radio in every room" idea. Go out and tell your prospects about all the fine radio products you have, and show them why they should buy them. Sell radio, and radio programs!

You can't really expect people to rush to your store to buy these radio articles, but alert dealers will continue to sell radio, just about in proportion to the effort and energy they put into telling people what they should buy, and why.

THINGS TO DO RIGHT AWAY

Here are a few things to be done to keep the radio business going better than usual.

1. Phonograph records appeal to young people, bring them back to your store time and time again, and expose them to your selling displays. Put in records; announce that fact every way you can.

2. Have a window display and interior store selling displays, which dramatize or suggest the use of a summer radio product. Change these displays each week.

3. Run a direct mail campaign to your own customer list and any other you think appropriate with the same suggestion you make in your window. A photo of your window would be great, a line drawing will do the job; use a minimum of words.

4. Get your service department to help, by leaving a small set with the customer, while you repair the customer's own set.

5. Encourage home trial among your own customers of the wireless record players.

6. Have a clown or a fairy-story character carry a battery-operated radio playing around the streets, with appropriate signs. Thousands of people don't yet know there is such a radio.

7. Have a man with a battery-operated portable meet all the trains. The idea will catch on.

8. Lend some of your summer radios to prominent people of your area

(Continued on page 45)
For Happy Family picnics and car trips, take a record player along. Enjoy music wherever you go!
Summer Days
Portable Radio!

Radio Today,
May, 1939
For Happy Summer Days
Take Along A Portable Radio!
Auto Radio Selling Tips

Prospects for car sets are legion, but radio man must round up his future customers. Direct mail advertising can be useful.

In the spring a young man's fancy is a good thing for auto-radio men to cater to. Especially this year when two unusual attractions, the Golden Gate Exposition and the New York World's Fair, are coaxing millions of cars out of winter quarters to hit the highways early. Every one is a potential prospect for an auto radio or the necessary parts, service or accessories.

Alert radio men realize, however, that the buying public doesn't flock to radio stores like a milling crowd at a free burlesque. The business is available, but it has to be found and rounded up.

Spring tune-ups for auto-radios are fully as important as for other radio lines—and equally profitable. Dealers are planning to promote new auto-radio sets more than ever this year and direct mail will be used to make prospects realize the need for new antennas, tubes and vibrators. Lists which produce good response are available from a number of sources.

1. Regular lists of radio and appliance customers.
2. Contacts from auto associations, drivers clubs, etc.
3. Registration lists of automobile owners.
4. Reports from auto shows.
5. Names of prospects listed from dealers' special demonstrations.

YOU KNOW IT, THEY DON'T

With snappy copy and illustrations, people contacted from such lists will be told the improvement in performance in new auto-radios, the convenience and added safety features of push-button tuning and the new mountings, the low prices and expert installation which a qualified dealer can give.

Edmund Moore, N. Y. City, who does much of the direct mail advertising for radio dealers in his locality is a former auto radio man and tells us that, "The auto-radio dealer today has the greatest selling story he could want. No news of television auto-radio receivers is hurting the sales of his standard sets. Manufacturers are putting out products which eliminate the kick-back troubles of a few years back. The line is low-priced and yet it is a good-profit line. With proper presentation a dealer can up his car-set business 20 to 30 per cent.

SELL 'EM ON YOUR BUSINESS

"Hit them with pictures of new sets. Sell them on your store with short, well-worded copy that stresses periodical check-ups, service guarantees, and elimination of interference through correct installation, (which, don't forget, only you are prepared to give). Get your name in the papers through a unique demonstration or display. Don't be afraid to spend a little money to promote your lines, advertising bread east upon the market brings back angel-food sales cake."

These modern farmers

Farmer Burt Washburn, of Susquehanna, Pa., preparing for his spring work, ordered a new plow with radio attached.

The radio, he explained, would keep him immediately informed of the expected weather that would affect his work, the varying market prices of his commodities, and in between times go far to relieve the monotony of a usually tiresome task.

This is directly in line with the latest policy of equipping many new tractors with radio sets.

Washburn further stated, "If we farmers must sow, cultivate and reap as Washington directs, then we must know where we are at every hour of the day, and a radio is the only thing to count on.

Demonstrations in front of the store attract prospects, create word of mouth advertising. Shown here is radio in 1939 Chevrolet.

RADIO TODAY
Spring Tune-Up!

Now is the time to rejuvenate customers' installations—repair the damages of winter storms and long hours of listening. Check the trouble spots below:

- Broken lead-in
- Overhanging branches
- Corroded connection at lead-in strip
- Defective splice
- Dirty insulators
- Shorted lightning arrestor
- Corroded or rusty ground connection
- Defective appliances
- Loose plug
- Broken cord
- Loose lamp
- Noisy & weak tubes
- Alignment of I.F. & R.F. stages
- Dirty condenser
- Loose or slipping dial
- Loose knobs
- Noisy volume control
- Dusty chassis
- Loose, rattling speaker grille
- Tinny or rattling speaker grille
- Tinkering amateurs
New Portable Receivers

**Philco “Little Pal”**

**Enclosed portable**

**Belmont portable**

**Sentinel “Pla-More”**

**“Automatic” portable**
* Three-in-one portable, operating on batteries, AC or DC. 5 tubes, superheterodyne with FM speaker; built in loop, carrying case of alligator or pigskin material, Automatic Radio & Mfg. Co., Inc., 122 Brookline Ave., Boston, Mass.—Radio & Television Today.

**Balanced portable**

**Emerson portable**

**Troy portables**
* Two 4 tube supers each with battery life of approx. 400 hours. Models can be furnished in tan, grey, brown, blue and airplane finishes. 5 inch dynamic speaker. Model 940 lists at $29.95. 949 is portable radio and phonograph combination with hand winding spring, $39.50 list. Troy Radio & Television Co., 1142-44 S. Olive St., Los Angeles, Cal.—Radio & Television Today.
In the United States there are about forty-one million radio sets in use, many of them products of RCA Victor. All who have access to these are able to enjoy entertainment of higher quality, more variety and greater quantity than are radio listeners in any other country.

The nation-wide excellence of NBC programs owes much to the man-power and equipment of its two groups of stations. These are the 15 that are the basis of the NBC Networks (shown in large letters on the map), and the 156 affiliated stations of the Red and Blue Networks.

Other members of the family of the Radio Corporation of America also have made great contributions to radio. High fidelity RCA Broadcast and Test Equipment—superb RCA Victor Radios* and RCA Victrolas* for the home help millions to enjoy radio more. The world-wide facilities of R.C.A. Communications, Inc., bring programs from the far corners of the earth, keeping Americans abreast of the latest developments everywhere. And these are but a few of the ways RCA works in every field of radio towards an even greater radio service for all.

In doing these things, RCA always plans with an eye to increasing opportunities for dealers. By helping make radio greater, RCA helps make dealers prosper. The road to profits is marked "RCA All the Way."


Radio Corporation of America

RCA Institutes, Inc.  R.C.A. Communications, Inc.  Radiomanufactures Corp. of America

MAY, 1939
More New Things
Latest news of radio products from manufacturers

Vibrator packs
★ Three new vibrator power supplies include: a dual pack with rating of 360 volts at 200 ma. load, 6.3 volts input, list $37.50; a 6.3 volt dual pack having output of 400 volts 150 ma., $37.50; 22 volt tube rectifier type with 300 volt 100 ma. nominal output, $20.00. P. R. Mallory & Co., Inc., 3029 E. Washington St., Indianapolis, Ind.—Radio & Television Today.

"Teeny-Weeny" radio

Portable appliance tester

Portable telephone system
★ Two breast plate transmitters, two headset receivers, 200 feet of rubber covered cord are included in the portable telephone system designed as an aid in installing television receivers and other uses. Power furnished by two dry cells. Weight is 8 lbs. Stromberg Carlson Telephone Mfg. Co., 100 Carlson Rd., Rochester, N. Y.—Radio & Television Today.

"Twin power" speaker
★ High fidelity loudspeaker has two permanent magnet type dynamic sound reproducers; one each for sounds above and below 650 cycles. Crossover network connects the two speakers. Power handling capacity of 40 watts. No external field excitation required. Cabinet is 3 x 3 x 3 feet, weighs 24 lbs. complete with speaker units. RCA Mfg. Co., Frost & Cooper Sts., Camden, N. J.—Radio & Television Today.

Movie camera
★ 8 mm. "Turret" movie camera, with a 3-lens turret mount, has provision for two additional lenses. Lenses may be changed quickly by a twist of the wrist. Total weight less than 3 lbs. List $25.00 with F.4.5 lens, $23.95 with an F.3.5. Universal Camera Corp., 28-30 W. 23rd St., New York, N. Y.—Radio & Television Today.

Cone projector
★ Air column trumpet for 8 inch speakers has bell diameter of 24 inches, total length of 36 inches. Battleship gray, weather-proof lacquer finish. Bell section is heavy gauge aluminum. Speaker housing is heavy steel pressed pot. Atlas Sound Corp., 1447-51 39th St., Brooklyn, N. Y.—Radio & Television Today.

Vibrators for portables

Hearing aid
★ Vest-pocket vacuum tube type hearing aid uses three Bantam Jr. tubes, crystal microphone and crystal air receiver. Operates in any position and is multi-directional. No individual fitting required. Laurelle Radio Manufacturing Co., Box 185, Adrian, Mich.—Radio Today.
Polyphase voltage control

* Continuously - variable polyphase reactor which develops a drop of 500 volts at 50 amperes per coil. Designed for the control of voltage in polyphase circuits. Mechanical noise reduced to a minimum. Other units available in a number of ratings. Raytheon Mfg. Co., 140 W. 25th St., New York, N. Y.—Radio Today.

Reflexed air column trumpet


Condenser protective caps


Portable P.A. unit


All-purpose sound system

* "Knight" 18-watt system incorporates inverse feedback, triple input channel; individual mike, phone, and bass-treble controls; V. I. meter; monitor speaker. Offered with wide choice of microphones and 2-12" P.M. 12C dynamic speakers. Also available in portable form. Allied Radio Corp., 833 W. Jackson Blvd., Chicago.—Radio & Television Today.

Coaxial cable

* Transmission and television circuit cable uses air as principle dielectric. Surge impedance of 76.4 ohms at 100 Kc. to 73.1 ohms at 10,000 Kc. Capacity of 17.6 to 16.5 mmf. Loss of 2.75 db per 1000 feet at 10,000 Kc. No. 8215. Also available No. 8216 using low-loss rubber compound for dielectric. Belden Mfg. Co., 4859 W. Van Buren St., Chicago.—Radio & Television Today.

Tap switch

* 40 ampere tap switch is rated for 240 volt AC non-inductive circuit. 4 inches in diameter it is equipped with maximum of 12 contacts. Contacts and other currently carrying parts silver plated. All-porcelain high voltage insulation between contacts and shaft and mounting plate. Single or tandem mounting. Ohmite Mfg. Co., 4835 Flournoy St., Chicago.—Radio & Television Today.

Television signal generator

* "Phasemejector" television signal generator giving following outputs: A—a composite video signal of positive phase; B—composite video signal of negative phase; C—same as B but with video signal superimposed on DC component of approx. 50 volts. Composite video signal in all cases has max. potential of approx. 10 peak-to-peak volts. Response flat from 20 to 3,600,000 cycles. Type 6L6 output stage operates as impedance transformer. Model 202 is self-contained. Allen B. DuMont Labs., Inc., Passaic, N. J.—Radio & Television Today.

Phono-wireless player


MAY, 1939
Crosley now presents a Refrigerator
for the replacement market that gives women a
good excuse to discard their old models

Crosley provides two-temperature and air conditions in two compartments of the newly developed FREEZORCOLD Shelvador. In one compartment a uniform below-freezing temperature is maintained—a dry sharp cold that keeps fresh meats or game as long as family needs demand—enables women to buy frozen foods at "Special" sales and store until wanted—keeps ice cream firm and solid—permits them to make and store ice cubes against the biggest kind of a party—makes possible a full larder AT ALL TIMES for unexpected guests.

**This is not a Refrigerator with a Partition in it**

Fast-frozen foods are rapidly becoming a definite part of the American diet—primarily because of convenience, for they are now in nearly every grocery store. There is no waste in their use.

Game and fish are two foods hard to keep in the home because of limitations of available refrigeration—but NOW in the sub-freezing compartment of FREEZORCOLD a temperature is provided that’s low enough to retard physical change in these delicacies for many days.

Pie dough is a delicate material—prepared best when utensils and ingredients are very cold. The FREEZORCOLD SHELVADOR enables the delighted cook to prepare materials at temperatures heretofore unavailable in the kitchen. Once made, her shortened dough can be kept over a long period of time—in any quantity in the FREEZORCOLD freeze compartment.

Ice cream is not only easily made in this freeze compartment, but can be kept indefinitely. No more running down to the store just before meal time to get the ice cream home in right condition. Also, you can make and store many pounds of ice cubes.

**FLAME-FREEZE SHELVADOR**

Modern Refrigeration for Homes without Electricity

Farm and country homes beyond the power lines can now enjoy economical food protection with the matchless convenience and beauty of Crosley Flame-Freeze Shelvadors. Produces refrigeration from inexpensive kerosene heat at a cost of only a few cents a day.

No Flame when owner's away appeals to remote homes

There is plenty of room for food. Enjoy ice cubes and desserts even on hottest days. There are absolutely no moving parts—nothing to get out of order, and you can depend upon its unfailing service for many years to come.

New Low Temperature with high humidity provides improved food preservation heretofore unknown in the home

The second compartment is moist, air conditioned cold storage to hold cooked foods, vegetables, fruits, etc., at the peak of their perfection. "So you retard the drying out of food in electric refrigerators?" exclaim excited housewives. Yes, because the drying out of the natural juices in the food is retarded. Thus vegetables remain prime for days, chilled delightfully crisp in the cold humid air, retain-
ing their original vitamins—keeping moist and garden fresh with no discoloration for days longer than ever before. Leafy vegetables are preserved without wilting or shrinkage in the drawer-type super-moist crisper.

Cooked foods are held at their appetizing peak for incredibly long time. The moist cold is the secret. The air in the humid cold chamber circulates constantly over the WET coils, providing the kind of air conditioning food preservation must have to produce maximum results.

This high humidity is accomplished by the use of a special radiator-like chilling unit which does not frost like the conventional type evaporator.

This new development accomplished without adding one moving part

This outstanding advancement has been accomplished without adding one single moving part to the Shelvador refrigerator. These new refrigerators are efficiently and carefully manufactured in the new Crosley factory—probably the finest plant of its kind in the world. A background of long experience, unsurpassable engineering talent and skilled craftsmanship produce quality in every part that goes to make each guaranteed Crosley refrigerator.

THE CROSLEY CORPORATION
POWEL CROSLEY, Jr., President Home of WLW—"the Nation's Station"—70 on your dial CINCINNATI

See the Crosley Building at the New York World's Fair

MAY, 1939
New Things

Compact tele receiver

* Console cabinet only 38 inches high contains chassis similar to table model previously introduced. Six controls are placed just below screen mounting. 14-inch diameter cathode-ray tube is placed at an angle to tilt screen backwards for better vision. 21 tubes in all. Screen image measures 8 x 10 inches. Allen B. DuMont Labs., Inc., 12 Main Ave., Passaic, N. J.—Radio & Television Today.

Television receiver

* De luxe television receiver features picture size of 7½ x 10 inches and offers choice of 5 television channels with automatic push-button control. Has 30 tubes and 12 inch picture tube. Includes all-wave radio receiver with automatic tuning. Period cabinet in two-tone walnut. Belmont Radio Corp., 1257 Fullerton Ave., Chicago.—Radio & Television Today.

Remote radio control

* "Phantom Tunette" plugs in to AC line and tunes by changing stations to pre-determined position not used by any station. Uses five multi-purpose tubes. Operation requires no change in receiver. Operates one or more radios from any room. Provides push-button and dial tuning. Beverly Electric Manufacturing Co., Beverly Hills, Calif.—Radio & Television Today.

Multirange meter


Four-in-one player unit

* New instrument just offered to jobbers and dealers by Regal combines a record player for wireless reproduction through a remote radio set, a high fidelity amplifier and speaker for self-playing and playback purposes, a dynamic microphone and input circuit for low-powered public address or home entertainment and a two-station intercommunicating system. List $39.50. Regal Amplier Mfg. Corp., 14 W. 17th St., New York.—Radio & Television Today.

Radiotone recorders

* Line of four new portable recorders. Two models feature built-in radio and two models feature instantaneous speed change from 78 r.p.m. to 33½ r.p.m. Model HR-11 illustrated. Descriptive literature available. Radiotone, Inc., 7556 Melrose Ave., Hollywood, Cal.—Radio & Television Today.

Majestic super

* Five tube super-het with 5¼ inch electro dynamic speaker and built-in loop. 6 tuned circuits, 2 watt output. AVC and tone control. Has static bi-pass. Model 651L. Majestic Radio & Television Co., 2600 W. 50th St., Chicago.—Radio & Television Today.

Howard portable


Farm radios

* Battery sets in both table and console models for farm and suburban homes. Features are: low-drain, type tubes, dust-proof dynamic speaker, AVC, large tuning dial, signal-type on-off dial indicator. Cabinet finished in matched walnut. Console lists at $39.95 (Model 02-427, Illus.); table (Model 02-451) $19.95, less batteries. Stewart-Warner Corp., 1826 Diversey Pkwy., Chicago, Ill.—Radio & Television Today.
Wire wound resistors
★ New line of wire wound resistors includes four sizes of adjustable resistors, 25, 50, and 75 watt. Also four sizes of wire wound fixed resistors 5, 10, 20, and 50 watt. Consolidated Wire & Assoc. Corps., 516 So. Pearl St., Chicago,—Radio & Television Today.

Ham "R" meter

Television capacitors
★ Dykonal impregnated capacitors available in tubular, cylindrical and rectangular shapes and sizes. Ratings from 1,000 to 10,000 volts DC. Units supplied with inverse mounting features and heavily insulated terminal structure. Described in Catalog 167-A. Cornell-Dubilier Elec. Corp., South Plainfield, N. J.—Radio & Television Today.

Speed nut for selector bracket
★ Spring tension speed nut eliminates a single coil spring, washer, drilled hole and cotter pin wherever used. Spring steel and round in shape it is made to "zip" on over stud and give necessary tension to radio selector bracket assembly. Techman Stove & Range Co., 2508 Fulton Rd., Cleveland, Ohio.—Radio & Television Today.

Remote antenna ammeter

Candid flash-lamps
★ Wire filled photoflash lamps, for use with cameras having focal plane shutters. No. 20 has total output of 40,000 to 45,000 lumen seconds, peak intensity of 1,100,000 lumens. Price 28 cents. No. 31 total output is 70,000 to 80,000 lumen seconds with peak intensity of 1,300,000 lumens. 30 cents. Westinghouse Elec. Supply Co., 150 Vap- rick St., New York, N. Y.—Radio & Television Today.

Laboratory tester

De Wald phono-scope

Recording disc
★ Low-priced instantaneous recording disc has quality of reproduction and surface noise characteristics equal to Presto Green Seal discs. List prices range from the 6 inch size at 25c to 75c for the 12-inch size. Presto Recording Corp., 242 W. 55th St., New York, N. Y.—Radio & Television Today.

Photrix calculators
★ Two calculators, one designed for determining exposure time for enlarging and the other for picture taking. Enlargement calculator designed for use after measuring light from enlarger lens with a light meter. The calculators are etched aluminum and are similar to a circular slide rule. Intercontinental Marketing Corp., 8 West 40th St., New York, N. Y.—Radio Today.

Airplane receiver

New 5-10 meter receiver
★ Radio receiver designed exclusively for ultra-high frequency range of 27-85 megacycles. 8 tube superhet circuit with 1,822 u.h.f. tube in tuned r.f. stage. High Image selectivity, automatic noise limiter, variable band width. Hall- craffers, Inc., 2611 S. Indiana Ave., Chicago.—Radio Today.
New York-Newark Dealers Acclaim RCA Victor

TELEVISION

Remember This Important Selling Point About RCA Victor Television Receivers: THEY ARE THE TELEVISION SETS BACKED BY A SEVEN-YEAR $2,000,000 FIELD TEST!

The warm reception accorded the new RCA Victor television receivers has proved that once again RCA Victor leads—demonstrating conclusively that RCA's years of research and development in television—$2,000,000 spent during the last seven years for extensive field tests—have all been well worth while. For RCA Victor has, as usual, produced the finest... Read the statements of the press and New York and Newark dealers. Plan now to look ahead and grow with RCA Victor!

RCA Victor Television Model TRK-12. Largest RCA Victor console, this instrument reproduces a picture 7 7/8" by 9 7/8" in size. It features indirect viewing through mirror, has 35 tubes plus kinescope, offers a choice of 5 television channels, and has many other important points that will help make this instrument profitable for you.

RCA Victor Model TRK-9 (not illustrated) is similar to Model TRK-12, except that it is direct viewing and uses a 9" kinescope.

RCA Victor Receivers are backed by a $2,000,000 field test.

NEW YORK HERALD TRIBUNE said... "Thousands see... television... even doubters invention debut a success. Man to whom television had been only a name, admitted afterward that demonstration exceeded anything they had thought possible."

NEW YORK DAILY MIRROR said... "... When Mr. and Mrs. America get an eyeful of the television exhibits and demonstrations at the World's Fair anything may happen..."

Mr. John B. Duff, W. Wilderrotter Sons, Inc., 491 Springfield Ave., Newark, N. J., said: "Six of these $600,000 RCA Victor Television Receivers were sold in Newark less than one week after the demonstration to dealers at Radio City, New York. I sold one of them myself. The fact that all were sold sight unseen is an indication of the confidence the public has in RCA Victor merchandise."

RCA Victor Model TT-3 Television Attachment, a sensational instrument that provides television "Sight"—while the sound is heard through radio loudspeaker. It is attached to radio by simply plugging it into television jack, an important part of RCA Victor models for the past two years. (Same jack as used for Victorola Attachment.) May also be easily attached to other modern AC sets. This television attachment reproduces a picture 3 3/4" x 4 7/8" in size. Other important features include direct viewing of picture, 16 tubes plus kinescope, and 5 television channels. Backed by $2,000,000 field test.


26
Designed for use with

TELEVISION ATTACHMENT
A Sure-Fire Sales Feature of the
New RCA Victor Radios and Victrolas!

RCA Victor "look ahead" planning has made television a sales feature of the new RCA Victor radios.

This is accomplished by using the Victrola plug-in jack—an important part of all RCA Victor sets for the past two years—in conjunction with the television attachment illustrated on the page at left. This attachment may be plugged into Victrola jack and like magic your customers have a television set. The television attachment produces the sight—the radio brings in the sound. As a result, your customers have a modern, inexpensive radio today—a modern, inexpensive television receiver when programs are available in your city. That's why it will pay them to buy now. Feature this idea—and profit!

RCA Victor Little Nipper Model 9TX-31 is designed for use with television attachment. In addition to the Victrola-Television Jack, it has many other excellent sales features—plus a price that means business for you!

$9.95

This great eight-tube, three-band radio has Victrola-Television Jack, RCA Victor Electric Tuning for 6 stations, Magic Eye, RCA Victor Metal Tubes, Victrola Push-Button Switch, 12" Electro-Dynamic Speaker and many other brilliant features housed in a glorious Modern style Cabinet. Model 98K2 . . . . . $89.95

All Dealers can make Profitable use of this RCA Victor 3-way Display!

It doesn't make any difference whether your city has television or not! This display in your window will attract new business to your store for it graphically tells the RCA Victor "look ahead" story—enables you to cash in now on the public's tremendous interest in television! By all means get this display from your RCA Victor distributor.

Mr. Charles Johner, Willis Radio, 362 Willis Avenue, Bronx, New York, said: "I think 'Designed for use with Television Attachment' is probably one of the strongest sales stories a radio dealer has had to tell in years. And believe me, with the new RCA Victor radios so packed with value this 'extra' selling punch is going to mean rejuvenated business for me."

Mr. Mark M. Marks, Pres., Radio Sales Corp., 357 Millburn Ave., Millburn, N. J., said: "It is a fine thing to be associated with a company like RCA Victor. Their engineers are always looking ahead—and that one virtue is going to mean volume sales for me. Thanks a million for the swell new radios and your slogan 'Designed for use with Television Attachment'."

RCA Victor
Manufacturing Co., Inc., Camden, N. J. - A Service of the Radio Corp. of America

MAY, 1939
The warm reception accorded the new RCA Victor television receivers has proved that once again RCA Victor leads—demonstrating conclusively that RCA's years of research and development in television—$2,000,000 spent during the last seven years for extensive field tests—have all been well worth while. For RCA Victor has, as usual, produced the finest... Read the statements of the press and New York and Newark dealers. Plan now to look ahead and grow with RCA Victor!

RCA Victor Turns the Wheels of Profit.... Helps Dealers Everywhere Cash In on Television Now!

**Designed for use with**

**TELEVISION ATTACHMENT**

A Sure-Fire Sales Feature of the New RCA Victor Radios and Victrolas!

RCA Victor "look ahead" planning has made television a sales feature of the new RCA Victor radios. This is accomplished by using the Victrola plug-in jack—an important part of all RCA Victor sets for the past two years—in conjunction with the television attachment illustrated on the page at left. This attachment may be plugged into Victrola jack and like magic your customers have a television set. The television attachment produces the sight—the radio brings in the sound. As a result, your customers have a modern, inexpensive radio today—a modern, inexpensive television receiver when programs are available in your city. That's why it will pay them to buy now. Feature this idea—and profit!

All Dealers can make Profitable use of this RCA Victor 3-way Display!

It doesn't make any difference whether your city has television or not! This display in your window will attract new business to your store for it graphically tells the RCA Victor "look ahead" story—enables you to cash in now on the public's tremendous interest in television. By all means set this display from your RCA Victor distributor.

RCA Victor Model TRK-3 Television Attachment—Designed for use with RCA Victor Radios and Victrolas.

"THE FINEST—EVERYWHERE—ANYTIME"... RCA Victor Radios—First Name in High Fidelity Radio... RCA Victor Victrolas—First Name in High Fidelity Phonograph... RCA Victor Television—First Name in High Fidelity Television.

**RCA Victor Manufacturing Co., Inc., Camden, N.J. — A Service of the Radio Corp. of America**
RCA Victor Radio Tubes have the Advantage of RCA’s TELEVISION Experience

Let the radio owners in your neighborhood know you use and recommend RCA Victor Radio Tubes—the tubes built by the company that brought television to America...the tubes that are backed by the same careful research and built with the same skill that made the television dream an actual fact. The public will be impressed with this story—will come to you for RCA Victor Radio Tubes!

RCA invites you to visit its display at the National Radio Parts Trade Show
Hotel Stevens, Chicago
June 14-17

Over 335 million RCA radio tubes have been purchased by radio users...in tubes, as in parts and test equipment, it pays to go RCA All the Way.

Typical RCA Victor Television chassis shows large number of tubes used. This is going to help you boost your RCA Victor Radio Tube business because eventually all of these tubes will have to be replaced.

RCA Victor RADIO TUBE
RCA MANUFACTURING COMPANY, INC., CAMDEN, N. J. • A SERVICE OF THE RADIO CORPORATION OF AMERICA
THINK WHAT THE RECORD BUSINESS OFFERS:

1. Low capital investment—quick turnover.
2. Cash sales—no installment risks.
3. Increased store traffic.
4. Repeat sales.
5. No trade-ins.
6. Stimulation to your instrument sales in all price brackets.

You be the one to reap the rich fruits of your own endeavors! Every sale you make of an RCA Victrola or RCA Victor Record Player inevitably means many repeat sales in Victor and Bluebird Records. Make these sales yours! Take the easy step that makes you a complete RCA Victor music merchant.

More than 100,000 joined the Victor Record Society last year! One of the great factors in the tremendous increase in Victor and Bluebird Record sales is the Victor Record Society. Most of the 100,000 members who joined last year continue to buy Victor and Bluebird Records... and thousands graduated to higher-priced RCA Victrolas.

For finer radio performance—RCA Victor Radio Tubes

Victor Record Society offer...
$22.95 value in Victor or Bluebird Records and RCA Victor Record Player... for $14.95

Special offer provides $14.95 (list price) RCA Victor Record Player... $7.50 in any Victor or Bluebird Records... 3 months’ subscription to Victor Record Review... Victor Record Society membership... for $14.95. RCA Victor Record Player can be attached to any modern AC radio at little or no expense, plays records with tone comparable to that of set.


MAIL COUPON FOR COMPLETE INFORMATION
RCA Manufacturing Co., Inc.
Camden, N. J.

Please send me complete details about the merchandising of Victor and Bluebird Records

Name: ____________________________
Address: ________________________
New York-Newark Dealers Acclaim RCA Victor

TELEVISION

Remember This Important Selling Point About RCA Victor Television Receivers: THEY ARE THE TELEVISION SETS BACKED BY A SEVEN-YEAR $2,000,000 FIELD TEST!

The warm reception accorded the new RCA Victor television receivers has proved that once again RCA Victor leads—demonstrating conclusively that RCA's years of research and development in television—$2,000,000 spent during the last seven years for extensive field tests—have all been well worth while. For RCA Victor has, as usual, produced the finest. Read the statements of the press and New York and Newark dealers. Plan now to look ahead and grow with RCA Victor!

NEW YORK HERALD TRIBUNE

"These Victor television sets, with their many additional handy radio additions, are drawing the highest prices for any television sets at the World's Fair. The demonstration recorded anything but a smash hit for the Victor's.

NEW YORK DAILY MIRROR

Mr. John B. Duff, W. Wilder, Inc., 491 Madision Ave., Newark, N. J., said: "Of these $400.00 RCA Victor Television Receivers were sold out in a day and are now available for immediate delivery. A demonstration to dealers at Radio City, New York, and Tarrytown. The enthusiasm was quite astonishing to those of us who have been in the business for years."

Mr. Victor Television Receiver: THEY ARE I.I.E TELEVISION!

RCA Victor "look ahead" planning has made television a sales feature of the new RCA Victor radios.

This is accomplished by using the Victrola plug-in jack—an important part of all RCA Victor sets for the past two years—in conjunction with the television attachment illustrated on the page at left. This attachment may be plugged into Victrola jack and magic your customers have a television set. The television attachment produces the picture—radio brings in the sound. As a result, your customers have a modern, inexpensive radio today—a modern, inexpensive television receiver when programs are available in your city. That's why it will pay them to buy now. Feature this idea—and profit!

RCA Victor Advertisement

RCA Victor Turns the Wheels of Profit... Helps Dealers Everywhere Cash In on Television Now!

Designed for use with TELEVISION ATTACHMENT

A Sure-Fire Sales Feature of the New RCA Victor Radios and Victrolas!

RCA Victor "look ahead" planning has made television a sales feature of the new RCA Victor radios.

This is accomplished by using the Victrola plug-in jack—an important part of all RCA Victor sets for the past two years—in conjunction with the television attachment illustrated on the page at left. This attachment may be plugged into Victrola jack and magic your customers have a television set. The television attachment produces the picture—radio brings in the sound. As a result, your customers have a modern, inexpensive radio today—a modern, inexpensive television receiver when programs are available in your city. That's why it will pay them to buy now. Feature this idea—and profit!

RCA Victor Advertisement

RCA Victor Advertisement

RCA Victor Advertisement

All Dealers can make Profitable use of this RCA Victor 3-way Display!

It doesn't make any difference whether your city has television or not! This display in your window will attract new business to your store for it is graphically the sales point that RCA Victor "look ahead" story—enables you to cash in now on the public's tremendous interest in television! By all means get this display from your RCA Victor distributor.
A.V.C. action is basically simple. When the carrier level of the R.F. (or I.F.) input signal is excessively high, A.V.C. lowers the gain of the R.F. (and/or I.F.) amplifier by increasing the negative C bias voltage on one or more R.F. (and/or I.F.) amplifier tubes. This is accomplished automatically by rectifying the R.F. (I.F.) in a super het) carrier signal, then filtering out all but the resultant D.C. voltage, whose value is always proportional to the carrier level. This D.C. voltage is then applied to the grids of the R.F. amplifier tubes that increases in carrier level make the grids more negative. The R.F. amplifier gain is thus reduced enough to keep the R.F. amplifier output level essentially constant and prevent overloading of any tubes. Likewise, reductions in input carrier level result in less negative C bias voltages and greater amplification.

Use output meter

It is clearly impossible for A.V.C. to maintain the R.F. carrier level perfectly constant at the output of the R.F. amplifier, for it is the change in this level which produces the change in negative C bias voltage required for automatic volume control. With proper design, however, A.V.C. can keep the carrier level constant enough for practical purposes. Exact control of carrier level is not required for the output voltage of a receiver can be increased or decreased about 40 per cent before the change can even be detected by the human ear. When working with A.V.C.-controlled circuits, then, never depend upon your ears as a judge of performance; always use an output meter or some other type of indicator.

The action of a receiver having A.V.C. is best represented by overload curves like those in Fig. 1, which are obtained by plotting the R.F. input voltage of the receiver against the R.F. output voltage of the demodulator or second detector. You are already familiar with curve 1 in Fig. 1, which represents the overload characteristics of a receiver not having A.V.C. Notice that loading takes place at an R.F. input voltage of about 100 microvolts in this particular example. When this receiver is equipped with A.V.C., its overload characteristics is represented by curve 2. You can readily see that with A.V.C., the receiver will handle all carrier signal levels below 100,000 microvolts (.1 volt) without overloading. On the other hand, however, this A.V.C. curve shows that the sensitivity of the receiver will be considerably lower with A.V.C. than without it for medium-strength signals (R.F. input voltages in the region between about 10 and 100 microvolts). Let us see how this drawback of A.V.C. is overcome in some receivers.

Delayed A.V.C.

Since ordinary A.V.C. circuits prevent the maximum amplification of the receiver from being effective at low carrier levels, and since A.V.C. action is not particularly required at these low carrier levels since they cannot possibly cause overloading, the receiver designer simply arranges the A.V.C. system so it is inactive until the carrier level reaches a definite and fairly high value. This arrangement, which utilizes the full sensitivity of the receiver at low carrier levels, is known as delayed A.V.C.; the R.F. input voltage level at which A.V.C. action begins is called the threshold point or the threshold voltage. The overload characteristic curve for a receiver of delayed A.V.C. is represented by curve 3 in Fig. 1. Notice that this curve follows curve 1, that for a receiver without A.V.C., up to the threshold voltage, after which it levels off and effectively prevents overloading. The A.V.C. voltage may be produced as a part of the action of demodulation, by a diode detector circuit, or it may be produced by an extra stage in the receiver.

Simple diode detector circuits

A simple diode demodulator or detector circuit like that shown in Fig. 2A is not only capable of separating the modulation signal from the R.F. carrier, but can also produce the negative C bias voltage required for A.V.C. purposes. The modulated R.F. carrier signal at points 1 and 2 in the final I.F. amplifier stage passes through the final modulator circuits, L1-C1 and L2-C2, and is applied directly to the plate and cathode of diode detector tube VT1. Condenser Cd offers no opposition to this signal, for it has a low reactance at radio frequencies.

The modulated R.F. carrier is rectified by the diode tube, since this tube allows current to pass only in one direction; the wave form of the current passing through this tube is therefore like that shown in Fig. 2B. The charging and discharging action of condenser Cd on this pulsating current passing through Rd serves to filter out the R.F. variations, making the voltage across Rd have the wave form shown in Fig. 2C.

Observe that this wave is made up of a D.C. component which is proportional to the percentage of modulation and the carrier level; if the values of Cd and Rd are properly chosen, this A.C. component will be an exact reproduction of the audio or video intelligence signal. This intelligence signal is fed into a low frequency amplifier (not shown in circuit) for further amplification by coupling the grid of the first low frequency amplifier stage to point 3 on resistor Rd through blocking condenser C8 which blocks out the D.C. voltage component. The other connection to the low frequency amplifier is through the common chassis or ground.

Let us trace D.C. electron flow in the diode detector circuit of Fig. 2A. We start with the diode. We know that electrons flow from the cathode to the plate. These electrons flow through coil L1 in the direction indicated by the arrows, then enter terminal 2 of resistor Rd. Since electrons are negatively charged, they strike this terminal negatively with respect to the other terminal (4); terminal 3 is therefore

![Diagram](image-url)
negative with respect to chassis or ground. Furthermore, since the D.C. component of the voltage between terminals 3 and 4 is proportional to the level of the modulated R.F. carrier, these voltages may be used as a source for the desired A.V.C. voltage provided that the low frequency component is removed. Application of an A.F. signal to the grid of a controlled tube would place extra modulation on the carrier, a clearly undesirable condition; for this reason it is necessary to filter the A.V.C. voltage in a radio receiver in order to keep the A.F. signal voltage out of the A.V.C.-controlled stages.

**Filtering the A.V.C. voltage**

The fact that the control grids of R.F. amplifier tubes are negative, so that no D.C. grid current is drawn from the A.V.C. circuit, simplifies the problem of filtering the A.V.C. voltage. In Fig. 2A you will find two A.V.C. filters connected between point 3, at which both D.C. and A.F. components of voltage exist, and point 7 in the grid circuit of an A.V.C.-controlled stage, at which only the D.C. component of voltage is desired. These filters keep the A.F. signal voltage out of the A.V.C.-controlled stages of the R.F. amplifier.

Let us consider first the A.V.C. filter made up of $C_2$ and $R_1$. Resistor $R_1$ is high in ohmic value and therefore offers considerable opposition to the flow of A.C. Whatever alternating current gets through $R_1$, finds a low-resistance path to ground through condenser $C_2$, Resistor $R_2$, and condenser $C_3$ in the second A.V.C. filter. This low-resistance path provides additional filtering in the same way, making the voltage at point 7 a practically pure D.C. voltage. Condensers $C_2$ and $C_3$ naturally have no effect upon the D.C. voltage, and since no direct current flows through the filter circuit, resistors $R_3$ and $R_4$ likewise have no effect upon the value of D.C. voltage at point 7.

The flow of plate current through resistor $R_5$ and condenser $C_6$ in the A.V.C.-controlled stage containing tube VT produces across $R_5$ a D.C. voltage which makes point 6 negative with respect to the cathode; this is ordinarily automatic C bias action. The voltage drop across the cathode resistor $R_5$ is applied to the grid of tube VT, through the chassis path between grounded points 6 and 4, then through $R_6$, $R_7$, and coil L in turn, thus placing on the grid its normal C bias. When an R.F. carrier signal is present in the receiver, the D.C. component of voltage produced across $R_6$ acts in series with and aids the automatic C bias voltage. Thus the A.V.C. voltage and the automatic C bias voltage add together to make the grid of each controlled tube more negative than would be the case without A.V.C. An increase in filter signal level boosts the D.C. component of voltage across $R_6$, driving the grid of each A.V.C. controlled tube more negative and thereby reducing the amplification of each tube sufficiently to keep the signal voltages in all stages of the receiver below the overload values. In an A.V.C. system a condition of equilibrium exists where the carrier level at detector is kept just enough above the desired constant value to provide the required A.V.C. voltage.

**R.F. return condenser**

Condenser $C_4$ in the circuit of Fig. 2A has another important task, that of providing a path to point 6 for the R.F. voltage developed across coil L. If this condenser were omitted, the R.F. current would have to flow through $R_3$ and $C_5$ to ground; $R_3$ would naturally offer considerable opposition to the flow of R.F. current, and there would also be the possibility that R.F. current would straggle through circuits where it could cause interference and undesirable feedback. Since the reactance of the $C_4$ is less than the reactance of the $R_4$-$C_5$ path to ground, R.F. currents will take the $C_4$ path to ground.

The A.V.C. filter system made up of $C_2$ and $R_1$ can be and often is omitted, leaving $C_3$ and $R_2$ to do the A.F. filtering and R.F. isolating, particularly when only one tube is being controlled by A.V.C. When several R.F. amplifier tubes are being controlled, it is customary to use an A.V.C. filter similar to $R_2$ and $C_3$ in each controlled stage, making connections from each controlled stage to point 8. This serves to isolate the tube circuits from each other, preventing undesirable feedback.

**Time constant of the system**

An A.V.C. System must prevent blasting when a receiver is tuned suddenly from a weak to a strong signal, and must also compensate for more or less rapid fading effects. For this reason we are interested in knowing exactly how long it takes for the A.V.C. system to get into action when the R.F. carrier level is suddenly changed. The D.C. component of voltage across $R_6$ in Fig. 2A changes immediately after a change in carrier level, but it takes a certain amount of time for condenser $C_6$ in the first A.V.C. filter to charge or discharge to a new voltage value; this is because resistor $R_6$ offers considerable opposition to this flow of condenser current which produces a change in condenser voltage. It thus takes a certain amount of time for point 8 to assume new voltage values; technicians express this by saying that the A.V.C. action is time delayed.

**Calculating time delay**

The amount of time delay introduced by A.V.C. filter $R_6$-$C_6$, depends upon the ohmic value of resistor $R_6$ and the capacity of condenser $C_6$. This time, when expressed in seconds, is known as the time constant of the A.V.C. filter system, and can be computed quite easily. The case of Fig. 2A, this can be done by multiplying the ohmic value of $R_6$ in megohms by the capacity of $C_6$ in microfarads. The result will be the time constant of the circuit in seconds, or the time required for the A.V.C. voltage to reach approximately 63 per cent of its final new value after a change in carrier level. (It is standard practice among engineers to specify time constants for 63 per cent of the total change, this having proved more convenient than a time constant based upon a total change.)

The A.V.C. filter made up of $R_5$ and $C_6$ likewise introduces a time delay, which increases the time constant of the entire A.V.C. filter system. Remember—the time constant of an A.V.C. filter system is determined by the values of the resistors and condensers in the A.V.C. filter system.

A low time constant is naturally desirable in order to make the A.V.C. system respond as rapidly as possible to changes in carrier level; this can be secured by making the values of $R_6$, $R_5$, and $C_6$ low, but doing this impairs the filtering action which is so essential to the operation of an A.V.C. system. Receiver design engineers...
Service Notes
SELLING PARTS ON A NET-PRICE BASIS

By Yates M. Hoag, Utica, N. Y.

I wonder if it might not be worth while to explore the idea of marketing parts entirely on a net price basis and furnishing the service dealer with a suggested resale price, instead of setting up a list price, which means nothing to a lot of servicemen or the public and which we figure a long string of discounts. Many servicemen contend they have to get more than the list price for the low-priced parts of today in order to overcome the trouble they have in charging their customers what their labor is worth. After all, a serviceman’s profit is in his whole bill, regardless of what proportion it is parts profit or labor. Anyway, not take a realistic view of this situation and bring it out in the open!

Mail-order competition

But if the public doesn’t know the retail prices of parts, it certainly knows the wholesale prices. In spite of their protests to the contrary, mail-order houses seem to be doing their best to see that everyone has a catalog. No one need fear mail-order houses as a source of competition for servicer business, but as long as nothing is done about their ill-concealed efforts to quote prices to everybody in America, we are building our houses upon sand. I think the manufacturers have it in their power to put the pressure on these fellows. It is certainly time something was done about it.

The system of scaling net prices according to quantity purchased always seems to me the fairest way to insure larger jobbers the extra profit necessary for their greater overhead. As well, it assures the manufacturer an automatic guarantee of equitable profit on all sizes of orders.

As always, everybody right down the line must hammer home the advantages of Quality, Service and Reliable Manufacture.

Scratches on television tubes dangerous

While many servicemen may think that the only effect of scratches on television cathode-ray tubes is to mar the picture, such is not the case. The fine scratches greatly reduce the strength of the tube and make breakage more likely.

The scratches can be likened to those of glass cutters. An expert glass cutter needs only a small scratch to break thick window glass. If examined under a magnifying glass, the scratches will be seen to be V shaped, which means that excessively high strains are possible within the glass.

When placing the protective plate glass windows in front of the cathode-ray tubes, the serviceman should be extremely careful not to allow the surfaces to come in contact with each other. If the two surfaces touch while the plate glass is being slipped in, scratches are likely to be made. A thin piece of paper placed in front of the cathode-ray tube would protect it until the protective glass is properly inserted.

So for safety’s sake as well as clear, sharp pictures, scratches must not be made. Handle with care at all times.

Antenna important

Arthur Van Dyck of RCA License Laboratory states, “The antenna is an extremely important factor in determining the quality of reception results, and it is highly unfortunate that during the first 15 years of broadcasting, the general public has been permitted to gain the impression that the antenna installation is relatively unimportant. Thousands of homes today have unsatisfactory reception, in ignorance of the fact that good results could be had merely by installation of a good antenna system.

“Distinction must be made between quiet and noisy neighborhoods. In an electrically quiet neighborhood, a single wire, one not too long or too short, with properly soldered connections, and with a leadin not too long, or rather not close to house wiring for much distance, will give results almost as good, if not as good, as any complicated, scientific, all-wave antenna. If physical conditions require a leadin of considerable length, close to the house, a simple wire may be inferior to a good “noise-reducing” antenna, even in quiet neighborhoods.

“In noisy locations, and practically all urban homes are in noisy neighborhoods, particularly those in apartment houses, it is almost certain that a good noise-reducing antenna is needed for satisfactory reception. The vast majority of noise pickup occurs within 20 or 30 feet of the house wiring. The antenna can be kept away from house wiring, but the leadin can not. If the antenna wire itself can be kept away from all wiring, and the leadin has no pickup, good reception is likely in practically all cases.”

Mike and Ike

Television is developing its own language. When an engineer reports he has seen a “ghost,” for instance, he means a double image, not the conventional spook.

Then there are: “boom,” a flare of light on the picture; “in the mud,” not enough light; “blizzard head,” a term for blonds because their hair reflects light. “Noise” means not sound distortion but streaks of light from shielded electrical equipment. Sometimes they call it “snow.”

Television, too, has its equivalent of radio’s familiar “mike.” Its seeing eye, the iconoscope, is known as “ike.” Of course, television broadcasts are to be known as telecasts. But whether the public will accept the word “video” as a name corresponding to audio, remains to be seen.
Mail the coupon today or ask your Parts jobber for your FREE copy of the Vibrator Replacement Guide. With its aid you can tell in a minute exactly which vibrator to use in what set for top efficiency.

For twenty years, the name "Meissner" on a radio part has meant "tops" in quality!

Now, you'll find this same name on a complete line of Vibrators, each built with the same unimpeachable quality— with the same precision workmanship and careful painstaking design, that has always been associated with Meissner parts.

Naturally, any part bearing the Meissner name has to be "right," so Meissner Vibrators have all been extensively field tested. Furthermore, each Meissner Vibrator is thoroughly aged before final assembly and test; then aged again and re-tested as an assurance against metallurgical changes that could impair its efficiency or performance.
Opportunities in Selling Sound

Summer gatherings, athletic events, dances, political meetings, country picnics within 75-mile radius, offer sales and rental opportunities for live sound organization.

There is an old saying that the early bird catches the worm. and this truth can be applied to the sound field.

Ernest Dolfen and Kenneth Clark, owners of the Madison Radio Shop, Madison, Wis., concentrating chiefly on service work, saw possibilities back in the twenties in sound system work and made investigations. They have the distinction of installing the first sound system in Madison, and have carried right on into a profitable volume of work in the years that followed.

Today Dolfen and Clark and their staff handle not only a lot of sound and radio work from the city of Madison, but they also get sound system jobs from a radius of approximately 75 miles. In the early days of sound system work, these boys got calls to go into Iowa and neighboring states to put up sound systems, but they have restricted their territory since then.

Tackle Tough Jobs

Mr. Dolfen states that the firm's sound system work constitutes about 60 per cent of the total volume at the present time. The firm handles practically all tough sound-system work for dealers in this area. Many of such dealers, coming to Madison with sound-system problems, bring along five to ten radio sets, too, with which they have had trouble. Thus the Madison Radio Shop gets a lot of repair work from distant dealers largely through contacts made via the sound system venture.

The firm has a sound car which is kept very busy in Madison with "ballyhoo" advertising on the streets for baseball and football games, political campaigns, dances, merchants' sales events and the like. A city ordinance in Madison permits street sound-car advertising seven days a week between the hours of 12-1 p.m. and 5 to 7 p.m. A charge of $5 an hour is made for such advertising, with a number of clients all on the same program. This sound car carries the name of the radio shop and other announcements and the publicity gained in this manner brings in additional sound work from time to time.

Come in Bunches

The shop recently had three separate jobs to handle in one day on sound system installations and operation, each of which was 75 miles distant. Mr. Dolfen reports that everything went okay, but it took a lot of planning to make things run smoothly. One of the hardest jobs the firm ever had to handle was at a country fair where wires had to be buried underground because of the many horses and cattle trampling about.

One hookup in Madison which required intensive work was on the lake front where the communications line was over a mile long and poles a half city block apart had to be erected, after which there was the problem of cutting out the noise of motor boats.

On simple hookups at country picnics, political gatherings, and the like, the Madison firm charges $25 and expenses. In instances when the hiring parties wish to operate a system themselves, an equitable charge is worked out on this basis.

$5 to $10 Rentals

Where people wish to have a small speaker and mobile unit a charge of $5 a day is made. Installations in dance halls for use of orchestras are rented out at $10 a night.

"The number of permanent installations in this area is increasing," states Mr. Dolfen. "Many large hotels and dance halls, etc., find that they can make good use of permanent systems instead of renting them for special occasions. This means additional sales for us. We find that in most cases we get first chance to bid in and sell a job, because we have been in the sound game for so long, have a reputation for good work at reasonable prices, and because we have made so many contacts through the years in this territory."

The Madison Radio Shop also handles the sound for the inaugurations and events at the state capitol in Madison, which thousands of people attend. Many folks come up to the man in charge with future leads.

Newspaper Publishers see Facsimile

Printed bulletins, photographs, and drawings transmitted from the RCA Building to RCA-Victor receivers in the Waldorf-Astoria in New York City attracted wide attention at the convention of American Newspaper Publishers Association April 24-27.

Pages of the radio edition of the St. Louis Post Dispatch, which uses the RCA-Victor scanning and receiving apparatus for its daily facsimile edition, were transmitted to show publishers the possibilities of facsimile in providing a supplementary news service for their readers.

Outdoor meetings, Fourth-of-July gatherings, picnics, athletic meets, are all first-class opportunities to sell or rent sound jobs.
Belmont super


Recording blank

Start Flexible non-inflammable recording blank manufactured by lamination process. Will not develop dry or hard spots or dehydrate. Uniform in thickness, impervious to temperature. David Bogen Co., Inc., 663 Broadway, New York, N. Y.—Radio & Television Today.

Combination power-plant

Star "Pincor" AC-DC power plant supplies 300 watts, 110 volts AC, also 200 watts, 6 volts DC, 250 watts 12 volts DC or 325 watts 12 volts DC. Available with filter and ignition shielding for radio operating. Gen-E-Motor Corp., 486 W. Superior St., Chicago. —Radio & Television Today.

Furniture polish

Star Furniture polish made to the same formula that is used in RCA- Victor's cabinet factory. Excellent cleaning as well as polishing properties. Preserves the lustrous finish on radio and Victrola cabinets. 12 ounce bottle 49 cents. Half gallon can $1.50. RCA Mfg. Co., Front & Cooper Sts., Camden, N. J.—Radio & Television Today.

Theatrical sound projector

Star 16 mm. arc lamp sound projector is designed for auditorium and theatrical use. Incorporates 35 mm. mechanical features including sprocket intermittent system. Forced draft ventilation prevents heat at picture aperture from high intensity arc lamp. Delivers 20 x 24 ft. picture at distance of 125 feet from screen. 4000 ft. 16 mm. reel capacity DeVry Corp., 1111 Arm- lage Ave., Chicago. —Radio & Television Today.

Probe light

Star "Tiny Lite" operates from electric outlet AC or DC. 110-120 volt light comes with 6 feet of cord, lists $1.50. 220 volt with 12 feet of cord is $1.75. Eagle Electric Mfg. Co., Inc., S9-79 Hall St., Brooklyn, N. Y.—Radio & Television Today.

New Things

MAY, 1939

FEDERAL RECORDER CO., INC.
Dept.5754 630 S. Wabash Ave., Chicago, III.
New RSA directors

Results of the annual election to the board of directors of RSA are announced by tellers Harold Cunningham, Winnetka, Ill.; Felix J. Grumman, Chicago; and Donald H. Stover, Freeport, Ill. 

Elected to serve until June 1, 1942, were: George D. Wooley, Rock Island, Ill.; Fred Olson, Green Bay, Wis.; Joseph A. Cole, Detroit, Mich.

To serve until June 1, 1941: Frank L. Clark, Nashville, Tenn.; Winston B. Jones, Washington, D. C.; Carl A. Rauber, Somerville, N. J.; George F. Duvall, Brooklyn, N. Y.; Norman W. Smith, Jamestown, N. Y.

To serve until June 1, 1940: Carl Williams, Phillipsburg, N. J.; Ingvar Paulsen, Roxbury, Mass.

1,200 New York servicemen attending the RSA-Weston television installation-service demonstration heard talks by Norman Hall, Dumont Laboratories; J. K. Whittaker, RCA Institutes; and O. J. Morelock, Weston Electrical Instrument Corporation, Newark, N. J.

Ostman heads Farnsworth Service

F. B. Ostman has been named manager of service activities for Farnsworth Television & Radio Corporation by E. H. Vogel, vice-president of that organization. Oddly enough, the first eight years of Mr. Ostman's business experience were in the banking field with J. P. Morgan & Company but, in 1929, "Ted," as he is generally known, decided to capitalize on his many years as an advanced amateur radio operator and organized the service department of A. H. Grebe & Company, one of the early leaders in the field.

In addition to management of service work his activities with Grebe for the next seven years also included that of assistant sales manager. He

radio or television-

—and it pays you to sell

To Radio Servicemen and Dealers:

You know very well that "any old wire" won't do for satisfactory service work. You as radio specialists understand how important it is that the characteristics of the replacements meet the requirements of the particular job. Bad wire is never a good alibi when your job goes Haywire.

That's the reason Belden has maintained a strong engineering staff since the very inception of Radio—a staff that has worked hand in hand with the industry perfecting specialized wire for the most exacting radio requirements. That's the reason, too, that the important wire characteristics you need to know are

DONT’ GO “HAYWIRE”
Program for RSA convention

Following is the schedule of events at the second annual convention of Radio Servicemen of America, to be held at the Stevens Hotel, Chicago in June.

Wednesday & Thursday, June 14 & 15, 1939

10:00 A.M. Annual meeting of the Board of Directors of RSA.

Friday, June 16

3:00 P.M. Facsimile lecture and demonstration, Station WGN.

4:00 P.M. "Test Equipment for Television." Weston.

7:00 P.M. Annual RSA Membership Meeting.

8:00 P.M. Television theoretical lecture, RCA Institutes.

Saturday, June 17

2:00 P.M. Peak Limiting Amplifiers. Thordarson.

3:00 P.M. "Radio Noise," demonstration and lecture. Tobe-Deutschmann.

4:00 P.M. "Modern Service Instruments." Supreme Instruments.

7:00 P.M. "What Television Will Mean to the Serviceman."

8:00 P.M. "Tube Developments" Hy-grade Sylvania.

New advertising and sales manager of the Hytronic Laboratories is Vinton K. Ulrich, announces G. S. Hallam, general sales manager of the Hytron Corp. Mr. Ulrich goes to his new position with actual experience in sales and service, a specialized technical training at Massachusetts Institute of Technology and a background gained from designing and building radio transmitters and receivers.

For the last four years Vin has been associated with Radio & Television Today in the capacities of service editor and recently managing editor. His articles on Dynamic Testing in Radio & Television Today, have caused much interest in the trade and many servicemen are using the ideas to good advantage. Mr. Ulrich will make his office at the Hytron plant, 76 Lafayette St., Salem, Mass.

it's still done with WIRES

the Nationally Advertised Wiring Line

shown with each number in the Belden catalog. Their consistent quality helps you eliminate "Haywiring."

Belden is using national advertising to warn set owners against the Haywire repair work that only hurts your legitimate business—and gives a black eye to the radio industry.

Why not use Antenna Systems—Hook-up Wire—Transmission and Microphone Cable that's worthy of your effort—wire you know will do its part to give service and satisfaction. Don't go HAYWIRE—Specify Belden.

Belden Manufacturing Co., 4613 W. Van Buren St., Chicago, Ill.

Remember National Antenna Check-up Week?

Remember the posters, the buttons, and the big national advertising program to sell set owners on all kinds of radio service—by radio servicemen?

It was sponsored by Belden, of course. Belden's National Advertising continues with a regular schedule during 1939. It will help you sell better wiring and profitable antenna installations.
New RSA directors

Remains of the annual election to the board of directors of RSA are announced by Messrs. Harold Cunningham, Winneke, Ill.; Felix J. Grundmann, Chicago; and Donald H. Stover, Provo, Ill.

Elected to serve until June 1, 1949, were: George D. Kelsey, Rock Island, Ill.; Fred Olson, Green Bay, Wis.; Joseph A. Cole, Detroit, Mich.

Joining the service personnel of RCA Victor in 1937 and became service manager of the successor company, RCA Manufacturing Company, while this led to his organizing the service arrangements in connection with RCA's Television Field Testing Program in 1937, so that he is among the best-posted television experts in the important phases of service and installation.

Program for RSA convention

Following is the schedule of events at the annual convention of Radio Servicemen of America, to be held at the Stevens Hotel, Chicago, in June.

Wednesday & Thursday, June 14 & 15, 1939

10:00 A.M. Annual meeting of the Board of Directors of RSA.

Friday, June 16

3:00 P.M. Pastime lecture and discussion. Belden WGN.

4:00 P.M. "Test Equipment for Television." Westman.

7:00 P.M. Annual RSA Membership Meeting.

8:00 P.M. Television theoretical lecture. RCA Institute.

Saturday, June 17

2:00 P.M. Peak Limiting Amplifiers. Ted Kaser, Compton. Studebaker.

3:00 P.M. "Radio Nets," demonstration and lecture. Table Donath.

4:00 P.M. "Modern Service Instruments." Supreme Instruments.

Osman heads Farnsworth Service

F. B. Osman has been named manager of service activities for Farnsworth Television & Radio Corporation by R. H. Vogel, vice-president of the organization. Oddly enough, the first eight years of Mr. Osman's business experience were in the banking field with J. P. Morgan & Company, in 1893. "Ted," as he is generally known, decided to capitalize on his many years as an advanced amateur radio operator and organized the service department of A. H. Grube & Company, one of the early leaders in the field.

In addition to management of service work his activities with Grube for the next seven years also included that of assistant sales manager. He

informed the service personnel of RCA Victor in 1937 and became service manager of the successor company, RCA Manufacturing Company. This led to his organizing the service arrangements in connection with RCA's Television Field Testing Program in 1937, so that he is among the best-posted television experts in the important phases of service and installation.

Radio or Television— it's still done with WIRES

-and it pays you to sell...

To Radio Servicemen and Dealers:

You know very well that "any old wire" won't do for satisfactory service work. You as radio specialists understand how important it is that the characteristics of the replacements meet the requirements of the particular job. Bad wire is never a good ally when your job goes Haywire.

That's the reason Belden has maintained a strong engineering staff since the very inception of Radio—a staff that has worked hand in hand with the industry perfecting specialized wire for the most exacting radio requirements. That's the reason, too, that the important wire characteristics you need to know are

informed the service personnel of RCA Victor in 1937 and became service manager of the successor company, RCA Manufacturing Company. This led to his organizing the service arrangements in connection with RCA's Television Field Testing Program in 1937, so that he is among the best-posted television experts in the important phases of service and installation.

Radio or Television— it's still done with WIRES

-and it pays you to sell...

To Radio Servicemen and Dealers:

You know very well that "any old wire" won't do for satisfactory service work. You as radio specialists understand how important it is that the characteristics of the replacements meet the requirements of the particular job. Bad wire is never a good ally when your job goes Haywire.

That's the reason Belden has maintained a strong engineering staff since the very inception of Radio—a staff that has worked hand in hand with the industry perfecting specialized wire for the most exacting radio requirements. That's the reason, too, that the important wire characteristics you need to know are

informed the service personnel of RCA Victor in 1937 and became service manager of the successor company, RCA Manufacturing Company. This led to his organizing the service arrangements in connection with RCA's Television Field Testing Program in 1937, so that he is among the best-posted television experts in the important phases of service and installation.

Radio or Television— it's still done with WIRES

-and it pays you to sell...

To Radio Servicemen and Dealers:

You know very well that "any old wire" won't do for satisfactory service work. You as radio specialists understand how important it is that the characteristics of the replacements meet the requirements of the particular job. Bad wire is never a good ally when your job goes Haywire.

That's the reason Belden has maintained a strong engineering staff since the very inception of Radio—a staff that has worked hand in hand with the industry perfecting specialized wire for the most exacting radio requirements. That's the reason, too, that the important wire characteristics you need to know are

informed the service personnel of RCA Victor in 1937 and became service manager of the successor company, RCA Manufacturing Company. This led to his organizing the service arrangements in connection with RCA's Television Field Testing Program in 1937, so that he is among the best-posted television experts in the important phases of service and installation.

Radio or Television— it's still done with WIRES

-and it pays you to sell...

To Radio Servicemen and Dealers:

You know very well that "any old wire" won't do for satisfactory service work. You as radio specialists understand how important it is that the characteristics of the replacements meet the requirements of the particular job. Bad wire is never a good ally when your job goes Haywire.

That's the reason Belden has maintained a strong engineering staff since the very inception of Radio—a staff that has worked hand in hand with the industry perfecting specialized wire for the most exacting radio requirements. That's the reason, too, that the important wire characteristics you need to know are
Grab that extra shirt—let’s go—the show’s the thing! It’s the one and only big annual event of the year—everyone in Radio Parts will be there! You’ll get a complete personal picture of your industry—you’ll see with your own eyes what’s what and what’s new! You’ll shake hands with Manufacturers, Jobbers, Engineers, Sound Specialists, Servicemen, Retailers, and Amateurs—from all parts of the world, in Radio Parts City. You’ll get interesting “dope” that will tell you what’s ahead for you. You’ll really benefit!

1940’s Product Parade
Up and down the streets of Radio Parts City—a deluge of new exhibits, new products, new ideas—latest developments and achievements in Service Apparatus, Ham Gear, P.A. Equipment, and other Radio Parts—all vitally important to your business. Be there! Don’t Miss It!

Real Television Demonstration
Complete demonstration of RCA Television as now operating on regular schedule in New York. You will see not “what’s new” in Television but actually what’s what in Television—during the entire Show period from Wednesday through Saturday. Television is definitely here—Get real first hand information about it. It means a lot to you. ★ Facsimile (another form of Television) on demonstration Saturday, June 17.

Convention of Radio Servicemen of America opens Friday, June 16, with Special Lectures, Meetings and Exhibits.

Special Days For Everyone
It’s all streamlined for you—Two days will be devoted to Jobbers—and two days to Servicemen, Retailers, Amateurs and others in the trade—that means fullest attention and maximum benefit for everyone at the show! (Look at the Calendar.) All Booths manned by technical men on Servicemen and Amateur Days.

National Radio Parts Trade Show
Sponsored by Radio Manufacturers Association and Sales Managers Club
★Executive Office—53 West Jackson Boulevard, Chicago, Illinois
Low-down on "battery-portable" batteries

"Battery portables" have proven a real ray of sunshine to radio dealers, but "battery-portable" batteries look like storm clouds!

Pressure is being put on battery manufacturers for all sorts of special size and shaped batteries, for no constructive reason, and without regard for the stock-keeping complications, or the investment, or the slow turn-over of the dealer who has to stock the resulting crazy assortment.

At least one manufacturer has built a portable around a battery now dificul, and soon impossible, to obtain. Customers will bless the dealer who sold them that set, and perhaps the manufacturer, too.

Heat, too, from the radio tubes, and rectifier, within the cabinet, may cause the battery to swell, and to leak, and greatly shorten its expected life. A temperature rise of 30 degrees within the cabinet, during summer use is almost certain to cause trouble. Every dealer, if he is interested in his customer's good-will and every manufacturer and wholesaler, too, should give serious thought to these battery problems. Here are three rules:

WATCH THESE POINTS

1. Use standard batteries, to keep dealer's stock as small and as fast turning as possible, and provide the customer with widest possible replacement accessibility.

2. Be sure the temperature rise inside the cabinet is low enough not to damage the battery.

3. Be sure the customer will be able to get a replacement battery without difficulty, most anywhere. And don't give the customer a battery guarantee of hours of use.

SELLING "FAMILY" RADIO

Manufacturers are now helping dealers to merchandise radios for several rooms in the home, in a single transaction. Four receivers and a phonograph attachment have now been combined in a "package" for families who haven't too much money to spend. Nine dollars worth of records are also included in this "family radio" plan announced by RCA-Victor.

Part of the set is a console, for use in the main living room, and to use with the phonograph. One of the table models is chest-type, the other two are smaller sets in tiny plastic cabinets.

Besides the advantage of making a higher-unit sale, the plan introduces to the customer the pleasures of recorded music, and brings people regularly back into the store for more records. This trend will also mean bigger antenna jobs, and more tube replacement sales.

—-and here is the inside story

Burgess led with battery quality—years ago when all sets were battery operated. And, later too, when commercial equipment had to have dependable portable power. And NOW Burgess Batteries—actually manufactured in the Burgess factories—have profited by these years of experience. They more than meet modern service requirements.

Here are construction details of two important portable batteries in the complete Burgess line.

No. 4F
The Burgess 1½-v dry "A" battery. Rated 40 watt-hours.
1. Efficient cells of heavy drawn zinc.
2. Outer case sized to resist moisture. Heat welded.
3. Absorbent inner lining.
4. Welded plate, making rugged positive connection.
5. Socket prongs individually insulated with pure gum rubber.

No. B30
The Burgess 45-volt "B" battery. Weight 3 lbs.
1. Rugged outer container.
2. Duplex socket—fits both small 3 prong plug and large R.M.A. plug.
3. Moisture-proof insulated cell partitions.
5. One-piece drawn seamless zinc cans.
6. Inner sealing compound reinforces battery and connections. Business in portables is great! You'll be selling more batteries this season. It will be profitable business if those batteries give satisfactory service. Stock and sell dry batteries by Burgess. They're light in weight, small in size, LONG in service. What's more, they are your guarantee of satisfaction and profit. Send coupon for information.

BURGESS
Batteries for Portables

BURGESS BATTERY COMPANY, Freeport, Ill.
Please send complete information about Burgess Batteries for portable radios.

Name ____________________________

Company ____________________________

Address ____________________________ Town ____________ State ____________

MAY, 1939
LET'S LOOK AT

The Record

A Builder of Store Traffic and Added Sales

Records continue to increase their popularity and many a radio dealer is missing a good bet by not merchandising records.

There is nothing that the radio store needs more than traffic. Records are good traffic builders, for no lover of good music ever has enough, and he constantly comes back to buy more and more.

Popular swing-music captures the fancy of the younger people, whom one sees trooping into record stores after high school, buying records, portable phonographs and record players.

In these young "swing addicts" of today you have the home-makers and radio buyers for tomorrow. Get their patronage and friendship now, and you have some customers for the future.

"RECORD OF WEEK"

With records, there are many dealers who have built up a fine, low-cost business on the basis of the "record of the week" and the "album of the month" patterned after the highly successful "Book of the Month Club" whereby records, albums of the customers' selection, are sent at stated periods to customers who join the club, and obtain a "record bonus" at Christmas, if their purchases exceed a stated amount.

Records carry large combinations, record players, and portable combinations right along with them, too. Many a record-loving youngster, coming to the dealer for records, and constantly exposed to the store's selling displays, will influence the family to make its next console radio, a radio-phonograph combination.

Particularly during the summer, these record-attracted youngsters will add to the sales of portable phonographs, record players and portable combinations for summer cottage or camp, garden, porch, or picnic use.

Yes, indeed, records are proving to be traffic-builders, sales-builders, and good-will-builders, in more and more radio stores in all parts of the country.

Better look into records, and give their opportunities for helping your business serious consideration. They're coming back, stronger than ever, because they provide "the music you want when you want it" and people young and old, want just that.

Wax worth watching

FRANCES LANGFORD with Harry Barrick and hiS orchestra singing It's All Yours and This Is It—Deca 2376.

OZZIE NELSON and his orchestra playing Strange Encantamiento with VC by Rose Anne Stevens, and That Sentimental Sandwich, with VC by Mr. Nelson—Bluebird B10190.

HAL KEMP and his orchestra playing Three Little Fishes with VC by The Smoothies, and The Chestnut Tree with VC by "Gros" Nellie—Victor 26204.

MARY MARTIN with Woody Herman and his orchestra singing Hi Bosie and Our Love—Deca 2377.

TONY MARTIN singing Begin The Beguine and September Song—Deca 2375.

HORACE HEITZ and his Musical Knights playing Beer Barrel Polka and Fiddler Polka—Brunswick 8344.

KAY KYSER and his orchestra playing Three Little Fishes with VC by Gilpy Simms and Show Your Lines, Miss Richardson with VC by Sally Mason—Brunswick 8358.

EDDIE DELANGE and his orchestra playing Beer Barrel Polka with VC by Elsie Cooper and chorus, and Bernadette to a Waltz—Bluebird B10199.

BING CROSBY with John Scott Trotter and his orchestra singing Little Sir Echo and Poor Old Rover—Deca 2375.

GLENN MILLER and his orchestra playing And The Angels Sing with VC by Ray Eberle and The Chestnut Tree with VC by Marian Hutten and band—Bluebird B10291.

Times Appliance Co., Inc., 333 W. 52nd St., New York, N. Y., have been appointed distributors in the metropolitan area on Columbia, Brunswick, and Vocalion records and certain other American Record Corp. products. A special record department with demonstration booths and other customer conveniences, has been prepared on the fourth floor of their building.

The Schloss Hepplewhite album cabinet holds 250 records or 20-twelve pocket albums. Finished in walnut or mahogany.
(Continued from page 31)

engineers therefore resort to a compromise which uses filter system parts large enough to provide satisfactory filtering and at the same time small enough to provide a sufficiently short time delay. A time constant of one-fifth to one-tenth of a second for the A.V.C. filter system is considered satisfactory by most engineers for the prevention of blanking and reduction of fading.

The value for condensers C1 and C2 in an A.V.C. filter system have become essential, as reasons among circuit designers. A capacity of .1 mfd. for C1 and .05 mfd. for C2 are generally used, for these condensers are inexpensive and at the same time have a reactance of less than 20 ohms for any I.F. or R.F. signal which may be attempting to flow from resonant circuit L-C into the diode load. A .1 mfd. condenser, when used with a 1 megohm resistor, gives a time constant of one-tenth second; the filter action of these parts is such that they will reduce the strength of the lowest audio signal which tends to get into the R.F. and I.F. amplifiers about 100 times. Two of these filter combinations would reduce the time constant to one-fifth second and would increase the audio frequency filtering factor to 10,000 times. Ordinarily you will find that the values of resistors R1 and R2 range from .1 to 1 megohm, while condensers C1 and C2 range from .02 to .1 mfd.

Do not be surprised, however, if you occasionally encounter quite different values than these; circuit conditions and the opinions of engineers vary widely. Changing the values of A.V.C. filter resistors or condensers affects the speed of A.V.C. action.

Separate A.V.C. tubes

Before the diode detector came into widespread use, a triode tube in a separate A.V.C. stage was commonly used to provide the required A.V.C. voltage. One such circuit for this A.V.C. arrangement is shown in Fig. 3; since a great many of these older receivers are still in use, it will be of value to know how the circuit works.

Let us consider first for the condition where no R.F. signals are being fed to the grid of the A.V.C. tube. Resistors R1 and R2 and R3 form a voltage divider network which is connected across the power pack output terminals, hence electron flow is from B+ to B- through these resistors. 

Negative with respect to point z, and the grid of the A.V.C. tube (connected to x through grid resistor R4) is therefore negative with respect to its cathode. How will the A.V.C. tube secure its plate voltage? Trace from point x through the cathode-plate path of the A.V.C. tube to point u, through A.V.C. load resistor R to point w and the chassis, then through the chassis to grounded point y on the voltage divider; this shows that the tube and R are in series across voltage divider section R5, with each getting a portion of the voltage across R5. The values of R1, R2, and R3 are so chosen by the designer that the tube is biased so as to cut-off when there is no R.F. signal; under this condition no current flows through R, making the plate of the A.V.C. tube positive with respect to its cathode by an amount equal to the voltage across R5. Furthermore, under this condition points u and w are at the same potential, that of the chassis or ground, and no voltage is fed to the A.V.C.-controlled stages. A cathode resistor R5 is therefore required in each controlled stage to provide normal C bias voltage.

When an R.F. signal acts on the grid of the A.V.C. tube through C, it swings the grid in a positive direction on alternate half-cycles; this allows a pulsating R.F. plate current to flow, with the plate voltage pulsating according to the modulation signal. The R.F. component of this plate current is filtered out by C1 and C2, while the D.C. and A.F. components appear across R. Electron flow is from u to w through R, hence point u is negative with respect to ground. A.V.C. filters in each controlled stage filter out the A.F. component, while the D.C. component, which varies in a C.R. carrier level, is fed from point u to the grid of the controlled tube. An increase in carrier level at the grid of the A.V.C. tube increases the D.C. component of voltage across A.V.C. load resistor R just enough to make the grids of the controlled tubes sufficiently more negative to hold the carrier level essentially constant, as in normal A.V.C. action.

PURCHASE POINTS GO UP JULY 1st!

- What test equipment do you need? A new tube tester, another volt-ohm-milliammeter, or one of the latest Television Testers—you’ll find all the leading makes in National Union’s Equipment Catalog—and now is the time to get it. Before Purchase Point requirements go up on July 1st, 1939. Remember, the National Union way requires only a small deposit and this is refunded as a merchandise credit when the required number of Points, based on your purchases of N.U. Tubes and Condensers has been reached. Thousands of completed deals tell the story of complete satisfaction and National Union help.

The raise in purchase points becomes effective July 1. This advance notice will permit all dealers to take advantage of the purchase level, but there will be no extension after July 1, as the low nets recently established simply will not permit continuation on the present basis.

SEE US AT BOOTH 1012-1014 . . .

CHICAGO JUNE RADIO PARTS SHOW

National Union QUALITY

National Union radio tubes and condensers have the precision and performance that makes friends for you wherever they go. National Union is the logical choice of radio service engineers everywhere.

TEST EQUIPMENT AVAILABLE

LEADING MAKES OF

- NEW TELEVISION TESTERS
- TUBE TESTERS
- SET TESTERS
- OSCILLOGRAPHES
- VOLTMETER-MILLIAMMETERS
- POCKET TESTERS
- SIGNAL GENERATORS
- VIBRATORS

Mail Coupon for More Information

NATIONAL UNION RADIO CORPORATION, 57 State St., Newark, N. J.

Please send me information on how I can get free (Test or Shop Equipment).

Name
Address
City State
DIAL "HURRY" AND YOU GET THIS SERVICE SHOP

You dealers who have dial telephone numbers, be sure to check over the numbers on it, for you may discover something valuable which may bring you business.

Anthony Berumen, owner of the Broadway Radio Shop, 1508 Broadway, San Antonio, Texas, checked his number one day—G 8779—and found that the dial readings also spelled "H-U-R-R-Y," so he had his card printed in such a manner that the word "hurry" appeared above the telephone number.

Now Tony's regular radio service customers never need look up his number in the phone book when they want to get in touch with him for they know that if they dial "Hurry" they will get his shop. And they also tell their friends that when they need expert radio service just dial "Hurry." It's easy to remember and it sticks in everyone's memory.

This little idea has brought in many a service call to the Broadway Radio Shop. So check over your own dial telephone number, Mr. Dealer and Serviceman, to see if there isn't some other dollar-tickling slogan you can work out naturally.

RADIO SALES FROM SERVICE CALLS

9 a.m. the telephone rings.

"Hello, George, our radio doesn't work right and we're having guests for dinner. Can't you come up this morning and fix it?"

"I'm sorry, but I have more work piled up now than I can take care of in three or four days. I'll bring a new radio up for you to use until I can fix the old one for you. I'll bring it down to the shop and work on it the first chance I get."

"Alright, I'll appreciate that. Goodbye."

"George, this is the Sigma Sigma house calling. We've a house party on tonight and our radio sounds as though it was going to blow up every time we turn it on. Will you come up and look the thing over, quick?"

"I'm sorry, but I can't make it. I have so much work for the rest of this week I'll never be done by Sunday night. I'll tell you what I can do. I'll bring a new radio around and you can use it until I can get yours fixed. I'll bring it back to the shop and work on it as soon as I get a half hour free."

"O.K. Thanks."

"Both of the radios thus brought in were in rather bad shape and needed several new parts," comments George Ashley of Chatham, N. Y., "so I decided to go up and talk to the owners before putting so much money into them. During the conversation I happened to ask how they liked the new models. Both of them were enthusiastic and asked the price. I told them and before I left Mrs. Martin told me she thought she would rather buy a new radio than get the old one fixed. At the Sigma house Jim told me to 'let it ride' for a day or two because he was going to bring the matter of a new radio up at their next fraternity meeting, Wednesday, Thursday morning he drove in and told me they had voted to keep the new model they had been trying out.

"After a series of similar experiences I woke up to the fact that this was my best sales plan to date," continues Mr. Ashley. "Almost every call I receive now asking that I do some repair work immediately, I offer to send up a new radio to be used until I can get around to the case. A good line will sell itself in this way. If you are proud of the line you handle get new sets into the homes and give them a chance to sell themselves."

Madison Cawein, New York television consultant, has joined the Parnsworth organization in charge of television receiver design. Mr. Cawein's early background includes a B. S. in physics at Kentucky, graduate work at Cornell toward a Ph.D., and connections with the Westinghouse Lamp and Brooklyn Edison companies. From 1932 to 1938 he was senior engineer with Hazeltine on television development, then co-operated with F. A. D. Andrea as full-time consultant.
Tung-Sol could not offer their jobbers and dealers the advantages of selective distribution were they to sell just anyone. Read these questions carefully and "If you qualify," write today.

Is yours a representative service business?

Is your location free from interference with already established Tung-Sol Agents?

Can you compete in technical knowledge and service set-up?

Can you move a reasonable tube stock every three or four months?

Are your premises adapted to use sales-producing advertising displays to advantage?

Will you maintain Tung-Sol established retail prices?

Tung-Sol Lamp Works Inc. Dept. C Radio Tube Division
SALES OFFICES: Atlanta • Chicago • Dallas • Denver • Kansas City
Los Angeles • New York • General Offices: Newark, New Jersey
Cameras for the Radio Dealer

Turning a nation's hobby into a radio profit builder.
Store traffic and sales result from new added line.

The introduction of the miniature camera a few years ago did some mighty interesting things to photography, and when American manufacturers brought this revolutionary camera within the reach of everyone, photography, as a hobby, grew by leaps and bounds.

Photography holds the interest of young and old, and is practiced by many for the recording of the pursuit of other hobbies.

Once the "bug" has bitten, no camera fan is ever completely satisfied with the equipment he owns, and is constantly in the market for more. This, together with the need for film, paper, and chemicals brings the camera purchaser back to your store repeatedly, exposes these customers to your radio and record displays time and time again.

Young folks are active and enthusiastic camera fans, and are a very important factor in the future of any business, for we all know that the youngsters of today are the homemakers of tomorrow.

RADIO SEASON TIE-IN

The camera business is a good business for the radio dealer to go into, not only because it brings young people into contact with his business, or because it builds store traffic, which it certainly does, but also because its peak selling season almost exactly complements the radio sales seasonal peak.

Through high schools, and camera clubs, the opportunity is offered to build a very profitable business, to obtain contacts, and prospects for radio sales, to maintain a more uniform monthly sales curve, and through picture contests, to focus a very favorable public attention and interest to you and your store.

Cameras alone, or cameras and film only, are not enough to do a real job with. But cameras, enlargers, paper, chemicals, exposure meters, tripods, tanks, accessories, trays, filters, film and processing, can be made to produce an annual income equal to your radio business or better.

HIGH SALES PER SQ. FT.

Sales per square foot are high, and the expense when combined with a going radio business is only for show case and back fixtures, with no added operating expense.

From every angle, radio dealers are finding a camera and photo supply department is a profit maker, a traffic builder, and a sales builder.

When you add to your sales without increasing expense, your expense to sales ratio goes down. Many radio dealers are finding that cameras, boosting sales in the slowest radio sales period, has turned a loss into a profit, or a small profit into a very satisfactory profit; and the camera business is growing—fast.

Cash in on cameras

Cameras, films and accessories are being used by scores of wide-awake dealers to increase store traffic, points out F. G. Klock of Universal Camera Corp.

In Boston, the Hub Cycle and Radio Co., a Univex distributor, reports 40 per cent of its camera accounts are radio dealers who handle cameras as a side line that provides greatly improved store traffic and profit.

Once in the store, camera enthusiasts are "easy meat" for new radio sales—and swell the demands on the radio service department. They show the money to spend, and should prove unusually susceptible to the purchase of an extra radio set to relieve dark-room monotony.

Hub finds radios and cameras tie in together readily, especially a low-priced camera such as Univex which is made for a quick turn-over and a big volume of trade. As the Univex uses a roll of film in 2½ minutes, there must be frequent calls for more.

Dealers find customers come back every week or so, if not for film, then just to gaze rapturously at, and buy new accessories.
town, and get photos of their using these sets. Many will buy.
9. Make a few calls each warm evening when people are on their porches or in their gardens, and leave a set on demonstration until the next evening. Then sell it, or pick it up and leave it with someone else.
10. Use the magazine pages in frames of radio manufacturer's magazine advertising, in your window, and in your store.
11. Use the telephone, to suggest a record player, compact radio or battery portable to your console customers, of the past year.

Your radio business will be as good as your promotional effort and the man power behind it.

G.E. appointments announced

Perry F. Hadlock, G.E.'s newly appointed radio and television division manager (picture Radio & Television TODAY April) has announced the appointments to five key positions in the headquarters operation at Bridgeport, Conn.

Arthur A. Brandt, formerly advertising manager for radio, is now manager of merchandising services, involving the direction of merchandising, advertising, and sales promotion of all products of the radio and television division.

Henry A. Crossland, who becomes G.E.'s first manager of television sales, has been in radio for the last 20 years. Since 1931 Mr. Crossland has been with G.E. in Bridgeport and was lately manager of the technical sales and service section there.

Charles R. Barbrydt succeeds Perry Hadlock as commercial engineer for radio and television. With an excellent technical background Mr. Barbrydt joined the radio reciever engineering department in 1934 and has been in charge of broadcast receiver design since January of this year.

Philip R. Butler succeeds Crossland as manager of technical sales and service for the company. He was formerly supervisor of field technical service and quality control.

Fred A. Ray, now manager of radio sales, was formerly G.E. district radio sales manager, operating from Cleveland in Ohio, Michigan, Indiana and Kentucky.

Electro Products Laboratories, manufacturers of battery substitutes, various type rectifying devices and special radio production test equipment, have moved to new and larger quarters at 521 W. Randolph Street, Chicago. The equipment is manufactured under the supervision of Alfred Crossley, well known Consulting Engineer.

(Continued from page 13)
More New Things

(Continued from page 35)

Low-price tube-checker

* Tubemaster has provision for performance tests of all tubes including local, 35 and 50 volt, and tapped filament rectifier tubes. Translucent meter dial. Neon test included to show tube element shorts and leakage. $24.50, net, with leatherette carrying case. John Meck Instruments, 164 N. May St., Chicago.—Radio & Television Today.

Radio carrying case

* Waterproof corduroy suede case has two lockable rust-proof slide fasteners. Welted all around with 4 brass studs to protect bottom. Weight ¼ lb. Westinghouse Electric Supply Co., 150 Varick St., New York, N. Y.—Radio & Television Today.

Universal resistor cord


Television powders


You Wouldn't Use a Trailer Truck to Transport a Trunk

• Just doesn't make sense... just as little as it makes sense to use a large resistor when a small Centralab Axial Lead Resistor will do the trick. It isn't size that counts... for most resistors in radio sets actually carry less than ½ watt load. High chassis temperatures and humidity cause breakdown... not moderate overload. That is why inserting a LARGE resistor is NOT the answer to a replacement problem.

Centralab Ceramic Resistors ARE the answer. Type 710 is conveniently small, yet fully insulated. Moderately rated at ½ watt, it will carry normal overloads. Solid ceramic... humidity and temperatureproof... priced so low you can well afford to keep a stock on hand.

TYPE 710, rating ½ watt, size ¾ x ¼ inch. List Price 60¢ for five.

TYPE 714, rating 1 watt, size ½ x 1 inch. List price $1.00 for five.

Moulded 3/8" dielectric insulator COPPER SPRAY wire. Lead Bond. CERAMIC CONDUCTOR LEAD BOND wire

Center ceramic core, and ceramic jacket bonded together to form a single shockproof unit. Pure copper covers resistor end for wire lead contact.

VISIT the 1939 National Radio Parts Trade Show, June 14 to 17, at Stevens Hotel, Chicago.

Old Man CENTRALAB says:

Smooth and Centralab are synonymous... hundreds of "ads" say so... and millions of Resistors, Voltage Controls, Switches, etc., give evidence that the ads tell the truth.

Centralab AXIAL LEAD RESISTORS

Division of Globe Union, Inc.
Milwaukee, Wis.

Code signaler

Television notes

E. H. (Ed) McCarthy is announced as a special factory representative for Farnsworth Television & Radio Corporation by E. H. Vogel, vice-president of that fast-growing organization. "Ed" brings to his sales work a full twenty years of experience in the testing machine and radio industries, as he joined the Columbia Graphophone Company in the capacity of advertising and sales promotion manager in 1919, then became a radio distributor in Boston in 1923. With Grigsby-Grunow in 1928 he became eastern sales manager, and was then put in charge of Majestic's Boston branch. Positions since then include sales manager of Hygrade Sylvania Corp., western sales manager for Gibson, and in charge of midwestern radio sales for General Electric Company.

E. J. Dykstra is appointed district sales manager for Farnsworth Television. A graduate of the University of Chicago, Mr. Dykstra entered the radio industry in 1926 as sales manager with the Sentinel company. This position he held for several years and then joined The Transmitter Corporation, Chicago, as general sales manager. For the past three years he has represented Zenith as district sales manager.

J. H. Pressley to the position of chief engineer on receiver design for Farnsworth. Mr. Pressley has been actively connected with radio since 1920, at which time he started with the U. S. Army's radio laboratories and was, for five years, chief engineer. In 1929 he became chief engineer for U. S. Radio & Television Company, later becoming vice-president. In 1933 and 1934, Mr. Pressley was chief engineer at the Zenith Radio Corporation, and then joined Philco as engineer in charge of automobile radio and research, which post he now leaves to engage in his new duties.

TELEVISION'S FIRST FILM

RKO-Radio Pictures' "Gunga Din" is the first film being adapted especially for television. Featuring Cary Grant, Victor McLaglen and Doug Fairbanks, Jr., the picture is being condensed to 1,000 feet for use by NBC over its television transmitter on the Empire State building.

NBC and movie officials decided on "Gunga Din" because of its many outdoor scenes of high contrast sunlight. A special acid solution and optical printer is expected to give the print extreme clarity and fidelity. The film will run for nine or ten minutes and will be put through exhaustive tests before its telecasting. Close-ups and medium shots will be used.

EUROPEAN STATION POWER HIGH

In Europe approximately 25 per cent of all main stations on the medium-wave broadcasting band now use 100 kw, according to a report by the I. T. & T.
To Radio
advertisers:

It Pays
To Know

How to Get the
Utmost Benefit
from your
Sales Letters & Broadsides to the Radio Trade!


Since the effectiveness of all direct mail advertising depends vitally on the mailing list—

Isn't it reasonable that when you send out a mailing it will pay you to use only the most accurate list you can get? The most productive list?

Radio Today's lists of radio dealers, servicemen and wholesalers are the most widely used lists in radio today. The reasons for this preference are easy to get at: Radio Today's lists are not only more accurate but more complete and are more comprehensively classified for radio advertisers' needs.

These lists are broken down to include the larger, front-line radio dealers, the smaller dealers representing radio's secondary retail market, servicemen, set and parts distributors, sound equipment specialists, auto radio dealers, farm radio dealers, etc., all available by territories, states, counties and cities, without duplication.

Radio Today's list quality is no accident. These names were compiled with the cooperation of many leading radio manufacturers, plus the help of 524 outstanding set and parts distributors. Furthermore, names are constantly checked against directories, Red Books and thousands of

radio's advertisements appearing in newspapers countrywide. Also questionnaires are periodically mailed out for verification. All this in addition to regular day-to-day maintenance.

These are some of the reasons you will get greater results when you use Radio Today's lists. These are the reasons, too, that we guarantee our lists 100% against Post Office returns, refunding you 13¢ for each such return made in 30 days.

In planning your next mailing don't rely on a mediocre list. Use Radio Today's proven lists—and let the W. P. Woodall Company (managing and operating Radio Today's lists and mailing services) take all the mailing details off your hands. We offer you complete, low-cost mailing service which includes rental of lists, addressing your envelopes or mailers, folding, enclosing, stamping, metering, sorting and mailing. Supplementary service also includes multigraphing, filling in, pen or plate signature, etc. Estimates furnished for the whole job.

To get full details write today for our circular showing list classifications, quantities, prices and other pertinent information.

The W. P. Woodall Company
153 Waverly Place, New York

Managing and Operating Radio Today's Lists and Mailing Services
New Booklets

Catalogue of pilot light assemblies and signal indicator jewels. Dial Light Co. of America, Inc., 136 Liberty St., New York, N. Y.


"Brush Strokes" published monthly and intended to convey technical data and other info. Brush Development Co., 3322 Perkins Ave., Cleveland, Ohio.


40 page catalog of still and movie cameras, photographic equipment and accessories. Lafayette Camera Corp., 100 8th Ave., New York, N. Y.


Catalog of home laundry equipment including portable ironers. Landers, Frary & Clark, New Britain, Conn.


"Electronic Musical Instruments" by Benjamin Franklin Miessner. Discussion of researches and developments in that field. Miessner Inventions, Inc., Millburn, N. J.


Catalog containing prices and description Littelfuse line. Littelfuse, Inc., 4500 Lincoln Ave., Chicago.


Data applying to new 1.4 volt "Bantam" type tubes, available for manufacturers and engineers. Hytronic Laboratories, 76 Lafayette St., Salem, Mass.


Illustrated description with specifications, new Pleasantaire air conditioning unit, model C-5. Pleasantaire Corp., 1623 Connecticut Ave., Washington, D. C.

Catalog including new 1939 price list and specifications on high power reproducers for musical towers. Also special recordings for use with these systems. Sunnt Engineering Co., 4238 Lincoln Ave., Chicago, Ill.

Booklet containing complete descriptions of all Mallory Vibrapacks with technical data and instructions. P. R. Mallory & Co., Inc., Indianapolis, Ind.


Television engineering data on transformers and television coils. F. W. Sickles Co., 300 Main St., Springfield, Mass.

Bulletin containing a receiving tube list with characteristics indicating interchangeability. Of practical value to the service men, or those engaged in circuit design or tube application. Ken-Ray Tube & Lamp Corp., Owensboro, Ky.

RCA Globe Trotter, May, 1939, showing the "New Yorker," new line of RCA sets. Technical data and complete descriptions. RCA Manufacturing Co., Camden, N. J.

Guide to correct types and sizes of replacement batteries for portable radios. Burgess Battery Co., Freeport, Ill.

Results of a study of program popularity among rural families. Based on 20,000 interviews in 300 towns. Co-operative Analysis of Broadcasting, 330 West 42nd St., New York.


20-page booklet giving technical details of experiments made to determine the directive properties of metal pipes and horns when used as receivers of electromagnetic waves. Bell Telephone Laboratories, Inc., 463 West St., New York.


Start making ELECTRONIC MUSICAL INSTRUMENTS UNDER MIESSNER LICENSE

IF YOU WANT A SURE AND PROFITABLE MARKET

No. 2 in a SERIES of frank talks with radio manufacturers

• Electronic pianos, organs or frettled instruments are a natural product for any radio manufacturer. They symbolize the musical World of Tomorrow. This is an ideal profitable market, actually waiting to be served. They are the answer to the trade evils that result in profitless selling.

Most radio factories can make Electronic Musical Instruments without disturbing present production. No special investment and without risk. There is no development work to do. It has been done by MIESSNER and is covered by 40 patents issued and others pending.

And here are other important things to consider:

No yearly models, no obsolete inventories, no dumping
No trade-ins, no service, no cut-price competition.
Sales channels established higher type outlets. Higher unit sales; greater profit protection. Sensational store traffic builder; great piano revival.

What is an Electronic Musical Instrument?

Piano, organ or frettled instrument, played in the usual manner but with electronic control of tone-range, tone-power and timbre, giving the artist unlimited freedom of expression and variety of tone. For example, a miniature piano, combining and surpassing the finest grand piano and largest organ, with the optional convenience of a fully concealed radio and superb phonograph. This great development, unbelievable until actually heard, is the outstanding musical feature of two world's fairs—New York and San Francisco.

MANUFACTURERS LICENSED UNDER MIESSNER PATENTS

Piano Manufacturers (listed alphabetically)

Albert Piano Co., Ellicott City, Md. 21042, St., N. Y. City

Guillemin Company, 816 N. Kedzie Ave., Chicago

Harmon, Frank & Co., 35 W. 57th St., New York City

Krausbroer Bros., Cypress Ave. and 138th St., N. Y. City

Jacobsen Piano Co., Los Angeles, Calif.

Story & Clark Piano Co., 64 E. Jackson Blvd., Chicago

Whitler & Co., 818 E. 141st St., New York City

Fasian

August Forster Piano Fabrik, Germany

Masen & Eichel, Ltd., 942 King St., W. Toronto, 2, Can.

Sherwood Manning Co., Clinton, Ontario

Organ Manufacturers

Everett Piano Co. (The Organ), South Haven, Mich.

Seaboard Comings & Sons, Lancaster, Pa.

Frettled Instrument Manufacturers

Rapido, Inc., 142 W. 14th St., New York

Manufacturers—For license data, write us direct

Dealers—Write to any of licensees above

B. MIESSNER

MIESSNER INVENTIONS, Inc., MILLBURN, N.
Trade Flashes

Stromberg-Carlson plans for a two kilowatt station in Rochester to develop the high fidelity system using high frequency receivers have been submitted to the FCC.

The FCC has designated Commander E. M. Webster, ass't chief engineer of the Commission, as its representative at the meeting of the Subcommittee of the Third World Conference of Radiotelegraph Experts for Aeronautics. The conference will be held at Cracow, Poland, May 19 to May 22, 1939.

Universal Microphone Co. has added press-to-talk hand phones to its catalog of intercommunicating desk phones and mike-and-phone handsets. A Universal cutting head for home recording and non-professional use is also announced.

Allen B. DuMont Labs. have filed application for television transmitting licenses covering a portable mobile transmitter and a 1 KW transmitter in New York City.

Shortwave Station WIXAL, Boston, is conducting a course in television with lessons broadcast every Friday after May 15. Only cost is one dollar and postage for booklet-text-book.

The Radiolec Co., Chicago, has been appointed distributor in northern Illinois and Indiana for Bogen Sound Equipment.

Norman Bel Geddes, famous designer, will design the new Majestic models.

"Man-made static" and a simple means to eliminate 75 per cent of all radio interference will be broadcast over the NBC-Red Network May 16, 7:45 P.M.

National Association for Prevention of Radio Interference is the sponsor.

Cinograph built a special 27 inch electro-dynamic speaker for the N. Y. World's Fair. They've illustrated and described it in a new brochure.

W. A. Coogan, Hygrade-Sylvania, has returned from his three-month business-honeymoon trip abroad.

Carl J. Holatz, V.P. of KenRad Tube & Lamp Corp., says Russell W. Metzner is new sales mgr. of the Lamp Division, with headquarters at the Owensboro, Ky., office.


The Admiral Radio & Television Company, a new jobbing organization formed to handle the distribution of Admiral sets in Metropolitan New York and Northern New Jersey, has completed its first month of operation. Two hundred thirty-five dealers in their territory have been sold the new Admiral line; of this number, 104 purchased the display deal, according to J. H. Clippinger, vice-president Continental Radio, Chicago, makers of Admiral sets.

P. S. Billings, Belmont Radio Corp. president, states that the company sales for the first quarter 1939 increased more than a quarter of a million dollars over the same period last year.

Sprague Specialties Co. have purchased a second set of factory buildings in North Adams, Mass.

James M. Skinner elected chairman of the board of the Philadelphia Storage Battery Co. James T. Buckley becomes president, retains his office of treasurer.

Hygrade Sylvania Corp. have approved plans for a large addition to the plant in Emporium, Pa.

Stating that "96 million Detrola impressions will be made between now and Decoration Day" due to national advertising, dealers are being urged by Detrola Corp., to have an adequate stock so that they may cash in on the results.

Pretty models in the seasons craziest chapeaux posed and perspired before the iconoscope of the American Television Corp. while three floors below, via coaxial cables, comfortable customers watched the fun. Bloomingsales, N. Y. City department store, was showing a method of selling merchandise and estimating the interest in television in one operation. Thousands of curious clients thronged to see the unusual exhibit and much valuable publicity resulted.
D. Specter heads Andrea sales

David Specter has been appointed general sales manager of Andrea Radio Corp., Woodside, L. I., announces President F. A. D. Andrea. From 1916 to 1921 Mr. Specter was general manager of the St. Paul Electric Co., St. Paul, Minn., resigning to become general merchandising director of Kolster Radio from 1922 to 1927. After extensive connections in the merchandising of perfumes, Mr. Specter served as general manager of the Whitehall Distilleries, San Francisco, from 1933 to 1938. More recently he has acted as merchandising consultant for the Packard Electric Shaver and other products, including Andrea which will now have his full time.

Solar Mfg. Corp.—After making a thorough survey of electrolytic condenser manufacture in the United States, the Amtorg Trading Corporation, purchasing for the government of U.S.S.R., has bought complete electrolytic condenser manufacturing equipment from the Solar corporation. Soviet officials, wishing to set-up plants in Russia for the manufacture of condensers, first made a thorough investigation of various methods of manufacture in the United States. Russian engineering investigators, having approved Solar methods, orders were placed with that company for complete equipment to install in Russian plants.

Frank E. Ellithorpe leaves Chicago for New York City to develop Utah Carter parts sales on the Atlantic seaboard. He'll see you at 56 W. 45th St., New York, N. Y.

Fred M. Williams, former president and treasurer of the RMA, has returned from England, where he represented the Philco interests, and is now making his headquarters at the office of the Philco Radio & Television Company, Tioga & C Streets, Philadelphia, Pa.

Kesterline-Angus Co. appoints H. L. Hildebrand for metropolitan New York area. His office is at 36-43 212th St., Bayside, L. I., N. Y.

Recoton Corp. is distributing a 15E trial size of its Liquid Record Renower.


Jim Schoonmaker, 2312 Griffin St., Dallas, Texas, now rep for Howard Radio communication receivers in Texas and Oklahoma.

Experienced Radio Salesman, aggressive, having good following to represent nationally known manufacturer producing complete line of Dry Batteries for new Portable Radios. All territories open. Commission basis. Replies confidential. Write Box C, Radio Today, 480 Lexington Ave., New York, N. Y.

Solar Mfg. Corp.—After making a thorough survey of electrolytic condenser manufacture in the United States, the Amtorg Trading Corporation, purchasing for the government of U.S.S.R., has bought complete electrolytic condenser manufacturing equipment from the Solar corporation. Soviet officials, wishing to set-up plants in Russia for the manufacture of condensers, first made a thorough investigation of various methods of manufacture in the United States. Russian engineering investigators, having approved Solar methods, orders were placed with that company for complete equipment to install in Russian plants.

Frank E. Ellithorpe leaves Chicago for New York City to develop Utah Carter parts sales on the Atlantic seaboard. He'll see you at 56 W. 45th St., New York, N. Y.

Fred M. Williams, former president and treasurer of the RMA, has returned from England, where he represented the Philco interests, and is now making his headquarters at the office of the Philco Radio & Television Company, Tioga & C Streets, Philadelphia, Pa.

Kesterline-Angus Co. appoints H. L. Hildebrand for metropolitan New York area. His office is at 36-43 212th St., Bayside, L. I., N. Y.

Recoton Corp. is distributing a 15E trial size of its Liquid Record Renower.


Jim Schoonmaker, 2312 Griffin St., Dallas, Texas, now rep for Howard Radio communication receivers in Texas and Oklahoma.

Experienced Radio Salesman, aggressive, having good following to represent nationally known manufacturer producing complete line of Dry Batteries for new Portable Radios. All territories open. Commission basis. Replies confidential. Write Box C, Radio Today, 480 Lexington Ave., New York, N. Y.

Solar Mfg. Corp.—After making a thorough survey of electrolytic condenser manufacture in the United States, the Amtorg Trading Corporation, purchasing for the government of U.S.S.R., has bought complete electrolytic condenser manufacturing equipment from the Solar corporation. Soviet officials, wishing to set-up plants in Russia for the manufacture of condensers, first made a thorough investigation of various methods of manufacture in the United States. Russian engineering investigators, having approved Solar methods, orders were placed with that company for complete equipment to install in Russian plants.

Frank E. Ellithorpe leaves Chicago for New York City to develop Utah Carter parts sales on the Atlantic seaboard. He'll see you at 56 W. 45th St., New York, N. Y.

Fred M. Williams, former president and treasurer of the RMA, has returned from England, where he represented the Philco interests, and is now making his headquarters at the office of the Philco Radio & Television Company, Tioga & C Streets, Philadelphia, Pa.

Kesterline-Angus Co. appoints H. L. Hildebrand for metropolitan New York area. His office is at 36-43 212th St., Bayside, L. I., N. Y.

Recoton Corp. is distributing a 15E trial size of its Liquid Record Renower.


Jim Schoonmaker, 2312 Griffin St., Dallas, Texas, now rep for Howard Radio communication receivers in Texas and Oklahoma.

Experienced Radio Salesman, aggressive, having good following to represent nationally known manufacturer producing complete line of Dry Batteries for new Portable Radios. All territories open. Commission basis. Replies confidential. Write Box C, Radio Today, 480 Lexington Ave., New York, N. Y.

X-RAYOMETER
WITH 9 INCH METER
MEASURES UP TO
30 MEGOHMS
Without external batteries or power supply

Specifications:
- **Resistance Measurements** in 3 Ranges: 0-1,000 Ohms, 0-100,000 Ohms, 0-50 Megohms.
- **DC Voltage Measurements** in 3 Ranges: 0-10 Volts, 0-100 Volts, 0-1,000 Volts.
- **DC Current Measurements** in 6 Ranges: 0-1 Milliamperes, 0-10 Milliamperes, 0-50 Milliamperes, 0-250 Milliamperes, 1 Ampere, 5 Ampere.
- **2 Capacity Ranges**: 0.01-1 Micro, 0.1-1 Meg Ohm.
- **4 Output Ranges**: 0-50 Volts, 0-100 Volts, 0-1,000 Volts, 0-10,000 Volts.
- Built-in blocking condensers enable rapid alignment.
- **Inductance Measurements** in 2 Ranges: 1/2 Hertz, 1-10 Hertz.
- **Decibel Measurements** in 3 Ranges: 0 to 10, 10 to 40, 40 to 90.
- **Percentage of Leakage** of electrolytics tested 5%.
- **Insulation, Inter-Elements and All Other Leaksages** directly read up to 50 megohms.

**X-RAYOMETER** utilizes an etched aluminum panel and comes housed in a new army grey case, heavy-gaged castings. Complete test leads and instructions. Size 3½" x 10" x 6". Shipping weight 20 pounds. Our net price...

$1795

Buy Direct from Manufacturer—Save 50% Superior Instruments Company 136 Liberty St., Dept. T.I., New York

---

**“PINCOR”** Rotary Converters

Provide the most dependable means for converting direct current to alternating current. Particularly well adapted for operating radio receivers, public address systems, power amplifiers, signs, A.C. motors, etc. Available in two standard classifications “DA” and “TR”—both with or without filter—engineered for converting 6, 12, 32, 110 or 220 volts D.C. to 110 or 220 volts A.C. 40 to 2,000 watts. There is a “Pincor” converter for every requirement. Write for complete descriptions and data.

**PIONEER GEN-E-MOTOR CORP.**
Dept. R-2E 466 W. Superior Street Chicago, Ill.
Trade Flashes

Elliott Roosevelt broadcasts for Emerson

An exclusive arrangement with Elliott Roosevelt to broadcast twice a week over the Texas State Network, is announced by Emerson Radio & Phonograph Corp., as a part of the advertising and sales promotion campaign featuring the Emerson Self-Powered Portables and including the other products of the company's line.

Replies received as a result of the broadcasts are passed along to dealers in the area covered. Further tie-ups with the broadcasts to make the campaign effective include, trade journal copy, newspaper copy, and special window and store displays.

Representatives of Majestic Radio & Television Corp., the Croxley Corp., and the Wald Radio & Television Labs, met recently with the FCC in an effort to iron out the complicated aspects of television as a service to the public. Don Lee Broadcasting System and Zenith Radio Corp., are also cooperating.

Philco auto radios have been made standard equipment on the new streamlined Comfortractor of the Minneapolis-Moline Corp. A fleet of 125 of these luxury farm units is now on tour throughout the country.

Dealers benefit from NAB-RMA campaign

Dealers who wish to capitalize on the tremendous "radio consciousness" that will result from the RMA-NAB joint industry project to promote radio interests, are cooperating through meetings and radio councils, now being held by local organizations. Main objectives of the campaign are to increase interest in programs, increase hours of listening, enlarge the listening audience, and sell more receiving sets, tubes, parts and the American system of broadcasting. Energetic dealers are now helping to spread the gospel and plan to reap much benefit from such parts of the campaign as the promotion of auto and portable radios and the multiple-set idea.

Len Cramer becomes general sales manager of Dumont; Bob Mezger assists him with industrial sales.

RSA is YOUR Host...
SECOND ANNUAL RSA CONVENTION
June 16 and 17 • Stevens Hotel • Chicago

You can't afford to miss:
★ TELEVISION Lectures for servicemen by outstanding television authorities. Actual demonstration of television transmission and reception.
★ FACSIMILE ★ TEST EQUIPMENT ★ NOISE ELIMINATION
Mail this coupon for your advance copy of RSA Convention Program

RADIO SERVICEMEN OF AMERICA, INC.,
304 S. Dearborn St., Chicago, Ill.

Sure I'll be at the RSA Convention.

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

Please send advance copy of Convention Program □
I am interested in RSA Membership. Tell me about it. □
I am enclosing $4.00 for National dues and initiation. □
(Does not include Local Chapter Dues where Local Chapters are organized.) □

Because we are the only NATIONAL organization of servicemen, we are able to arrange an outstanding program for RSA members. RSA invites YOU, Mr. Serviceman, to attend our Convention and see what RSA is doing for you.

The RSA Convention is only one of the benefits RSA is providing. You can get ALL the benefits by joining your fellow servicemen in RSA.

Let's Grow Together in 1939!

RADIO SERVICEMEN OF AMERICA, Inc.
304 S. DEARBORN STREET, CHICAGO, ILL.
New factory representative for Farnsworth Television & Radio Corp. is Bob Kane, veteran of the radio and phonograph industry.

Kelsey addresses 75 jobber meetings

On Saturday, April 29, L. L. Kelsey, radio division sales manager for the Stewart-Warner Corporation, spoke before Stewart-Warner radio distributors and their salesmen at 75 meetings held simultaneously in key cities throughout the United States. Main object of the meetings was to introduce to the trade Stewart-Warner's new stream-lined Air Pal, announced as "the mighty mite of radio." Mr. Kelsey's message at each meeting was delivered in approximately ten minutes. During this time he outlined the history of the Stewart-Warner Radio Division, stressing that for the first quarter of 1938 Stewart-Warner radio sales showed a 300 per cent increase over the corresponding period for 1938. At each meeting the new Air Pal radios were on display.

Early in April, Kelsey wrote individually to his 75 radio distributors requesting them to call in their salesmen for a meeting to be held April 29, at which he would be principal speaker. Kelsey did not mention that he was addressing more than one gathering that day. To distributors' frantic requests regarding his date of arrival, hotel reservations, etc., Kelsey replied that he would handle all matters personally, adding "provide light entertainment, including a phonograph in good condition."

To 75 Stewart-Warner radio distributors throughout the United States, a phonograph record was delivered on April 28. On April 29, Mr. Kelsey spoke, as scheduled, before the 75 distributors' sales meetings.

RSA news

Bridgeport, Conn.—Television installation and service explained by R. E. Moe of G.E.

Chicago, Ill.—Reports that the RSA television service course at RCA Institutes has increased chapter activity considerably. Automatic volume expansion discussed by Charles Hirsch of Majestic.

Cleveland, Ohio—Radio tubes and television high-mu tubes described.
D. R. D. Wadia, Philco distributor in Bombay, India, gets plenty of DX. He heads several ham clubs, shoots tigers and races cars on the side.

Danville, Ill.—Showmanship in business and service demonstrated.

Detroit, Mich.—Committee appointed to work out minimum service charge plan.

Duluth, Minn.—Car radio installation prices discussed. Frequency Modulation explained.

Flint, Mich.—Trying to eliminate word "free" from all radio service advertising. Telephone book is cooperating.

Long Island, N. Y.—Cards listing names and 'phones of all members and a plug for RSA will be attached to all sets sold or serviced. Card to have small discount value at any member shop.

New Jersey—Explanation of vibrators and methods of auto radio servicing by Mr. Shapiro of Radiart.

New York City—Problems and outlook of television discussed by M. B. Sleeper of Andrea.

Springfield, Ill.—Price-cutting and free-service offenders contacted.

R. T. Brengle retires

The retirement of Ralph T. Brengle from Clough-Brengle Co., due to illness was announced recently by the company. Mr. Brengle formerly supervised manufacturing and held the office of treasurer.

Mr. Brengle is succeeded as plant manager by William Meyenberg and the post of treasurer is assumed by Arthur R. Hall, secretary.

Clough-Brengle Co. has acquired a more favorable location at 5501 N. Broadway, Chicago.

Stewart-Warner has scheduled four sectional conventions in June: Chicago, June 6; New York, June 9; Dallas, June 12; San Francisco, June 14.

R. A. Youngblood becomes manager of Zenith's premium division.

Dumont is making a point to educate picked servicemen by television lectures and demonstrations.
INDEX TO ADVERTISEMENTS

Page
AEROVOX CORP. .................................. 42
AMERICAN CONDENSER CORP. .............. 54
AMERICAN TELEVISION CORP. .............. 43
AMPERITE CO. .................................. 56
ASTATIC MICROPHONE LAB., INC. .......... 53
AUDEL & CO., THEODORE ........................ 53
AUTOMATIC RADIO MFG. CO., INC. .......... 45
BELDEN MFG. CO. ................................ 36, 37
BURGESS BATTERY CO. .......................... 39
BURKE & JAMES, INC. ............................ 54
CENTRALAB ...................................... 46
CIRAUGraph CORP. ............................... 44
CLARSTAY MFG. CO., INC. ..................... 53
CORNELL-DUBILIER ELEC. CORP. .......... 55
CROSLEY CORP. ................................. 22, 23
EMERSON RADIO & PHONOGRAPH CORP. .. 1
FARNSWORTH TELEV. & RADIO CORP. ... 2, 3
FEDERAL RECORDER CO., INC. .............. 35
GARDINER METAL CO. ........................... 47
GENERAL ELECTRIC CO. ........................ 7
HYGRADE SYLVANIA CORP. ................... 6
KEN-RAD TUBE & LAMP CORP. .............. 50
LAFAYETTE RADIO CORP. ...................... 53
LITTLEFUSE INCORPORATED ..................... 54
MAJESTIC RADIO & TELEV. CORP. .......... Cover IV
MALLORY & CO., P. R. .......................... Cover II
MEISSNER MFG. CO. ............................. 33
MEISSNER INVENTIONS, INC. .................. 49
NAT'L RADIO PARTS TRADE SHOW ......... 38
NATIONAL UNION RADIO CORP. ............. 41
ONAN & Sons, D. W. ............................. 47
OPERADIO MFG. CO. ............................ 51
PHILCO RADIO & TELEV. CORP. ............. 8
PIGGIN GENERATOR CORP. ................. 51
RADIO CORP. OF AMERICA ..................... 19
RADIO SERVICEMEN OF AMERICA, INC. .... 52
RAYTHEON PRODUCTION CORP. ............. 5
RCA MFG. CO., INC. ............................. 26, 27, 28, 29
RECOTON CORP. .................................. 43
REGAL AMPLIFIER MFG. CORP. .............. 55
RIDER, JOHN F. .................................. 40
SUNDY ENGINEERING CO. ...................... 54
SUPERIOR INSTRUMENT CO. ................. 51
TRIPLETT ELECT. INSTRUMENT CO. ......... 47
TUNG-SOL LAMP WORKS, INC., 43, Cover III
UNIVERSITY LABORATORIES .................... 45
U. S. ELECT. MFG. CO. ........................ 50
UTAH RADIO PRODUCTS CO. ................... 40
WARD PRODUCTS CORP. ........................ 54
WHOLESALE RADIO SERVICE CO., INC. .... 45
WOODALL CO., W. P. ........................... 48
ZOPHAR MILL, INC. ............................. 56

Dean A. Lewis has joined the Farnsworth Television & Radio Corp. as special factory representative.

N. Y. City Radio Men Aid Refugees

To enlist the support of the trade on behalf of the emergency refugee campaign, leading members of the radio and musical instruments industries in New York City have organized to form a division of the United Jewish Appeal for Refugees and Overseas Needs. Funds raised will be expended here and abroad to further the activities of the three principal Jewish organizations devoted to refugee aid, retraining and resettlement—the Joint Distribution Committee, the United Palestine Appeal, and the National Coordinating Committee.


Bendix Home Appliances have appointed W. C. Jones to assist Parker H. Erickson in the development of contests, advertising plans, and promotional activities.

A radically designed cubical antenna has been developed by General Electric for their new 10 kilowatt television station near Albany, N. Y.

C. P. Cushway, Thordarson general sales manager has returned from a two weeks' trip to New York and other eastern points.

Gilbert Seleks, CBS television program director, sailed for England to "borrow" Donald Hunter Munro from the British Broadcasting Corp.

The Finch facsimile system was demonstrated before the Canadian Radio Committee in Ottawa, Canada.

Joe Gerl has purchased the Sonora Electric Phonograph Corp., 1324 W. 22nd St., New York, N. Y., from its present owners and will take an active participation in its development.

Now for the BIGGER JOBS

Get your share of the profits from the higher priced intercommunication installations. The market is wide open for hotels, department stores, hospitals, offices, at the low prices we ask for this excellent 2-way system.

Demonstrate our Model 143 to these prospects. 4 speakers on each substation and up to 10 sub-stations adaptable. No other system can offer these features.

More profits for you! $10.00 with 50 ft. of wire.

AS ILLUSTRATED

REGAL AMPLIFIER MFG. CORP.
14-16 W. 17th Street, New York

BIGGER PROFITS in C-D CAPACITORS

Type BR "Blue Bearers" Fastest Moving Electrolytics on the Market

In twenty-nine years of capacitor engineering C-D has never compromised with quality—and never will. But there is more to making money than supplying your customers with product dependability. You must also have a product that will lend itself to a majority of present-day servicing jobs. That is why the new improved Type BR "Blue Bearers" are the fastest selling electrolytics on the market today. Compact, scientifically vented, with flexible wire terminals the Type BR's satisfactorily combine quality and adaptability.

Standardize on C-D capacitors for bigger profits. Catalog number 463A describing the complete line of C-D paper, mica, Dykanol, wet and dry electrolytics is on request.

World's Largest Manufacturer of Capacitors

CORNELL-DUBILIER ELECTRIC CORPORATION
1022 Hamilton Blvd., N., Plainfield, N. J.

While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this index.
A Miles reproducer being used to record a conference between (l. to r.) J. M. Kuhlkin, v.p. of Miles Co.; M. Seldman, asst. sales mgr. of Miles, and Mr. Simon, pres. of Altex Products Co., 79 Madison Ave., NYC., makers of National Brake Block.

James J. Lawler, Safety Engineer with Hygrade Sylvania has been elected to the American Society of Safety Engineers.

Universal Microphone Co. is now producing crystal microphones mounted in the head.mikes, 15 mm. model and the breastplate type, giving low impedance of 33,200 and 500 ohms, as well as the regular high impedance direct to grid types.

Cornell-Dubilier execs at the Trade Show will include: Leon Adelman, William Dubilier, Charles Caine, William Bailey, Paul Decle, and Frank Taylor.

Universal Microphone Co., Inglewood, Cal., has assembled a complete pressing and processing plant for factory demonstration and mainly for export through Fraser and Co., San Francisco.

Philco is marketing a new refrigerator cabinet polish called Conserva-Finish and are shipping special record player needles with all Philco EP models. The needles are listed separately at 25 cents per package of 35.

Jobbers doing

"Sound advice"

On its envelopes mailed out to customers, the Walker C. Cottrell Company, First Street between Main and Cary, Richmond, Va., carries the catch-line "Sound Advice — from Walker C. Cottrell, etc." The company carries Atlas, Amperite, Bell, Turner, Remler and Presto equipment, as well as sound-motion-picture apparatus.


Stern-Brown, 42-24 Orchard St., Long Island City, N. Y., have engaged permanent display rooms at 1150 Broadway, New York City. Room 505. Their line of electrical appliances will be on display.

Strawberry-Carlson distributors saw the S-C television receivers at the company's annual sales convention in Rochester May 9-12.

Southeastern Supply Corp. announce two offices where dealers may contact them for electric refrigerators, beverage coolers, radios, heaters, ranges, water pumps and other items. Main office is located at 128 W. Olney Road, Norfolk, Va. Present address in Richmond, Va., is P. O. Box 4174.

Mfr's salesmen

Radio Salesmen Wanted — A radio manufacturer wants experienced radio salesmen with following among department stores and best rated music and radio stores. All territories open except New York City. Liberal commission. Address Box B, Radio Today, 480 Lexington Ave., New York, N. Y.
EVERYONE IS ASKING!

WHAT'S THE MATTER WITH THE TUBE BUSINESS?

HOW MANY TUBE SALES...AND SERVICE JOBS DID YOU LOSE LAST YEAR?

WHAT IS THE MANUFACTURER GOING TO DO ABOUT IT?

READ HOW A PROMINENT JOBBER ANSWERS THESE QUESTIONS!

"...A manufacturer whose interests are with the dealer and serviceman can meet this demand, set up new low list prices with corresponding discount changes, and put the dealer in a position to GET HIS SHARE of the tube business. THIS IS EXACTLY WHAT TUNG-SOL HAS DONE."

TUNG-SOL HAS ALWAYS CONSIDERED ITS RETAIL AGENTS AS PARTNERS, AND HAS MAINTAINED POLICIES WITH THEIR INTERESTS THE FIRST CONSIDERATION.
A Message to Distributors

Within a few days the Mighty Monarch of the Air will present to you an inspiring first edition . . . complete facts about the new MAJESTIC – its policy, its plans, its aspirations.

The pages of this book will acquaint you with the men who are MAJESTIC today. You will meet Norman Bel Geddes, internationally famous artist-designer, whose creations for the 1940 MAJESTIC "Promotion Numbers" are destined to set new style trends in radio design.

You will learn why MAJESTIC DEMANDS NO QUOTAS.

The complete 1940 line will incorporate every fundamental necessary to profitable merchandising . . . diversity, style, popular price range, and exclusive MAJESTIC sales-boosting features.

To those of you who have reserved your decision on a line for 1940 – to you who have planned a change for the coming year, this enlightening MAJESTIC edition brings a vitally important message.

If you have not received your copy by May 30, wire me and I will mail one to you immediately.

Very truly yours,

W. B. E. Norins, General Sales Manager,
MAJESTIC RADIO & TELEVISION CORPORATION
Forward March! —
Season Starts with New Lines and Trade Show
The set manufacturers who use Mallory parts as original equipment are the "who's who" of the radio industry... and in the replacement field, Mallory parts enjoy the same leadership.

Mallory Replacement Vibrators, Condensers, Volume Controls and other replacement parts enjoy a long standing reputation for trouble-free operation and long life. The millions in use testify that you can depend on them for the kind of customer satisfaction that translates itself into increased profits.

In the development of these replacement parts Mallory engineering has made possible many advances in standardization and ease of application. These lead directly to lower inventory investment with faster turnover... and to faster, more profitable service work.

VIBRATORS

CONDENSERS

VOLUME CONTROLS

Use

MALLORY

REPLACEMENT
CONDENSERS...VIBRATORS

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

Get this complete and up-to-date Vibe Guide from your distributor now. Covers all makes of auto and battery operated receivers. Nothing else like it. It's yours, absolutely FREE.
Hit No. 1
Ward's New Automatic Car Aerial

See the automatic car aerial that's FULLY automatic! Operates independently of ignition or vacuum systems. Has neat, trim appearance. Easily installed on any make of car.

Hit No. 2
Concealed Cowl Mounting Aerials

See the new aerial that's proving so popular with motorists. Mounts under hood with no drilling of highly finished surface. 4 different models, with choice of either single or double mounting.

Hit No. 3
The “Tela-Vision” Rear-View Mirror

See the rear-view mirror that you can sell for cars already equipped with aerials or with new aerials. Doubles signal strength of aerials. Eliminates dangerous “blindspots” in rear of car. Adjustable bracket fits any make of aerial.

Hit No. 4
The “Tower” Antennae

See a real long-distance aerial! A 4-section, telescopic, side cowl aerial that extends 100'. Ceramic insulators and super-deluxe tubes.

P. S. If you don't get to the show, write for a free catalog of WARD'S "hit" line of aerials for car and home.

The WARD PRODUCTS Corp.
WARD BUILDING
CLEVELAND, OHIO
This RCA Television Oscilloscope is designed for viewing synchronizing impulses, blanking impulses, horizontal saw-tooth wave, vertical saw-tooth wave, and grid and plate voltages on horizontal and vertical oscillators. Uses 5-inch cathode ray tube.

**Specifications**
- Deflection Sens. at Vert. Amp., Input 500 mV peak peak/1 V RMS per inch (best mode). 25 V RMS per inch.
- Deflection Sens., horiz. A, Input 100 mV per inch.
- Input Impedance at Cable Point, 5 megohms.
- Input Impedance Horiz., A, 1 megohm.
- Input Impedance Horiz., A, 1000 ohms.
- Freq. characteristic Vert. A, 3000cycles to 500 cycles.
- Freq. characteristic Vert. A, 50 K to 100 K.
- Max. signal input to Vert. A, 50 Volts RMS.
- Max. signal input to Horiz. A, 50 Volts RMS.
- Sweep Freq. Range, 1 to 20,000 cycles.

**New RCA TELEVISION Test Equipment on Display**

RCA is readying a complete line of television test equipment for your perusal. Fitting into an instrument case, these units can be purchased at the Parts Show. Be sure to stop by the RCA display — for they have been built by the men who made television an actuality. They are instruments which, like RCA Radio Test Equipment, offer a REQUIRED QUALITY that is dependable, accurate performance.

**"You'll see a New RCA TELEVISION Alignment Oscillator!"**

This new instrument enables you to visually align the R-F and I-F circuits in television receivers when it is used with the No. 158 Cathode Ray Oscilloscope. Its output frequency sweeps through the following bands at a rate of 60 times per second:

- R-F Channels- 43 to 51 megacycles
- 53 to 63
- 75 to 85
- I-F Channels- 7.5 to 15 megacycles
- I-F Channel
- Sound I-F Channel
- Output Signals for alignment of re- ceiver circuits at 8.25 mc and 14.50 mc are also provided.

This oscillator offers two values of output voltage for each signal—approx. 0.5 volts and 0.05 volts. Stock No. 159.

"**REQUIRED QUALITY is your assurance of better test equipment. It is one of the reasons that RCA test instruments are built to meet rigid standards of accuracy required for use in our own laboratories and factory.**

**"You'll see a New RCA TELEVISION Piezo Electric Calibrator!"**

A small crystal oscillator unit with fundamental frequencies of 250 kcs, and 2,000 kcs. Control of either frequency is obtained by means of a 2-way switch. Harmonics of these frequencies provide exact calibrating frequencies for use in television service work. This RCA calibrator has an output jack... offers accuracy of plus or minus .05%. Stock No. 157.

---

RCA MANUFACTURING CO., INC., CAMDEN, N. J. • A SERVICE OF THE RADIO CORP. OF AMERICA

RADIO TODAY
Display at the Parts Show...now to Better Your Business!

"You'll see how RCA TELEVISION will help you make more money with RCA Victor Radio Tubes!"

The advent of television will help radio tube dealers and service men make more money on RCA Victor Radio Tubes. It's going to do this in two ways:

1. By eventually increasing the renewal tube market. When you see the RCA Victor television chassis at the Radio Parts Show note the large number of tubes that must be used, all of which will require renewal.

2. By selling RCA Victor Radio Tubes you can capitalize on the tremendous publicity being given to RCA Victor Television. This publicity will increase the public acceptance for all RCA products because all are built with the same skill and precision that have been responsible for RCA Victor Television. Remember—television is a sales feature—one that will convince your customers—and will bring you more money with RCA Victor Radio Tubes.

For your radio performance—RCA Victor Radio Tubes

You are invited to witness a demonstration of RCA High Definition Electronic TELEVISION at the RCA Victor Showrooms, 441 North Lake Shore Drive, Chicago, Ill. June 14-17. Tickets of admission may be obtained upon request from your distributor or at the RCA Mfg. Co. booth at the Parts Show.

RCA Victor RADIO TUBES
A SERVICE OF THE RADIO CORP. OF AMERICA

JUNE, 1939
"See the RCA Display at the Parts Show...how to Better Your Business!"

"You'll see a New RCA TELEVISION Oscillograph!"

This RCA Television Oscillograph is designed for viewing synchronizing impulses, blanking impulses, horizontal saw-tooth wave, vertical saw-tooth wave, grid and plate voltages on horizontal and vertical oscillograph. Uses 5-inch cathode ray tube.

**Specifications**

- Horizontal Sweep: 0.01 to 5.00 microseconds per inch
- Vertical Sweep: 0.01 to 5.00 volts per inch
- Frequency: 0.5 to 5000 cycles per second
- Time base: 50 to 5000 microseconds
- Synchronization: Vertical, horizontal
- Applicable to: RCA and other brands

"You'll see a New RCA TELEVISION Test Equipment on Display!"

RCA is readying a complete line of television test equipment for your use. All of these instruments will be on display at the Parts Show. Be sure to see them—for they have been built by the same men who made television an actual fact...are instruments which, like RCA Radio Test Equipment, offer you the REQUIRED QUALITY that assures dependable, accurate performance.

"You'll see a New RCA TELEVISION Alignment Oscillator!"

This new instrument enables you to visually align the R-F and L-F circuits in television receivers when it is used with the No. 158 Cathode Ray Oscillograph. Its output frequency sweeps through the following bands at a rate of 60 times per second:

- 50 to 5000 cycles per second
- 0.5 to 5000 cycles per second

"You'll see a New RCA TELEVISION Piezo Electric Calibrator!"

A small crystal calibrator with fundamental frequencies of 256 ccs. and 3000 ccs. Control of other frequency is obtained by means of a 5000 switch. Harmonics of these frequencies provide excellent calibrating frequencies for use in television visual test equipment. The RCA oscillator has an output signal...offers economy of price or minus 5%. Stock No. 597.

"You'll see how RCA TELEVISION will help you make more money with RCA Victor Radio Tubes!"

The advent of television will help radio tube dealers and service men make more money on RCA Victor Radio Tubes. It's going to do this in two ways:

1. By eventually increasing the renewal tube market. When you see the RCA Victor television chassis at the Parts Show, note the large number of tubes that must be used, all of which will require renewal.

2. By selling RCA Victor Radio Tubes you can capitalize on the tremendous publicity being given to RCA Victor Television. This publicity will increase the public acceptance for all RCA products because all are built with the same skill and precision that have been responsible for RCA Victor Television. Remember—television is a color feature—note that will convince your customers—and will bring you more money with RCA Victor Radio Tubes.


You are invited to witness a demonstration of RCA High Definition Electronic TELEVISION at the RCA Victor Showrooms, 441 North Lake Shore Drive, Chicago, Ill. June 14-17. Tickets of admission may be obtained upon request from your distributor or at the RCA Mfg. Co. booth at the Parts Show.
HERE are two new RCA Victor radios that will give your summer sales an extra lift! They're "naturals" to sell heat dodgers—and they're sets you'll like selling. Because one look will convince you of their smart styling, quality construction. One "listen" will make you booster of their splendid tone, excellent all-around performance. In short, they are sets you will sell with confidence.


This new RCA Victor Table Model will be a Business-Getter for You!

Why? Because in addition to domestic and police reception of high calibre it is just about the finest short-wave table model RCA Victor has ever made at anywhere near its price. And with it your customers will be able to keep in "on the spot" touch with European affairs no matter where they go this summer! Besides its amazing short-wave ability, this radio offers many other excellent sales features including Edge-Lighted, Angle-Vision, Straight-line Dial. It's an instrument that can't miss. Model 3Q5, it comes in rich brown plastic cabinets of simple sweeping modern lines. Only... $29.95*

WHEN people discover how much fun it is to have Tommy Dorsey playing by the side of the swimmin' hole... to have Benny Goodman's music along at that picnic underneath the pines... to drink something cooling to the strains of Hal Kemp after a game of golf... they will all want a portable RCA Victrola. And now you can offer them one at an all-time low price—only $9.95!* Here's another great opportunity to cut yourself in for a big share of summer vacation profits! And remember—every RCA Victrola sale means a big share of Victory and Bluebird Record sales in the future!

FOR FINER RADIO PERFORMANCE—RCA VICTOR RADIO TUBES

Here's Another Summer Super-Seller!
RCA Victrola R-98

Here's an instrument designed for the critical judge of music. It has an 8" speaker, 12 watts output. Offers your customers the convenience of compact styling and, in addition to providing the type of musical reproduction that will appeal to lovers of fine music, it is also ideal for your own record demonstration booths and for sale to schools.

See your RCA Victor distributor for details about a special plan in connection with this instrument.

*All prices f.o.b. Camden, N. J., subject to change without notice.
HERE are two new RCA Victor radios that will give your summer sales an extra lift! They’re "naturals" to sell to heat dodgers — and they’re sets you’ll like selling. Because one look will convince you of their smart styling, quality construction. One “listen” will make you a booster of their splendid tone, excellent, all-around performance. In short, they’re sets you will sell with confidence.


This new RCA Victor Table Model will be a Business-Getter for You!

WHEN people discover how much fun it is to have Tommy Dorsey playing by the side of the swimmin' hole ... to have Benny Goodman's music along on that picnic underneath the pines ... to drink something cooling to the strains of Hal Kemp after a game of golf ... they will all want a portable RCA Victorola. And now you can offer them one at an all-time low price — only $9.95! Here's another great opportunity to cut yourself in for a big share of summer vacation profits! And remember — every RCA Victorola sale means extra Victor and Bluebird Record sales in the future!

FOR FINE RADIO PERFORMANCE — RCA VICTOR RADIO TUBES

Here’s Another Summer Super-Seller! RCA Victorola R-98

Now here's an instrument designed for the critical lover of music. It has an 8" speaker. 30 watts output. Offers you to demonstrate the superiority of coast-to-coast and local broadcasts!... Why? Because in addition to domestic and police reception of halts Hal Kemp, it is just what the front sheet-bred Victor has ever made as anywhere near in price. And with all your customers will be able to keep in "the loop" and so turn to the same trouble to another Model 1Q35, it comes in a rich, honey-brown Finish. It's a symbol of superior engineering. \[price\] only..."
MODEL 01-6A7
A big, rich-looking radio that sets a new high in value. 8-tube performance — genuine superhet with 11 tuned circuits, Magic Keyboard automatic tuning, A.V.C., automatic bass compensation, 3-way tone control, built-in line antenna, full 10" speaker, television sound channel, record player connection. Covers 540-1725 kc., 2200-7000 kc., and 655-23 mc. Price — at a profit to you!

MODEL 01-5H7
An extra-quality radio that's sensational in price, yet profitable to sell. Superhet with 7-tube performance, Magic Keyboard automatic tuning and 4-way tone control. Full console dynamic speaker, built-in antenna, automatic bass compensation, A.V.C., television sound channel, and connection and switch for record player in wrap-around figured walnut cabinet. Price . . . at a profit for you!

MODEL 01-817
Massive 42-inch console in wrap-around walnut and aspen, with powerful 11-tube performance 2-band superhet chassis, Magic Keyboard automatic tuning and 4-way tone control. Full console dynamic speaker, built-in antenna, automatic bass compensation, A.V.C., television sound channel, phonograph connection. Price . . . at a profit for you!

MODEL 01-6B9
A smartly styled radio-phonograph in rich stump, rotary and sliced walnut, with large built-in record well, self-starting motor and offset crystal pick-up. Radio is 3-band superhet with 8-tube performance, built-in antenna, Magic Keyboard automatic tuning, full 12-inch speaker, television sound channel. Price—at a profit for you!

MODEL 01-6C9
THE BIGGEST NEWS in radio this year is written on the Stewart-Warner discount sheet!

Of course the models are hot. Of course they have the novelty to catch a prospect's eye—the quality and value to clinch the sale. They're radio's biggest dollar's worth for 1940—and yet that's the least of the story.

Because from top to bottom of the line, Stewart-Warner has included a hidden feature others have left out. And that's a worthwhile gross for you!

So why let anyone take the difference out of your pocket to get their prices down—when you can sell even the lowest-priced Stewart-Warner and pocket an honest profit for doing it?

**AGAIN STEWART-WARNER SETS THE PACE IN PLASTICS**

You've seen one scoop after another come from Stewart Warner designers. Here are some of the new model that combine utterly new sales appeal with an honest profit for the dealer.

**STEWART WARTNER CORPORATION, CHICAGO, ILLINOIS**

Magic Keyboard Radios—Sav-A-Step Electric Refrigerators and Ranges
NEW! THE PERSONAL SPORTS RADIO

Motorola
"SPORTER"

The World’s Most Convenient Portable
4 TUBE • SUPERHETERODYNE

NEW AND UNIQUE! An innovation in the trade. The magnet you need to attract customers to your store right now. Plays anywhere. Everyone will enjoy new thrills in listening to favorite programs with the “Sporter”—the most convenient portable radio in the world. As compact and easy to carry as a camera or field glasses. Ideal for hikes and a perfect companion at every sporting event. With the “Sporter” your customers can now enjoy sports better than ever before, as they can hear the broadcast while watching the fight, the race or the game. Leatherette case with shoulder strap Loop Aerial. Weighs 5 lbs. Order an ample supply today.

AT THE BALLGAMES AT RACE TRACKS ON THE WATER WHILE GOLFING

ALSO A FULL LINE OF MARVELOUS VALUES IN NEW 1940 MOTOROLAS COMPRISING TABLE MODELS • CONSOLES PORTABLES • WIRELESS RECORD PLAYERS • PHONOGRAPH-RADIO COMBINATIONS AND BATTERY OPERATED SETS

For Full Particulars See Your Motorola Distributor

CALVIN MEG CORPORATION • CHICAGO
In a recent purchase by the Federal Communications Commission of a quantity of receivers, RAYTHEON radio tubes met the rigid F. C. C. specifications and requirements—just as they have been found, by radio set engineers, to operate perfectly in more diversified circuits than any other tube!

Hundreds of thousands of dollars have been spent on RAYTHEON research and quality control—just to insure constructional superiority and to keep RAYTHEON ahead technically.

Servicemen, who are in business to stay, are rapidly turning to RAYTHEON replacement tubes as one of the best ways of protecting their profits, turnover and the good will they have built up in their communities.

RAYTHEONS cost no more than the second-best tube.
NEW TELEVISION TESTER

FOR 1000 VOLTS

WITH RED • DOT
LIFETIME GUARANTEED METER

Model 1280
$31.50
DEALER NET

NEW Testing Method Is Involved in This Tester. The metal contacts and the instrument parts are removed a minimum of one inch from the sides of the case. The prods attached to the test leads are inserted through holes in the top panel to the contacts in the sub-panel beneath. Three feet test leads are used, which have been tested to 25,000 volts breakdown. Posts are provided on the panel for grounding the metal case, the surest precaution against bodily injury at the high voltage.

Tests AC and DC Volts in steps of 2,500 and 10,000 volts; D.C. Microamperes in steps of 50, 500 and 5,000. Meter Sensitivity is 25,000 ohms per volt for DC, and 5,000 ohms per volt for AC.

The case is enameled a solid red to indicate caution and danger from the high voltage tests. With this Tester and the others the serviceman ordinarily uses for radio testing he can make all the necessary voltage and current measurements encountered in Television Receivers. It is equipped with the RED • DOT Lifetime guaranteed 4" instrument in bakelite case, which is also mounted beneath the front panel, and is easily read through the large window opening in the panel.

Model 1280 Television Tester is furnished with cover to match case and has strap handle. Accessories include a pair of special high-tension cables with prods on one end and alligator clips on the other end. Dealer Net Price .................................................. $31.50

See this new Television Tester and other Test Equipment at the Triplette Booths Nos. 403-5 Chicago Radio Parts Show, and place your order for same with your jobber today.
THE WORLD'S SMALLEST PORTABLE RADIO!

NO PLUG IN —
NO AERIAL —
NO WIRES!

A Majestic achievement—the first real portable radio! Operates on dry cell batteries. So small it fits into a pocketbook . . . approximately 7 inches by 5 inches by 3½ inches . . . approximate weight 3½ pounds complete, including batteries and built-in antenna . . . Superheterodyne circuit . . . volume control . . . high selectivity.

THE NEWEST IDEA IN RADIO

A. C. and 6 Volt Dry Battery Operated


NO PLUG IN —
NO AERIAL —
NO WIRES!

250 BATTERY HOURS


MIGHTY MONARCH OF THE AIR.

Majestic RADIO & TELEVISION CORP
2600 W. 50th STREET • CHICAGO, ILL

Cable: "Majestico—Chicago"

IT'S SO MUCH EASIER TO SELL MAJESTIC
of RADIO

Big Forward March in Selling!

KMBC President, C. L. Taylor. "One of the big reasons for the tremendous growth of radio is the enormous public interest that it excites." See Advt. Page 78

MOTOROLA—Galvin Mfg. Corp, 454 August Blvd, Chicago, III. President, Ralph M. city. "In radio today, our new line of power-wired telephonic sets is making a quick turn from long shot to close-up markets right across the country." See Advt. Page 67


Booths 623-25—See Advt. Page 67


Booths 623-25—See Advt. Page 67

RAYTHEON Production Corp., 44 Lake Shore Drive, Chicago, III. "Raytheon—The Real Thing in Radios, Telephones, Teletypewriters. High Quality, Low Cost. Original Equipment and Replacement." See Advt. Page 74


ROLL CALL

Leading Manufacturers "FALL IN" for Big Forward March in Selling!

Undoubtedly, it's going to be a year of great challenge—great opportunity. Manufacturers are faced with the problem of winning the radio business of new and old customers. As the competition in the radio field mounts, it is more necessary than ever for manufacturers to give their dealers a message of encouragement and support. And, of course, the manufacturers of radio products are foremost in this encouragement.

The first of these sentiments is the message of "FALL IN" for the big forward march in selling. This message is not only important to the manufacturers themselves, but is vitally important to the dealers. It is a message that will give the dealers a sense of confidence and assurance that they can face the challenges of the year ahead.

The manufacturers have placed their trust in the dealers, and the dealers must now return that trust. They must sell with a sense of determination and purpose, and they must do it with the assurance that they have the support of the manufacturers.

The radio manufacturers, as a whole, are ready to back their dealers up, and they are ready to give them the encouragement and support they need. The manufacturers are ready to "FALL IN" with the dealers, and they are ready to do their part in securing the big forward march in selling.
“...So it goes, one thing after another, year after year for 10 straight years of LEADERSHIP! Philco has been the one driving force for progress in radio design and engineering, setting the pace for the whole industry to follow ...”

"IN 1940, PHILCO LEADS AGAIN!

New Inventions Bring a Revolutionary Change in the Use and Enjoyment of Radio"

The foregoing words are part of the story that Philco distributors heard at the Philco radio convention just ended at French Lick, Indiana. Your distributor is on the way home now, bursting with the greatest news, the most exciting profit message in his entire radio career!

Within a few days, you’ll get the announcement of his dealer meeting. Of course, you’ll go—because his story is the cornerstone of your 1940 radio profits. And he’ll show you a parade of home radios, radio-phonographs, compacts, portable radios, farm radios... a complete line that breaks all records for sales appeal, beauty and value!

New Inventions that give, at every price, finer tone, performance and convenience than ever before. New Cabinets in a wide variety of styles to suit every taste and preference.

The Big News will reach you soon. Get ready to GO!

PHILCO RADIO & TELEVISION CORPORATION
In the latest saga of the sea, the rescue of the Squalus survivors, though lives hung by the thinnest of threads, calm, courage and confidence prevailed.

The men of the Navy demonstrated that there is a Spirit of '39—just as there was a Spirit of 1776! And it isn't fear.

* * *

There's a lesson here for every radio man, as he now gets ready for the 1939-40 selling season.

"Forward March" is the command. And there is no reason to hesitate.

People are buying. Sales curves are upward. Returning confidence is the order of the day.

1. Automobile sales are up 40%.
2. Electric appliance sales are up 30%.
3. Residential construction is up 20%, and at the highest level since 1929.
4. Present production is in line with present consumption; inventories are low.
5. The European crisis is easing; tension is now less in London and Paris, than here.
6. U. S. business is benefited by the world-wide armament race.
7. Railroad earnings are sharply up, and Class I roads are back in the black.
8. Radio dealers never before had so many products to sell to so many people.
9. Television is taking its rightful place in the trade, and will not demoralize radio sales.
10. General confidence is being restored. Courage has returned. Determination has replaced fear. The Legions of Business march on.

* * *

In this new order of the day, the radio man must march on too, or be left behind. There is nothing to fear, but fear itself. And if you are afraid of your business, your customers will be afraid of you.

Radio is marching on to new volumes of sales and new peaks of profits.

So—Forward March! Let's make this Radio's Banner Year!
RMA Convention and Banquet at Chicago

The annual meeting of the Radio Manufacturers’ Association will be held at Hotel Stevens, Chicago, June 13 to 15. The membership luncheon scheduled for Tuesday noon will be addressed by President A. S. Wells; Executive Vice-President Bond Geddes; Treasurer Leslie F. Muter; Neville Miller, president National Association of Broadcasters, on “Teamwork of RMA and NAB”; and Commissioner T. A. M. Craven, FCC, on “Television.”

During Tuesday afternoon and Wednesday there will be committee sessions, and on Wednesday noon the luncheon session of the new RMA directors will be held.

BANQUET AT MORRISON

This year the annual cabaret and radio-industry banquet will be held in the Terrace Casino, Hotel Morrison, at 7 p.m. Wednesday. Paul V. Galvin is chairman of the committee, and an elaborate entertainment program has been provided, which will be followed by dancing.

On Thursday the Radio Industries Golf Tournament will be held at the Calumet Country Club.

On Friday morning sessions of the Sales Managers Clubs and “The Representatives” will be held in the Stevens, followed at noon by a meeting of the Trade Show membership for luncheon.

Friday evening, the Radio Service men of America will hold their annual membership meeting, with President T. P. Robinson officiating.

Charles Cushway, who has resigned as Thordarson sales manager to join forces with Webster Company, Chicago, makers of sound equipment.

H. C. Bonfig, RCA-Victor sales vp, who is national radio chairman for the celebration of Father’s Day, June 18.

Radio Biz Not Hurt by Television in NY

There has been no evidence in the last month that the advent of television in New York has hurt the radio business there.

There seems every reason then to believe that a constructive sell radio program may well produce a banner radio year, and that the future will see less disturbance from television than the past.

An analysis of current radio sales indicates that smaller sets have not lost anything in their ratio to consoles. In this it is probable that television has played an important part. This ratio of compacts to consoles is not apt to swing sharply to consoles for quite some time, if ever. And so it behooves all dealers to gear their business more in line with the profitable sales of radio units which average around $35.

Sarnoff Sees Vast Expansion Ahead in Radio

Predicting that new technical developments may, in the near future, multiply the number of useful radio channels a “hundred-fold or a thousand-fold,” and foreseeing the day when a network can “carry not only broadcasting but also telegraphy, telephony, multiplex communications, facsimile, television, and the like, all on one network,” David Sarnoff, president of RCA, before the FCC, pleaded that present-day limitations be not employed as to the standard for tomorrow’s governmental regulation.

“I can foresee the possibilities of developing systems of intercommunications, both for sound broadcasting and for television, that will not depend upon wires at all—where you can carry these signals and these images by means of a radio line instead of a wire line.

“I believe that in five or ten years from now we will look back upon the radio structure of today, whether it will be in the broadcasting station or whether it be in the receiver in the home, and we will hardly be able to recognize the present-day structure. I think the changes that are coming in the radio art will come with greater rapidity from here on than they even have come during the past decade because of the developments which are now reaching a point of ripeness and calling for expression in the field and in the markets,” he declared.

Hiter Reports on English Television

Television, because of its very nature, will always supplement radio, never supplant it, F. A. Hiter, vice-president and general sales manager of the Stewart-Warner Corporation, told Stewart-Warner directors.

“Don’t get false ideas about television,” Mr. Hiter said. “Television will have about the same effect on the sale of radio sets as aeroplanes have on the sale of automobiles, because by its very nature, television will supplement radio, not supplant it.

“The publicity accorded television in this country recently, has caused some concern among radio-set manufacturers, and it is possible that misapprehension, by the public, of the functions of television may temporarily affect radio sales, but those of us who now manufacture both radio and television sets, are under no illusion.”

Mr. Hiter pointed out that despite the fact regularly scheduled television programs have been available in England since 1939, with television sets

Henry Hutchins, who has been called back to National Union, Newark, N. J., to direct tube sales, after four years as vp Western Adv. Agency.
on sale there at prices considerably below those asked for similar sets now on sale in New York City, his report showed that the sale of radio sets in Great Britain during the same period exceeded 4,750,000 sets, while less than 15,000 television sets had been sold during the same time.

He reported that Stewart-Warner radio sales for the four months of 1939 show an increase in units of 198 per cent over the corresponding 1938 period.

For "de Forest Day" at World's Fair

Some of the old friends of Dr. Lee de Forest, inventor of the three-element radio tube, are sponsoring a movement to hold a de Forest Day at the New York World's Fair, Sept. 21 or 23, during Radio Week when the IRE will be convening in New York. Preceding this there will also be a celebration of Dr. de Forest's 66th birthday on August 26.

It is becoming increasingly recognized that no invention has more profoundly affected human affairs than the tube, which is basic to modern radio, communication, broadcasting, sound pictures, sound amplification, television, facsimile, airplane direction and a host of present and future electronic developments.

Frank E. Butler, 1923 Rockwood Place, Toledo, Ohio, who was de Forest's assistant throughout his experiments from 1904 on, is serving as clearing house for the de Forest Day celebrations.

Stromberg-Carlson in Frequency-Modulation Field

The Stromberg-Carlson Company has applied to the FCC for a frequency-modulation transmitter to employ the E band of frequencies which include 42.6 to 43.3 megacycles, according to Dr. Ray H. Manson, vice-president and chief engineer.

“Our 1-Kw. transmitter is to operate on Armstrong's wide-swing frequency-modulation system. We plan to conduct a very complete series of transmission and reception tests to determine first-hand the operating characteristics of this type of transmission for use in cities of the size of Rochester, giving staticless radio,” continues Dr. Manson, who adds:

“We have already designed and will have on the market in the near future a special high-fidelity frequency-modulation receiver, known as our 450-M, which will list at approximately $375 f.o.b. Rochester and which will include Mr. Olney's new design of coaxial duplex speaker system with acoustical labyrinth. This speaker system has demonstrated in tests that it will give a very smooth, wide-range audio reproduction which will take advantage of the high-fidelity possibilities of Armstrong's new frequency-modulation system.

Because there is no background noise in this new transmission system, due to static or to tube noises in the R.F. stages of the transmitter and receiver, full advantage can be taken of the high audio frequencies and give a quality of reproduction that is entirely new to radio. This 480-M receiver will contain a standard amplitude modulation tuning range, 540 k.c. to 1,700 k.c., and a short-wave broadcast range of 5,700 k.c. to 18,000 k.c., so that it is really a receiver of the future, as it provides high fidelity operation for both the amplitude-modulation and the frequency-modulation systems of transmission.

W. Keene Jackson Buys Kadette Radio

W. Keene Jackson, formerly general sales manager and director of the International Radio Corporation of Ann Arbor, Mich., has purchased the entire Kadette radio division of the International Radio Corporation and will immediately enter into production of a complete new line of Kadette radio sets in a new Ann Arbor factory.

Compacts, portables, table models, phono-combinations and television equipment are to be included in the new line which will be shown at the Blackstone Hotel, Chicago (Rooms 1018-19-20), during the National Parts Show, June 14 to 17. Executive offices have been opened at 310 First National Building, Ann Arbor.

PUSHED SMALL SETS

Mr. Jackson was a pioneer in the introduction of the very small radio, and has seen the "compact" grow to tremendous sales figures.

Until Jan. 1, 1939, Mr. Jackson was in charge of the marketing of the Kadette line as manufactured by the International Radio Corporation. During these years of merchandising, Mr. Jackson personally contacted and sold more than 350 radio jobbers and export outlets, the majority of which will continue to handle the new Kadette line.

Associated with Mr. Jackson in the new Kadette company are J. B. Hawkins, in charge of manufacturing; W. C. Walz, treasurer; Mrs. E. Kay Graves, secretary and assistant treasurer; and Richard T. Bilton, vice-president and sales promotion manager.

"All Kadette products," Mr. Jackson said, "will be sold through recognized jobber-dealer channels. This assures economical distribution of our merchandise on a national basis. Many former Kadette sales representatives will be identified with the new company."

Emerson Convention, N. Y. City, June 19-20

Ben Abram, Emerson president, announces that the annual distributor convention of the Emerson Radio & Phonograph Corp., will be held at the New Yorker Hotel, New York City, June 19 and 20.
Your advertising is your ambassador. Make it reflect your store's personality.

Today's youngsters are tomorrow's homemakers. Cultivate their friendship early and sincerely.

Timely selling displays—Fights, sports, holidays, keep attention focused on your store and your merchandise.

Follow up your prospects by phone—mail—and personal calls.

"Over the Top" to

Here Are Eight Important Factors in Creating Better 1939-40 Business for Every Man Who Sells Radio Receivers

RADIO TODAY
Bigger Sales

Build on Friendship... It Means Satisfaction and Business Permanence

JUNE, 1939

Demonstrations attract prospects—to see you—your store—and your merchandise.

A uniformed service man helps make radio sales to discriminating people.

Sincere friendliness instills confidence in your customers.

Records build store traffic—and expose your selling displays to more eyes.

JUNE, 1939
"Over the Top" to Bigger Sales

Here Are Eight Important Factors in Creating Better 1939-40 Business for Every Man Who Sells Radio Receivers

Your advertising is your ambassador. Make it reflect your store's personality.

Today's youngsters are tomorrow's homemakers. Cultivate their friendship early and sincerely.

Timely selling displays—Fights, sports, holidays, keep attention focused on your store and your merchandise.

Follow up your prospects by phone—mail—and personal calls.

Build on Friendship... It Means Satisfaction and Business Permanence

Demonstrations attract prospects—vis to see you—your store—and your merchandise.

A uniformed service man helps make radio sales to discriminating people.

Sincere friendliness instills confidence in your customers.

Records build store traffic—and expose your selling displays to more eyes.

JUNE, 1939

JUNE, 1939

RADIO TODAY

SINCERELY YOURS,

PERKINS & LEWIS

P.O. BOX 376

MILWAUKEE 1, WISCONSIN

RADIO TODAY
In the new 1940 lines now being shown to the trade, radio manufacturers have “followed through” on the hopes of expectant dealers, and are providing the products to make greater sales and better profits—make the coming season a better radio year.

Greater values characterize all lines.

Public “buy-appeal” has been sharply stepped up, with finer cabinetry, styled in better taste. Loop operation eliminates antenna wires. Horizontal dials and push-button tuning render selection of programs simple, easy and convenient.

More combinations and record-players, and newer and better battery portables, make their bid to satisfy the growing public demand.

Better appearance, better performance, greater values, will cause far more people to want to buy radio this year.

Probably the most significant feature of the 1940 radio sets is the very pronounced trend in the cabinetry.

Better taste, and greater simplicity of lines characterizes the cabinet designs of most consoles and compacts, regardless of price, and thus, by contrast with the design of the past, offer a powerful buying influence to the increasingly style-conscious ladies.

More manufacturers are producing more consoles of authentic period styling, and there are more authentic “furniture models” than ever before, to make it easier for milady to assimilate a large piece of furniture in her carefully furnished living-room.

The trend to plastics in compacts,


Stewart-Warner model 01-6A7, 3-band, super, lineardial, line antenna, push-button.

Stromberg-Carlson Key model 450M, 3 bands, motor tuning, labyrinth, bi-focal tuning, $175.
even above the lowest price levels, is spreading. More manufacturers are offering color, too, in their 1940 receivers, the better to harmonize these little sets with home color schemes.

Most major manufacturers' lines are composed of fewer large consoles, more compacts and table models. And more manufacturers are including radio-phonograph combinations and record-changers than heretofor.

This will tend to keep dealers' stocks at a lower level, and turning faster. It should prove beneficial to customer, dealer, distributor, and producer.

Unmistakable is the pronounced intention to satisfy the public demand for battery portables as manufacturers rush to provide new models in various shapes and sizes, ranging from a simple compact with a handle, to fine pieces of luggage with the radio completely concealed when not playing.

Dollar values are sharply up. Though prices trend downward in consoles and large table models, it is probable that the greater value and "buy-appeal" of the larger table models and lower priced consoles will actually result in enough increased sales in these classes to offset the battery portables and lower priced compacts, and hold the average retail price at, or a little above, the 1939 level.

The loop antenna under various trade names has been almost universally adopted from large sets to small, and so installation time and expense has been saved for the dealer.

Horizontal and edge-lighted dials predominate, and push-button tuning is almost universal.

(Continued on page 23)
New Ammunition

Novelties that Will Insure the Surrender of Customers' Dollars

Story & Clark's new Storytone amplifier piano, voiced by RCA-Victor. Providing richness and volume of piano tone, the speaker can also be operated from radio and phonograph concealed in the bench.

Wilcox-Gay's portable Recordio, below, will make home recordings and play them back. Also plays records of any type. Recordio's also available in large combination-radio Home Entertainer models.

Motorola's "Sporter"—compact camera-case portable. Weighs under 5 lb. Shoulder-strap forms loop antenna.

GE's leather brief-case portable HB 403.

RCA-Victor's new multiplex Little Nipper which provides programs or serves as remote control for any other receiver.
PLANNED FOR TELEVISION

Most manufacturers are providing means of using 1940 radio to reproduce "television sound," when television comes and, thus offer the most important means of overcoming the mental hazard which television may have raised in the minds of many people.

All of these actual individual factors add up to the following vitally important indicated trends:

2. Greater "buy-appeal," resulting in greater sales following increased selling effort.
3. Average retail price unchanged, or slightly up, with increased volume possible, indicates a better profit position for all dealers.

Go after School Supt's

In counties all over the United States, district school superintendents are interviewing their school principals and local trustees, urging them to buy radios for their schools during the coming year.

The American School of the Air is so useful and of such long standing that it is found invaluable today by schools which use it. The National Broadcasting Company devotes a half hour each day to its school programs, including science, health, music, literature and history. Each year sees a decided improvement in the quality and quantity of the educational programs available for school use.

By interviewing teachers, trustees, principals or superintendents the alert radio salesman may find a large field near at hand for sales of either large or small models depending on the finances and size of the school.

To interest teachers or trustees in a radio for school use, the dealer can get from both C.B.S. and N.B.C. pamphlets and material on educational programs for the coming year, which might prove very useful during the interview.

The school season ahead will doubtless see a greater increase in the number of radios used in the school room than any preceding year, as educators and broadcasters alike realize the fuller possibilities of this teaching medium.

Home Recording and Amateur Photography

"Some fifty years ago the photograph business was in about the same position as sound recording is today," points out Chester M. Wilcox, president, Wilcox-Gay Corp., Charlotte, Mich., producers of the new Wilcox-Gay Recordio.

"George Eastman at that time saw what no one else recognized, viz: that with the mystery cleared away and with simple equipment made cheaply because of mass production every man could become his own snap-shooter.

"He was right. Millions of families soon learned to "push the button" and now enjoy a visual record of themselves and friends at life's major moments.

"As less important can be sound recording. Is it any less desirable to have a sound record of daughter's first piano recital than her picture on the same occasion? Or her birthday, or graduation or dozens of similar occasions. Think how perfectly many happy and momentous occasions may be called to mind by a collection of such records. This is not all that home recording can do, however. It can catch snatches of history, great music, fine talks, etc., as brought to you by your radio; it can send your voice by mail and render many other important functions.

"But to make sound recording genuinely successful, it must be taken away from technicians, must be made so simple and so inexpensive that it will soon be as common-place home equipment as the Kodak. This is what Wilcox-Gay intends to do.

"The photograph industry, following this plan, not only provided pleasure for millions but work for thousands of people in their plants and profit for many more thousands of dealers and distributors in the merchandising of what has become a major industry. This will be a new opportunity for dealers to profit in a fast growing development."

Gertrude Lawrence, famous stage star, carries a new Majestic battery portable on her road tour. Miss Lawrence is currently starring in "Skylark".
Television Picked Up Clearly at 130 Miles

Contrary to theory that television programs can be received only 40 or 50 miles from the transmitting station, General Electric engineers near Schenectady, N. Y., using a standard console G.E. receiver, picked up the complete two-hour program telecast by N.B.C. from the Empire State Building on May 26. Both picture and voice were received exceptionally well, despite the fact the airline distance to the transmitter was 130 miles and the receiver was located approximately 8,000 feet below the line-of-sight. This is believed a record for reception of a regularly broadcast television program.

The temporary directive antenna, diamond in shape, was suspended from four masts with the plane of the diamond parallel to and about 40 feet above the ground. The antenna occupied a space on the ground of about 300 by 600 feet. The picture as viewed by the group was 8 by 10 inches. The place where the tests were conducted was about two miles from the new highpower television station, WABC, General Electric erecting in the Helderberg mountains, 12 miles from Schenectady.

The spot was at a location slightly higher than the station, to command the best view of New York and the south. The station is slightly down the mountainside, so that part of the mountain acts as a shield to the south, since this transmitter plans only to cover the capital district.

Soviet has vast radio market if you can get into it

Far to the rear in radio progress is Soviet Russia, a survey made for the U. S. Department of Commerce discloses. Last available figures on radio use show only 350,000 sets in a land of 165,000,000 population. And these are mainly 4-tube table jobs.

Radio is a state monopoly in the lands of the Soviets. Tax is three rubles (60 cents) for non-tube and 24 rubles ($1.80) for tube sets each year. Transmission is from 78 government-owned stations on all sorts of frequencies. In addition to standard broadcast range sets for Soviet use should cover from 250 to 545 kc, says the report.

Selling to the hammer-and-sickle country may be done only through the Amtorg Trading Corp. of New York City, state-owned importing firm. Tariff is 25 to 30 per cent ad valorem. During the first six months of 1936, about $500,000 worth of radio material was imported by Russia. These are the latest statistics, and these by country are not available.

Soviet-made sets are expensive, about $40 being the price of a popular 4-tube model. Because U. S. patents are not protected, Russian manufacturers think nothing of duplicating sets. One copy of a 6-tube superheterodyne with metal tubes now is offered at $195. In rural areas battery receivers are used. In cities, 120 volts, 50 cycles and Edison screw sockets are the electrical specifications. Soviet producers are far behind the demand.

Auto sets are unknown except on the Zis, a Soviet-made car which is equipped with a 5-tube set. There are only 400 amateur licensees, but considerable television and facsimile experimentation is being done. Police and airplane radios are unknown factors. Sound systems are used mainly for political talks.

**"Discount Buying" Menaces Radio!**

Dealers, distributors and discount houses found giving away margins, through "courtesy discounts" and industrial sales.

Radio dealers have long known that the "discount" evil and the "buy it wholesale" racket were serious factors in the radio business.

But few people realize that this "buy-it-wholesale" idea is fast becoming a national buying habit, and unless stopped, bids fair ultimately to result in a complete breakdown of our present channels of specialty distribution of home and auto devices.

All in the radio business—manufacturers, distributors and dealers alike—owe it to their own best interests to give this evil prompt and serious consideration and to cooperate with the fast growing movement to stamp it out.

The "octopus" on the opposite page is a slimy creature which has the faculty of emitting an inky fluid to obscure it from any enemy—just as the "buy-it-wholesale" practice has interests which blind and hamper its pursuers, by always pointing to "the other fellow" the while growing fat at the expense of the independent retailer.

**SAP LIFE-BLOOD**

These practices which are sapping the life's blood of our independent dealers can exist only so long as the industry permits it to exist. It's time we stopped talking and did something about it. And already action is under way.

**Sales through "Discount Houses"**

**Purchases of Appliance, Auto Accessories and Home Equipment, Reported by Harvard Business Review**

<table>
<thead>
<tr>
<th>Item</th>
<th>No. of Families Reporting Purchases</th>
<th>Percentage Reporting Purchases as at a Discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part I—Six items reported in 1,016 consumer interviews</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical Refrigerators</td>
<td>530</td>
<td>20.9%</td>
</tr>
<tr>
<td>Washing Machines</td>
<td>425</td>
<td>18.3%</td>
</tr>
<tr>
<td>Vacuum Cleaners</td>
<td>703</td>
<td>30.0%</td>
</tr>
<tr>
<td>Radios</td>
<td>527</td>
<td>20.1%</td>
</tr>
<tr>
<td>Tires</td>
<td>487</td>
<td>19.2%</td>
</tr>
<tr>
<td>Watches</td>
<td>742</td>
<td>30.1%</td>
</tr>
<tr>
<td>Part II—Twenty-two items reported in 390 consumer interviews</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture: Original Purchase (on going into homekeeping)</td>
<td>377</td>
<td>12.2%</td>
</tr>
<tr>
<td>Furniture: Most Recent Purchase</td>
<td>579</td>
<td>13.2%</td>
</tr>
<tr>
<td>Automobiles</td>
<td>331</td>
<td>8.3%</td>
</tr>
<tr>
<td>Auto Heaters</td>
<td>276</td>
<td>8.3%</td>
</tr>
<tr>
<td>Auto Radios</td>
<td>110</td>
<td>5.7%</td>
</tr>
</tbody>
</table>
Many industry and trade groups are now becoming awake to the extent of the "discount buying" evil. The widespread growth of this parasite on retail selling has surprised most merchandisers.

In its Spring issue, the Harvard Business Review revealed results of its surveys of discount purchasing in a number of retail fields. In the course of these it reported that 20% of radio purchases "were made from discount houses."

DISCOUNTS RAMPANT

Radio men with whom this 20% figure has been discussed, feel that the radio survey so reported by the Harvard Review investigators, must have been made in a relatively "clean territory" or upon some erroneous definition of "discount buying." Radio men insist that the percentage of discount selling in radio is really far higher.

Indeed, Radio Today's own survey, among manufacturers, distributors, dealers and consumers, shows discount buying rampant in the radio field, with as much as 40% of console sales being made at less than list prices.

For compacts and combinations, the figure runs about 30%. Portables average 25% through discount channels; records only 15%. The tube percentage is low because so many tubes are sold through service men who charge "list."

Even many established dealers give "courtesy discounts" to industrial, commercial, municipal and civil service employees, and to club, lodge, and association memberships.

CAPITALIZE CUT-PRICE

Such dealers are, in effect, capitalizing on their ordinary cut-price policies, and are making such policies produce greatly increased sales volume. Using original list prices on surplus and obsolete radio which they buy at liquidation prices, they give a long discount (and a sound shellacking) to the "discount buyer," the while maintaining very satisfactory profits in spite of unfrequent sales of current models at 5% over cost, which drives the honest dealer frantic.

Such stores are well known to radio distributors and are reputed to sell more radio than even the non-dealer, strictly "discount house."

*See also ELECTRICAL WEEK, May 15, 1939.
ADMIRAL 7 & 11 TUBE AC CONSOLES
With Aeroscope and Automatic Tuning

Model 380-7H—7 tube AC Super. 2 bands (540 to 1590 KC and 5.65 to 18.1 MC)—automatic volume control—tone control—automatic tuning—6" dynamic speaker—television connection—figured walnut cabinet with tilted front panel.

Model 381-7H (see above)—7 tube AC Super with 12" dynamic speaker. Otherwise same as 380-7H.

Model 394-11B—11 tube AC Super with 12" dynamic speaker. Otherwise same as 380-7H.

ADMIRAL Radio-Phonoaphraphs
With Aeroscope and Automatic Tuning

Model 382-7H—7 tube AC superhet radio with 2 bands (540 to 1590 KC and 5.65 to 18.1 MC)—automatic volume control—tone control—push pull output—automatic tuning (6 push buttons)—slide rule dial—dial lights—12" dynamic speaker—Aeroscope (no aerial or ground required)—television connection. Phonograph has new light-weight crystal pick-up with self-starting electric motor. Plays 10" & 12" records.

Model 383-7H—Radio same as 390-7H. Phonograph has new light-weight crystal pickup with quiet self-starting electric motor. Automatic record changer plays both 10" and 12" records in mixed sequence.

Model 395-11B—11 tube AC superhet radio with 12" dynamic speaker (otherwise same as 380-7H.) Phone same as 383-7H above.

ADMIRAL PORTABLE RADIO-PHONOGRAPHS

Model 153-5L—Admiral "Gypsy" in modern airplane luggage case with convenient pocket for records.

Model 159-5L—In straight grain walnut cabinet.

Both models have AC radio with 5 full working tubes—electro dynamic speaker—and Aeroscope. Tunes complete broadcast band (535 to 1730 KC). Phonograph has new light-weight crystal pick-up with quiet self-starting electric motor. Plays 10" and 12" records.

Model 311-4D—Portable battery operated 4-tube radio-phonograph in case similar to above.

ADMIRAL 5 TUBE AC-DC SUPERHETERODYNE
With Aeroscope and Automatic Tuning

Here's the price leader that will bring 'em in! AC-DC Super with 5 full working tubes in special heat reducing cabinet. No hassles! No cabinet discoloration. Tuning range 540 to 1730 K.C.—automatic volume control—automatic tuning—5" F.M. speaker—Aeroscope—television connection—smartly styled plastic cabinets.

Model 361-SQ Ivory

$9.95

MODEL 361-SQ WALNUT
AMERICA'S SMARTEST STREAMLINED PORTABLE RADIOS

Operate on 110 V. AC or DC or Self-Contained Batteries

Model 333-42—4 tube super operates on self-contained batteries that last 250 to 300 hours because of new low-drain 1 1/2 volt tubes. Complete with Aeroscope... automatic volume control... 5" P.M. speaker... modern grey tweed-effect luggage case measuring 13 1/4" x 9 1/4" x 7 1/2".

Tuning range 535 to 1610 K.C.

Model 336-5N—5 tube super operates on AC-DC or on self-contained batteries that last 250-300 hours because of new low-drain 1 1/2 volt tubes. Complete with Aeroscope. Modern aeroplane luggage case measures 13 1/4" x 9 1/4" x 7 1/2".

4 TUBE CONSOLE & TABLE MODELS

1 1/2 Volt Battery Operated Superheterodynes

Model 381-4A (Left)—Here is a smartly styled console. Operates economically because of new type 1 1/2 volt low drain tubes. Single "AB" battery pack lasts almost a year. Tuning range 535 to 1730 K.C. Has full automatic volume control—heavy duty 8" P.M. speaker—slide rule dial.

Model 104-4A (Below)—Table model with chassis same as Model 351-4A except for 8" P.M. speaker.

AC-DC SUPER WITH 5 FULL-WORKING TUBES

Aeroscope and Automatic Tuning

Special heat-reducing circuit—tuning range 540 to 1730 K.C.—automatic volume control—single ended beam output—tone control—illuminated airplane dial with rotating pointer—5" permanent magnet speaker—Aeroscope (no aerial, no ground)—automatic tuning with 4 push buttons—television connections.

Model 371-5R 372-5R 373-5R
Walnut Ivory Onyx
382-5R Walnut (Wood)

Model 367-5R

DISTRIBUTORS!
A few desirable territories still open.
Write or wire for details.

CONTINENTAL RADIO & TELEVISION CORP.
3800 West Cortland Street, Chicago, Ill.
Export Office: 116 BROAD ST., NEW YORK, N.Y.  Cable Address: CONRESQUE
FULL SPEED AHEAD WITH Admiral FOR 1940!

7 AND 11 TUBE AC CONSOLES

ADAMIRL S TUBE AC-DC SUPER HETERODYNE
With Aerocroscope and Automatic Tuning

Here’s the price leader that will bring you land AC-DC Super with 5 full working tubes in special heat reducing circuit. No ballast! No cabinet dissatisfaction. Tuning range 450 to 1570 K.C.—automatic volume control—self-starting control—automatic tuning—5 P.M. speaker—Aerocroscope—television connections—streamlined plastic cabinet. Model 382-SQ ivory

$95

382-SQ

WALNUT

382-7H

AC-DC SUPER WITH 5 FULL-WORKING TUBES
Aerocroscope and Automatic Tuning


4 TUBE CONSOLE & TABLE MODELS

STREAMLINED TABLE MODELS IN PLASTIC CABINETS — A COMPLETE LINE OF BATTERY RADIOS

ADAMIRL 6 TUBE AC-DC SUPER HETERODYNE
6x full working tubes in special heat reducing circuit! No ballast! No cabinet dissatisfaction! Tuning range 535 to 1630 K.C.—automatic volume control—self-starting control—automatic tuning—5 P.M. speaker—Aerocroscope—television connections—streamlined plastic cabinet. Model 386-SJ Walnut

DISTRIBUTORS! A new desirable territories still open. Write for complete details.

CONTINENTAL RADIO & TELEVISION CORP.

3800 West Cortland Street, Chicago, Ill.

Export Office: 116 BROAD ST., NEW YORK, N. Y.

Cable Address: CONRESQUE
More Ammunition—What's New

Latest radio products from manufacturers

3 source portable

Insulated flashlight

Midget tubes
★ Four new "GT" midget tubes include: a 6SA7GT single-ended pentagrid converter with unipotential cathode and using a T-9 glass bulb with octal 3-pin base. Heater voltage is 6.3 volts current, 0.3 amp. The 12SA7GT is same type with heater voltage of 12.6 volts and current 0.15 amp. Type 3526GT is a cathode type half-wave rectifier featuring a 35 volt, 150 millamp heater with extruding tap. Type 25D8GT is a heater type diode-triode-pentode for small ac-dc receivers. Arcturus Radio Tube Co., 720 Frelinghuysen Ave., Newark, N. J.—Radio Today.

De luxe Arvinet

Auto radio
★ Directed at used car market new "Pee-Wee" auto radio may be installed on car steering column or lower edge of car dash. Suppressors less 4 tube superhet. Has AVC, thumb-dial tuning control and low-draft tubes. Uses electro-dynamic speaker. Single unit steel case. Allied Radio Corp., 533 W. Jackson Blvd., Chicago.—Radio Today.

Electric phonograph

Television kit
★ Video receiver kit with roomy double deck chassis incorporates three vision I.F. stages. Automatic background control protects cathode ray tube from excessive wear insures steady picture. Comes with compact walnut console with four controls. Five or seven inch cathode ray tube interchangeable with no circuit changes. Eighteen other tubes and 10 inch speaker are used. Observox Div., Fulton Radio Corp., 100 6th Ave., New York, N. Y.—Radio Today.

Aerodynamic microphones
★ Low impedance (250 ohm) microphone, model MI 6226D has new list price of $19.95, a reduction of $3.00. The 40,000 ohms impedance instrument, model MI 6228D, lists at $21.95, $4.00 less than former. Both are equipped with 30 foot cables. RCA Mfg. Co., Front & Cooper Sts., Camden, N. J.—Radio Today.
**Wireless outfit**

* Miniature unit enables voice or music to be heard through radio without wires. No connections to radio. May be used as intercommunicator. $3.95 net including tube and mike. Mystic Mike Co., 362 Wooster Ave., Akron, Ohio.—Radio Today.

**Video fuse**

* Voltage fuse, for use in television high voltage lead protects tube against loss of bias, insulation failures, shorts, etc. Also becomes vital as protection against lethal shock in video receivers. Comes in ratings as low as 1/1000 of an amp. Vacuum enclosed, will break 20,000 volts peak. Six sizes between 1/1000 and 1/16 amp. Littelfuse, Inc., 4238 Lincoln Ave., Chicago.—Radio Today.

**Record changer**


**Volume control kit**

* Ten midget controls each 1/4 inches in diameter, five types of attachable shafts, etc., housed in hinged metal box. Replacements cover more than 400 makes of receivers and models of each. Centra-lab Division, Globe Union, 900 E. Keefe Ave., Milwaukee, Wis.—Radio Today.

---

**Dynamic mike**

* Twin transformers on square cores with secondaries in series eliminate hum in dynamic microphone. No polarizing or button current needed. Freq. response is 40 to 8,000 and output —58 db. Has 3-conductor lock ring plug, 25 feet rubber-covered cable. Finish is satin golden plate. Hinged yoke cradle. Universal Microphone Co., 424 Warren Lane, Inglewood, Calif.—Radio Today.

**Recorder-phonograph**


---

RCA-Victor offers sound effects for young America in this electrical kit, which also allows the youngsters to experiment with radio and public address systems.
Sonora Presents

the "Clear as a Bell Line"

... for 1940!

... A COMPLETE LINE... 41 MODELS... "TEENY-WEENYS"... COMPACTS... MANTEL TYPES...

PLASTICS... CONSOLES... PORTABLES... AUTO SETS... PHONO COMBINATIONS...
COMPLETE ELECTRIC PHONOGRAPHS AND PLAYERS... $7.99 TO $99.50 LIST... Yes, SONORA is "all there" for 1940! SONORA has the "edge" on Class, on Price, on Sales Appeal—on famous "Clear as a Bell" Tone Quality! You've never seen such a complete and beautifully balanced line. It's "Designed for Selling" right from the smallest "Teeny-Weeny" to the most luxurious big 12-Tube console model. SONORA for 1940 is right all the way down the line—right in engineering, in styling artistry, in beauty of tone—right-priced, too, for today's market. And there's the twenty-five-year-old reputation and prestige of a great name back of this line—a name that means SALES! And to top it all, there's the SONORA jobber policy—intelligent, sound, desirable—it brings you the outstanding radio profit opportunity for 1940!

See the SONORA Line at the Show—On Display at The Blackstone Hotel!

A FAMOUS NAME
A COMPLETE JOBBER POLICY
A GREAT "PACKAGE PLAN"

MODEL TV-48. A magnificently styled new AC-DC Superhet in one of the most attractive plastic-mold cabinets ever created. Tunes 1720 to 535 K.C. Features include: new 150 mil tubes—no ballast, no heater cord; P.M. Dynamic Speaker; 1½-Watt Output; A.V.C.; large, molded Full-Vision Dial; attached 20-foot antenna. Size: 8½" x 4½" x 3½". Available in Ivory or Walnut. A sensational Style and Value Leader!

MODEL TV-49. America's lowest-priced Automatic Tuning Radio. A brilliant AC-DC plastic-mold Superhet. Tunes 1720 to 535 K.C. Built-in "Sonoroscope"—no aerial, no ground required; no ballast tube or heater cord; 5½ P.M. Speaker; 1½-Watt Output; A.V.C.; effortless ¾ stroke. Button Automatic Tuning; Full-Vision Drum Dial; size: 11½" x 6½" x 5½". In Ivory or Walnut.


MODEL TN-45. Another 1940 AC-DC Superhet of outstanding beauty and appeal. Tunes 1720 to 535 K.C. range; built-in "Sonoroscope"—no aerial, no ground required; new 150 mil tubes—no ballast or heater cord; 5½ P.M. Dynamic, Gem-Loid Dial. In a new style cabinet, Walnut finish. Size: 8½" x 5½" x 3½".


Sonora
Clear as a Bell
RADIO AND TELEVISION CORP.
2626 W. WASHINGTON BLVD., CHICAGO
132-4 WEST 22ND STREET, NEW YORK
A GREAT NAME SINCE 1914

RADIO TODAY
New Sound Products

Five-tube amplifier

● Five-tube amplifier provides 10 watts output with frequency response from 50 to 10,000 cycles. Uses push-pull 6V6 beam-power amplifiers in output stage. Input channels provided for low-level mike and phonograph and provision for mixing the two. Included are a tone control and a built-in output transformer. Complete enclosed in steel cover with handle. Available alone or with coordinated sound system. Operates from 115 volt AC line. Lafayette Radio Corp., 100 6th Ave., New York, N. Y.—Radio Today.

High-power sound system

● 24-36 watt, four channel-two microphone amplifier and sound system features dual microphone input, simultaneous operation of two microphones and phonograph and optional remote control of two microphone channels. Has seven tubes including two beam power tubes. Inverse feed-back, field supply for two heavy duty speakers, tone control and multiple impedance output transformer are other features. Model A-40-R amplifier lists at $42. less tubes and cover. Complete system includes amplifier, microphone, floor stand, two 12 inch dynamic speakers, two wall-type baffles. Model C-439. List $128.73. Transformer Corp of America, 69 Wooster St., New York, N. Y.—Radio Today.

Mobile amplifier

● 28 watt AC-DC mobile amplifier has three input circuits with separate gain controls accommodating two high-impedance mikes and a phono pick-up. Standby switch turns off vibrator plate supply eliminating “warm-up.” Thordarson Elec. Mfg. Co., 500 W. Huron St., Chicago, Ill.—Radio Today.

Record player

● Professional transcription and record player has remote control unit able to operate 50 feet from player and control volume. Uses 16 inch aluminum turntable accommodating all records and transcriptions up to 171/4 inches. Other features include: built-in amplifier with four watts output, 10 inch P.M. dynamic speaker, induction type phono motor with 78 and 33 1/3 R.P.M. speeds for 110 volts AC or DC, 25-60 cycles. Built-in tone control. “Knight.” Allied Radio Corp, 833 W. Jackson Blvd., Chicago.—Radio Today.

P.A. loudspeaker


25-inch loudspeaker

● Weather resistant speaker consists of single metallic exponential type horn driven by two dynamic receivers in aluminum housing. Has substantially uniform frequency response over range from 110 to 6,500 cycles. When driven by 59 watt amplifier is capable of radiating about 17 watts of acoustical energy. Directional characteristics permit faithful reproduction throughout 90 degree angle. Weight 65 lbs. Measures 50 inches overall in length, 25 inches wide at bell. Model 6030. Western Electric Co., 195 Broadway, New York, N. Y.—Radio Today.

6 WATT PORTABLE PUBLIC ADDRESS UNIT

A favorite with traveling lecturers, concessionaires, and small orchestras. Extremely portable, light, compact. Gives fidelity, clear reproduction. Has built-in tone control to vary type of frequency response. Comes in a durable leatherette carrying case, housing the entire unit. One part acts as the amplifier base . . . the other as a speaker's horn. Designed by THORDARSON. Has four 6 inch electro dynamic speaker with 25 feet of cable, and a Model 8720 Crystal Microphone Assembly with 15 foot cable and plug. Complete description and price in new catalog.

This NEW P.A. CATALOG FREE

Catalog 16, showing the NEW Operadio line, is just off the press. Every dealer and serviceman should have a copy. Free for the asking. Write today, Address Dept. RT6.

OPERADIO MANUFACTURING COMPANY

Dept. RT 6 — ST. CHARLES, ILLINOIS

Export Division: 145 W. 45th St., New York

More Sound Products

Professional recorder

* Leader in new line of recorders is model with 12 inch turntable recording at 33 1/2 or 78 r.p.m. Dual action lever control cutting head. Internal rim drive completely insulated. Symphonic induction play-back. Indicator for depth of cut. David Bogen Co., Inc., 663 Broadway, New York, N. Y.—Radio Today.

Sound amplifier

* New series offers two sizes of sound amplifiers with 30 and 70 watt RMA ratings. Featured are extreme fidelity, four low-impedance (250 ohms) mixing circuits, all with remote mixing, and walnut-finished cabinet with slanting panel recessed and edge-glow illuminated. Pre-amplifier and power stages are sectionalized and designed for rack and-panel mounting. Second mixer and extra power stages can be added up to total output of 280 watts. Webster Co., 5622 Bloomington Ave., Chicago.—Radio Today.

12 watt sound system

* Compact 12 watt portable sound system comes complete with amplifier, crystal mike with 20 foot shielded cord and plug, banquet microphone stand, 2—10 inch P.M. dynamic speakers with 50 foot cords and plugs and split type portable carrying case. Frequency characteristics within 3 db. from 45 to 10,000 cycles. Power output 12-13 watts at 13 per cent distortion. Outputs 2/4/6/250/500 ohms available. Power consumption is 72 watts at 115 volts. Webster Electric Co., Racine, Wis.—Radio Today.

AC-DC amplifier

* Simple switch changes DC input to AC on universal amplifier. Output is 15 to 20 watts on both voltages. Universal motor and turntable mounted on removable cover with tangent arm crystal pick-up. Separate inputs with electronic mixing for mike and phone. Output is tapped for all speakers. Amplitone Products Co., 165 Liberty St., New York, N. Y.—Radio Today.

Marine horn


Recorder-playback

* Low cost recorder will cut up to 12 inches on acetate coated or aluminum discs with 5 1/2 minutes playing time. Monitoring of volume done with earphones. Equipment includes high frequency cutting-head, amplifier, turntable and dynamic or crystal mike. Comes in portable leatherette case with P.M. speaker and cord in lid for use as p.a. system. Universal Microphone Co., 44 Warren Lane, Inglewood, Cal.—Radio Today.

Communication receiver

* Ten tube communication receiver with built in frequency monitor, uses noise limiter, an "R" meter, one stage R.F. and two stages of L.F. with a beat frequency oscillator and optional crystal filter circuit. Output of 4 1/2 watts supplied to external speaker. List $79.95 with speaker, less crystal. Howard Radio Co., 1731-35 Belmont Ave., Chicago.—Radio Today.

15 watt system

* 15 watt high gain amplifier uses inverse feed-back. Tone compensator helps eliminate speak-back difficulties. Three input channels with separate volume controls mix two microphones and phone pickup. Has beam power output tubes and tap switch for selecting impedances. Includes 3-inch P.M. loud speakers and choice of dynamic, velocity or crystal mike. System can be wired for remote control and is available without carrying cases for permanent installation. Bell Sound Systems, Inc., 1183 Essex Ave., Columbus, Ohio.—Radio Today.

Motor and pick-up assemblies

* Two phonograph assemblies each include pickup of high-impedance crystal type with true tracking feature, non-set stop, 10 inch turntable and mounting plate. Both play 10 or 12 inch records. Model AKX has G.I. KX motor while Model AXX has CX motor. Available for all AC voltages and cycles. Not furnished for DC. General Industries Co., Elyria, Ohio.—Radio Today.

Dynamic mike

* Dynamic microphone available in three models: 30, 200 and 500 ohms. Last two incorporate a built-in, wide-range impedance-matching transformer. Response curve of each unit individually plotted, copies free on request. Model 702-D. Carrier Microphone Co., Inglewood, Cal.—Radio Today.
New 1940 General Electric line offers more sales-making features than you've ever seen before... PRICED AT SENSATIONAL NEW LOWS

In features — in styling — in performance and values the new 1940 General Electric line tops any radio line in G-E history.

There are 33 brilliant new plus-value models, covering every important price bracket. The line is especially strong in radio-phonograph combinations and record players.

The sensational new features include:
- New Super-Beam-a-scope
- New Super-Powered Chassis
- New Sight-Angle Visualux Dial
- New Dynapower Speaker
- New Television-Audio Key
- New Feathertouch Tuning

plus a score of other great new improvements.

Dealer showings start June 20th.

Phone, wire or write your G-E Radio Distributor NOW!

DON'T FAIL TO SEE THE NEW G-E X-RAY SALES MAKER

... the greatest sales-clincher ever seen on a radio dealer's floor

RADIO AND TELEVISION DEPARTMENT, BRIDGEPORT, CONN.

GENERAL ELECTRIC
Radio Prices—and Profits

Must receiver prices go up—or expense go down—to bring profits back to the radio dealer?

From most dealers, from all parts of the country, comes the plaintive cry that “a radio dealer can’t make money at present prices.”

There is little question that dealers don’t make money at present price levels—although whether they can’t make money is another matter.

Dealers say that at $6.95 and $9.95 and $14.95, their margin is less than their unit cost of selling. But dealers continue to give discounts, even on these low-priced, short-margin sets. These two facts just don’t reconcile, though both are probably true.

From all indices at this time, it would seem quite likely that the bulk of our radio sets in the future will be sold around $25.

**PRICES IN OTHER LINES**

First, because people are buying lower-priced homes.

Second, because people are buying lower-priced automobiles.

Third, because even the very small sets give such excellent performance that they are good enough for the tastes of most people.

Fourth, because console styling has so completely failed to harmonize with the furniture of milady’s choice that she still prefers to “hide the radio” if she can.

Fifth, because in most homes it has become more desirable to have two or three small sets, than to have one large set, so that the diverse listening preferences of mother, father, and youngsters can be more easily satisfied.

From a survey among many radio dealers, it appears that the principal reasons radio dealers don’t make money on $20 sets is because such dealers are at present set up to sell $100 sets! It is time they reshaped their merchandising methods to present price levels.

The 5-and-10-cent stores have certainly demonstrated the fact that money can be made selling 5-and-10-cent articles. Radio dealers can learn much from the F. W. Woolworth outlets.

**STREAMLINED SELLING**

Their operation has been stripped of all non-essentials, and streamlined for speed and efficiency! And so most the dealer in radio streamline his operations from now on.

The 5-and-10 does a “cash and carry” business, which provides a maximum velocity of capital turnover, a minimum of system, expense and personnel, and no credit losses. If 5-and-10 merchandise fails, or is defective, they replace—never repair—and so make unnecessary an expensive system for handling service on their products.

To meet the “low-priced radio” problem, radio dealers must streamline their operations.

These are some of the things radio dealers must do, if they expect a return of profits to their business.

**TEN STEPS TO TAKE**

1. Sell small radios “cash-and-carry,” or add a charge for delivery.
2. Give service at the store only, or charge for the pickup and delivery.
3. Take on other lines of merchandise to absorb overhead, and thus reduce the fixed cost chargeable to radio. Such additional lines are cameras, photo supplies, hearing aids, phonograph records, small electric appliances, major electric appliances, sporting goods, etc.
4. If the dealer’s high-rent location doesn’t provide the store traffic necessary for radio, and he doesn’t care to add other merchandise then he must get out of the high-rent district.
5. Arrange store displays so as to most effectively display radio merchandise and sell it.
6. Sell time-payment radio on a “weekly payment at the store” basis and thus keep exposing customers to store selling displays.
7. Keep postcard “direct-mail” working, consistently, to keep customers and prospects aware of the store and the new things they should buy.
8. Know just what it costs to do business—and why.
9. Reduce expense wherever possible.
10. Stop giving away profits to customers.

Dealers who are doing these things, are showing a profit, selling radios at present prices.

**Radios tagged $3,000**

* While the American radio market concerns itself with set prices around $9.95, a new line is being produced in Britain to sell at $3,000 up.

The wealthy rajahs and merchant princes of India have a wild taste for fancy radios, elaborately doddled up with jewels, inlays, filigree, and all the spangled knick-knacks. So Phileo Radio & Television of Great Britain engages the famous American industrial designer, Raymond Loewy, to create the super models to sell for three grand.
A Message of Importance to Every Radio Dealer

"Farnsworth Television & Radio Corporation plans to introduce a complete line of radio receivers and radio-phonograph combinations. This line will cover every important price market, ranging from an outstanding price leader in the $10.00 bracket up to deluxe automatic combinations equipped with a special new record-changer designed and manufactured by the Capehart Division of the company.

"Initial shipments of this new line will be made within the next 60 days and I strongly urge that every dealer plan to consider the volume and profit opportunity in Farnsworth before concluding arrangements for the Fall season. Details of the line and the promotional program will soon be announced through a national distributing organization that is rapidly being completed."

E. A. NICHOLAS
President, Farnsworth Television & Radio Corporation

Farnsworth Television & Radio Corporation—Manufacturers of Radios, Radio-Phonograph Combinations, Television Receivers, Television Transmitters and Special Apparatus — 3700 Pontiac Street, Fort Wayne, Indiana.

Farnsworth
RADIO
RADIO-PHONOGRAPH COMBINATIONS — TELEVISION

THE HISTORY OF TELEVISION IS THE HISTORY OF FARNSWORTH

JUNE, 1939
Television’s First Month

How Dealers Are Using It to Sell Radio

As we go to press, television in New York is five weeks old, and is still just a toddling infant.

Television has a tremendous future as an industry. That everyone will agree. But like all great industries, it must go through its transition stage, in developing methods, manpower, engineering applications, etc. Television has great promise. But its immediate development is necessarily slow. And in these weeks of 1939 we are watching the future giant creep.

Radio Today has kept in close touch with the way television has been selling, how it is being used to help sell other things, and can now tell you definitely what has happened.

As was expected, initial public interest ran high, and people flocked to see television demonstrations during the first two weeks. But this interest now seems to have passed its high point for the present.

REALIZATION LESS THAN ANTICIPATION

Sales to the public in the New York television area have totalled about 350 sets during the first five weeks, a considerable disappointment to expectations. But with future improvement in programs and increase in the number of outlets, considerable strengthening of television-receiver selling is looked for in the Fall.

Television has started slowly.

The prediction of Radio Today in April that “television has already done its greatest damage to radio sales, and from now on will have less influence,” is amply borne out.

The public came, they saw, but didn’t buy television.

All dealers questioned reported that “television has not hurt current radio sales,” in fact, owing to the popularity of portable battery radio, “radio sales are as good as, or better than last year.”

Most dealers, and particularly department stores and others with a broad assortment of merchandise, capitalize on “looker interest” by so placing their television demonstrations that lookers will be exposed to many selling displays.

In contrast to this, many small dealers have found their stores literally packed with lookers, making sales of radio, or anything else, almost impossible. Typical of such a condition is the picture of the Burnett & Hillman store at Ridgewood, N. J.

One interesting means of preventing looker interest from conflicting with store selling was adopted by the Wm. P. Squire Co. of Pompton Lakes, N. J, who erected an outdoor booth, adjacent to his store.

PROGRAMS CRITICIZED

Most dealers told an honest story of television, and made no real effort to sell television. One large dealer frankly tried to sell to see what could be done. He reports the sales of 12 televisions, which had no effect on his radio sales.

Although most actual sales have been of the small picture sets, most “looker” criticism was on programs.

Two of the six new Philco television sets revealed at French Lick this month. The 10TRS (top) delivers a 10-inch picture, with sound. The 6TC converter (below) can be used with any 1940 Philco, and produces a 6-inch picture.

Common comment at recent demonstrations has been “Television has a long way to go before I’ll want to buy one.”

Although a telecast of a college baseball game made news, the field of view of the camera was so limited that only the announcer’s play-by-play description kept the telecast alive.

This telecast added nothing to the public’s desire to own television.

Undoubtedly, as experience and technique permit, programs will improve. And as programs become more frequent and more nearly meet public desire, sales will improve.

LESS THAN 10,000 FOR YEAR

Radio Today’s estimate of television’s 1939 sales is 7,000 to 10,000 units, with more than 60 per cent of total sales made in the last quarter.

In the next few months we have little to fear from television, except the fear itself. But we should expect very little in direct sales.

Throughout the country, dealers should watch New York, take courage in the fact that television’s greatest damage to radio has already been done.

It is a good sign indeed for radio that television is coming slowly, that manufacturers and dealers are not stampeding and that the public has its buying feet on the ground.

Crowd attracted to a demonstration of Dumont television receiver in store of Burnett & Hillman, Ridgewood, N. J., during television’s first month on the air.
YOU HAVE A COUPLE OF DATES WITH US!

Majestic
PREVIEW
AT OUR FACTORY
JUNE 10th to 24th
Take a Yellow—
charge Majestic

FORMAL
DISTRIBUTORS'
CONVENTION
DRAKE HOTEL
JUNE 28th • JULY 3rd

It's so much easier
to sell Majestic!

SEE MAJESTIC
ADVERTISEMENT
ON PAGE 11

Majestic
RADIO & TELEVISION CORPORATION
2600 W. 50th STREET • CHICAGO, ILL.
Cable Address: "Majestico-Chicago"

JUNE, 1939
Forecasting the day when a million rabid fans will cheer lightning double-plays in their own homes, here's the first baseball game ever televised. RCA television camera at Baker Field, New York, May 17.

When Television Comes

Television is now available in limited areas. But even in those territories it is taking hold very slowly.

No rush of buyers has yet emerged from the crush of lookers at the television demonstrations in New York.

Television receiver sales are starting very modestly. So far only a few hundred sets have been sold. So Radio Today repeats: "Radio has little to fear from television."

* * *

With the hysteria of anticipation behind us, we can now plan calmly and soundly for the future of television. Here are some suggestions:

1. Television discounts must necessarily be studied, else the consumer price may be too high and sales will be restricted. Short discounts will prevent price cutting.

2. Prices to consumers should be held as low as possible, to widen the market to its limit.

3. Distribution will have to be limited to competent jobbers and dealers because of the installation and service problems involved.

4. Manufacturers cannot survive in television without adequate engineering and service.

5. Experience abroad indicates that the cost of antennas and installations vary widely, and should be priced separately.

6. The industry and trade should cooperate in formulating promptly a virtual code of ethics or code of practice for television—establishing the right principles at the outset, to start television merchandising along sound and profitable lines.

Radio men have suffered enough from the jungle methods of unrestricted commercial warfare.

Let's sell Television right when it goes national.
FREEZORCOLD
TWO TEMPERATURE
SHELVADOR

CROSLEY REALLY OPENS
THE PROFITABLE
REPLACEMENT MARKET

Here is an entirely NEW refrigerator that will revolutionize home refrigeration. It will be a source of steady business for alert dealers right through this summer and next winter.

THE CROSLEY CORPORATION
Home of "The Nation's Station"—WLW—70 on your dial
POWEL CROSLEY, Jr., President
CINCINNATI

FREEZING COLD STORAGE

for meats, game, frozen food, ice cream, pie dough. Gives women NEW ideas on home refrigeration—advantages of frozen food sales—provides EXCUSE to get rid of old, out-moded refrigerators.

MOIST FOOD STORAGE

High humidity efficiently obtained by use of secondary coils keep cooked and other foods at peak of flavor—does not dry them out—keeps vegetables garden fresh for incredible time.

QUALITY PRODUCT

Freezorcold Shelvadors incorporate every proven practical feature of standard refrigeration. Fabricated from A-1 materials throughout in the finest plant of its kind in the U. S. Equipped with quick ice cube release, high humidity crisper, sliding and removable shelves, illuminated cold control, interior light, improved electro-saver, hermetically sealed power unit. Dulux finished exterior, acid resisting porcelain interior, brilliant, oversized sturdy hardware.

PRACTICAL SHELVADOR

It is to be expected that such a practical method of making ALL refrigerator space usable would be imitated. But the Shelvador is a feature of convenience that does not cut into the space inside of the refrigerator.

—and the entire refrigerator is accessible by the opening of only ONE door.

The Shelvador's efficiency and convenience is attested in signed statements by women from one end of America to the other.

PRICES START BELOW $200.

CROSLEY CORPORATION, Cincinnati, Ohio.
See the Crosley Building at the New York World's Fair

MAIL COUPON TODAY

TO $20. MORE THAN PRICES OF COMPARABLE REGULAR & DELUXE SHELVADORS

□ Crosley Automobile
□ Freezorcold Shelvador
□ 6 ft. LEADER Shelvador at $99.50
□ Crosley Press Jr. Camera
□ Crosley Radio
□ Reado facsimile
□ Washers and Ironers
□ Gas and Electric Stoves

I WANT TO MAKE MONEY

Name__________________
Address__________________
City__________________State__________________

JUNE, 1939
"Lagoon of Nations" at N. Y. World's Fair proves to be the answer to a sound man's prayer. "World of Tomorrow" impossible without sound of today.

Of all visitors to the N. Y. World's Fair, none will return with such a richness of ideas, such faith in his importance in the workaday world, as the man who earns his salt in sound.

Every step he takes—and he'll take many—will be accompanied by music or speech issuing from installations deemed almost impossible by conservative engineers a year ago. Everywhere he looks he'll see the masterpieces of his fellow craftsmen in sound.

But the satisfaction derived from viewing these most modern of sound installations is nothing compared to the profit to be reaped from their application to the sound man's local opportunities in his own town. Fairs and displays are an American tradition, and no matter how small the community, opportunities for reputation-building installations are knocking on the sound engineer's door. County fairs, political rallies, ball games, sports meets, amusements, public auctions, and a thousand-and-one attractions are dependent upon sound for their success. All of these will be influenced by the surpassing installations at the World's Fair.

The immense sound installation under the Perisphere at the N. Y. World's Fair was described in Radio Today's April issue. None the less impressive is that in the Lagoon of Nations, where a breath-taking display of synchronized sound, water, lights, gas flames and fireworks takes place at nine each evening.

Here eight huge projector units are called upon to handle the output of a 2000-watt amplifier system, distributing concerts to outdoor crowds which at times reach 300,000 people.

Operation of this entire sight and sound presentation is remote-controlled from a glass-enclosed tower atop the nearby Federal building.

LIGHT, FLAME, WATER, SOUND

Here control boards for the sound system, and banks of hundreds of tiny toggle switches enable operators to control every action of lights, water, fire and fireworks. When it is realized that the fountain consists of 1,400 water jets, flame of approximately 150 jets, the fireworks display of 300 mortars and the lighting of well over 600 units each capable of providing light of a half-dozen or more colors, the proportions and complexities of the control system can be appreciated. Thus it is possible instantly to vary the height of water from any jet, or group of jets, the height of the flames (some of which can be made to rise 50 feet in the air), and the number, intensity and color of individual lights and groups.

All of these operations are varied in accordance with special scores for music and for each of the elements; all coordinated in one awe-inspiring symphony of gigantic proportions, combining the aesthetic with the elemental on a scale never before attempted. Every operation is timed to a split second and perfectly synchronized by means of cue sheets moving before the operators at the various control panels and at the studio. There are some ten or twelve operators in all, with John G. Lawrence (who has worked on the project since its inception) now superintendent in charge of the entire display.

COMPLEX PROBLEM

The problems of the Lagoon of Nations installation were such that some of the leading authorities in the field believed they were insurmountable. Here was a great oval lagoon, planned as the scene of a company in which, perhaps for the first time in the history of the world, music and the elements—water, fire, light, and even thunder and lightning—were to be combined in one great extravaganza of sight and sound.

Volume requirements for the musical reproduction were set by a number of factors. First, the location was outdoors with the audience massed in a great circle averaging 250 feet or more distant from the sound projectors. Second, the projectors were to be located in the heart of the spectacle amidst fountains throwing 20 tons of water into the air at one time, great jets of flame consuming half a million cubic feet of gas per hour and burning with the roar of blast furnaces, and with intermittent percussions of aerial bombs and other fireworks.

The quality of reproduction must obviously be of the highest, in keeping with the every other phase of the demonstration. This meant that every link of the chain, from microphone to reproducer, must be as flawless and perfectly coordinated as human ingenuity could make them.

BLUDWORTH CO-ORDINATOR

It was into such a maze of unusual problems that T. Frank Bludworth was drawn as chief planner and co-ordinator. Obviously the sound projectors and their driving units constituted the first and most pressing problem. The finally accepted system being the one developed by Cinaudagraph engineers. This system consists of a group of four drum-like structures...
Sound, light, color and flame combine nightly in this stunning spectacle of the Lagoon of Nations at the N. Y. World's Fair. The great speakers, delivering 2,000 watts, and producing stereophonic and unison effects, are contained in the circular “igloos” seen in the foreground. T. F. Bludworth New York, planned the sound layout, equipment for which was furnished by Cinaudagraph, Western Electric, Amertran, and United Transformer.

24 feet in diameter and 7 feet high, into each of which is built two great horns which are turned back within themselves to conserve space, bringing their wedge-like apexes back to the center of their mouths. Each of these horns has an opening approximately 13 feet wide by 7 feet high and is so shaped as to project sound in a shallow layer of such predetermined width that the combined area of coverage of all horns is a full 360 degrees but with sufficient overlapping to permit a special stereophonic effect described later.

As mentioned, these drums, or “igloos” as the engineers at the Fair have dubbed them, must necessarily be located in the center of the spectacle, which means that the loudspeaker units are operated in a consistently saturated atmosphere, with tons of water pouring over their housings at times, and great masses of spray actually blown into the horn openings. This was a relatively minor problem, however, compared with the radical requirements established for frequency response, power handling ability and efficiency.

UNIT 28 TO 256 CYCLES

To meet these requirements, a Cinaudagraph dynamic unit is combined with two Western Electric 594-A high-frequency units as the driving equipment for each projector. Some idea of the unusual features of this Cinaudagraph unit is obtained from the fact that its “pot” weighs just short of 500 pounds, its diaphragm is 27 inches in diameter and its voice coil 6 inches in diameter. It is mounted inside the apex of the horn, thus providing it with a reasonable amount of protection from spray, especially as its diaphragm is facing to the rear toward the hairpin bend of the horn and therefore directly away from the opening.

This speaker unit is called upon to handle the frequency range from 28 cycles to middle C, since obviously it would be impossible to have a single unit meet the requirements for efficient operation at 28 cycles and at the same time provide effective response in the higher ranges. The higher register is taken care of by the pair of Western Electric units. These feed through a twin-coupler into a smaller W.E. cellular horn mounted in a cut-away section of the apex of the large horn but facing outward with its mouth centered in that of the larger horn opening.

Two projectors in each “igloo” are mounted side by side, their mouth
openings constituting approximately 120 degrees of the circumference of the structure. The other two-thirds of the interior of these drums is utilized for housing the relays and valves for the bell rings, flame jets, etc., all of which are remotely controlled from switchboards in the main control tower some hundreds of feet distant from the lagoon. The four "igloos" are spaced to form the four corners of a rectangle 120 feet long by 60 feet wide. This placement was planned without consulting the sound engineers and at first seemingly involved a serious problem of phase relationship. But the wide spacing was later turned into an asset through the rather simple expedient of designing the entire system to function in a stereophonic manner.

STEREOPHONIC EFFECTS

The pick-ups are placed at each side of the band (the sound system being designed primarily for the reproduction of band music) and the amplifier and sound channels associated with each microphone are kept separate throughout, each terminating in projector units diagonally opposite from one another. Thus listeners standing at any positions will hear the reproduction in its original perspective. From the projectors at their right hand will be primarily the instruments located in the right half of the band, while those at the left will be heard principally through the projector on the left. Thus a highly effective and natural binaural or stereophonic effect is produced. Within limits the effect varies as the listener moves away from any of the four positions, but this would also be true were he to move to one side of the studio in listening to the band directly. It is believed however, that this is the first sound installation to attempt such an effect outdoors and over an entire 360-degree area.

Each "igloo" has its separate amplifier channel following the common speech amplifier located in the studio. Special lines are supplied by the telephone company and are such as to provide response up to 15,000 cycles. Because they are cabled in with other audio and control lines of the company, they are tested daily for response and impedance.

Sound Man Announces Names of Lost Kiddies

One way in which Roy Bannor, owner of the X-L Radio Shop, of Morris and Sandwick, Ill., builds a lot of good will in his territory is by announcing over a public-address system at his display booth the names of lost children at various country and township fairs.

This is a service which is free, and many fair visitors take advantage of it. People have come to know that when they are looking for lost children to let Mr. Bannor know, and he will give the item broadcast notice on his local sound address system. He takes care to announce such items at a time when people are listening.

"This service is deeply appreciated by parents," says Mr. Bannor, "and while I would do it solely as a civic gesture, I do know that it has brought me business in a number of instances."

New use for sound. Guides taking groups through Schlitz brewery, press buttons starting heard recordings describing each operation. Results in better explanations, better heard by visitors, than when guides formerly attempted own explanations.

Guide's Push Buttons Start Recorded "Lectures"

The Schlitz Brewing Company, Milwaukee, had a problem on its hands when it found that 5,000 people came each week to visit its plant and inspect the brewing operations. The guides had a difficult time, both in remembering what to say and also in trying to override the noise of the machinery. The solution proved to be the installation of a record-playing and amplifying system using marine horns made by Atlas Sound Corporation.

The record transcriptions were made by Bob Heiss, announcer for WTMJ. Installation was completed by the Continental Engineering Corporation of Milwaukee.

The speakers, installed in the brewing house, racking house, engine room, in the sternwirt, and the bottling house, now speak forth in loud stentorian tones, as the guide presses a button at each position, initiating an excellent stage-by-stage description of the Schlitz brewing operations.

Tower Chimes Win Public Favor

One of the most complete electronic installations made during the present popular trend toward tower chimes, is that made by Rangertone in cooperation with W. D. Morton of the Kolo- graph Company, at the Institute for the Blind, Indianapolis, Ind.

Here an unusual opportunity was offered with a fine landscaping effect because of the ample grounds around the school. The tower rising above the school gives a commanding outlook for miles around on the north side of the city. Through James Lowry, special engineer at the school, excellent facilities were provided for the chimes installation with a small studio-like soundproof room containing the 25 tubular chimes and the 49 note Vibraharp. The microphone pickup is led to an adjoining room with double-glass partitions between the two, for observation purposes, and a 200-watt amplifier delivers the audio output to four speakers in the tower. A manual and automatic console operates the equipment; one keyboard plays the chimes and the other keyboard the Vibraharp. The automatic player works from paper rolls and in conjunction with an electric clock, gives four selections at specified times during the day. An automatic ringing mechanism in conjunction with another electric clock provides the Westminster melodies for hours and the quarters, from nine in the morn- ing to nine at night.

"It would be hard to find an installation which is more favorably situated spiritually as well as physically," comments Col. R. H. Ranger.

Up Go Speakers!

University speakers raised by a winch attached to pulleys on sliding sleeve is unique sound installation at Nutley, N. J. Sound coverage is reported excellent over bowl with 8000 seats.
HERE IS A 12 WATT JOB THAT IS FLEXIBLE . . . .

Read about it in this New Webster Electric Catalog

- This sound system is extremely versatile in that the amplifier may be slid out of the case and used with other, or permanently located, speakers; or the two permanent magnetic speakers may be used temporarily to expand the coverage of another system. There is no need to carry the added weight of the amplifier to a job where the speakers only are needed, nor to handle the bulk of the entire case and speakers where only the amplifier is wanted. The amplifier may be easily carried by one hand by means of the convenient handle attached to the hood.

The high quality amplifier has four stages; power output of 12-13 watts at 5% distortion; automatic volume control; dual tone control; power gain of 129 DB for microphone, 79 DB for phono; frequency characteristics within 3 DB from 45 to 10,000 cycles; hum level of 54 DB below full output for mike, 65 DB for phono. It measures only 13¼" long, 7" wide, by 8" high.

The catalog illustrated above will give you still more facts about this amplifier; its application to both fixed and portable systems, as well as similar information regarding all the units in the Webster Electric line. Write for it today.


WEBSTER ELECTRIC COMPANY, RACINE, WIS., U. S. A. Established 1909 • Export Dept., 100 Varick St., New York City Cable Address: "ARLAB", New York
When Stromberg-Carlson announces a Labyrinth Radio for only $99.95* (No. 430-M), and an automatic Radio-Phonograph for as little as $139.50* (No. 420-PL), it's a certainty that the radio business is going to be GOOD . . . that is if you are handling a good line like Stromberg-Carlson.

And just look at the rest of the line: You will find new Radio-Phonographs, including a Table Model.
3 TIMES THE INDUSTRY AVERAGE IN BIG-PROFIT SALES IN 1938 . . .
THIS NEW LINE WILL INCREASE THAT LEAD IN 1939!

and an Authentic Period Design Occasional Table
(No. 411-PF). There are new Table Models...three of them Authentic Designs, one in maple. There is a portable Battery Radio, and a superb new line of Consoles in a wide variety of woods and styles to delight any prospective purchaser. With such a new line, you don’t have to be a prophet to predict that Stromberg-Carlson...which showed three times the industry average in big-profit sales last year...will increase that lead in 1939.

Be "in the money" this year by selling Stromberg-Carlson radios. They are yours for "good" radio sales.

*All prices f. o. b. factory

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

OCCASIONAL TABLES

Stromberg-Carlson

JUNE, 1939
YOURS - FOR "GOOD" RADIO SALES

FINE RADIOS THAT WILL SELL TODAY ... AS THE SOUND REPRODUCERS FOR A FUTURE TELEVISION PURCHASE!

When Stromberg-Carlson announces a Labyrinth Radio for only $99.50* (No. 430-M), and an automatic Radio-Phonograph for as little as $139.50* (No. 420-PL), it's a certainty that the radio business is going to be GOOD ... that is if you are handling a good line like Stromberg-Carlson.

And just look at the rest of the line: You will find new Radio-Phonographs, including a Table Model and an Authentic Period Design Occasional Table (No. 411-PT). There are new Table Models ... three of them Authentic Designs, one in maple. There is a portable Battery Radio, and a superb new line of Consoles in a wide variety of woods and styles to delight any prospective purchaser. With such a new line, you don't have to be a prophet to predict that Stromberg Carlson ... which showed three times the industry average in big-profit sales last year ... will increase that lead in 1939.

Be "in the money" this year by selling Stromberg-Carlson radios. They are yours for "good" radio sales.

*All prices f.o.b. factory.

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

3 TIMES THE INDUSTRY AVERAGE IN BIG-PROFIT SALES IN 1938 ... THIS NEW LINE WILL INCREASE THAT LEAD IN 1939!
Dynamic Testing—Part XV

How the Detector Operates

An explanation of the basic principles involved in detection, with emphasis on ways of determining whether or not the detector is operating properly.

By VINTON K. ULRICH
Hytronic Laboratories
Formerly Managing Editor of Radio Today

No part of a modern radio or television receiver is more important than the detector; yet on the other hand, it is one of the biggest mysteries insofar as servicemen are concerned. While its purpose is fairly-well known, there have been very few tests for determining just how well the detector is working.

In present-day receivers there are the following common types of detectors: diode, grid-leak, plate, and infinite impedance. Because a diode detector can be used to supply an AVC bias, it is by far the most popular circuit.

The one purpose of all types of detectors is to rectify the received radio signal in such a manner that the audio modulation is not distorted. In Fig. 1 are shown carriers with sine-wave modulations of 25%, 50%, 75% and 100%. The variations in the envelope (dotted lines) of the carrier represent the modulation which is superimposed upon the carrier wave. (This is known as amplitude type modulation, and this article will be limited to modulation of this type.)

MODULATED WAVES

There are certain things about the modulated wave that should be noted. First of all, there is the unmodulated carrier wave which is shown at the left as being of continuous or having constant peak amplitude. The modulation in the form of a sine wave causes the peak amplitude of the radio-frequency wave within the envelope to vary. When the modulation increases and decreases the peak amplitude of the carrier by 25% of its unmodulated value, the modulation is said to be 25%. If the peak carrier voltage is instantaneously increased to 100% of its normal value and reduced to zero, the percentage of modulation is 100% as illustrated in Fig. 1.

The frequency of the modulation for a sound receiver generally ranges from 50 to 7,500 cycles for high-fidelity reception and is considerably less for average sets. For video work in television, the frequency of modulation ranges up to 3 or 4 megacycles.

REQUIREMENTS OF A DETECTOR

For perfect reproduction the detector must be able to:

1. Handle incoming signals from the minimum to the maximum carrier voltages without objectionable distortion.

2. Rectify signals having modulation frequencies ranging from the desired minimum to the desired maximum without introducing noticeable distortion.

3. Provide distortionless detection of signals having modulation percentages from zero to well over 100%. (Actually up to 100% is desirable, but it is hard to achieve in commercial practice.)

In order to test a detector for these requirements, the serviceman must know how the detector operates; and to correct any defects that cause improper detection, it is necessary to understand of a few of the simpler basic design factors.

In view of the fact that the diode is most commonly used and is the simplest form of detector, it is natural that it come first in this discussion. In Fig. 2 is shown a typical 2nd detector as used in a superhet receiver employing the diode tube. The values of diode load resistor, AVC filter network, and coupling components to the grid of the first audio are those commonly employed.

DIODE DETECTION CHARACTERISTICS

The family of characteristic curves of a diode detector is shown in Fig. 3, which is technically termed, a transfer function graph. Each curve, representing a specific value of RMS carrier signal input, was obtained by varying the DC load resistor of the diode while maintaining a constant carrier signal input. The diode DC currents and DC voltages were measured and curves plotted. The plots show how the tube behaves for different values of unmodulated carrier voltages, which is useful in calculating the performance of the detector under dynamic operating conditions.

Since each radio uses a specific value of diode load resistance, the proper value should be drawn in on the diagram. 1,000,000 ohms is a very common value and is shown in Fig. 3. Starting from zero (point A) at the right, the load line is erected having a slope equal to 1,000,000 ohms. For 40 volts a current of 40 microamperes would flow through 1,000,000 ohms. Consequently, the second point (B) that determines the load line is 40 volts and 0 microamps. This procedure of drawing in the load line is similar to that employed with amplifiers and was discussed on pages 50 and 51 of the October issue and pages 52 and 53 of the September issue of Radio Today.

Assuming a carrier voltage of 15 volts RMS, point "O" becomes the op-

Fig. 2—Typical diode detector circuit used in superhet receiver.

Fig. 1—When carrier is modulated, peak amplitudes of carrier waves vary in accordance with modulating signal. The greater the percentage modulation, the larger is the change in amplitude. Dotted lines represent modulation envelope.
Fig. 1—Characteristics of a diode obtained by varying load resistance and plotting DC volts versus DC microamperes for various values of carrier voltages as indicated on curves.

In some cases, the peak carrier voltage is no longer constant, but fluctuates above and below the unmodulated peak value in accordance with the modulation percentage as shown in Fig. 1. When there is no modulation, the output is DC. When modulation occurs, the AC modulating signal or voltage is superimposed upon the DC. Incidently, this DC voltage that is used for AVC control purposes after the AC variations have been filtered out. For a detailed discussion of AVC, the reader is referred to "Automatic Volume Controls" appearing on pages 30 and 31 of the May issue.

So far no mention has been made of the modulating frequency and its possible effects. The diode load shown in Fig. 3 is the DC value of the resistance, which is 1 megohm as shown in Fig. 2. For AC, however, the effective diode load is lower than the DC resistance since it is shunted by the .001 mfd. condenser, the AVC filter resistances $R_{AVC}$ and the grid coupling resistor $R_G$. Both of these resistors have values of 2 megohms, and in parallel (through the .01 and 1 mfd. condensers) they have a combined value of 1 meg.

This composite value of 1 meg. is effectively in parallel with the diode load resistance of 1 meg. for audio frequencies. Thus two 1 megohm resistors in parallel have a resultant value of $\frac{1}{2}$ meg. for audio frequencies of 100 cycles and above.

HIGH AUDIO FREQUENCY SHUNTING

For low values of audio frequency the paralleled .001 condenser hasbut a negligible effect because its reactance is very high. However, at 5,000 cycles, the reactance of a .001 condenser is approximately 320,000 ohms. The parallel combination of 500,000 ohms resistance and 320,000 ohms reactance gives an impedance of 270,000 ohms. Thus it is shown that this bypass condenser at 5,000 cycles greatly reduces the value of the load impedance of the diode detector.

How these variations in the load impedance adversely affect the operation of the detector will be shown shortly.

Insofar as operation without modulation is concerned, the 1,000,000 load resistor in Fig. 3 fills the requirements. In order to make the curves more suitable for explaining the operation of the detector, the points 1, 2, 3, 4, etc., have been plotted for DC diode-current versus carrier-voltage input. The resultant curve is for operation for a load of 1 meegohm and is shown in Fig. 5 in the upper left-hand corner.

In Fig. 4 the load resistances of 500-, 000 ohms and 270,000 ohms have been drawn in, since previous calculations show that for operation at modulation frequencies from 100 to 5,000 cycles, the effective load impedance varies over that range. On the 270,000 ohm curve, the points 1, 2, 3, etc., have been marked and are plotted in Fig. 5.

CALCULATING DETECTOR PERFORMANCE

With a carrier voltage of 15 RMS volts, point "O" is the operating point of the detector. According to Fig. 5, when an unmodulated carrier is rectified by the detector, the output will consist of the positive half-cycles of the applied carrier signal. Since the amplitude of each successive cycle of the carrier is constant when not modulated, the output waves or diode current pulses will be equal in amplitude. The .001 condenser across the diode load resistance has such a value, that it becomes charged by the current pulses and does not have a chance to discharge appreciably before the next cycle of the carrier comes along.

It is this manner that the .001 condenser filters out the I.F. or R.F. carrier voltages. The operation of this condenser is the same as that of any filter condenser—it smoothes out the variations.

When modulation is applied, the peak amplitude of the carrier wave is varied in accordance with the modulation. Instantaneously the amplitudes are varied above and below the normal or average carrier amplitude—in this instance, 15 volts RMS.

As explained, for various modulation frequencies, the load impedance changes and it is necessary to use the value of the load line in Fig. 5, corresponding to that which is existant.

(Continued on page 49)
They're Both Important:

COMPANY DEPENDABILITY – PRODUCT DEPENDABILITY

But

EVEN MORE IMPORTANT IS: PROFIT DEPENDABILITY

If you were asked—"What factor is most important to a retailer buying radio tubes?"
... what would your answer be?

We think both company and product dependability are vitally necessary to a retailer's success. But even more important, you’ll agree, is profit dependability.

Before you invest more money in other tube lines, compare them with Sylvania on all three points—company, product, and most important, PROFIT DEPENDABILITY. We sincerely believe that such a comparison—made honestly and without bias—will lead to only one conclusion... a shift to Sylvania.

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

SELL SYLVANIA

SET-TESTED RADIO TUBES

Meet us at Booth Nos. 18 and 20, Chicago Radio Show, June 14-17
for the modulation frequency being considered.

Again assuming a carrier of 15 volts RMS, point “O” is the operating point for the detector. For 5,000-cycle modulation, the 270,000 ohm curve should be used. Note the absence of linearity in the 270,000 ohm curve and that it cuts off before zero voltage is reached. That means that the diode will not be conducting for low values of instantaneous carrier voltage. This cut-off causes serious distortion for high values of modulation percentage, as will be shown. Below the plot in Fig. 5 showing the characteristics of the detector tube, are sample modulation waves having percentage modulations of 75% and 25% as marked.

Since only the positive half-cycles of the carrier wave are rectified, the zero axis of the input wave coincides with the zero line on the detector characteristics plot.

**NON-LINEAR DIODE DETECTION**

Assuming a modulation frequency of 5,000 cycles, the characteristic for 270,000-ohm load impedance is used. It is on this basis that the projections of the input waveform have been made and transferred to the right. The wave at the right is the output current from the detector. Note how for extremely low values of instantaneous RMS carrier voltage (75% modulation), the output current is distorted, due to the cut-off characteristic.

Because the 1 megohm load impedance is fairly linear and continues to zero RMS carrier voltage before cut-off, detection with such a load would have no distortion. Values of load impedance between 1 meg. and 270,000 ohms would create distortion values lying between the two extremes illustrated.

In Fig. 5, there is no distortion for low values of modulation percentage as is shown for 25% modulation. Since the distortion that is created is a function of the percentage modulation, detectors are rated in terms of their modulation capability. A detector that will handle 75% modulation without appreciable distortion, is said to have a modulation capability of 75%.

Since present-day broadcasting stations use automatic modulation control for maintaining a high percentage modulation, it is not uncommon for the average modulation to be 50% with numerous peaks that range from 80% to 95%. It is these peaks that will be distorted, unless the receiver has an adequate modulation capability.

Fig. 6 shows the amount of detector distortion that exists when a 100% modulated signal is applied to detectors having modulation capabilities from 70% to 95%. A detector with 95% modulation capability produces less than 1% distortion. If, however, the capability is only 75%, the distortion is 10% for a 100% modulated signal.

Naturally this distortion is fed into the audio amplifier and reproduced by the loudspeaker. Because of the fact that this distortion is present only at high modulation levels, ordinary tests with the conventional service oscillators having a modulation of 400 cycles at 30% to 50% are valueless.

**Permeability push-button tuning in Belmont model 677**

Inductance type tuning is employed in some of the newer Belmont auto radio sets. Housed in a compact remote unit with push-button tuning, the high-frequency circuits are tuned by iron-core units that move inside antenna, radio frequency, and oscillator coils.

The use of these ganged permeability-tuned circuits does away with the need of a variable tuning condenser. In addition tuning by means of the mechanical push-button tuning unit, full manual tuning is always available. The high-frequency circuits which are separated from the chassis are shown

(Continued on page 56)
LET'S LOOK AT

The Record

Wax worth watching

SAMMY KAYE and his orchestra playing Pippinella with VR by Jimmy Brown and The Three Barons, and My Heart Has Wings with VR by Clyde Burke—Victor 26238.

THE SMOOTHIES, with orchestra, singing Show Your Linen, Miss Richardson, and If I Had My Way—Bluebird B10228.

ANDREW SISTERS singing Beer Barrel Polka and Will All Right—Decca 2493.

MILDRED BAILEY and her orchestra playing And the Angels Sing and That Sly Old Gentlemen, both with VR by Miss Bailey—Vocalion 4815.

HORACE NEIDT and his Musical Knights playing The Girl Behind the Venetian Blind with VC by Helld's High Lights, and The Spanish Old Ship with VC by Larry Cotton—Brunswick 2863.

BOB CROSBY and his Bob Cats playing Hindustan and Mournin' Blues—Decca 2482.

ROY SMECK and his Serendipity Boys playing Wishing and I Never Knew Heaven Could Speak, both with VC by Donald King—Decca 2484.

OZZIE NELSON and his orchestra playing The Tinkie Song with VR by Mr. Nelson and Rose Anne Stevens, and a Song with VR by Miss Stevens—Bluebird B10470.

DOROTHY LAMOUR and orchestra singing Strange Enchantment and That Sentimental Sandwich—Bluebird B10269.

Records are producing store traffic and paying the rent for more and more dealers.

Contrary to general opinion, it's not only the swing addict that buys records, but also the lovers of fine music, who buy many records, pay for more of them, want better pickups, and record players, record cabinets, etc.

Dealers must recognize that the selling methods, displays, demonstrations, customer follow-up, to best reach these two classes of buyers are as distinct as the buyer's tastes, and they won't mix freely, except at the expense of one or the other. Both are essential to a really successful record business.

Sweet music enjoys as large a following as swing and is much steadier. Even some leading swing bands have to cater to the sweet music devotees, counting them as much as 50 per cent of their following. Such exponents of sweet stuff as Guy Lombardo, Wayne King, Tommy Dorsey, Ozzie Nelson, Kay Kyser, Hal Kemp and the Casa Loma are the orchestras to string along with in this line.

Selling Home Recording

Here are suggestions on selling the Wilcox-Guy Recordio, a new combination radio for home recording:

1. SEND A CARD TO EACH regular customer of your store. Ask them to Come Into Your Store and Make One Recording FREE. Be sure your invitation requires the attendance of a responsible member of the family and you'll sell on the spot without further demonstration or delay.

2. A TELEPHONE CALL to a selected prospect list arranging private store demonstrations, preferably to the entire family is much in order. The Recordio will pretty nearly sell itself to such a group.

3. RURAL CHURCH ORGANIZATIONS where a single pastor serves several congregations are good prospects. The sermon for any service where his presence is impossible can be transcribed and reproduced when desired.

4. DON'T OVERLOOK THE FACT that every family even faintly considering the purchase of a new console radio is a good prospect for a Recordio. Why should they buy any other console radio when the Recordio gives a radio reception unsurpassed by any, also makes and plays recordings perfectly.

5. MANY PURCHASERS will plan on making the Recordio pay for itself and can do it. An occasional recording made for acquaintances or neighbors will easily keep up the monthly payments.

6. WEDDINGS are perfect examples of the important occasions when the Recordio is indispensable. A permanent record of the service for the bride and groom if they wish it. In any case a grand way to keep and cherish the kind words and greetings of friends and relatives. Every marriage offers you an opportunity to start the new couple off with a modern Recordio.

7. THE SALES MANAGER wants to put the emphasis of the spoken rather than the written word in his message to salesmen and important customers. He tells it to the Recordio, stamps it, and drops it in the mail. He is a GOOD prospect.

8. EVERY BUSINESS OFFICE, every store, every lawyer or doctor will find dozens of practical ways to use the Recordio.

A supplement to the RCA Victor Record Catalog which contains a handy 31-page index of all Victor Red Seal and Victor records released up to and including June, 1939, has been announced and is available to dealers through the company's distributors.
In New York Rises Radio City—Lofty Symbol of RCA World-wide Service!

The home of Radio Corporation of America—the headquarters of the only organization engaged in every phase of radio

Radio Corporation of America—RCA, is a city within a city. It is Radio City. Its "city hall" is the seventy-two story RCA Building. From here are directed all of the manifold services of RCA.

RCA Laboratories, RCA Laboratories, RCA Laboratories. In them vital research is carried on in radio and television. Great universities are usually thought of as the homes of research. The fact is that in RCA Laboratories there is now a group of research men who probably exceed in number and can certainly match in ability, those engaged in any one phase of research, in any university in the world.

RCA Services In Every Field of Radio

RCA serves the listening public through the Red and Blue Networks of the National Broadcasting Company. In the home, RCA Victor Radios, RCA Victrolas, and Victor and Bluebird Records afford the finest in radio and records. Now RCA Victor Television Receivers are bringing the thrills of television to families in the New York Metropolitan Area. And, added to these services for the home are those rendered in manufacturing a complete variety of radio equipment, sound equipment, and motion picture equipment such as RCA Photophone, the Magic Voice of the Screen.

Through R.C.A. Communications, world-wide communication service is provided to and from 43 foreign countries, and among leading cities in the United States.

Radiomarine, another of the RCA family, offers communication service to ships at sea. It also builds radio devices for safeguarding lives and property on ships.

Because of this background of experience in every field of radio, RCA keeps ahead, offering dealers an ever better and ever increasing opportunity to make more money by going "RCA All the Way,"

Great crowds of visitors are enjyoing the exhibits at the RCA Building at the New York World's Fair. And, across the country, many thousands are being thrilled by similar RCA exhibits at the San Francisco Exposition. Chief attraction is the demonstration of television which offers many visitors their first opportunity to see how television pictures appear on the screen of a television receiving instrument. As you look at the complete exhibit of everything RCA does...you will understand more clearly why RCA offers you the greatest opportunity for profits.


Radio Corporation of America
RADIO CITY, N.Y.

RCA Manufacturing Company, Inc. National Broadcasting Company Radiomarine Corporation of America
RCA Laboratories R. C. A. Communications, Inc. RCA Institutes, Inc.

JUNE, 1939
Methods That Clicked

What successful dealers are doing to promote the sale of more and better radio sets

Let electric-light company help

"Solicit the cooperation of your local electric light and power company in a campaign to get radio owners to have their defective sets repaired," advises Harold Davis, radio parts jobber of Jackson, Miss., who stimulated such a campaign in his own city.

"The power company will be interested because—"Dead radios not only tell no tales, but burn no juice,"" adds Mr. Davis.

In Jackson the power company sent solicitors from door to door, leaving at each home a card with the names and addresses of dealers and service-men on one side, while on the other was a list of all the popular radio programs the owner of the dead set was missing.

Record dealers profit by ad tie-in

Victor and Bluebird record dealers in small towns have developed an effective means of capitalizing on RCA Victor's nation-wide advertising program in leading magazines by placing marked copies of the issues carrying RCA Victor ads in barber shops, dentists' and doctors' waiting rooms, and beauty parlors.

Printed labels pasted on the magazine covers call the reader's attention to the page on which the RCA Victor advertisement appears. On the pages opposite the ad are pasted sales messages featuring the names of recording artists and the latest records, with the store's name.

Study each prospect: sell intensively

"Start to size up your prospect the minute he steps into your store," says Philip F. Yahn, owner of the Yahn Radio Co., 1929 Palmer Ave., Larchmont, N. Y. "That's the way to sell radios. If he looks like the kind of customer who would like Tchaikovsky, don't give him Benny Goodman swing!"

Mr. Yahn's salesman, J. F. Straus, had just sized up a casual customer correctly—and had made a big sale. The man had just come in "to look around."

Mr. Straus had just talked with his prospect at first. He had told him about what was new. Meanwhile, as he talked, Mr. Straus sized up his prospect, found what points seemed to interest him and which didn't. Mr. Straus found out that the prospect showed most interest in records—series of symphony recordings that could be played without interruption.

Having determined roughly from the man's speech and his appearance what he might be willing to pay, Mr. Straus determined the course of his sales effort. Immediately he showed the prospect a big, new combination radio-and-record player. Inside of five minutes he had made the sale without wasting the customer's time on things in the store in which he would not have been interested.

Incidentally, agree Mr. Yahn and Mr. Straus, the trend today in their community is definitely toward phonograph combination radios. The store has sold more of these in three months than it has in the preceding three years.

Office radios

During the European war crisis, one enterprising radio man minted a young fortune by going to business offices in the Wall Street district, and offering to install a small desk radio and one of the new steel-rod window antennas complete in working order for $75. He got more business than he could handle, and had to press in several assistants to install the jobs as fast as he sold them. Business houses ordered these radios readily when the possibilities were explained about keeping in touch with flash news. Some concerns even assigned special employees to sit at their radios all day, to listen in and report any important news.

After the crisis eased, the demand for these office radios fell off, but the salesman still finds enough office customers to keep him busy.

A business man in the Grand Central Palace has his radio connected to a rebuilt desk telephone, so he can listen to news silently without disturbing office routine. Picking the telephone off the hook-switch, turns on the radio-set. Anyone seeing him at his radio, would think he is merely waiting for a long-distance phone call. After using this arrangement for a year, he declares that this is the ideal form of office radio.

Thirteen dealers and servicemen from Allentown, Pa., visiting Arcturus Radio Tube Co., Newark, N. J. Trip was sponsored by E. M. Frank Electric Co. of Allentown.
The Meissner ANALYST is not only highly efficient—covering every conceivable phase of signal testing—but is surprisingly easy to read and operate. This up-to-the-minute instrument will work wonders in raising the standard of service in your shop. It will take the kinks out of your toughest servicing problems ... step up your efficiency ... save valuable time ... increase your profits.

It accurately measures both control and operating voltages without affecting the operation of the set. Channels can be tested individually or simultaneously. Reading is greatly simplified. There's an individual panel for each channel.

And best of all you buy the ANALYST in KIT FORM ... Save nearly HALF the cost of a factory-wired set of comparable quality and efficiency. And at the same time acquire a fundamental knowledge of this instrument and what it will do for you that could not otherwise be obtained by weeks of study and experiment.

Get the facts on this revolutionary TIME and TROUBLE SAVER ... See the Meissner ANALYST at your Parts Jobber's—or mail coupon below for FREE FOLDER ... It tells the whole story!

MAIL IN ENVELOPE OR PASTE ON PENNY POSTCARD

Meissner Manufacturing Company
Mt. Carmel, Illinois, Dept. T-6

I want that folder on the Meissner ANALYST
Also your 1939-40 Catalog on the complete Line

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

This Folder gives you complete facts on the Meissner ANALYST. Explains in detail the scores of testing operations it performs faster and better.

In Kit form at about half the price

SERVICES ANY TYPE OF RECEIVER
$60 NET

JUNE, 1939
Screw with the manufacturers. America's of electric types no quality proved diode unit, proved." from Drake's world's largest and production skill craftsmanship in the finest, most offered. Drake's invention. Drake's own invention.

**SERVICE NOTES**

(Continued from page 49)

in the accompanying schematic enclosed in dotted lines.

Alignment of the receiver is made as follows using an I.F. dummy antenna comprised of a 0.5 mfd. condenser. The broadcast dummy is a 125 mfd. condenser.

**I.F. ALIGNMENT**

To align the output I.F. transformer without using a cathode ray oscillograph a 10M ohm resistor must be shunted across the diode coll of this unit.

2. Adjust trimmers "H" and "I" of output I.F. transformer for maximum gain (see chassis layout drawing).
3. Disconnect the 10M ohm resistor which has been shunted across the tertiary winding and adjust trimmer "J" for maximum gain.

(a) This transformer is now correctly tuned. Under no circumstances re-adjust trimmers "H" and "I" after the 10M ohm resistor has been removed.
(b) For alignment of the output I.F. transformer using a cathode ray oscillograph the 10M ohm resistor is not used and the procedure is similar to the alignment of any two circuit I.F. transformer; merely tune for a symmetrical curve of maximum amplitude.
(c) Output connections for the cathode ray oscillograph should be made to pin No. 8 on 6Q7 tube socket and to the end terminal on the terminal strip; at this point the diode load resistors terminate.
4. Move test oscillator connection to grid of 6A8 tube and adjust trimmer condensers "F" and "G" of input I.F. transformer for maximum gain.

**BROADCAST ALIGNMENT**

1. With the dial on the Remote Tuner Unit set at 1560 K.C., connect test oscillator set at 1560 K.C. in series with broadcast unit to the antenna lead of receiver.
2. Adjust oscillator trimmer (adjustment "D") on back of Remote Tuner Unit to resonance.
3. Re-set test oscillator to 1400 K.C. and pick up signal by rotating dial on Remote Tuner Unit. Adjust R.F. Transformer (adjustment "C") on back of Remote Tuner Unit to resonance.

CAUTION: In order to realize maximum gain out of the antenna adjustments, back out antenna shunt trimmer (adjustment "B") on back of remote tuner unit all the way out and then adjust antenna series trimmer (adjustment "A") on side of remote tuner unit to resonance.
4. Re-set test oscillator to 660 K.C. and rotate Remote Tuner Unit dial to 660 K.C. Adjust shunt oscillator adjustment "E," rotating dial to and fro at the same time adjusting shunt oscillator for maximum gain. This adjustment is accessible from the top of the radio chassis.
5. Go back and check 1400 K.C. If adjustment is made here, check 600 K.C. again.

**Boost-o-matic Tuner**

Automatic tuning of the antenna circuit is provided for in the Motorola model 9-44 auto receiver. Known as the boost-o-matic, the device is a permeability-tuned antenna coil as shown in the accompanying circuit.

Tuning to resonance is accomplished through a flexible shaft that moves an iron core axially within the booster coil. The shaft in turn is actuated by a cam in the receiver.

A gain of about 15 times in the sensitivity is obtained by tuning the antenna circuit. The booster coil in a shielded case is located at the base of the antenna where the lead comes through the cowl.

The antenna circuit is then coupled to the low side of the R.F. coil which is tuned by one section of the 3-gang variable condenser.
Gentlemen:

Send complete details of the Arc turus Equipment Deal and my copy of the Arc turus Dealer Helps Folder.

I am a Dealer.

I am a Serviceman.

MAIL THE COUPON!

ARCTURUS

INDEPENDENT TUBES FOR DEALERS WHO DO THEIR OWN INDEPENDENT THINKING

JUNE, 1939
SERVICE NOTES

Charging Portable Batteries from Line

A number of readers have inquired about the proposed practice of charging portable dry-batteries from the line, under conditions when the portable set is plugged into an AC 110-volt outlet. Because there has been some question raised regarding this practice, the editors of Radio Today put the query up to experienced battery engineers. We quote their comment, substantially as given in the words that follow:

Some battery portables are now on the market, and others soon will be announced, which will also operate from a 110-volt line. Using the battery as a filter, it is claimed that use of the set on house current will recharge the battery. That looks fine on paper. But the actual facts, according to battery men, are that such a practice may shorten the life of the battery as much as 75 per cent, and in any event will do more harm than good.

RECHARGING DRY CELLS

Dry cells can be given some recharge, but the charge must follow very quickly after the discharge, and must take place at a very slow rate. The internal heat generated by the flow of current through the battery will dry out the mix and shorten the life of the battery if the battery is given normal use.

Watch out carefully for any attempt to float the battery across the line, as a filter, or for recharging, and be sure, by your own tests that such a practice will not give the customer an unpleasant surprise, and yourself, a dissatisfied customer.

Sells thru service calls, 6 out of 10

Gerald Saeger, operating Radio Service, Mukwonago, Wis., believes in making his service and sales work tie in to bring him more radio set sales.

Saeger does most of his own repairing, therefore he knows which people in his locality have new or used radios. After he has repaired an obsolete set and made the acquaintance of the owner, Saeger lets two or three weeks slip by; usually he has given the prospect a few folders on new radio sets, and this allows time to glance through them.

At a time when Saeger thinks his man is interested in a new set, Saeger loads a console into his car and drives to the prospect's home.

He tells the prospect that he has a new set in his car and would like to give him a demonstration of it right in his own home—no obligation.

If this procedure were worked on a cold-canvas basis it would not produce results, says Saeger, but because he has already repaired the old radio, he knows the home owner and can make such a request.

“In practically nine out of ten cases the owner lets me bring the new radio in,” states Saeger. “Once a prospect sees the new set in his home, observes how fine it looks and how well it is bringing in various stations, he can usually be sold. Out of every 10 radios brought into a home in this manner we sell 6, which gives us a 60 per cent batting average.”

"Automatic Volume Controls" by NRl

The article on “Automatic Volume Controls—Characteristics of AVC Systems and How They Work” which appeared on pages 30, 31 and 41 of the May issue of Radio Today, should have been credited to the National Radio Institute, 18th and U Streets, Washington, D. C. This valuable presentation was taken from the Institute's course of training, and omission of the credit line occurred through a typographical error. J. E. Smith is president of the National Radio Institute, and Joseph Kaufman is director of education.

Adjustable Television Antenna

A television antenna with universal joint mounting, permitting adjustments in all directions, is now offered by Technical Appliance Corp., 17 East 16th St., New York City. The dipole antenna is constructed of heavy duramumin rods held together with a sturdy center insulator. Two extension rods screw into the center rods for attaining the correct length of the dipole. Mounting straps are provided for mounting to an iron pipe or wooden mast. Precision adjustments are possible in both the horizontal and the vertical planes, simply by loosening and tightening same after the correct position is obtained. A reflector is available wherever needed, and the same easy adjustments are provided for the full antenna-reflector assembly.

Taco's di-pole television antenna.

RADIO TODAY
CAPACITOR ANALYZER
Cornell-Dubilier's new Capacitor Analyzer. Measures quickly, accurately all important characteristics of paper, mica, oil and wet and dry electrolytics, including A.C. motor starting types. It is the only instrument which provides a complete and thorough capacitor test.

Some of the advanced features of the new C-D analyzer model BF-50 are:
- Capacity measurements .00001 to 240 mfd.
- Power-factor measurements to 50%.
- Insulation resistance measurements to 1,500 megohms.
- Push button switch control.
- High sensitivity control provides sharp or broad balances for quick and accurate readings.
- Checks leaky, shorted, open, high and low capacity.
- Requires no outside standards, headphones, meters or other accessories.
- It's complete in itself!

It's portable. It's outstanding!
The Analyzer is supplied in attractive walnut cabinet with removable hinged cover. Model BF50 list, less tubes . . . $41.50.

DEALER NET .................................................. $24.90

NEW C-D CAPACITOR BRIDGE for quick and accurate measurement of all type capacitors between .00001 and 50 mfd.
- Indicates power-factor of electrolytic capacitors.
- Checks, opens, shorts, high and low capacity.
- Dual type "visual eye" detector indicates bridge balance.

The most compact and useful instrument of its type ever offered to the radio service field!
The Capacitor Bridge is complete, requires no head-phones or other accessories, is supplied in attractive bakelite case 3½" x 5" x 3", with detachable leads and instruction booklet. Model BN Capacitor Bridge, complete, less tubes . . . List $16.50

DEALER NET .................................................. $9.90

C-D CAPACITOR DECADES
Ideally suited for test circuits, filter design, bridge measurements, and many other service and experimental applications. Capacity range between .0001 and 10 mfd. is available in three decade units. They can be used continuously in circuits where voltages do not exceed 220 V. A. C. or 600 V. D. C. Encased in compact, attractive bakelite cases, 3¾" x 5" x 3". Individual chart furnished with each Capacitor Bridge.

TAKE ADVANTAGE OF THE LONGEST CAPACITOR EXPERIENCE IN THE INDUSTRY..
Equip now for greater profits with Cornell-Dubilier advanced, guaranteed test equipment. For limited time only! This offer expires Aug. 1, 1939. The coupon below is worth $1.00! Present it to your local C-D Jobber and he will allow you $1.00 toward the purchase price of any single instrument. See your C-D Jobber today! Bring the coupon with you.

CORNELL-DUBILIER ELECTRIC CORPORATION,
SOUTH PLAINFIELD, NEW JERSEY

Please rush to me the following catalog material:
- Catalog No. 167A on Capacitor Instruments.
- Catalog No. 165A on industrial and transmitting capacitors.
- Catalog No. 164A on Quteone Interference Filters.

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

JUNE, 1939 57
Capacitor Can
Solar Mfg. Corp., Bayonne, N. J., have announced a bright red-blue-and-white carton to furnish "buying urge." The carton, like the tubular paper capacitors it contains, is "sealed."

Appliance Aid
A complete assortment of advertising promotional material is being shipped to all Philco Conservador and Cool-Wave distributors by Hutchins Advertising Company of Rochester, in conjunction with dealer presentations being held throughout the country. Included in this material are dealer kits, presentation brochures, looseleaf presentation books, and various display items for Conservador refrigerators and York Cool Wave air conditioning units.

Video Viewer
Handy booth called "Peek-A-Booth" has been designed by Len Cramer, general sales manager of Allen B. Dumont Labs., Inc., Passaic, N. J., as an aid in demonstrating television in brightly lighted stores. The booth forms a huge shadow-box making dim illumination for best showing of video images making a television section which prevents detraction from radios and other merchandise.

Bulletin Board
Combination bulletin board and folder rack is now being distributed to jobbers by Clarostat Mfg. Co., Inc., 285-7 N. 6th St., Brooklyn, N. Y. Arranged to be hung on a wall or stood on a counter by means of its easel back, the green and yellow card takes 8½ x 11 news bulletin sheets which slip in place announcing timely items of interest to servicemen and other users of resistors and resistance devices. By slipping a rack over the lower portion of the board cleared of the news bulletin, the display features the products of the manufacturer, calls attention to the new service manual, and offers a colorful folder out of the rack or box. The folders cover line-voltage ballasts and regulators, plug-in resistors, composition and wire-wound controls, sound system controls and attenuators, and power resistors.

Portable Display
Display board featuring a four tube battery-AC-DC portable super-het with built-in loop, vernier tuning drive, and AVC is released by Garod Radio Corp., 115 4th Ave., New York, N. Y.
NEW Beauty
IN JENSEN PERI-DYNAMIC
Bass Reflex REPRODUCERS

JENSEN SCORES AGAIN! First—the introduction of those basic new principles in the acoustic art—Peri-Dynamic and Bass Reflex. In terms of actual performance this meant that new low frequency octaves could now be heard and over-all performance was raised to the highest level in the history of the cone type loud speaker. The skill and ability of Jensen engineers produced this scientific accomplishment which, when applied, delivered a complete product with compelling advantages. Cabinets were of acceptable dimensions, even though exceeding an infinite baffle in ability and cost was surprisingly low. Now, Jensen creates and adds to these exclusive values, cabinets as appropriate in beauty as the Reproducers are outstanding in performance.

These newly styled cabinets are finished in rich brown lacquer in subdued contrasting colors. Ideal for home, studio and public address use, these new cabinets further stress the Jensen policy of providing the utmost in practical values without price premium. Thus, Jensen provides Dealers, Service and Public Address Men with consistently greater opportunities for increase of volume and profit. Remember—Peri-Dynamic enclosures are shipped in convenient knock-down form; can be assembled in a few moments.

FIVE NEW MODELS

These new Reproducers are available with either 8, 10, 12, 15 or 18-inch Speakers; each speaker size with its own specially designed cabinet. Prices for complete reproducer (including speaker) from $22.55 up. For Cabinet only, from $16.00 up.

Write for illustrated literature.

Jensen
"The Name
Insures the Quality"

JENSEN RADIO MANUFACTURING COMPANY... 6601 S0. LARAMIE AVE., CHICAGO, ILL.

JUNE, 1939
Now for the Bigger Jobs

Get your share of the profits from the higher priced intercommunication installations. The market is wide open for hotel, department store, hospitals, offices, at the low prices we ask for this excellent 2-way system.

Demonstrate our Model 143 to these prospects. 4 speakers on each substation and up to 10 substations adaptable. No other system can offer these features. More profits for you! $10.00 with 50 ft. of wire.

AS ILLUSTRATED

$47.50
Remote Station

Complete with Wire Ready for Installation

Write today for catalogues showing all new models.

REGAL AMPLIFIER MFG. CORP.
14-16 W. 17th Street, New York

NOW READY! INCLUDES TELEVISION!

AUDELS NEW RADIO MANS GUIDE

TO WHAT EVERY RADIO MAN SHOULD KNOW

JUST PUBLISHED - 1939

Illustrated 8 x 10 in. 464 pages - includes all the latest information on the new developments in radio & television. Detailed instructions for installing & servicing all types of equipment.

Price $3.00

4 1-2 cent stamps will pay for mailing.

THEO. AUDELS & CO., 49 West 23rd Street, New York

Safety relay


Resistance capacity test meter


Midget controls

* Controls for use in small receivers use metalized type resistance element. Spiral spring connector eliminates metal-to-metal contact between rotor arm and center terminal. Steel coil spring on shaft eliminates end-play. Unit has 5-finger silent element contactor. Made in 17 popular ranges and tap-type units from 2,000 ohms to 2.0 megohms. International Resistance Co., 401 N. Broad St., Philadelphia, Pa. — Radio Today.

Ham frequency meter

* Visual frequency monitor allows complete band-spread of amateur bands and numerous accurate check points on all bands. Features of this self-powered, AC-DC unit include visual and aural zero beat indicator; accuracy greater than .01 per cent; reads to 2 Ke, on 20-M band; built-in mixing circuit and dial calibrated for six amateur bands. Amateur net price $27.45 less tubes; $31.35 with tubes. Browning Labs, Inc., 750 Main St., Winchester, Mass. — Radio Today.

Rotary converters

* New line of rotary converters consists of: type AK, 100 to 200 watts; type BK, 200 to 500 watts and type CK 750 to 1,000 watts; other units of greater capacities. Features include all cast iron frames and built-in ventilators on four sides. Available with filters for radio operation, also for constant speed phonograph work. Also announced is complete line of both motor generators and centrifugal pumps. Pioneer Gen-B-Motor Corp., 466 W. Superior St., Chicago — Radio Today.
You are cordially invited
to visit
Ken-Rad Headquarters
at the Blackstone Hotel
during the
Radio Manufacturers Association Convention
and the
National Radio Parts Trade Show
June 13-17
Hotel Stevens       Chicago

Ken-Rad Tube and Lamp Corporation
Manufacturers of Ken-Rad Radio Tubes
Owensboro, Kentucky
Profitable New Business for You Backed by
Hard Selling Displays, Ads, and Mailing Pieces

A profitable new business offered to you on a platter! Backed by a money-making plan of action, RCA Victor Recorders have a great sales potential in your town. You’ll be amazed at the results the RCA Victor 4-way Profits Plan will produce. Demonstrate...use your window...advertise...and put the mailing pieces to work. You’ll find that any one and everyone is a hot prospect. Schools, Music Teachers, Home Movie Fans, Parents, and many others. Go out after this new business. Make more money right now.

*Prices f.o.b. Camden, N. J., subject to change without notice. For finer radio performance—RCA Victor Radio Tubes.

4-Way Profits Plan

1. Demonstrate!
2. Use Your Window
3. Advertise
4. Use The Mails

RCA Victor supplies everything you need to make this plan click.

How You Profit!

1. On recordings made in your store.
2. On recordings made outside your store.
3. On the sale of RCA Victor Recorders to your customers.
4. On the sale of RCA recording discs.
5. By the increase in your store traffic.
6. By making sales of RCA Victor Radios, RCA Victrolas and many other musical instruments for which this product will create new interest.

We’re interested in dealers who have a reputable radio service business; dealers who can turn over their tube stock at least every three or four months; who have facilities to display sales-producing advertising materials; and who have a reputation for maintaining standard prices.

Dealers who qualify as Tung-Sol retail partners sell to a market free from interference with already established Tung-Sol retailers, and they make full profit on every sale.

If you have this type of establishment—write us today.

PUT IT ON A RECORD

RCA Victor
RECORDERS
COMMERCIAL SOUND SECTION
RCA Mfg. Co., Inc., Camden, N. J. • A Service of Radio Corp. of America

Vibration
Tested
TUNG-SOL
RADIO TUBES

Booth 410, Radio Trade Show

TUNG-SOL LAMP WORKS INC. Dept. C Radio Tube Division
SALES OFFICES: Atlanta • Chicago • Dallas • Denver
Detroit • Kansas City • Los Angeles • New York
General Offices: • • • Newark, New Jersey
Electrolytic replacements

* Paper wound condensers series, matching dry electrolytic metal can condensers. Available in three types replacing the 4-600, 8-600 and 8-8-600 electrolytics with actual capacities of 2.0, 2.75, and 1.75-1.75 mfd, respectively. PWP series matches cardboard-case dry electrolytics of 4-600, 8-600 and 8-8-600 with actual capacities of 2.0, 3.0, and 2.75-2.75 mfd. Units have low power factor and leakage. No polarity need be observed. Aerovox Corp., 70 Washington St., Brooklyn, N. Y.—Radio Today.

Small capacitors

* Midget capacitors have tinned leads securely anchored to foil, designed for ease in wiring into circuit. Available in several capacities and sizes for each of 25, 50, 150, 250, 350, 450 volts DC. American Condenser Corp., 2508 S. Michigan Ave., Chicago.—Radio Today.

Two-deck tuner strips

* Two-deck, 5-gang trimmer strip adjusted by single screw. Makes possible the use of push-button tuning in two-circuit receivers. Two adjustments necessary when used with permeability coil-tuned or trimmer-tuned oscillator circuits for three-circuit receivers. No. 6577. Also available 8 and 16 gang single-deck tuner strips. Sprague Products Co., North Adams, Mass.—Radio Today.

Clips

* Assortment of most popular types of insulated and uninsulated Alligator clips plus solid copper clip for radio frequency test work.

Improvements include finely meshing teeth, comfortable thumb grip and choice of screw or soldered connection types. Mueller Elec. Co., 1583 E. 31st St., Cleveland, O.—Radio Today.

How Utah Vibrators Contributed to the 900% Increase in Auto Radio Volume

The immediate acceptance of the numerous vibrator developments which were originated in the Utah laboratory, contributed largely to the spectacular increase in auto radio volume of 900% in four short years. And those same improvements plus the performance and advanced engineering of Utah products have won a continued preference from all branches of the industry.

Because Utah designs and produces both vibrators and transformers, Utah engineers have a decided advantage in "matching" the characteristics of the two and in developing maximum performance features. The complete fabrication of vibrators and transformers in the Utah factory enables absolute control of correlated characteristics of both—thus assuring dependability, uniformity and satisfactory performance.

Utah service, too, has been important in the development of the industry—Utah engineers have from the first cooperated with receiver manufacturers, by directing the use of vibrators best suited for each individual requirement. For original equipment or replacement requirements there is a Utah Vibrator to meet every need.

SPEAKERS • TRANSFORMERS • UTAH-CARTER PARTS

June, 1939
NEW THINGS

Paper condenser

Low power inverters

Bench tester
* Zero current voltmeter features rectangular meter with 8% inch scale length. Circuit gives infinite ohms per volt to 250 volts DC. Television ranges include 1,000 and 10,000 volts at 8,888 ohms per volt. Over 888 megohms resistance at 10,000 volts. Metered power output in panel checks power consumption at any time. Covers usual AC-DC ranges at 1,000 ohms per volt to 2,500 volts DC milliamperes, resistance to 50 megohms, capacity to 200 mfd. and decibel ranges. Model 210X, Hickok Elec. Instrument Co., 10514 Dupont Ave., Cleveland, Ohio.—Radio Today.

Circulating heater
* Economy model oil-burning heater with ventilated top. Prismatic flame panel reflects glow of flame into room. Burner equipped with adjustable pilot ring. Also models with visual control dial to indicate flame-setting across entire room, and base which reduces drafts by bringing in air at several levels. Quaker Mfg. Co., 223 W. Erie St., Chicago.—Radio Today.

OXFORD TARTAK
5 W. Van Buren St. • Chicago U.S.A.

WAXES AND COMPOUNDS
FOR INSULATION & WATERPROOFING of ELECTRICAL and RADIO COMPONENTS
* such as transformers, coils, power packs, pot heads, sockets, wiring devices, wet and dry batteries, etc. Also WAX SATURATORS for braided wire and tape and WAXES for radio parts. The facilities of our laboratories are at your disposal to help solve your problems.

OXFORD TARTAK
5 W. Van Buren St. • Chicago U.S.A.

NEW THINGS

Paper condenser

Low power inverters

Bench tester
* Zero current voltmeter features rectangular meter with 8% inch scale length. Circuit gives infinite ohms per volt to 250 volts DC. Television ranges include 1,000 and 10,000 volts at 8,888 ohms per volt. Over 888 megohms resistance at 10,000 volts. Metered power output in panel checks power consumption at any time. Covers usual AC-DC ranges at 1,000 ohms per volt to 2,500 volts DC milliamperes, resistance to 50 megohms, capacity to 200 mfd. and decibel ranges. Model 210X, Hickok Elec. Instrument Co., 10514 Dupont Ave., Cleveland, Ohio.—Radio Today.

Circulating heater
* Economy model oil-burning heater with ventilated top. Prismatic flame panel reflects glow of flame into room. Burner equipped with adjustable pilot ring. Also models with visual control dial to indicate flame-setting across entire room, and base which reduces drafts by bringing in air at several levels. Quaker Mfg. Co., 223 W. Erie St., Chicago.—Radio Today.

OXFORD TARTAK
5 W. Van Buren St. • Chicago U.S.A.

WAXES AND COMPOUNDS
FOR INSULATION & WATERPROOFING of ELECTRICAL and RADIO COMPONENTS
* such as transformers, coils, power packs, pot heads, sockets, wiring devices, wet and dry batteries, etc. Also WAX SATURATORS for braided wire and tape and WAXES for radio parts. The facilities of our laboratories are at your disposal to help solve your problems.
SALES HELPS

Battery Boost

Usalite sales display No. 81 consists of six Junior Red-Head plastic molded flashlights mounted on colorful display; 6 free adjustable bracket holders and 24 Usalite 10c flashlight batteries. Dealers' net is $4.44. United States Elec. Mfg. Corp., 222 W. 14th St., New York, N. Y.

Musical Merchandise

Designed for sales counters in record shops an RCA Victor phonograph needle merchandiser is ready for dealers. A full-view glass display panel in base shows various needle packages together with a card explaining their uses. The panel is lighted by light-bulb in top of display. A stock of over 500 needle packages may be stored in vertical bins in back of the unit. Bins have slanting shelves and ledge strips for safe storage and are labeled with the various RCA Victor needle types.

Hytronic Labs will offer its new beam power output tube for replacements in sound equipment at the Paris Show in Chicago. Designed specifically for replacing type 6L6 and 6L6G the 6L6GX eliminates leakage and arcing between the pins by means of a ceramic base. Net price $1.25.

PRESTO RECORDING EQUIPMENT
at the NATIONAL RADIO SHOW
BOOTH 116—BELL STREET

See the complete new line of

PRESTO MODEL J
RECORDING PHONOGRAPH
$169.50

Complete with microphone and stand.
* Slightly higher west of Rockies.

PRESTO MODEL G
RECORDER AND PUBLIC ADDRESS SYSTEM $325.00
Less microphone and stand.

PRESTO MODEL Y
PORTABLE 16" RECORDER
$595.00
Less microphone and stand.

PRESTO MODEL M
DUAL TURNTABLE RECORDER
$550.00
Less microphone, stand and speaker.

PRESTO MONOGRAM DISC
A new low-cost disc equal in performance to the Presto discs used by broadcasting stations and recording studios.

<table>
<thead>
<tr>
<th>Size</th>
<th>Price pkg. of ten</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;</td>
<td>$2.50</td>
</tr>
<tr>
<td>8&quot;</td>
<td>4.00</td>
</tr>
<tr>
<td>10&quot;</td>
<td>6.00</td>
</tr>
<tr>
<td>12&quot;</td>
<td>7.50</td>
</tr>
</tbody>
</table>

HYTRONIC LABS

PRESTO RECORDING CORPORATION
242 West 55th Street, New York, N. Y.

JUNE, 1939
MORE THAN 
600 HOURS IN A SALT BATH 
-AND STILL GOING STRONG!

CINAUDOGRAPH CORPORATION
STAMFORD CONNECTICUT

If you're looking for evidence of speaker stamina, engineering genius and amazing dependability, take a trip to the World's Fair. See in the Lagoon of Nations, where nightly magic fountains are set to music, the world's largest speakers. Built to specifications by Cinaudograph engineers, these units must withstand tons of salt spray night after night. For more than 600 hours they've "taken it". And still going strong!

In the Utilities and General Motors exhibits, you'll find other Cinaudograph speakers just as faithfully on the job. World's Fair engineers chose these speakers for the mighty Public Address system networking the entire grounds. Seventy-six installations—1800 speaker units! That's Cinaudograph's contribution to the World of Tomorrow. And proof enough, we think, that Cinaudograph can build to any specifications—and build well.

For performance, protection and bigger profits in your business, look to Cinaudograph for speakers. You, too, will agree with enthusiastic Fair engineers, "it pays to insist on the finest". For the speaker line designed for the World of Tomorrow is more than capable of today's demands.

Description of the Cinaudograph 27" electro-dynamic speaker installation at the New York World's Fair available on request. Also catalog describing the entire Cinaudograph line of speakers. We cordially invite you to visit our display of Cinaudograph Products at the National Radio Trade Show. Our booth number is 927 Faraday Avenue. Additional equipment will be exhibited in rooms 4A-5A-7A.

Zenith Orders Up

Zenith Radio Corp. completed its annual conventions in New York and Chicago, May 31. The distributors attending these conventions, reports Commander E. F. McDonald, president, placed orders for their June and July requirements which represented an increase of 154 per cent over the orders placed by the same distributors at the same annual conventions last year. The increase of 154 per cent was in number of units. There was an increase of 149 per cent in dollars over the same conventions last year, largely accounted for by the introduction of the new radio line of receivers which do not require antennae, aerials or grounds.

Majestic Prevue and Distributor Convention

The 1940 Majestic line will be presented for its initial showing June 10 to June 28 in the new Majestic factory display room at Chicago. Majestic has recently constructed a specially factory designed room wherein the new models will be previewed during the Chicago Furniture Show and the Radio Parts Show.

W. B. E. Norins, general sales manager of Majestic, has announced June 28 to July 3 for the Majestic distributor convention at the Drake Hotel, Chicago.

The Majestic line for 1940, according to factory announcements, will offer a complete price range and incorporate many Majestic engineering innovations. A wide variety of designs featuring new creations of the internationally famous artist-designer, Norman Bel Geddes, will be shown.

Andrea's Policy

Andrea television receivers and kits are being marketed in the New York-New Jersey area, under a "fair trade" contract which establishes the resale price and permits no trade-in allowance or other discount from list prices.

These products will be sold only to dealers operating established retail stores, and no discounts will be allowed to industrial concerns placing their orders through their purchasing departments or to personnel departments of commercial organizations.

"We subscribe to the policy of using television as a means of restoring legitimate profits to radio dealers. We will give the dealer full protection to that end," says F. A. D. Andrea, "and we shall not hesitate to repurchase our products from stores that do not see fit to take advantage of this new set up."

"Phantom" Tele-Receiver

To introduce the mysteries of television to interested thousands at the N. Y. World's Fair, RCA has prepared a unique television receiver with a cabinet of transparent plastic material. Experienced guides satisfy the curiosity of the visitors by explaining and pointing out the video chassis, the all-wave radio chassis for sound reception, the cathode-ray tube, loudspeaker, tubes and other parts, which are chrome plated to make them more easily visible.
Philco Dealer Meetings Underway

Immediately following the Philco convention held at French Lick, Ind., June 5, 6, 7, and 8, Philco executives from Philadelphia headquarters began a swing around the country which will take them to 52 cities to attend Philco dealer and distributor meetings, which this year will be more completely detailed than ever before in Philco's history.

Thousands of dealers in the various territories will convene with their distributors and will see, for the first time, the 1940 Philco radio line, besides hearing Philco executives explain in detail merchandising and advertising plans for the coming year. Also, they will hear Philco's policy on television in conjunction with the announcement of a limited number of television receivers.

Included in the group of Philco executives who will deliver the principal addresses at the meetings are: Larry E. Gubb, president; Sayre M. Ramsdell, vice-president; Thomas A. Kennally, sales manager; Harry Boyd Brown, national merchandising manager, Max Enelow, James Carmine, Herb Stickle, John F. Gilligan, Cliff S. Bettinger, James M. Skinner, Jr., John Parsons, Jack Allison, Bob White.

Capehart-Farnsworth Group Plans New Markets

Capehart district managers assembled in Fort Wayne, Ind., May 31, for a three-day meeting, conducted by I. C. Hunter, sales manager, their first session as the Capehart Division of Farnsworth Television & Radio Corporation.

Plans were developed and policies formulated for the introduction, in sixty days, of a new line of Capehart instruments in some what below current models. These will be known as the Panamuse series, will contain an entirely new record-changer, and are expected to open broad new markets to Capehart dealers.

First showing of this line will be made at the convention of the National Association of Music Merchants to be held at the Hotel New Yorker, New York, August 1st to 3rd inclusive. No changes are contemplated in the present policy of limiting distribution to those dealers prepared to merchandise Capehart instruments by the highly specialized methods proven effective during the past ten years, but activity will be doubled to increase the number of communities in which Capehart instruments may be purchased. Present models in the higher price brackets will be continued.

Informal discussions were held with E. A. Nicholas, president, and E. H. Vogel, vice-president, of Farnsworth Television & Radio Corporation, who stressed the importance to Capehart dealers of the new opportunities resulting from associating the great strength of Farnsworth Television with the excellent acceptance of Capehart instruments.

JUNE, 1939
Cash in-on Cameras

Radio dealers ideally set up to merchandise cameras and accessories. Aggressive advertising and promotion soon builds profitable line.

Many radio men are inclined to look upon cameras as a slow-moving, extra line, meant only for the small camera outlet or the large dealer who has enough capital to make a "department" store. The fact is, according to F. G. Klock of Universal Camera Corp., there are not now enough camera stores in America to take care of the rapidly increasing demand.

Camera friends, like radio bugs, are well known for the habit of continually trying new developments, constantly buying new gadgets, never being satisfied with the equipment they own. The market for film, lenses chemicals, and the dozens of other camera accessories is shown in the fact that one person in five in the U. S. now owns a camera. The hobby has grown so rapidly that retailers in other lines (not as closely allied as radio) are scrambling to reap the profit neglected by the camera man.

RADIO MEN BETTER MERCHANDISERS

"The reason the line has been undervalued," according to Mr. Klock, "is that the average camera dealer is a technical expert, not a merchant. It is his habit to spend so much time on technical details, and so little on merchandising, that the cream of the camera business has drifted away from him to the faster moving merchandisers of other lines. The radio and electrical appliance dealer knows how to demonstrate and merchandise, how to promote sales and satisfy customers. An installment or budget plan for high priced articles is another point in favor of the radio-electrical dealer to whom deferred payments is the rule."

Since the camera season is best when the radio season is dullest, there is no need for one to interfere with the other. For that matter, traffic produced by the attraction of photographers will increase radio in the dull season, while customers for radio sets, tubes and parts will be exposed to photographic supplies in the camera off-season.

As an example of what an aggressive merchandising campaign can do, Vim Radio Stores, New York City, have been carrying cameras for a number of years. Stocking Univex, Eastman, Afga, and Bell & Howell lines, they started out to make cameras a major part of their operations. Finding that even without advertising or sales-effort customers would buy cameras, they placed an order for 2,000 Univex Mercury cameras and displayed models in the windows, tying in with advertising in the daily papers. The 42nd St. store has sold as many as 50 of these cameras in a week. Radio men have been trained to sell cameras, and a main part of the store has been turned over to photographic supplies.

More and more radio dealers are finding that cameras and photographic supplies are profit makers in radio's off-season—and even help the year round sales and profit picture.

It's a fast growing business that deserves the attention of alert dealers.

Sleeper's "Television Handbook"


This book is written in the easy-to-find-the-facts style which has characterized M. B. Sleeper's magazine articles and books since 1915. And now in his Television Handbook, you will find a practical presentation of the television art as of April 30th, 1939, the inaugural date of teletexting. Leaving historical description to the textbooks, the author has divided this volume into two parts: First, a profusely illustrated, tersely written description of the NBC studios and the transmitter on the Empire State Building; Second, a simple exposition of television receiver circuits with the most elaborate instructions, including six diagrams for wall mounting, for assembling and servicing the assembled kit, as well as the equivalent Andrea factory-built receiver. A dictionary of television terms has been included, to explain a great number of new words which we must add to our technical vocabularies.

CROSLEY "PRESS JR." MODEL

Croley's miniature candid camera has reflector with universal focus with usable depth from three feet to infinity, built-in flash bulb synchronizer and battery supply. Lists at $7.95 complete.
RCA to Show Television
During Radio Parts Show

Distributors and dealers attending the Radio Trade Parts Show in Chicago will be given an opportunity to witness an elaborate television demonstration as the guests of RCA-Victor, it has been announced by Thomas F. Joyce, vice-president and advertising director.

"Each visitor will be permitted to appear before the television cameras, while fellow visitors see and hear him by means of stock RCA-Victor television receivers in an adjoining room," Mr. Joyce explained.

"The purpose is to give distributors and dealers who handle radio parts an insight into the future of their business," he continued. "Although television services are not yet available in most sections of the country, we are anxious that the trade anticipate the changes in the radio industry which the amazing new television art is bringing about."

Demonstrations will be held daily during the Parts Show (June 14 to 17 inclusive) in special television studios at the RCA-Victor Distributing Corp., 411 North Lake Shore Drive, from 10:00 to 11:45 a.m., and from 2:00 to 4:30 p.m. each day.

Majestic's Television Plans

The television development program of the Majestic Radio & Television Corporation has been augmented by a license agreement with the Allen B. Dumont Laboratories.

Dumont has for years been the manufacturers of the cathode-ray tube which is the heart of modern television receivers. Majestic has already been manufacturing under the radio and television patents of RCA and the Hazeltine Corporation.

Majestic under its present arrangement with Dumont is now in position to sell complete television receivers which are being manufactured by Dumont Laboratories, and intends to do so as the sale of television receivers seems desirable.

A full line of table and console models will be available. A feature of these receivers will be the unusual large size picture that they present. The regular receiver will present an 8 by 10-inch picture, and the special line will provide a picture 5 by 7 inches.

Presenting 2 Sensational New UNIVEX CAMERAS!

UniveX TURRET "8"

The last word in home movies! Enables the user to go from long-shots to close-ups...from brightest sunlight to shadow—with a simple turn of the turret. 3-lens rigid mount, changes in a split-second to any of THREE lenses! Viewfinder automatically frames field of vision for Telephoto use! In addition, this sensational Turret"8" embodies every feature of the new UniveX Cine "8"! New built-in optical viewfinder; new snaplock hinged cover; new improved governor; new automatic shutter; new powerful quiet motor! Takes movies at less cost than snapshots! (Uses 60c UniveX Cine Film.)

New! UniveX MERCURY with 1/1500th Second Speed!

UniveX MERCURY with 1/1500th Second Speed!

With this newest UniveX triumph, America now takes unchallenged leadership in the candid field! No other camera, regardless of price, can match this speed! With its built-in photoflash synchronizer, automatic film transport and dozens of other sensational features, the Mercury "gets" every conceivable action picture—by night or day! With its simplified, quick action controls it delivers superb, prize-winning action! Results to anyone who can press a button! Uses most economical UniveX 35mm. film.

Also with Hexar f2 Lens and 1/1500 Speed $9.50

Products

- Noiseless Auto Antennas
- Auto Radio Accessories
- Auto Radio Cable and Fittings
- Remote-O-Cable Replacers
- Adjustable AC-DC Ballasts
- Ballast Testers
- Window and Roof Antennas
- Woven Fabric Dial Belts
- Dial Cables and Cords
- And many others

Coming!

Sh! It's a big secret—a totally new product for live wire distributors—right in step with today's market.

We'll be seeing you at the show. BOOTH 401

J. F. D. MANUFACTURING CO.
4111 FORT HAMILTON PARKWAY, BROOKLYN, N. Y.
EXPORT OFFICE: 116 BROAD ST., NEW YORK CABLE ADDRESS: ICARAD, N. Y.

JUNE, 1939
Sprague Acquires New Factory Set-Up

The recent purchase by the Sprague Specialties Company of a second set of factory buildings in North Adams, Mass., results in almost doubling the floor space now available for the manufacture of Sprague condensers and Sprague Koolohm resistors. This expansion was made advisable by steadily increasing business, both export and domestic plus the recent introduction of wire-wound resistors, push button-tuners and many new condenser types.

The new plant is a complete manufacturing unit in itself. It consists of an office building, three separate manufacturing buildings from two to four stories high, a power house, and three warehouses. Conveniently located for shipping either by truck or by rail, it is less than a mile from the present Sprague plant, thus lending itself readily to a rapid and highly efficient expansion of the company's manufacturing facilities. Buildings are of modern brick and steel construction.

Sprague general offices will be maintained as in the past at the original No. 1 plant. Both Sprague condensers and Koolohm resistors are distributed to the jobbing trade by the Sprague Products Company under management of Harry Kalker whose offices will also continue at the No. 1 plant.

Hutchins Called Back to National Union

On leave of absence from his four-year vice-presidency of Western Advertising Agency's Chicago office, Henry Hutchins has returned to National Union, Newark, N. J., to direct its selling program. It was in 1930 that Henry was first appointed sales manager of N. U., guiding its policies during the formative years of the radio parts business until 1935.

"While recognizing all the evils and shortcomings of the radio tube industry," comments Mr. Hutchins, "I still think that it is the most fascinating business I know and one which still has, in my opinion, plenty of hope. Having specialized in sales promotion for many years, both on the sales side and on the advertising side, I am quite familiar with retail operations in many branches. I am convinced that the radio service business occupies a unique and fundamental position among retail establishments. Such a business, efficiently handled and capably promoted to the public has a bright and profitable future. And, of course, as the retailer and the jobber prosper, so does the manufacturer."

Tabloid-Page Facsimile

W. G. H. Finch of the Finch Telecommunication Labs, recently announced the development and successful commercial tests of a new tabloid-page printing facsimile transmitter and associated recording equipment. The new apparatus prints a full-size five-column tabloid producing 20 square inches of printed text and pictures per minute. As in other Finch facsimile the new product operates on either AC or DC or batteries and uses electro-sensitive paper.
N. Y. Dealers Acclaim New Stromberg-Carlsons
Four hundred dealers and distributors from the Western New York area assembled at the Hotel Sagemore, Rochester, N. Y., May 12th, and saw television and staticless radio for the first time. Interesting as these developments were, the talk of the group centered on the 1940 line of Stromberg-Carlsons which were presented by Radio Sales Manager Lee McAnne. Stanley Manson, Stromberg-Carlson sales representative and chairman of the meeting, declared the new sets were greeted with more enthusiasm than any previous model; that the values offered, in almost every case, resulted in larger orders than in any previous year.
L. A. Castor presented a variety of new ideas for merchandising the new line and outlined Stromberg's 1940 advertising plans.
Officials of the Graybar Electric Co. of Buffalo, Baldwin-Hall Co. of Syracuse, and the Barker, Rose & Kimball Co. of Elmira, were present with their dealers, together with dealers from the Southern Tier, Rochester, and the surrounding area.

Aerovox at Parts Show
Headed by S. L. Cole, president, and Charley Golenpaul, in charge of jobber sales, the Aerovox Corporation will have a large delegation at the National Radio Parts Show, in attendance at the 208 Coulomb Street booth. In addition to exhibiting its exceptionally complete line of condensers of all types, together with essential carbon and wire-wound resistors, Aerovox this year is showing its capacity and resistance bridge, together with other ingenious test instruments intended for better appraisal of condenser quality and correct condenser application. The Aerovox booth will also stress the enormous production facilities now provided by the company's new plant at New Bedford, Mass.

Purdue Engineer Joins Stancor
C. L. Pugh, genial and popular sales manager of the jobber division of the Standard Transformer Corporation announces the appointment of Clement W. Hixson as chief engineer of Stancor's jobbing division.
Mr. Hixson was born in Akron, Ohio, April 17, 1910, and received his B.S. E.E. degree at Purdue University in the class of '35. He served with the Thordarson Electric Company for 21/2 years having started in the laboratory and worked up to special designing, developing new lines. About a year ago, he became a part of the Stancor engineering department.

Negotiations for the permanent installation of individual television outlets in every apartment are now in progress between RCA and Twenty Park Avenue, new 25 story apartment house located at Park Ave. and 36th St., New York City, according to an announcement by Pease & Elliman, Inc., renting agents for the structure.

The Sound of Tomorrow

by WEBSTER-CHICAGO

FEATURES

• FOUR LOW-IMPEDANCE MIXING CIRCUITS (250 ohms)—removing all obstacles to the use of long microphone cables
• REMOTE MIXING of all four input circuits: operator can control output levels from any vantage point in audience
• TASTEFULLY DESIGNED CABINET IN WALNUT FINISH — control panel recessed and edge-glow illuminated

• High-speed expander
• Volume compression
• Dual tone compensation
• Multi-stage inverse feedback
• Output for various line impedances: 500, 250, 125, 100 ohms
• Power output: 30 or 70 watts

These Super-Fidelity amplifiers are offered (in addition to our regular line) in two sizes, Nos. W-4030 and W-4070, with power output of 30 and 70 watts respectively (R.M.A. standard ratings).

Designed for use with low-impedance microphones, they are ideal units either for handling those larger rental jobs, or for permanent installation in parks, stadiums, and similar large outdoor locations, where long microphone lines and greatest possible flexibility of operation are paramount requirements.

They are highly flexible. The mixer-pre-amplifier and the power stage are separate units, removable from the cabinet for separate mounting in standard 19" racks, with possibility of adding more power stages and, if necessary, a second mixer—to accommodate up to 8 microphones and deliver as high as 280 watts.

THE WEBSTER COMPANY, 5622 Bloomingdale Ave., Chicago

At the Show:
Booth No. 1008

Mail the coupon . . . get the full story of Super-Fidelity Sound
SHORT WAVE CONVERTER FOR CAR RADIO

Model 500 & 700

Can be attached to any car radio. Has on and off switch. Does not affect the reception on the standard broadcast band.

MODEL 600—Covers 40, 31, 25, 20, 19 and 16 meter bands. Designed for reception of American and foreign short wave broadcast. Especially adapted in tropical countries and the more remote parts of the world. Coverage 5,000 to 10,000 Kc.

LIST PRICE....................24.95

MODEL 700—Long wave converter covers 155 to 410 Kc. Used in the U.S. to receive government weather reports, and in ears and boats of the water front districts. LIST PRICE........24.95

For Use of Police and Other Law Enforcement Officers

MODEL 100-A—A police converter with single metal tube and variable tuning condensers. Covers 1,500 to 2,000 Kc. LIST PRICE...........12.50

MODEL 200—Police converter with variable condenser and illuminated dial. Covers 1,500 to 5,500 Kc. LIST PRICE...........22.50

MODEL 500—Police converter with two metal tubes, variable condenser and illuminated dial. Very sensitive. Has exceptional distance range.

LIST PRICE....................22.50

MODEL 21.95 WITH AEROPLANE DIAL 23.95

MODEL 800—Police converter with two metal tubes and triple tuning condensers. Covers 1,500 to 2,500 Kc. Has fair distance range.

LIST PRICE....................15.95

MODEL 900—Police converter with one metal tube and double tuning condenser. Covers 1,500 to 2,500 Kc. Has fair distance range.

LIST PRICE....................7.95

A B C RADIO LABORATORIES

3334 N. New Jersey Street, Indianapolis, Indiana

PROBLEMS OF THE PARTS JOBBER

By Leslie C. Rucker, President National Radio Parts Distributors Association.

The question of the hour is: "Shall I attend the meetings of the Radio Parts Distributors Association during the Trade Show in Chicago?" That, my jobber friend, is a question to which you can find the answer when you have fully considered the various problems of this period and decide whether they interest you. If they do, then you cannot afford to miss—if not, then most definitely you have no right there, unless you seek more light and come with a wide open mind to learn.

Let's look at the situation. We might say "there are tubes," but we dare not. We do say "where are tubes?" Maybe if enough of us voice our opinions nationally, we will see tubes as a stabilized item once more in the position of a clean profit to manufacturer, jobber and dealer, with the ultimate consumer paying a fair list price—a list in line with good business and less price cutting.

Can you, Mr. Jobber, as an individual, do anything to ward off a serious price cut on any one of your lines? If so, what? I dare say you'll take your price sheet and scratch your head to see how you'll make both ends meet. Can you create more sales of transformers, volume controls, or filter condensers than the natural replacement demands?

Replace old tubes

But tubes, yes. Lower prices will greatly assist us to replace many of the millions of old tubes, long ago past good operating point. The dealer will sell several times the number he now moves.

Don't you and I both agree that most of the manufacturers are swell fol-

MUSICAL TOWERS Belfry Chimes • Carillon

Sundt Engineering Company

2460 Lincoln Ave. Chicago, Ill.

Sell & Use LITTEL FUSES

Write for Catalog

For radio instruments, meters, transmitters, rectifiers, etc.; "Quicker than cream, backed with years of service"...

All Kinds. See your jobber and order today; write for catalog and prices.

LITTEL FUSES INCORPORATED

2460 LINCOLN AVE.

REFLEXED

University Loudspeakers

ACOUSTIC REPRODUCERS OF HIGH EFFICIENCY AND QUALITY

Write for complete line and specification sheets.

Reflexed University Loudspeakers Inc.

1344 W. Taylor, Chicago, Ill.

UNIVERSITY ANNOUNCES—the latest addition to its many basic pioneering developments.

THE "UNIVERSITY RUBBER TIRED REM" This "Rubber tire" eliminates all "ring" and "metallic resonance" from spun metal horns. Bumping the rim of the horn makes it acoustically "dead." This feature incorporated in all models illustrated. Sound men have been waiting for this development for years. It will boost your sound sales if you feature it correctly. Its low cost makes merchandising problem simple.

Write for details. Get aboard the "UNIVERSITY RUBBER TIRED SOUND WAGON" University also announces two new loudspeakers: Models WCC & SWCC are dual-driver speakers with uniform 60-30,000 cycle response at high power level.

UNIVERSITY LABORATORIES

195 Chrylstie St. NEW YORK, N. Y.

Foreign Dept., 116 Broad St., New York

RADIO TODAY
JUNE, 1939

National Radio Parts Distributors Association

President—Leslie C. Bucker
1229 14th St., N. W., Washington, D. C.

Vice-President—Emmet J. Ydings
114 Ninth St., Pittsburgh, Pa.

Treasurer—Blakey E. Cross
40 Clyde St., Gloversville, N. Y.

Secretary—George D. Barhy
454 Walnut St., Reading, Pa.

Directors:
Joseph A. Demambro
1105 Commonwealth Ave., Boston, Mass.

Walter Hoffenbach
221-5 Eighth Ave., Altoona, Pa.

R. C. James, Sr.
2117 Second Ave., Seattle, Wash.

William Shuler
902 Paynes St., New Orleans, La.

Arthur Stallman
128 E. Seneca St., Ithaca, N. Y.

lows? Well, after all, they are all human and they want our business. By
the very nature of survival, they are very much interested in serving their
customers, just as you and I do every
day. Then why can't we get together
and plan for the better mutual coop-
eration of jobbers and manufacturers? We all will welcome real good sugges-
tions.

Are you perfect in your jobber-dealer set up? Most of us have
learned much through our past con-
ferences and many of those things
learned have improved our set-up,
which has meant more profits.

Demerits of individualism

Some of our jobber friends are so-called "rugged individualists." My hat is off to you, sir, if you are such a
person, providing you are thoroughly
successful in numbering men of all
walks of life as your friends and if
you are a pillar of power in your local
community for others to look to your
wisdom and acclaim you as a great
man. If, on the other hand, you stand
as a lone wolf and think that as long
as you pay your bills the world can be
damned, then, sir, I pity you, for you
don't know how to live and you will
ultimately be miserable.

To all of you, we open our associa-
tion meetings and hope to have you with
us. The workers in every or-
ganization are usually known as "the
clique." Let's have a big, powerful
clique, with each of us standing ready
to carry on a great work already well
under way. And when we go back to our homes, let's be thankful we know
the answers to a lot more of the prob-
lems we are confronted with in our
businesses.

**

Ken-Rad Visited by Trade Group—
On Friday afternoon, May 26th, a
group of several hundred prominent
business men from Louisville, Ky.,
paid a visit to Owensboro, where they
were conducted on a tour of the Ken-
Rad factories. The visitors were much
impressed with Ken-Rad's extensive
layout and particularly noticed the
close supervision maintained in the
manufacturing operations and the
many safety features for the benefit of
employees.

- This tiny electrolytic condenser costs only
50 cents list. But it could cost many dollars to
some serviceman, builder or manufacturer if
it broke down and endangered tubes and costly
components. That's why the AEROVOX guar-
anteed condenser slip really backing every AEROVOX
condenser with which it is packaged, means so
much to the radio trade today.

It is this sort of insurance against unwarranted
failure that has built up supreme confidence in
AEROVOX products. They are bought by
those who simply cannot afford failure.

A Tremendous Stock . . .

Meanwhile, AEROVOX has built up and now
maintains the outstanding jobber stock backed by
a perpetual inventory system and constantly re-
plenished by factory orders. This stock insures
prompt shipment of all jobber orders, as well as
minimized back-ordering.

An Adequate Choice . . .

The AEROVOX line, including every type of con-
denser in general demand, together with the most
extensive line of exact-duplicate replacements,
insures the right condenser for every job. Which
means you get what you want when you want it,
from that local AEROVOX jobber.

Ask for New CATALOG . . .

- Look us up at 208 Columbus St., Stevens Hotel.
And if you get out New Bedford way, be sure to
visit our plant.

AEROVOX CORPORATION
New Bedford, Mass.
Sales Offices in All Principal Cities
In a few days it will be Independence Day, and with events as interesting as they are elsewhere in this funny world, perhaps I can be excused if I get somewhat patriotic.

We Americans are a lazy people, and there are exceptions to that; but it’s the exception that “may” be the rule.

I am an exception. I am the one who is the exception. It might be a good idea for me to do something about this.

I will be home on this 4th of July to take off an hour on the Fourth of July. I will be home on this 4th of July to take off an hour on this 4th of July to take off an hour. I will be home on this 4th of July to take off an hour on this 4th of July to take off an hour.

Mr. Serviceman: Your Radio is Out. Do You Want It Fixed?

LAFAYETTE P.A. HOTTEST!

SALES DIVISION
NEW YORK  ATLANTA  CHICAGO

JIM QUAM SAYS

Julius Finkel, proprietor of J. F. D. Mfg. Co., reports that a new antenna development will soon be announced by his company. In line with the company’s policy of producing handy kits and antenna “packaging” a large promotion campaign is planned for the new product through 700 recognized jobbers.

Formation of a new Maryland corporation, Intercommunications, Inc., to carry on the business of the New York company, Intercommunications, Inc., has been announced by R. J. Malcolm, president of the parent company. The new corporation was formed to market products of the Swedish Ericsson Co., manufacturers of telephone equipment. Gray Mfg. Co., L. M. Ericsson, and R. J. Malcolm each own one-third of the stock in the new concern. Plans call for all equipment sold in the United States to be manufactured in the Hartford works of the Gray Telephone Company, as soon as manufacturing details are completed.

Solar Manufacturing Co.—Incorporating years of work on television problems by condenser engineers, Solar’s Bulletin T-1 gives complete specifications, diagrams and standards for the high-voltage condensers necessary for television work. The first company to furnish television condensers from published standards, Solar has supplied the condensers which were used by many of the leading television pioneers in sets now being produced.

Carl J. Hollatz, vice president of Ken-Rad Tube & Lamp Corp., has announced the appointment of Russell W. Metcalf as sales manager of the Lamp Division, with headquarters at the Owensboro, Ky., office. L. R. O’Brien, formerly equipment sales supervisor in Chicago, becomes manager of equipment sales.

Trilling and Montague, Philadelphia distributors, have been appointed by Andrea Radio Corp. to handle television sets and kits in the Philadelphia area.

A Western Electric “speech input” amplifying unit has been installed in the N. W. Ayer & Son studios to facilitate auditions and informal rehearsals.

NOISE REDUCING AUTO RADIO AERIALS

- INCREASED EFFICIENCY with this NEW TYPE BOOSTER COIL ANTENNA

Here is the aerial every serviceman has been wanting. It combines increased efficiency and noise-reduction with the best in design. These tri-bar aerials hold down to very short lengths (as shown in the illustration) or open out to reach well above the car to pick up broadcast signals. An ingenious slide arrangement allows these aerials to be used at any length between the two extremes to give a variable capacity effect. They are furnished for either cowling mounting or hinge mounting. A trial will convince you of their performance.

GUARANTEED RATTLE FREE

See Them at Your Jobber’s Today!

CONSOLIDATED CORPORATION
516 S. PEORIA ST.  CHICAGO, I.L.

Big Chief UNDER-ONE-ROOF

We wanted to tell you that here, under one roof, is everything you want in your complete radio—something for everyone in the family. We are operating under a high pressure selling campaign. This is a limited time offer. Don’t wait. See your dealer today, or call the "Hotline" number.

WHOLESALE RADIO SERVICE CO.
100 SIXTH AVE., NEW YORK, N. Y.
CHICAGO, ILL. • ATLANTA, GA. • BOSTON, MASS.
BROOKLYN, N. Y. • NEWARK, N. J. • JAMAICA, L.I.
Too Many "Parts Jobbers" Says Kahn

Commercial hara-kiri is being committed today by manufacturers throughout the radio parts industry, in the opinion of Jerome J. Kahn, president of the Standard Transformer Corporation of America, Chicago, who points out the "vicious racket" being fostered upon manufacturers by increasing numbers of minor jobbers seeking to establish themselves as "jobbers." The obvious object is to obtain the jobber discount.

"Every Tom, Dick and Harry who calls himself a radio parts jobber today is demanding to be recognized in the same sense as a thoroughly established jobber, with all of the usual perquisites of such an established jobbing practice," says Kahn. "And the funny part of it all is that many of the manufacturers in the radio parts business who are eager to obtain as large a volume of business as possible, look upon these demands with favor.

"The difficulty is that once one of these fellows obtains recognition from any manufacturer with a fair reputation, he uses that recognition to swing others into line, and the first thing you know he has weaned away from the legitimate jobber a portion of his potential market and weakened the opportunity for jobber and manufacturer alike.

"To meet these problems and to elevate the industry to higher standards of practice, our company has adopted the policy of limited distribution. By this policy the territory first is analyzed and the jobber is appraised of the number of outlets in it. Likewise the jobber's ability to serve the territory is analyzed. The facts are presented to the jobber and both Stancor and the jobber agree to work out the problem together.

"Stancor then surrounds this jobber with elements of 'protected inventories,' 'one jobber discount,' a complete line, 'highest precision standards,' 'timely merchandising,' and other elements that provide real protection. Under arrangement the jobber who really serves is really protected. The volume of business arising in that area is directed to him for his benefit as well as the benefit of the manufacturer. The volume then becomes large enough to enable him to render interested, active service, and thus both manufacturer and jobber benefit."

* * *

The Raytheon Production Corp. is announcing an elaborate new line of free displays and advertising material to help its dealers and servicemen increase their radio tube profits and speed up turnover. Spectacular window effects can be achieved with this material.

* * *

A new corporation known as the Ansley Corporation has been formed to take over the manufacture of the Dynaphone (amplified piano). The Ansley Radio Corp. continues as the manufacturer of the Dynaphone line of electric phonographs and radio-phone combinations.
THOUSANDS of copies of Rider Manual Volume X are on their way to the servicemen of America. The publication date this year has been advanced to August 19th in order to make available to you the tremendous amount of servicing material awaiting publication.

The great number of receiver models being produced by the manufacturers—the new television receivers—facsimile receivers—wireless record players—all have combined to create such a need—such a demand for servicing data that Volume X will be made available 4 months ahead of the usual date.

NEW SERVICE DATA
Complete servicing data you need on the receivers now in your shop...The data you would ordinarily get in November, ready for you four months ahead of time. The information you have asked for—in the form you asked for—it all in Rider's Volume X.

LATEST DEVELOPMENTS
Television—Facsimile—Wireless Record Players—the servicing information on these important new developments for the servicemen will be found complete in Volume X. You must have the manufacturer's instructions when you install or service any of these new sets.

NEW "HOW IT WORKS"
Easy-to-understand explanations on the theory of Television—Facsimile—Wireless Record Players, etc. are in the new, 64-page "HOW IT WORKS" section which is included at no extra cost. This is the type information you have always found so helpful.

Volume X index covers all 10 Rider Manuals.

Place Your Order Now

JOHN F. RIDER, Publisher, 404 FOURTH AVE., NEW YORK CITY

D. P. O'Brien, sales director Cinaudagraph Corporation, manufacturers of permanent and electro-dynamic speakers, and magnetic alloys, Stamford, Conn., announces that a complete display of all the different types of speakers of Cinaudagraph manufacture will be on exhibit at the National Radio Parts Trade Show. The large 27" electro-dynamic speaker, of the type used at the New York World's Fair, will also be demonstrated. Besides the regular booth exhibit on the main floor, Mr. O'Brien has reserved Rooms 504A, 505A and 507A for the exhibition of special products and devices developed by Cinaudagraph engineers. The following Cinaudagraph executives will be in attendance with Mr. O'Brien at the show. Sherman R. Hoyt, L. Cornwell, K. Blake, W. Wilson, R. Augustine.

J. Earl Smith, manufacturer's rep., shown before leaving on a trip to visit factories he represents, the N. Y. World's Fair and the Parts show in Chicago.

Amy, Aceves and King, consulting engineers and specialists in antenna systems recently signed contracts with RCOA and Belden Mfg. Co., for manufacture of antenna kits under A. A. and K. patents on a royalty basis. Contracts run for three years with optional renewal.

W. H. Ochiltree, G.E. appliance distributor, opened his new quarters at 101 Penn Ave., Pittsburgh, recently, with tours of inspection and a special broadcast over KDKA. Ochiltree covers the territory of western Pennsylvania, eastern Ohio, and northern part of W. Virginia.

An expansion program to bring out several auxiliary service devices is planned by Radiotechnic Lab., Evanston, Ill. Charles P. Peirce is assuming general management of the enterprise while H. P. Manly will continue in charge of engineering, sales and developing of the new products.

Browning Labs., Inc., Winchester, Mass., has appointed Samuel S. Eggert as sales representative in the middle Atlantic states including Metropolitan New York, New York State and New Jersey. Eggert formerly represented Utah Radio Products Co., and the Webster Co.
Announcement is made by E. H. Vogel, vice-president of Farnsworth Television & Radio Corp., of the appointment of W. R. McAllister as a district manager. Mr. McAllister brings to his work a very thorough understanding of distributor and dealer problems, gained from fourteen years in this industry.

His first connection, made in 1925, was with the Federal Radio Corporation of Buffalo, later becoming sales manager. In 1925 he joined Brunswick Radio Corporation in the capacity of Western manager. More recently, Mr. McAllister was with Philco, contacting District Managers and Distributors, encouraging increased activity on radio-phonograph combinations. For Farnsworth, his first assignment is the southeastern territory from Philadelphia to New Orleans.

A. C. Rogers, managers of the home appliance department of Consolidated Automotive Company, Jacksonville, Fla., referring to Radio Today’s May cover picture showing a winning poker hand, calls our attention to a similar sketch which he used on an announcement bulletin sent out to his Emerson dealers in February. The page is entitled: “A winning hand for 1939. Five sales-winning turnover models for Spring. Business is up. Sales are increasing. Show these Emersons in your windows.” The editors of Radio Today hasten to assure Mr. Rogers that we had not seen his excellent bulletin, until receipt of his letter after the issue of our May front cover.

A model store interior featuring record counters, tables, racks, and display pieces of the A. Bitter Construction Co., will soon be ready for exhibition at Bruno-New York, Metropolitan New York distributor of Victor records.

Standard-Vox, Ltd., new Canadian transcription recording firm, has equipped its studios with two complete master wax recording machines with vacuum systems, master sound recording channel and amplifier from Universal Microphone Co.

E. T. Turney (W2APT) has resigned from the H. A. Marsh Advertising agency to become sales and advertising manager of Kenyon Transformer Co., Inc., 840 Barry St., New York, N. Y.
R. C. Jenkins has been appointed factory superintendent of the Farnsworth Television & Radio Corporation. Mr. Jenkins entered the phonograph industry as chief inspector for the Victor Talking Machine Company late in 1928. By 1929 the company had become the RCA-Victor Company, and Mr. Jenkins was superintendent of radio receiver production. He has held a similar post at the General Electric Company for the past five years, which work he leaves to assume charge of Farnsworth production activities.

The appointment of J. R. Brandenburg, as northeastern district manager of the Steward-Warner radio division, and transfer of H. P. Dunkley to the Metropolitan New York area, is announced by L. L. Kelsey, radio sales manager for the Steward-Warner Corporation.

Mr. Brandenburg assumes his Steward-Warner position with more than 14 years experience in radio and appliance merchandising. During this time he has held positions with several other leading radio and appliance manufacturers.

New district representatives appointed for Ansley Radio Corp. include: F. A. Bauml, route, 405 Penn Ave., Pittsburgh, Pa., in W. Virginia, Eastern Ohio and Western Pennsylvania; G. B. Miller, 8208 Santa Monica Blvd., Los Angeles, Cal., in California, Nevada, and Arizona; V. C. McNabb, 5105 N. Capitol Ave., Indianapolis, Ind., in Indiana, Louisville, Ky., Cincinnati and Dayton, Ohio.

Mr. Henry Forster, president of Radio Speakers, Inc., says the company has four times the former space in their new quarters at 221 East Calvert St., Chicago.

R.M.S. members are responding to the latest design improvement of the special air-conditioning and refrigeration training course prepared in cooperation with Utilities Engineering Institute of Chicago.

W. S. Hartford has been appointed sales manager of the Thordarson Electric Mfg. Co., 500 W. Huron St., Chicago.

Oxford-Portak Radio Corp. are again enlarging their factory.

Radio Has Only Begun!

No one who attended the first annual meeting of RCA stockholders, held on May 4th, 1930, could have fully foreseen the world-wide scope which radio would attain in twenty years, or the marvelous devices and services which would make such growth possible. Nor do I believe that there is anyone present today who can fully visualize the place radio will fill in the lives of all people in another twenty years.

I am convinced that the future of radio holds far more in store than all its accomplishments up to the present.

David Sarnoff, addressing RCA stockholders, May 2.

TELEVISION
ADVANCED TRAINING
FOR MEN NOW EMPLOYED IN THE RADIO INDUSTRY

To those now employed in radio, we offer thorough, modern advanced training in television, endowed by men in the radio industry, created by experienced engineers, backed by costly equipment conforming to RMA standards.

FOUR PLANS

Four plans, carefully designed to fit the individual needs of the majority of men now engaged in radio, are available. The tuition rate is low, yet outstanding quality is apparent.

TELEVISION HAS ARRIVED

Regardless of the position you hold or the kind of radio work you are doing, television will probably affect you. Then, too, you should not overlook the new opportunities that television can place within your reach.

Write For Details
We invite you to write for complete information at once. Your inquiry will receive the personal attention of Mr. C. L. Taylor, President.

MIDLAND TELEVISION, INC.
Power and Light Bldg.,
Kansas City, Mo.
AFFILIATED WITH KMBC

LIGHTEST WEIGHT COMPACT PORTABLE

THOUSANDS OF ONAN ELECTRIC PLANTS are supplying ALTERNATING CURRENT at all over the World, for Lighting, Operating All Appliances and Powering RADIO TRANSMITTERS and RECEIVERS for Amateur and Commercial Operators. PORTABLE ONAN PLANTS are Operating Public Address Systems, Sound Truck Apparatus, Moving Picture Projectors, etc. Others are installed in Private and Public Buildings, to provide Electric Service in case of Power Line Failure. Many of these have prevented financial losses and even loss of life in such Emergencies.
ONAN ELECTRIC PLANTS are Dependable, Economical and Long-lived. Types from 350 to 5,000 Watts carries in stock. Models include 110 or 220 Volt, AC-12, 32 and 510 Volt DC—or Dual Voltage AC-DC Units. Furnished in either Manual, Full Automatic or Self-Starting Types. Shipped READY TO RUN. Prices start at $95. WRITE FOR DETAILS AND PRICES

D. W. ONAN & SONS
898 Raymond Ave., Minneapolis, Minn.
E. C. Cahill, who has been appointed division manager of the RCA Photophone group.

Electrical orchestra possibility for sound-men

Sound men, too, are in line for new consumers of their products. The first all-electric orchestra ever assembled created a stir recently in an informal concert at Steinway Hall in New York City. Tom Adrian Cracraft, stage designer who organized the group, says that he is much interested in producing new tones and finding composers to use this new-found freedom.

Since the sound vibrations of the instruments are picked up electrostatically, translated into electrical voltages and then into sound by amplifiers, sound men should be alive to the possibilities presented when the idea grows. Amplifiers, tubes and other parts will be needed in quantities and capable service will be at a premium.

Binghamton, N. Y., RSA Members Exchange Credit Info

The Binghamton, N. Y., Section of the Radio Servicemen of America, at a recent meeting started a "bad-accounts" card-index system (every member having a card index and box). Each card has the customer's name; type of set and model and serial numbers, amount of charge, and excuse or excuses for non-payment. Time during each meeting will be devoted to bringing each other's index files up to date. In this way, with each RSA man having all the other members' bad-accounts records, a member may save himself from getting stung by a customer or perhaps may help the original bill to be paid, either directly or indirectly.

Illinois Condenser Co., Chicago, announces the appointment of the firm of Simmons and Southern Sales Co., Fort Wayne, Indiana as their representatives for the states of Indiana, Ohio, Michigan, and Kentucky.

JUNE 1939

NOW! an IRC

VOLUME CONTROL for Every Need!

Whatever the job to be done, there is an IRC Control for it—controls that serve as accurate replacements in every electrical and mechanical characteristic—controls backed with the quietness and dependability that only the exclusive IRC design and construction can give them. Ask your jobber for the new IRC Volume Control Replacement Guide, Edition 2. It's free! Use IRC's on every job from now on. It pays real dividends to use the best.

CS STANDARD

45 standard values give you dependable units easily adapted for countless jobs at minimum prices.

Only IRC BRINGS YOU THESE EXCLUSIVE DESIGN FEATURES

* SILENT SPIRAL CONNECTOR Positive contact between rotor arm and center terminal. Noise cannot originate.

FIVE-FINGER, KNEE-ACTION CONTACT

Five separate spring-like contacts give a cushioned "knee-action" effect. You can actually feel the greater smoothness.

METALLIZED TYPE ELEMENT

The ideal surface for noiseless contact is provided by the metallized type resistance element permanently bonded to a moisture-proof phenolic base.

COIL SPRING

Used as thrust washer on shaft. Assures smooth rotation, prevents play in shaft.

MIDGETS

These midgets include every feature heretofore available only in standard CS types. Smaller size—fully IRC quality.

SPECIAL STANDARD

Similar to Standard "CS" Controls, but made to accommodate IRC Plug-in Shafts.

SPECIAL PLUG-IN SHAFTS

For easy installation even in midget receivers. Position of flat on shaft can be fixed as desired.

AUTO RADIO

Midget controls with friction clutch drive-arm and universal slotted or tongue type shaft.

WIRE WOUNDS

The only wire wound with clock spring connector and coil spring thrust washer on shaft. Resistance wire spot welded to terminals. Same size as CS controls. Rated at 3 watts.

INTERNATIONAL RESISTANCE CO.

401 N. BROAD STREET, PHILADELPHIA, PENNA.
PICK THE LIGHT CX MOTOR FOR SELLING PERFORMANCE

In Your Portables
And Table Models

HERE is the new fully enclosed ventilated, fan-cooled, constant-speed Flyer CX Phonograph Motor that puts new selling push behind popular portable and table model phonographs. Millions of Flyer Motors in use throughout the world indicate its quality. Self-starting. Quickly reaches running speed. Has ample oil reserve in sealed chamber. Noiseless helical-cut bakelite gears, with large bearings. Patented-drive turntable gives positive insulation from motor.

Order a Test CX Motor Today
Specify frequency and voltage of current and size of turntable. Write now for Flyer CX catalog sheet and prices.

The GENERAL INDUSTRIES CO.
3938 TAYLOR STREET    ELYRIA, OHIO

OHMITE RESISTORS AND RHEOSTATS

HUNDREDS of THOUSANDS of wire wound units in stock for quick shipment!

- Remember—if it's in the Ohmite Stock Catalog 17, Ohmite has it in stock—ready to ship the same day orders are received. This is a service only Ohmite can render so completely. Here you have on call the largest, most complete stock of wire-wound Resistors and Rheostats in the country—hundreds of thousands of units in a range of types and sizes unmatched anywhere—readily available at all times. See Your Jobber Today or Write for Catalog 17.  
- Booth 825, National Radio Parts Trade Show

OHMITE MANUFACTURING COMPANY
4876 Fourney Street    * Chicago, Illinois, U. S. A.

Be Right with OHMITE
RHEOSTATS • RESISTORS • TAP SWITCHES

RSA is YOUR Host...
SECOND ANNUAL RSA CONVENTION
June 16 and 17 • Stevens Hotel • Chicago

You can't afford to miss:
★ TELEVISION Lectures for servicemen by outstanding television authorities. Actual demonstration of television transmission and reception.
★ FACSIMILE ★ TEST EQUIPMENT ★ TUBES ★ NOISE ELIMINATION

Mail this coupon for your advance copy of RSA Convention Program

RADIO SERVICEMEN OF AMERICA, INC.,
304 S. Dearborn St., Chicago, Ill.

Sure I'll be at the RSA Convention.

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

Please send advance copy of Convention Program .............................................................
I am interested in RSA Membership. Tell me about it ..................................................
I am enclosing $4.00 for National dues and initiation ..................................................
(Does not include Local Chapter Dues where Local Chapters are organized.)

Because we are the only NATIONAL organization of servicemen, we are able to arrange an outstanding program for RSA members. RSA invites YOU, Mr. Serviceman, to attend our Convention and see what RSA is doing for you.

The RSA Convention is only one of the benefits RSA is providing. You can get ALL the benefits by joining your fellow servicemen in RSA.

Let’s Grow Together in 1939!

RADIO SERVICEMEN OF AMERICA, Inc.
304 S. DEARBORN STREET, CHICAGO, ILL.
Walter R. Jones, of Sylvania, has returned from the Pacific Coast, where he held meetings beginning May 1, in Los Angeles, San Diego, Riverside, Fresno, Long Beach and Oakland, Portland, Oregon, Seattle and Spokane. Participating jobbers for the various meetings were Cook-Nicholls Co., Pasadena; Radio Supply Co., J. L. McMah hon and E. M. Nelson Co., Los Angeles; Coast Electric Co., San Diego; Frank A. Nelson Co., Riverside; Fred S. Dean Co., Long Beach; De Jarnatt Radio Parts Co., Fresno; W. D. Brill Co., Oakland; C. C. Brown Co., San Francisco; Northwest Radio Supply Co., and Stubbs Electric Co., Supply Co., and Stubbs Electric Co., Portland; Northern Radio Co., Seattle; and Spokane Radio Co., Inc. In addition Mr. Jones addressed the Electronics Club of Los Angeles and local sections of the Institute of Radio Engineers at San Francisco, Portland and Seattle.

Walter Spiegel, sales mgr., Regal Amplifier Co., announced recently that the company's master-to-master two-way communication systems now operate without the use of a "talk-and-listen" switch.

Stewart-Warner jobbers and their executives will see the 1940 models at Chicago, June 19, New York, June 22, and San Francisco, June 28.

Eastern Electrical Supply of Newark, N. J., has been chosen to distribute Andrea television sets in New Jersey. The salesmen are receiving instruction in television selling from M. B. Steeper, Andrea domestic sales mgr. Andrea Radio will continue to handle television sales direct in New York and Long Island.

Ward-Leonard Electric Co. appoints C. B. Rogers, Zahner Bldg., 1000 Peachtree St., N. E., Atlanta, Ga., as representative for their electric control devices in Georgia, South Carolina and North Carolina.

Snapped while tarpon fishing in Florida are Ross Siragusa, president of Continental Radio & Television and Harry Clipinger, vice president and general sales manager.

YOUR PROFITS ASSURED with these NEW Readrite Range TESTERS

When you buy Readrite testers you get the best at a price you can afford to pay. Your profit is assured with Readrite quality and low cost investment. Readrite has made tube testers since radio tubes first were used for broadcasting and received. We know nothing is more important to you. With a fast world it is necessary to have the right tool - and Readrite makes that tool. Readrite offers tube testers in all price ranges for distributors and retailers.

TODAY'S TESTER TESTS TOMORROW'S TUBES

MODEL 432-A

$17.85

Today's outstanding tube tester value - a guaranteed quality tester at a price you can afford to pay. The needs of tomorrow have been anticipated by the advanced design of Model 432-A, along with complete provision for today's testing.

Greater filament switching ranges... 20 steps from 1 to 110 volts... Anticipates future filament voltages. Broader Testing Facilities... Checks Loctal, Single Ends, Bantam Jr., Gaseous Rectifier, Ballast, the New High Voltage Series and all other present types. Direct-Reading GOOD-BAD scale... 3" Triplet precision indicating instrument (Grade "A" only). Approved RMA circuit. Neon shorts test—Separate plate tests on diodes and rectifiers.

Professional appearing black leatherette case has handle and removable cover. Modernistic etched panel—black and polished nickel... as good as it looks.

MODEL 432-A... U.S.A. Dealer Price... $17.85

MODEL 432-A-742 is a combination Tube-Tester and Volt-Ohm-Milliammeter in a similar case, but slightly larger. Volt-Ohm-Milliammeter panel is a separate section. Ranges: AC-DC Volts 0-10-50-250-500-2,500 (DC at 1,000 ohms per volt); DC Milliamperes 0-1-10-100; Resistance 5 to 500 with 25 ohms center scale: 0-100,000 and 11/2 megohms. Model 432-A-742 U.S.A. Dealer Price... $39.85

CLIMAXING!!!—9 YEARS OF CONTINUED GROWTH

We invite you, Mr. Jobber, Sound Specialist and Serviceman, to investigate the only complete Sound Line designed for Sound Specialists by Sound Specialists.

Catalog "E" Now Available.

AMPLITONE PRODUCTS CO.
133-7 LIBERTY ST.
NEW YORK, N. Y.

EXPORT DEPT.—ROBURN AGENCIES,
258A Broadway, N. Y.
Move Up At Clarion

Hubert L. Shortt, president Transformer Corp. of America, has announced several recent personnel changes at Clarion. Roy Neusch, who has been in charge of general sales, now assumes complete charge of the Clarion Institute of Sound Engineers. N. Manicardi, becomes general sales manager, advancing from his former position as general manager. W. Whiteside, formerly in the purchasing department, assumed complete charge of production last month. Frank Dostal, associated with the company since its inception in the capacity of design engineer, becomes chief engineer and supervisor of all design and research activities. George J. Sandberg, has been appointed engineer in charge of the mechanical design division.

Benjamin Franklin Miesner, electronics pioneer, who is chiefly responsible for the existence of Tom Adrian Cracraft's all-electronic orchestra, was guest speaker when that unique musical organization made its debut over NBC recently.

B. E. Palmgreen has been appointed northwestern district sales manager for the Stewart Warner radio division, announces L. L. Kelsey, radio sales manager. Mr. Palmgreen replaces Dean Lewis, resigned.

Key men at Clarion are left to right: R. Neusch, G. J. Sandberg, N. F. Manicardi, F. Dostal, and W. Whiteside. Each assumes new duties.
Catalog giving descriptions and illustrations of Clarion complete sound systems for public address requirements. Extra equipment also shown. Transformer Corp. of America, 69 Wooster St., New York, N. Y.

Literature on new series of compensated inductor Microdynes with reduction of needle impedance. Audak Co., 509 5th Ave., New York, N. Y.

Price list of hang-up, auto-filter, paper tubular, electrolytic tubular and electrolytic box condensers. Atlas Condenser Products Co., 348 Westchester Ave., New York, N. Y.

Illustrations and descriptions of new and standard clips. Mueller Electric Co., 1583 E. 31st St., Cleveland, Ohio.


Sound catalog listing complete line of sound equipment including recording and record-playing systems. List prices with separate discount sheet. Amplytone Products Co., 185 Liberty St., New York, N. Y.

INDEX TO ADS
For index to advertisers, please refer to pages 12 and 13.

Folder illustrating Dumont television sets with space for dealer's invitation to prospect for demonstration in the store. Allen B. DuMont Labs., Inc., 12 Main Ave., Passaic, N. J.

Sound Equipment catalog with photos and descriptions of new sound systems. Webster Electric Co., Racine, Wis.

Cross-indexed vibrator catalog containing wiring diagrams, exact dimension data, comparison chart, vibrator tester hookup and diagrams and data on oscillograph readings. Utah Radio Products Co., 820 Orleans St., Chicago.

Catalog illustrated in color, suitable for display, listing and illustrating complete line of batteries. Bond Electric Corp., 146 Munson St., New Haven, Conn.


Look for the Tubing in Tubes
—in Television, Radio and Other Types Needing Cathode Sleeves.

You may need a magnifying glass to see it—but the tubing is there! Most likely it's SUPERIOR TUBING, for we supply the leading manufacturers with Seamless and Lockseam cathode sleeves of pure nickel.

In various metals and alloys, we meet every requirement in fine small tubing. Some only .016" in diameter but every one a jewel of ultra-precision workmanship.

From experience, our customers know that they can depend on us to meet specifications and give them every advantage in delivery and price.

SUPERIOR
TUBE CO.
NORRISTOWN PENNSYLVANIA

MISS JONES

is married now . . .

She'll tell her husband how good your service has always been and he too will have you do their radio repairs. That's the way business grows. Use dependable Ward Leonard Replacements. They stand up, thus help make satisfied customers.

Ask your supplier about the new low prices of Ward Leonard Relays

WARD LEONARD ELECTRIC CO.
40 SOUTH STREET, MOUNT VERNON, N. Y.
Please send me Price List 507.

Name

Firm

Address

City

State

JUNE, 1939

83
New Booklets

Data sheets giving new prices, specifications, applications and other info on line of microphones. Shure Bros., 225 W. Huron St., Chicago.

Directions for soldering and assembling coaxial cables, charts of typical attenuation characteristics of various transmission lines, and uses of flexible coaxial cables. Transducer Corp., 30 Rockefeller Plaza, New York, N. Y.

Bulletin showing essential characteristics of all metal and glass radio tubes, Ken-Rad Tube and Lamp Corp., Owensboro, Ky.

CLEAN UP YOUR NEGLECTED ANTENNA

When you’re cleaning up and getting rid of refuse, go to the roof. Plenty of homes, apartment houses, hotels and institutions have horrible antennas that should be replaced with

AAK
All Wave Doublet
"Multicoupler"
Trade-Mark
Antenna Systems

Be sure that the system or individual antenna kit you sell or recommend is licensed under the patents of Amy, Aceves & King, Inc. This is your guarantee of authentic, dependable design—your protection against cheap inferior imitations.

AAK is the only system adequately providing standard broadcast and short wave reception for an average of 20 sets on one aerial, with noise reduction. And the same principle of design is available in kit form to the home owner who needs only an individual antenna.

AMY, ACEVES & KING, Inc.
Consulting Engineers
11 W. 42nd Street
New York, N. Y.

Just ask for it...

40 page catalog of still and movie cameras, photo-equipment and accessories. Lafayette Camera Corp., 100 6th Ave., New York, N. Y.

CLAROSTAT
MANUFACTURING CO.
Incorporated
285 North Sixth St.
Brooklyn, N. Y.
THE WILCOX-GAY RECORDIO

Wilcox-Gay with the RECORDIO takes recording out of the hands of technicians and gives it to the public. As simply as pushing a button, your customers can make from the radio programs their own choice of records, more cheaply and better than they can buy them. They can record their own voices, too, naturally and easily.

The RECORDIO offers complete home entertainment, a superlative radio receiver and a phonograph to play perfectly any size or type of record plus AUTOMATIC RECORDING.

This is your opportunity for profit in 1939. A new product with a prospective customer in every home. The Wilcox-Gay franchise will be valuable. Send in the coupon today for complete information.

MAIL THIS COUPON!

WILCOX-GAY CORPORATION
500 W. Seminary Street, Charlotte, Michigan

Export Dept.: 100 Varick Street, New York City, U. S. A.
IN THIS ISSUE

New Models—and Specifications
What's in the Wind?

What will MALLORY YAXLEY do next?

SOMETHING BIG FOR SERVICE MEN - I'LL BET!

ABSOLUTELY! MALLORY-YAXLEY ALWAYS LEADS THE PROCESSION!

You'll find the answer in the next issue of this publication!

Use P.R. MALLORY & CO., Inc. INDIANAPOLIS INDIANA
Replacements for Condensers...Vibrators

Use YAXLEY REPLACEMENT VOLUME CONTROLS

Cable Address—PELMALLO
In hospitals, where life itself often hangs on the proper operation of equipment and the painstaking accuracy of the staff, particular emphasis is placed on dependability.

That's why so many hospital call systems are equipped with Raytheon Tubes—they cannot afford a breakdown when seconds may be vital to some patient's life.

Raytheon Tubes, in addition to their utter dependability and long life, contribute to clearer, quieter amplifier performance—another essential requirement for efficient hospital service.

This same dependable, superior performance can be obtained for your customers without additional expense—for RAYTHEONS cost no more than the second-best tube. They are your soundest—and most profitable—tube investment.
The climb onto the Bandwagon continues—for example, since this ad was released, General Equipment Co. of Portland, Boston, Farrar-Brown Co. of Springfield, Maine, B. H. Spinney Co. of Buffalo, Albany & Machine Co. of Buffalo, and the Farnsworth Buffalo have joined the distributor organization. The most important distributor franchise since 1930 is attracting more distributors every day.
Farnsworth district managers fall into the Farnsworth "tempo" in signing-up the leading distributors shown on these pages. In the short period of less than 30 days, 43 major and secondary distributing points have been "set" with outstanding distributors who were quick to get on board the Farnsworth "Band Wagon". Interest continues to grow—other territories are now being covered by Farnsworth district sales managers—being signed up as rapidly as contacts can be made.

Farnsworth quickens its pace in the design and production of the newest line in Radio. The next 30 days will show fuller evidence of this progress. By that time Farnsworth distributors and dealers will begin to receive initial stock—the newest and finest in Radio—table models, consoles and combinations. And as for television—distributors, dealers and the public alike are quickly accepting this fact that—"The History of Television is the History of Farnsworth."

FARNSWORTH TELEVISION & RADIO CORPORATION
3700 Pontiac St., Fort Wayne, Indiana

Farnsworth
RADIO-COMBINATIONS—TELEVISION

B. J. Oppenheim, Pres.
B. & O. Radio, Inc.
Newark, N. J.
Norge Dist.

Nelson & Co., Inc.
Baltimore, Md.
Universal Dist.

Frank Edwards, Pres.
Frank Edwards Co., Inc.
San Francisco, Calif.
Bandix Dist.

Warren-Norge Co., Inc.
New York City
Norge Dist.

B. K. Sweeney, Pres.
The B. K. Sweeney Elec. Co.
Denver, Colo.
G. E. Dist.

R. L. Wilcox, Mgr.
Kemp Equipment Co.
Rochester, N. Y.
Leonard Dist.

E. D. Henley, Pres.
Birmingham Elec. Battery Co.
Birmingham, Ala.
Norge Dist.

J. L. Perry, Pres.
J. L. Perry Co.
Nashville, Tenn.
Westinghouse Dist.

THE HISTORY OF FARNSWORTH
Farnsworth district managers fall into the Farnsworth "tempo" in signing-up the leading distributors shown on these pages. In the short period of less than 30 days, 43 major and secondary distributing points have been "set" with outstanding distributors who were quick to get on board the Farnsworth "Band Wagon". Interest continues to grow—other territories are now being covered by Farnsworth district sales managers—being signed up as rapidly as contacts can be made.

Farnsworth quickens its pace in the design and production of the newest line in Radio. The next 30 days will show fuller evidence of this progress. By that time Farnsworth distributors and dealers will begin to receive initial stock—the newest and finest in Radio—table models, consoles and combinations. And as for television—distributors, dealers and the public alike are quickly accepting this fact that—"The History of Television is the History of Farnsworth."

FARNSWORTH TELEVISION & RADIO CORPORATION
3700 Pontiac St., Fort Wayne, Indiana

RADIO — COMBINATIONS — TELEVISION

THE HISTORY OF TELEVISION IS THE HISTORY OF FARNSWORTH
Does your tube line give you...

**COMPANY DEPENDABILITY?**—Sylvania has always tempered "profit" with "progress"—maintained a constant program of growth, to insure the leadership and stability which both the company and its dealers enjoy today.

**PRODUCT DEPENDABILITY?**—Sylvania tubes are made by skilled craftsmen...each unit undergoes rigid testing to insure quality...each tube carries a 6-month guarantee to the consumer.

**PROFIT DEPENDABILITY?**
Sylvania gives you a complete merchandising service—window displays, newspaper mats, mail campaigns...a public preference that has made Sylvania one of the world's largest-selling tube lines...and quality that means repeat sales, extra profits.

Bank deposits are most important to you, of course—but you need all three for a sound tube business...company, product and profit dependability. Follow this trend to better business: feature the tube line that gives you full measure on “all three.”

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

**SELL SYLVANIA**

*Set-Tested Radio Tubes*
EMERSON is giving radio dealers what they need most—LONGER PROFITS on FASTER MOVING, higher quality merchandise! EMERSON’s national and local advertising program is DOUBLE that of any preceding year. EMERSON’s dealer promotion is even GREATER IN SCOPE than ever before. . . . EMERSON’s is the LEADING radio proposition in the industry. . . Telephone your Emerson distributor NOW for all of the facts.

EMERSON RADIO AND PHONOGRAPH CORPORATION—NEW YORK, N. Y.
World’s Largest Maker of Small Radios

63 GREAT MODELS
$795 to $9995

40% Minimum Discount

JULY, 1939
CROSLEY DEALERS
HAVE THE BEST AUTO RADIO
POSITION IN THE INDUSTRY

THE LOWEST PRICED AUTO $14.99
RADIO ON THE MARKET AT

HERE IS VALUE! It's a sturdy, remarkably performing radio that
owners will be as enthusiastic about as the original ROAMIO FIVER.
This, too, is a five working tube set with a noise level to give good
reception at all car speeds. The edge lighted dial provides sharp
visibility. It's a Crosley achievement!

Used car dealers can move their used cars a lot faster when equipped
with this inexpensive yet effective set. Experience on used car lots in
many cities shows a BIG market if you'll go after it.

AN EXCITING IMPROVEMENT $19.99
OVER THE OLD ROAMIO FIVER AT

AUTOMATIC ELECTRIC TUNING.—“feather touch” we call it, is
but one of the improvements in this masterpiece, the 5-tube MAGNE-
TUNE FIVER ROAMIO, we offer just below $20. Illuminated call
letters is another. Greater sensitivity, more efficient performance and
finer tone mark this a greater success than the FIVER it replaces
of last season. It's an easy seller. Nothing like it on the market
at its price level—and nothing like its instantaneous finger touch
tuning AT ANY PRICE.

“TOPS” IN PERFORMANCE $24.95
AND QUALITY AT . . . . .

SIX TUBE MAGNETUNE SIXER—the best in auto radio. Oscillator
coil sealed in glass eliminates mis-tuning from extreme temperature
and humidity changes. 2-position tone control is another innovation,
new to auto radios. To cap this sensitive “feather touch” automatic
tuning offers the cleverest station selector yet devised for ANY radio.
It's a Crosley triumph.

The CROSLEY auto radio position is better than last year—when we swept the country with the
competition-stopping PUSH BUTTON ROAMIO FIVER. Not content to rest on that achievement
the 3 models of the 1939 line offer improved engineering, added features and lowered prices for the
BEST selling you have ever enjoyed in this field. See your Crosley distributor or write, wire or phone us

Prices slightly higher in South and West

THE CROSLEY CORPORATION
POWEL CROSLEY, Jr., President  Home of “the Nation's Station”—WLW—70 on your dial  CINCINNATI
See the Crosley Building at the New York World's Fair

RADIO TODAY
Radio Would Have Saved Over 2,000 Lives!
The battle of New Orleans would never have been fought had radio communications been developed in 1815. Andrew Jackson met and defeated the British at New Orleans two weeks after peace had been signed at Ghent, Belgium... Today via R.C.A. Communications, Inc. news travels at lightning speed. This radio message service of the Radio Corporation of America provides instant communication to and from 43 countries and among leading cities of the United States.

RCA Helps Make Radio a Welcome Guest in 27,500,000 Homes

Radio provides millions of dollars worth of entertainment, education, and news which listeners receive free. In addition radio renders services to the government, churches, universities, farms, ships airplanes, and business which have an untold value.

How vital these services are is dramatically illustrated in contrasting pre-radio days with the present. For example... just imagine the cost and confusion if news of the signing of a peace treaty should take two weeks to travel now from Europe to America as it did in 1815!

RCA's Role in Increasing the Services of Radio!
Research in RCA Laboratories is the basis of the ever expanding services of the Radio Corporation of America. Research made possible the development of NBC and its two networks, the Red and the Blue. Research creates the extra values offered in RCA Victor Radios, RCA Victor Television Receivers, RCA Victrolas, Victor and Bluebird Records, and all of the sound, radio, and motion picture equipment built by RCA Victor.

All the activities of RCA are dramatized in the RCA exhibits at the New York World's Fair and at the San Francisco Exposition. We invite you to visit these exhibits. They will give you a much clearer idea of how you can make more money by going "RCA All The Way."


Listen to the "Magic Key of RCA" every Monday, 8:30 to 9:30 P. M., E. D. S. T., on NBC Blue Network.
PHILCO for 1940
gets tremendous reception
at dealer meetings from
cost to coast!

TEN
Straight Years of
PHILCO
Leadership

DEALERS ACCLAIM NEW
INVENTIONS—BEAUTIFUL CABINET
STYLING—SENSATIONAL VALUES!

Throughout the nation—in practically every city
—during the past few weeks, radio dealers have
swarmed to meetings to see PHILCO for 1940.
Never before such interest! And never before such
enthusiasm for a new line of radio receivers!

Philco has “got something” they say—in the
Built-in Super Aerial System—in the provision for
Television Sound—in the magnificent array of
beautiful cabinets to suit every taste. And in the
NEW LOW PRICES!

Everywhere Philco dealers are set for a banner
year—already they are making sales records. Mer-
chandise is being shipped at a tremendous pace
and sales are soaring. A big advertising campaign
is already running in magazines and newspapers.
Get on the Philco All Year ’Round band wagon
NOW and cash-in!

PHILCO RADIO & TELEVISION CORPORATION
New Models and Specifications

Radio manufacturers generally have done a fine job with the new models just introduced for 1940 in providing greater selling opportunities than dealers have enjoyed for many years.

Cabinets are styled in better taste, and look better, automatic tuning systems have been improved and perform better, tone quality takes on new realism and sounds better. Values reach new peaks. Provisions for television sound reproduction remove the buying resistance of the new art.

Built in antenna systems reduce the effort and cost of home demonstrations to a minimum, and provide the means of offering a flattering comparison of the newest models with the customers’ obsolete model.

We stand on the threshold of a very important year in the retailing of radio. For helpful means of capitalizing on the trends of merchandising the new models and specifications for 1940, see page 11.

"Aeroscope" Helps Fishermen Find Harbor

Fishing fleets operating out of San Francisco into the Pacific Ocean frequently find it impossible to see the Golden Gate entrance to San Francisco Bay due to the extremely heavy fog banks.

Small radio stations operate daily in Santa Rosa, about 50 miles north of San Francisco, and also in San Jose, about 50 miles south of San Francisco. Fishermen carrying Admiral portable battery radio sets on their boats, reports J. H. Clippinger in Admiral "Broadcaster," have found they can line up each station directionally by manipulation of the radio cabinet, and by steering between these points they always hit the entrance to the Golden Gate.

Kahn Added to Trade Show Board

At the annual meeting of member-exhibitors of Radio Parts National Trade Show, held at Chicago, June 15, the four directors elected for the forthcoming year were: S. N. Shure, representing the Western Division of the Sales Managers Club; A. A. Berard, representing the Eastern Division of the Sales Managers Club; H. E. Osmun, and Jerome J. Kahn, representing the Radio Manufacturers Association.

"Jerry" Kahn was elected to fill the vacancy created by the resignation of Arthur Moss who becomes secretary of the National Parts Distributors Association. In addition to continuing as a director, "Hal" Osmun will serve as Secretary-treasurer, the position formerly held by Mr. Moss. Kenneth A. Hathaway was reappointed managing director of the Show.

German Auto-radios Include Phonographs

To American auto-radio manufacturers and dealers, who are looking for new conveniences to sell, news of German automobile sets should prove interesting. Of the six manufacturers offering radios to automobile owners in Germany, three include phonograph attachments and practically all models have a connection for a second loudspeaker. The smallest German set measures 11 x 33 x 14 cm. and the largest 36 x 23 x 18 cm. Prices range from $100 to $350 reichsmarks or about $120 to $140 at the present exchange.

While a few auto-radios with phonograph attachments have been made in this country, no appreciable number has been sold. However with the present trend to small receivers and portable combinations who knows but what this may be the next development?

Portables Lead Sales

With battery portables accounting for a majority of radio sales in most cities, portables lend themselves to novel sidewalk promotions as in this dealer's tie-up with a movie.

Unique Legislation Favors Auto Radio

Electric power lines would be moved and trees on rural highways cut down, to prevent interference with radio reception in automobiles, under the terms of a unique bill introduced in the South Carolina legislature by Representative Herbert W. Smoak. Power lines on rural highways, under the bill favoring automobile-radio, would be hereafter placed at such distance from the public highways as not to materially interfere with auto-radio reception. Power lines hereafter constructed would be moved, under a five-year removal program, and trees cut down if authorized by owners.
Manufacturers' New Policies

The long-standing practice of introducing a complete new line of radio sets at a time when seasonal buying was at low ebbs, has some theoretical advantages in supplying artificial ballyhoo and sales stimulus.

But the practical disadvantages have long been a sore spot in the trade.

RCA has announced it will have "no annual showing of new models" in the future. Such a policy is a long step ahead on the road of industry stabilization and no doubt will some day become the practice of the industry.

When new models are not introduced en masse, it helps the entire trade.

1st, it relieves the high tension necessary in engineering, production, and sales promotion divisions of the manufacturer, by removing the arbitrary date deadline.

2nd, by eliminating the single date after which all models are obsolete, it will reduce price demoralization, and seasonal liquidation of obsolete dealer's stocks.

3rd, by removing the date of obsolescence, it will protect the dealer's time-payment contracts in the spring season, and encourage dealers to promote sales during this period without fear of customer reactions to a break in prices when new models appear.

4th, it will spread new model advertising and sales stimulation over a much longer period, the cumulative effect of which should be more uniform, and greater, sales stimulation.

5th, it will obsolete fewer sets at one time, give dealers a longer period to liquidate. This will reduce losses

in stock value, yet will always give the dealer some model he can sell at a price.

6th, it will reduce the concentration of artificial enthusiasm and promote sound, if less spectacular, selling work, sustained over a longer period of time.

7th, it will provide new models when they are seasonally right, and when they can be sold best.

With all indices pointing to the fact that the compact set will long account for the majority of our unit sales, and with low prices and short margins making operating profits mighty hard to produce, dealers will welcome the announcement of Emerson Radio and Television Corp. that the smallest dealer will receive a minimum of 40 per cent discount on the entire Emerson line, including the lowest priced model.

The lowest priced model was also raised in price, which would seem to indicate that at long last we have seen the low level of radio prices.

These steps are in the right direction, they may soon become trade-wide in their application.

Recorders Popular

U. S. business men are showing a new interest in the use of the "talking letter", with which commercial correspondence is carried on by means of recorded speech rather than in writing.

A trend of this kind means that dealers will have more and more chance to sell the blank discs and the studio service connected with getting these new letters into mailing condition.

Executives are attracted to the device for a number of reasons. In the first place, they can present their message to their associates in a way that involves more of their personality. Emphasis on certain points has more dramatic quality, in speech. Personal excitement can be registered. Also, the speaker cannot be interrupted. Furthermore, many executives are already used to the idea of dictating for electrical transcription, via modern office equipment.

The increasing importance of this streamlined communication method is another reason why dealers are stocking recording machines. And the recording-minded retailers are being alertly assisted in the new merchandising developments by the manufacturers, notably Presto.

Ways of Controlling Radio Interference

A survey of the radio-interference situation discussed by C. V. Aggers, Westinghouse engineer, suggests re-design of apparatus to diminish the radio interference from it. A conspicuous example of this is the new type of pin-type porcelain insulators which now have a prefireing treatment that renders the finished insulator free of radio noise. This consists in the application of a semi-conducting glaze that prevents the development of high-voltage gradients that result in minute are discharges.

In attempts to eliminate radio interference the seemingly obvious expedient does not always work. Measures taken to reduce corona, instead of decreasing
the generation of interference voltages, actually increased it in some cases.

For apparatus whose radio noise voltage cannot be satisfactorily curtailed by its construction, some type of filter can generally be applied with benefit. The most common is the low-impedance shunt filter. Commutator-type motors and contact make-and-break apparatus such as the interrupter motor can be effectively silenced by this method.

**Colored Families Like Radio**

After a swing through the South covering Tennessee, Mississippi, Louisiana and Arkansas, Vic Mucher, sales manager for Clarostat Mfg. Co., Inc., reports on a little discussed angle of radio ownership.

"I was particularly impressed with the radio sets in use among colored folks. Practically every colored house hold today has a radio set which is precisely as it should be. Those poor folks struggle hard to buy an inexpensive set, no matter how long drawn out the small weekly payments may be. I was impressed by at least one colored serviceman who sells sets and services them for thousands of colored customers. Radio has become an every-day commodity among our colored citizens, and that means a big market for sets, servicing and parts."

**New Cabinet Designs Due to Women**

The radio industry has advanced another far-reaching step towards fine furniture design, giving radio its proper and important place as harmonious furniture in the American living-room, declares Ben Nash, famous industrial designer and consultant for Philco.

"Radio makers are being drawn further away from the bulky 'borax' lines which, for so long, have kept console radios from universal acceptance in homes of better taste. A new gracefulness and simplicity in line is coming into acceptance as radio-furniture takes on increasing importance.

"Horizontal better," says Nash

"The industry having gone through the cycle of flauting big mechanical-looking contraptions on the outside surface of cabinets, is giving greater consideration to the furniture aspects of radio. The operating devices are being skillfully blended into the piece of radio furniture, with the controls appropriately related in the body of the cabinet, as is the case with the piano."

"For many years radio seemed unable to shake off the design influence of the old phonograph cabinet in its

upright proportions and in its bulk." But now better furniture for radio involves design along horizontal lines rather than vertical, as in the past. This affords greater harmony with other living-room furniture which is generally horizontal in nature.

One indication of the changing trend, he reports, is that the finest walnut woods are being treated with more conservative veneers. This is especially true in the case of the larger console models which must fit into a conservative room setting and actually live in the home. The other type of radio style embraces the small incidental radio which can use a maximum amount of decorative interest and flash to make an appeal in selling and lend a touch of color in a room, without dominating it.

Women are behind this change in radio design. Nash declares Philco's continuous consumer research has demonstrated that women have had the greatest influence in bringing about this trend; it has also discovered that they are exceedingly receptive to it.

"There is but one conclusion," Nash remarked, "and that is:

Women are determined to get what they want in radio cabinets, and they are now well on their way toward getting it."

**10,000 Play as One Via Radio**

Audience participation offers another reason for radio buying. No less than 10,000 music lovers now play instruments at home, synchronizing their playing with great orchestras, says Ernest La Prade, NBC director of music research. And the audience is growing every day.

Until recently most of these people were musical hermits, but through radio they have become parts of a nationwide ensemble. They play with Toscanini and his NBC Symphony or other famous musical groups.

Of interest to radio dealers looking for a good selling point is Mr. La Prade's belief that "audience participation is still in its infancy. We have had orchestral and choral participation, but as yet none for band music, chamber music or opera. I think we may look forward to supplementary courses in ear-training, sight reading and solfège."

*JULY, 1939*
Merchandising 1940 Radio

New lines offer new selling opportunities and greater profit possibilities

Radio lines for 1940 have been announced, and soon most dealers will be displaying and selling these new sets. Several trends in the new models are pronounced, and will have an important bearing on how sales of the new models may be promoted. Smart dealers will capitalize on these design advantages.

In the main, console cabinet styling has been simplified, lines are cleaner, and the clash with tasteful furniture has been greatly reduced.

Automatic tuning has been refined and improved, and is almost universal. This will help clinch many a sale, particularly in the replacement of the older models.

Provision for the reproduction of television sound is common, and will go a long way in breaking down the "let's wait for television" attitude which so many prospects expressed during the last two seasons.

HOME DEMONSTRATIONS EASY NOW

Most manufacturers have adopted the loop antenna, under a variety of trade names, for consoles, compacts and portables.

With installation costs thus reduced to a minimum, dealers may now freely promote home demonstrations, where the prospect cannot fail to see the better appearance, hear the better tone, and enjoy the easier tuning of the new sets in comparison with her own old console.

With the fear of obsolescence resulting from television removed, and with the greater values apparent, dealers who promote home comparisons by direct mail, phone and personal calls, should enjoy their best console sales in several years.

COMBINATIONS MORE POPULAR

Another very pronounced trend is to the radio-phonograph "combination" which is now being produced by every major manufacturer. These sets range from the little portable to the large automatic record-changer playing 10 or 12 inch records interchangeably.

With combination prices down to the former straight-radio console level, the potential sales of combinations and records is greater than ever before. Combinations should be promoted by displays, store and home demonstrations and featured in direct mail advertising. Combinations are riding a new wave of popularity.

Alert dealers will take on records, to build store traffic, help sell combinations and record players, and cash in on the public desire for "the music they want—when they want it."

Record players, too, can be successfully promoted to the owners of late-model radios, in the same manner as combinations.

Other factors in merchandising 1940 radios, are the models which fall between the typical consoles and table models.

Some of these are the familiar "chair-side" type, with and without record players.

This style makes no pretense to being anything other than what it is, but because of the convenience of operation, its public favor is increasing.

Others in this category, hide their identity as radios, in cabinets which...
Regard for lines, finishes, etc., is necessary to sell "period-furniture" models. At left is Wilcox-Gay’s Sheraton model.

Keene Jackson’s Kadette beauty at right, illustrates the convenience angle of the bantams. Multi-directional speakers will help sales.

WOMEN’S MAGAZINES HELP SELL RADIO

Women’s magazines, such as McCull’s, House and Garden, Woman’s Home Companion, are increasing the appreciation of women for this type of radio, and furnish alert dealers with a timely means of trying in their own displays and direct-mail on furniture radio cabinets with these educational editorial articles.

Compacts and table models have been improved in appearance and performance, and so well satisfy the desires of the majority that they will account for about the same proportion of total sales as last year. Dealers must be reconciled to little change in this general condition for a long time to come. Their own scale of operation, methods, policies, promotions, must be streamlined and simplified, geared to profitable operation on the smaller-package, “no-installation” price level.

Proof of the unlimited market for portable receivers comes in news from station WTMJ, Milwaukee, Wisconsin. Every salesman carries an RCA “Pick-Me-Up” as an essential part of his equipment and an aid in showing busy executives the type of program available. Since prospects may listen to the program in their own offices auditioning costs are cut and a greater number of potential customers are reached in less time. A market of this kind is also an advertiser, for, reports Harry Eldred, WTMJ’s director of continuity, “Salesmen are finding lively interest on the part of the men interviewed in purchasing such a portable as an office radio to hear news broadcasts and other programs of interest to them.”

SELLING MORE NECESSARY THAN EVER

Certainly all dealers must recognize that the day of people rushing to their stores to buy radio is gone. The new lines have enough “buy appeal” to warrant enthusiastic sales promotion, and given this, we should enjoy the best radio year since 1929.

With the bottom passed in low price, and the trend slowly upward, dealers who scale their operation to the new order, should find this their most profitable year too.

The outlook for the coming year is good.

— The great damage, and the great threat, of television is past.

The time has come for enthusiastic sales promotion in radio, and results to individual dealers will closely parallel their own efforts in showing their prospects why they should own 1940 radios.

All dealers should “sell radio”— program excellence and variety, symphonic and swing music, comedy drama, news, sports—as the primary basis for selling newer and better sets, and the real need for several sets in each home.

Consistent sales promotion of this type will pay big dividends.
**New Models - and Specifications**

**Sales Features and Characteristics of the 1940 Lines**

<table>
<thead>
<tr>
<th>Model</th>
<th>List Price</th>
<th>Style</th>
<th>Size (H x W x D)</th>
<th>Tubes</th>
<th>Station Buttons</th>
<th>Wave</th>
<th>Power Supply</th>
<th>Special Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMIRAL—Continental Radio &amp; Television Corp., 3800 Cortland St., Chicago, Ill.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2D5</td>
<td>$ 19.95</td>
<td>T</td>
<td>9x14x8 1/2</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>AC</td>
<td>EE</td>
</tr>
<tr>
<td>6D5</td>
<td>$ 19.95</td>
<td>T</td>
<td>9x14x8 1/2</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>AC</td>
<td>EE</td>
</tr>
<tr>
<td>236</td>
<td>$ 19.95</td>
<td>T</td>
<td>11x14x8 1/2</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>620</td>
<td>$ 29.95</td>
<td>T</td>
<td>14x14x8 1/2</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>358</td>
<td>$ 39.95</td>
<td>T</td>
<td>15x15x8 1/2</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>658</td>
<td>$ 39.95</td>
<td>T</td>
<td>15x15x8 1/2</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>611</td>
<td>$ 39.95</td>
<td>T</td>
<td>15x15x8 1/2</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>616</td>
<td>$ 39.95</td>
<td>T</td>
<td>15x15x8 1/2</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>626</td>
<td>$ 49.95</td>
<td>T</td>
<td>15x15x8 1/2</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>636</td>
<td>$ 54.45</td>
<td>T</td>
<td>15x15x8 1/2</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>ANDREA—Andrea Radio Corp., 48-26 48th Ave., Woodside, L. I., N. Y.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>209</td>
<td>$ 9.95</td>
<td>T</td>
<td>9x14x8 1/2</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>AC</td>
<td>EE</td>
</tr>
<tr>
<td>606</td>
<td>$ 11.95</td>
<td>T</td>
<td>11x14x8 1/2</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>615</td>
<td>$ 14.95</td>
<td>T</td>
<td>14x14x8 1/2</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>625</td>
<td>$ 24.95</td>
<td>T</td>
<td>24x14x8 1/2</td>
<td>7</td>
<td>0</td>
<td>4</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>635</td>
<td>$ 29.95</td>
<td>T</td>
<td>29x14x8 1/2</td>
<td>7</td>
<td>0</td>
<td>4</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>645</td>
<td>$ 34.95</td>
<td>T</td>
<td>34x14x8 1/2</td>
<td>7</td>
<td>0</td>
<td>4</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>ANSLEY—Ansley Radio Corp., 128 W. 57th St., New York, N. Y.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2H10</td>
<td>$ 10.00</td>
<td>T</td>
<td>10x15x8 1/2</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>3H10</td>
<td>$ 11.00</td>
<td>T</td>
<td>11x15x8 1/2</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>4H10</td>
<td>$ 12.00</td>
<td>T</td>
<td>12x15x8 1/2</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>5H10</td>
<td>$ 13.00</td>
<td>T</td>
<td>13x15x8 1/2</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>6H10</td>
<td>$ 14.00</td>
<td>T</td>
<td>14x15x8 1/2</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>7H10</td>
<td>$ 15.00</td>
<td>T</td>
<td>15x15x8 1/2</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>8H10</td>
<td>$ 16.00</td>
<td>T</td>
<td>16x15x8 1/2</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>9H10</td>
<td>$ 17.00</td>
<td>T</td>
<td>17x15x8 1/2</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>10H10</td>
<td>$ 18.00</td>
<td>T</td>
<td>18x15x8 1/2</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>11H10</td>
<td>$ 19.00</td>
<td>T</td>
<td>19x15x8 1/2</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
<tr>
<td>12H10</td>
<td>$ 20.00</td>
<td>T</td>
<td>20x15x8 1/2</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>AC/DC</td>
<td>EE</td>
</tr>
</tbody>
</table>

**General Electric Model 632**
Number

binet

HX

WXD

ot

Station

Size

Tubes

Push

Speaker

.

Wave Power
Special
Bands Supply Size Type Features

Buttons

ARVIN—Noblitt-Sparks
40

$

40A
502
602
58

58A
71

71A
78
88
91

'64.' 95

92

99.95
21.00
29.95
42.15

7A
8A
44C

T

MT
MT
MT
MT
MT

T
T

Con
Con

A
A
A

AUTOMATIC—Automatic
40
905
923
929
930
935
939
944
949
950
955
979
986

MT
MT
MT
MT
MT
MT
MT
MT
T
MT
MT

$....

Columbus, Ind.

Industries, Inc.,
5x6)4x4

MT
MT
MT

6.95
6.95
9.95
16.95
16.95
19.95
22.95
24.95
34.95
39.95

5x6)4x4

y

5
6
6

35%x32xl3%

8

6

$

B449A
B459A
5648A
5648D

B579A
B589A
B6579A

819M
5539M
7739M
B5579M
B5589M
539M
629M
639M
B429A
A169
A259
A559

9.99
12.99
15.99
7.99
14.99
19.99
19.99
24.95
20.99
25.95
29.95
13.99
16.99
15.99
24.95
15.99
20.99
19.99
24.95
29.95
69.95
39.95
49.95
49.95
54.95
49.95
69.95
114.50
19.99
24.95
19.99
14.99

DE-WALD — Pierce
406R
538L

538L-SW
537
655
645
648
649
650
651

810
812
1004
411
408
415

JULY,

$

9.95
11.99
11.99
17.95
22.50
26.50
32.95
34.95
34.95
36.95
48.75
45.00
79.50
26.95
24.95
19.95

MT
MT
MT
MT
MT
T
MT
MT
MT
MT
T
MT
MT
MT
T
MT
T
MT
T
T

6

2

6

1
1

5

2

11x8x6%

13%x9x6%

6

2

6x5x4
6x5x4

21x15x9%

5
5
6
8

15x8x8

7

A
A
A
A

CROSLEY —Crosley Radio

6

6
5

M20
M60
M66
M70

519A
529A
529D
599A
648A
648D
719A
719D
729A
729D
739A
5529A
5529D

2

2
2

12x8x6

38x24%xl2
14x8%x8
12x9x6%
12x9x6%

PC
PCA
PCA
PCA
PCA
PCA

4

10%x6%x5)4
6x5x3%
6x5x3%

Port
Port
Port

P5580
A2600
A2700
A3720
A1020
A2020

1

4
1

1

2
6

2

2
6

11

2

4
4

i

5
5
6

i

11x7x5
11x7x5
12x11x5

6

7x8%x7

6

l

4

l
i

Mersman

Radio Division

Brothers Corp

26%xl8%xll
26%x20x20
26%x20x20
28%x20xl4

5
5
5
5

i
l

5

l

6

6

26x18x14

6

28%x28x28
32x27x14%
38%x24xl5

6

6

6
6
6

7

6

2
3

26x17x15

5

32%x24%xl6%
37%x24%xl7%

6

6

2

7

6
6
6
6

3

36x34%xl8%
36%x36xl8

7

10
10

35x36x18

2
2
2

3
3

8%xll%x6%
7%xl2%x6%

5
5

4
4

5
5
5
5
5

%

7

814x1134x834

5

9x12x8%

8}4xll %x8

9x12x8%

5

1
1
1
1

2
2

9xl3%x8%

7
7

6x9x6
634x934x6

5
5

4

4

1

8%xll%x6%

4

4

1

13x19x8
834xllJ4x9

4

4
4

2

8%xll%x8%

5
5
5

5

1

9x12x834

5

5

2

14%xl9x8%

7%xl2%x9

1

4

5

1

8
7
5

2

PC
PC
PCA

8
5
5
5
5

Port

1134x10x7%

4

A
A
A

5x534x1234
5x534x1234

6
5

6x5%xll%

5

Airo Inc. 440 Lafayette
734x5x434

Port
Port

7939

,

i2

EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE

5
5

5
5

534
6

8

PM

PM
PM
PM

5

St.,

7%x4%x4%
7%x4%x4%
10x6x5
1334x834x7
1334x834x634
15)4x934x734
1614x1014x734
1534x914x734
1634x1034x734
1734x1034x734
1734x634x11
17x23J4xll
1334x634x11
1134x8x7
8x8x634

5
5

6
6

New

5
5
5

5
5

1
1

2
1

1
1
1
1

1

2

6
6

1

7

6

6

6

7

6
6
6
6
6

10
2
4
4

et'

EE
EE
EE
EE
Q

8
8
8
8
10
10

AC/ DC 10

AC/DC

AC

AC/DC
AC/DC

AC
AC
AC
AC

AC/DC
AC/DC

AC
AC
AC
AC
AC

AC/DC
AC/DC
B
B
AC/DC
AC/DC
B
B
B
AC
AC/DC
AC
B
B
AC
AC
AC
B
B
B
B

10
10
8
10
10
12
12
12

~..-..l,,l,-

New

DT?

PM PK-TA
PM PK-TA
PM PK-TA
PM PK-TA
PM PK-TA
PM PK-TA
PM PK-TA
PM PK-TA
PM PK-TA
EE PK-TA
PM TA
PM TA

EE
EE
EE
EE

Crosley Model 719A

TA
TA
TA
TA

P. 6

4

4
4
4
5
5

5
5
5
5
5
4
4
4

4
5
5

4

6
4
10

g
8
8

8
6
8
8
534
4

4
4

EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE

PM
PM
EE
EE

PM
PM
PM
EE
EE
EE

PM
PM
EE
EE
EE
PM
EE
EE
EE

iA"

et'

ET
ET
ET
ET
IA
IA

Crosley Model

819M

iA"

et-'ta

et'

ia"

et'

York, N. Y.

4

5
5
5

6
8
8

Brunswick Model 1700
IA
IA
IA
IA
IA
IA
IA
IA
IA
IA
IA

206 Lexington Avenue,

AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC

Corp., 1329 Arlington St., Cincinnati, Ohio. Adv.
6x9x4%
5
1
AC/DC
6x9x4%
5
4
AC/DC
1
6%x9%x4%
5
4
1
AC/DC
6x9x4%
4
AC/DC

5

T
T
T
T
T
T
T
T
T
EP

10
12
5
5J4
8

5

All

9x15x8
9x15x8

43x31x15%
39x24x13%

MT
MT
MT
MT

AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
B
B
B
B
B
B
B

1

4

40x25x12
40x25x12
40x25x12
33x25xl3J4
3334x3334x14
3434x33x1634

Con
Con
Con
Con
Con

AC
AC
AC
AC/DC
AC
AC
AC
DC
DC
DC

EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE

4
4
4

Radio Mfg. Co., 122 Brookline Ave., Boston, Mass
934x6%x5)4
4
1
AC/DC
934x6x5%
6
1
AC/DC
Ilx6%x5
5
1
AC/DC

Con

Con
Con
Con
Con
Con
Con
Con
Con

4

6
6

P43
P45
P57

49.50
59.50
64.50
69.50
69.50
89.50
89.50
99.50
69.50
139.50
169.50
199.50
214.50
229.50

2

2
2

4

5

999

3580
4580
458034
1680
2660
2689
3689
1700

5
5
5
5
5

1134x8x6%
1134x8x6%
11)4x8x6%
9x1434x7%
14%xl0%xll%.
1934xlO%x834
34%x28xll)4

i3%x8%x6%

BRUNSWICK—Brunswick
T
$ 29.75
35.50
T

2

2
2

6

T
T
T

T1580
T2580

2
5

534x7)4x4%
9x14 34x7 2
1134x8x634

AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC

2
2

2

2
2
2

3
3
3

3
4
1
1

AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC

AC
AC/DC
AC
AC
AC/DC
AC
AC
B
B

4

4
4
4
6
6
634
634

634
634

8
8
8

4
5
4

PM

EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE

PM
PM
PM

iA"
IA

ia"

PW14

PW

934

Stewart- Warner Model

A6-1Q

75


<table>
<thead>
<tr>
<th>Model</th>
<th>List Price</th>
<th>Style</th>
<th>Size</th>
<th>Cabinet</th>
<th>Number of</th>
<th>Power Buttons</th>
<th>Speaker</th>
<th>Special Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940 Models and Specifications</td>
<td>Radio Today</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 1940 Models and Specifications

#### Radio Today

**Model** | **List Price** | **Cabinet** | **Number of Tubes** | **Special Features**
--- | --- | --- | --- | ---
**HOWARD—Contd.** | | | | |
393 | 39.95 | Con 391x12x21/10 | 5 | 1 AC 12 EE TA-1
580C | 39.95 | | 5 | 1 AC 8 EE IA-TA
518B1B | 49.95 | Con 371x9x25/10 | 5 | 1 AC 12 EE TA-1
301 APC | 59.95 | 17-13x9x11 9/10 | 8 | 1 AC 12 EE TA-1
108 | 26.05 | Port 22x12x14 1/2 | 4 | 0 B 5 PM
**KADETTE—Kadette Radio Corporation, Ann Arbor, Michigan.**
L20 | 44.50 | MT 23x12x11 1/2 | 5 | 0 AC/DC 4 EE IA
L21 | 12.95 | MT 6 | 0 1 AC/DC 4 EE IA
L22 | 12.95 | MT 6 | 0 1 AC/DC 4 EE IA
L23 | 12.95 | MT 6 | 0 1 AC/DC 4 EE IA
L24 | 12.95 | MT 6 | 0 1 AC/DC 4 EE IA
L25 | 12.95 | MT 6 | 0 1 AC/DC 4 EE IA
L26 | 12.95 | MT 6 | 0 1 AC/DC 4 EE IA
L27 | 12.95 | MT 6 | 0 1 AC/DC 4 EE IA
L28 | 12.95 | MT 6 | 0 1 AC/DC 4 EE IA
L34 | 24.50 | Port 6 | 0 1 B 4 EE IA
L35 | 17.95 | T 6 | 0 2 AC 6 EE IA
L36 | 19.95 | T 6 | 0 2 AC 6 EE IA
L37 | 29.95 | T 6 | 0 2 AC 5 EE IA
L38 | 29.95 | PC 5 | 0 1 AC/DC 5 EE IA
L39 | 19.95 | PC 6 | 0 1 AC 10 IA
L40 | 29.95 | Port 6 | 0 1 B 4 EE IA

*Mante clock radio.*

**MARGONONE—Marconiphone, Inc., 679 Madison Avenue, New York, N. Y.**

**MEISSNER—Meissner Mfg. Co., Mt. Carmel, Ill.**

**MOTOROLA—Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Ill.**


**Philco Model 216-RX**

(Continued on page 45)

---

**JULY, 1939**

17
Merchandising is an Art

Run your business—or your business will run you—ragged

There appears to be no more frequently—or loosely—used word in business today than “merchandising.”

Just what is this thing we call “merchandising” and what does it mean?

The best answer to that question is:

1. **Merchandising is the art of buying and selling wanted merchandise, at a profit, in ever increasing volume, and in a manner calculated always to increase customer good-will**.

If you study that definition you will find it actually covers almost every phase of the operation of a retail business, and so—

2. **Merchandising means the co-ordination of buying, selling, and operation on a long-range planned basis.**

**MERCHANDISING IS IMPORTANT**

Before we start to explore the possibilities of merchandising as applied to your radio business, let’s see if it is really important.

First, Dun and Bradstreet tell us the average life of all businesses in this country is about 5 years, and this includes all those very old, and very large companies, too.

Second, we are told that over 80 per cent of all business failures are due to (a) lack of experience, (b) lack of capital, (c) lack of management skill.

Third, competent business analysts say that at least 30 per cent of all retail business is not operating at a profit, and is either insolvent or on the verge of insolvency, due to poor merchandising and poor management. Radio Tomay feels that there is no more important subject for independent retailers today, harassed as they are by a complex business fast becoming more complicated—than merchandising.

**KNOWING HOW, WHAT, WHEN**

Let’s see just what merchandising involves.

1. **Buying**—Knowing how to buy the right models at the proper price, in the correct quantity, and at the right time.

2. **Selling**—Knowing how to locate prospects, convert them into customers, and have customers produce more prospects.

3. **Wanted merchandise**—Knowing what the customers want, so that you can buy it rather than having to make the customer want what you have bought.

4. **At a profit**—Knowing the effect on profits, of everything you do, which covers (a) size and effectiveness of your organization, salaries and method of paying salesmen, size and turnover of your stock, trade-ins, discounts, control of expense, efficiency and cost of service division, productivity of advertising and sales promotion methods, effective use of your floor space, accounting, record keeping systems, and the general policies and practices of your business.

5. **In ever increasing volume**—which is basically, everything which relates to holding your own customers, including new merchandise, store appearance, and personality, reputation for friendliness and fairness, and the entire ramifications of advertising and sales promotion methods.

6. **In a manner calculated to always increase customer good will**. As the word “calculated” indicates, this involves a planned policy of customer satisfaction, together with the follow through to be certain that the practice is always in agreement with the policy. In a broad sense, this covers the entire field of customer relations, but more particularly after the sale has actually been made, it is the fulfillment of all of your promises, both expressed and implied, which you conveyed to the customer in making the sale.

(Continued on page 25)

**ASK YOURSELF THESE SIX QUESTIONS**

**BUYING**

Have I right lines, right quantity?

**SELLING**

Do I go to prospects, or make them come to me?

**WANTED MERCHANDISE**

Does my stock turn uniformly?

**PROFIT**

Do I make it, keep it, or throw it away?

**VOLUME**

Is it up or down—and why?

**GOOD WILL**

Do I forget customers after I’ve sold ‘em?

RADIO TODAY
New Television Products

Careful testing of picture tubes, such as this DuMont 14" tele-tron at left, increases operating life.

Philco’s flat-ended picture tube at right, overcomes distortion, eliminates ion spot.

Eye appeal is a two-fold feature of G.E.’s 30-tube, touch-tuning model.

Large console models, such as the RCA TRK-12 above, lend themselves to group demonstrations.

Stromberg-Carlson’s largest television receiver is a 32-tube console with the sound labyrinth.

Compactness and image magnification are features of the low-priced table model of American Television Corp.
"Our strongest point," says Harvey Sampson, Harvey Radio Co., New York City, "is variety and large assortment of the lines we carry. Complete service on radios, ham equipment, cameras, sound, tubes and parts, brings customers back again and again.

"While not too formal, we find our customers are most impressed by business-like front. All salesmen wear white coats. An efficient woman bookkeeper speeds up paper-work on credit sales and large orders, while salesman concentrates on selling.

"A complete camera and photo-supply line pulls traffic and makes profit. Trained man advises customers, shows them camera tricks, sells plenty of merchandise without kickbacks. Photo enthusiasts are exposed to radio and ham displays, buy often."

"The 'ham' market makes a large repeat business. Since the amateurs like to deal where their problems are understood, every man employed, even the porter, is a licensed operator, wears his call letters on his lapel."
Now Utah TRANSFORMERS for Every home or auto set replacement

You obtain the benefit of Utah’s 10 years of experience in transformer engineering and manufacturing when you standardize on Utah transformers for all home and automobile replacement requirements. Because Utah designs and produces speakers, vibrators and transformers, Utah engineers have a decided advantage in “matching” the characteristics and in developing maximum performance features.

Utah Transformers, standard equipment in millions of receivers throughout the world, have proved the high safety factor of their insulation. Precision manufacturing and the use of scientifically selected materials such as: the high silicon content steel used in all laminations, assure complete satisfaction. Because Utah Transformers are subjected to every conceivable test before shipment, they are uniformly dependable. These fully guaranteed transformers are individually boxed, with complete instruction sheets.

If you do not have your copy of the new Utah illustrated catalog containing complete information about the transformer line and other Utah products — write for it today — no obligation.

SPEAKERS • VIBRATORS • UTAH-CARter PARTS

UTAH RADIO PRODUCTS CO.
CHICAGO, ILLINOIS
CABLE ADDRESS: UTARADIO—CHICAGO
When the public's latent demand for a radio which would "play anywhere" was satisfied about a year ago, sales of the battery portable started to zoom, and they continue their dizzy skyward pace now.

When this demand will reach its peak, and how far it will penetrate into the market, no one knows. But of this we are sure: The next two months—traditional vacation time—should see the largest demand so far.

**BATTERY PORTABLES ARE "PLUS SALES"**

Battery portables do not take the place of other radios; they are distinctly "plus business."

Great as the demand is, sales can be stepped up still more. Dealers should not fall into the "order-taking" habit, just because sales are good. Nor is the time when sales promotion effort will produce the largest return. There has been but little consumer advertising. Thousands upon thousands of people yet do not know how convenient and inexpensive these battery portables are. The vacation trek to the San Francisco and New York fairs, to the National Parks, the beaches and mountains, will be greater this year than ever before.

Now is the time to tell your customers and your prospects, by direct mail, by window displays, and by street demonstrations, about this newest radio companion. As these sets are used more and more, a profitable battery replacement business can be built up, too, to bring people into your store and expose them to your new home set displays, and their "buy appeal."

For the younger folks and your other record buyers there are self-powered radio-phonograph combinations, and even portable socket powered radio-phonographs with automatic record changers.

**DRAMATIZE THE PORTABLE**

The uses of the self-powered sets are so many that they should be dramatized as well as the portables themselves. So many people will overlook the battery portable alone, that direct-mail and window displays should indicate the many uses of the sets, for beach, picnic, office, train, bus, hiking, boat, car, fishing, camping, lake cottage, mountain cabin, sports, porch, garden, country club, hotel or hospital.

**TURN STOCKS FAST**

Every important manufacturer is now producing at least one battery portable. They all look good, some better than others. In buying, keep your stock as small as is consistent with a good assortment of sizes, shapes, and prices. You can't have them all, so keep your investment down, your stock turning fast, and watch out for those sets with non-standard battery complements. Your customers will be plenty peeved if their batteries run down too soon, or can't be replaced wherever they may be.

Most manufacturers and dealers expect the demand for battery portables will continue through the winter, but all agree it is the "manna from heaven" the trade has been hoping for during the next few months at least.

Dramatize the story of the battery portable, and cash in to the fullest degree on this new business opportunity.
Try this New and Improved

I. F. TRANSFORMER

Most sensational development in the radio parts industry! A real midget I. F. Transformer designed for superior performance in any type of receiver. High-dielectric winding form, integral with the trimmer base, provides a simplified construction that permits maximum space efficiency and a lower cost. Aluminum shield is only 1¾" square and 2½" long.

This new transformer is the result of years of engineering experience in the design of similar units for the manufacturer, serviceman and experimenter. It incorporates only the best materials from the high-quality molded coil form and trimmer base to the specially-served litz wire used for the windings. Manufacturing savings resulting from fewer parts and simplified construction are passed on to you in the form of lowest possible prices.

Available in a complete range of operating frequencies and for input, inter-stage or output operation.

SPECIAL SAMPLE OFFER

See and try this new transformer for yourself. Send only 25¢ with the coupon below and we will send you a sample 456-kc input transformer for your examination and test. Only one unit to each customer; no orders accepted on this basis without coupon. This offer is good for a limited time only so send in your coupon today.

NOTE: NO ORDERS FOR THIS SAMPLE WILL BE ACCEPTED WITHOUT THIS COUPON

ONLY ONE I.F. to a customer

Meissner Manufacturing Company
Mt. Carmel, Illinois, Dept. T-7
Enclosed find 25¢ for which please send me sample (456-KC INPUT) of your New Improved I. F. Transformer (list $1.00).
Name:______________________________________________
Address:___________________________________________
City:__________________________________ State:_________
Company:_________________________________________
Jobber is:________________________________________

NEW CATALOG FREE
Get your FREE copy of our New 1939-40 64 Page Catalog featuring 28 Radio Kits (1 to 14 tubes) and over 800 Meissner Products for Set Builders, Amateurs, and Experimenters.
**Replacement Batteries for Portables**

Opposite name of set, note A and B assemblies required. Then find battery manufacturer's own designation in table at bottom of page.

### Batteries

<table>
<thead>
<tr>
<th>NAME</th>
<th>MODEL</th>
<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admiral</td>
<td>164-4D</td>
<td>2 B</td>
<td>1 A2</td>
</tr>
<tr>
<td>Acollian Hall</td>
<td>131-1F</td>
<td>2 B2</td>
<td>1 A1</td>
</tr>
<tr>
<td>Air King</td>
<td>3906-3912</td>
<td>AB</td>
<td></td>
</tr>
<tr>
<td>Auto-Stat</td>
<td>3906-3910</td>
<td>2 B</td>
<td>1 A2</td>
</tr>
<tr>
<td>Automatic</td>
<td>90-98</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Belmont</td>
<td>403</td>
<td>2 B2</td>
<td>1 A3</td>
</tr>
<tr>
<td>Black Hawk</td>
<td>583</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Carryette</td>
<td>WR675</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Carryola</td>
<td>BP5</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Clark</td>
<td>194-949-457</td>
<td>2 B2</td>
<td>1 A2</td>
</tr>
<tr>
<td>Climax</td>
<td>608</td>
<td>2 B</td>
<td>1 A2</td>
</tr>
<tr>
<td>Crosley</td>
<td>429</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Colonial</td>
<td>2 B</td>
<td>1 A3</td>
<td></td>
</tr>
<tr>
<td>Coronado</td>
<td>583-415</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Detrola</td>
<td>&quot;pee wee&quot;</td>
<td>Footnote 1</td>
<td>A1</td>
</tr>
<tr>
<td>Detrola</td>
<td>280-288</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>DeWald</td>
<td>289</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>DeWald</td>
<td>408</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>DeWald</td>
<td>408-409</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Emerson</td>
<td>CE259-260</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Espey</td>
<td>CE259-275</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Fada</td>
<td>DP-936</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Galvin</td>
<td>41D</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Garod</td>
<td>BP1</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>GE</td>
<td>GB-402-403</td>
<td>2 B2</td>
<td>1 A1</td>
</tr>
<tr>
<td>Gilfillan</td>
<td>GB-400</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Grebe</td>
<td>GB-415</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Griffith</td>
<td>GB-415</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Howard</td>
<td>GB-400</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Hudson</td>
<td>GB-400</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Karadio</td>
<td>GB-400</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Knight</td>
<td>GB-400</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Lafayette</td>
<td>AB</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
</tbody>
</table>

**Footnote 1—1A 60 Burgess, 2 V 30 AA General. Footnote 2—2 Eveready 746. 2 Ray-O-Vac Em 83**

### Batteries

<table>
<thead>
<tr>
<th>NAME</th>
<th>MODEL</th>
<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>L'Tattoo</td>
<td>819</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>LaFrance</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A5</td>
</tr>
<tr>
<td>Laurel</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Majestic</td>
<td>420FL, 421</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Mission Bell</td>
<td>400-500</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Monroe</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Motorola</td>
<td>41-41-D2</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Macy</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Montgomery-Ward</td>
<td>Airline</td>
<td>509</td>
<td>2 B</td>
</tr>
<tr>
<td>Packard-Bell</td>
<td>Travel-mate</td>
<td>AB</td>
<td>2 B</td>
</tr>
<tr>
<td>Pilot</td>
<td>TH-11-TH-12</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Philco</td>
<td>7I-7T-27-500 Comb.</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Plymouth</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Port-o-matic</td>
<td>UT7A-UT7C</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>RCA &quot;Pick-me-up&quot;</td>
<td>41BP3-4150</td>
<td>Footnote 2</td>
<td></td>
</tr>
<tr>
<td>Sears-Roebuck</td>
<td>6565</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Sentinel</td>
<td>15/1B-17BL</td>
<td>2 B</td>
<td>1 A2</td>
</tr>
<tr>
<td>Setchel-Carlson</td>
<td>665</td>
<td>2 B</td>
<td>4 B2 unicells</td>
</tr>
<tr>
<td>Sky-Chief</td>
<td>212-213-216</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Sky-Hawk</td>
<td>215-218</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Solar</td>
<td>3901</td>
<td>2 B</td>
<td>1 A2</td>
</tr>
<tr>
<td>Sonora</td>
<td>P129-P134-P139</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Spartron</td>
<td>540-1-140-1</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Stewart-Warner</td>
<td>62-411</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Stromberg Carlson</td>
<td>400-H</td>
<td>Footnote 4</td>
<td>A3</td>
</tr>
<tr>
<td>Travler</td>
<td>53B-55B</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Trutone</td>
<td>792</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Triangle</td>
<td>740-949</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Trophy</td>
<td>9-437</td>
<td>2 B</td>
<td>1 A2</td>
</tr>
<tr>
<td>Warwick</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Waterson</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Welco</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>WOR</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Western Air Patrol</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Windsor</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Wells-Gardner</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A3</td>
</tr>
<tr>
<td>Westinghouse</td>
<td>5B3-415</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
<tr>
<td>Zenith</td>
<td>74-416-4K-4000-4K-4000</td>
<td>2 B</td>
<td>1 A1</td>
</tr>
</tbody>
</table>

---

**Footnote 3—General 2V30 AAA, 12 FL. Footnote 4—2 Eveready 727.**

---

**Batteries** of the various manufacturers have been grouped, for quick reference in determining the proper replacements to use.

Since the replacements above are the recommendations of both battery and radio manufacturers they should be followed to insure customer satisfaction.

In most cases where "A3" is specified, group "A1" may also be used, but this will provide only one-half the A-battery life and will thus require an intermediate change of A batteries.
Merchandising Is an Art
(Continued from page 18)

Most of these factors seem rather obvious to most dealers, and other things such as “40 off,” the “discount houses,” and surplus liquidations seem of more immediate importance. They only seem so.

So many dealers have spent so much time “minding the other fellow’s business” that they have actually lost much of their sense of proportion, and these other questions seem to be more important because everyone is talking about them, while your own merchandising problems never demand your attention.

In future issues each factor in the merchandising of your business will be made the subject of a detailed, authoritative article. These will provide you with a “check list” against which you may compare your own business operation, will give you much to think about, and provide you with many of the answers to many of your problems. That they will take you to the hoped-for destination of your business is too much to expect, but that they will be accurate signposts to point out the right road to follow, we promise you.

CAP SAYS—
The replacement market is ready to be picked.

According to the New York Herald Tribune which has just completed a reader survey in the N. Y. metropolitan area, of the homes in that region—

33 1/3 per cent own two or more radios
7/10 per cent own no radio.

The average age of readers’ radios is 4.4 years, while
14.1 per cent were 2 years old
15.8 per cent were 3 years old
7.8 per cent were over 10 years old, and almost half these multiple-set radios were bought two years apart or less.

Again, 22.2 per cent expect to buy a radio this year
13.4 per cent expect to buy a radio next year.

Here is statistical proof of the vast replacement market, which is just crying to be told all about the new sets, and why these people should buy these new sets now, from alert, sincere dealers.

More than ever, with the public willing and able to buy, with manufacturers packing their products with sound “buy appeal” the individual dealer’s success will be in direct proportion to his sincere, creative selling effort.

JULY, 1939
More New Things
Latest radio products from manufacturers

Auto Radio
★ Five-tube superhet single unit auto radio with 5-station automatic and manual tuning delivers 3½ watts output and has 6½-inch electro dynamic speaker. Model M-50, list $24.95. Also six-tube single-unit set with one stage of RF and a three-gang condenser. Model M-60, list $29.95. Push buttons in both models change to new stations with few simple turns of the buttons and manual tuning dial. RCA Mfg. Co., Front & Cooper St., Camden, N. J.—Radio Today.

Turret Movie Camera
★ Three lens turret mount 8 mm. camera with F. 4.5 lens. Provision for two additional lenses. Lenses may be snapped into position instantly. Entire unit weighs less than 3 lbs. $25. list $29.95 with F. 3.5 lens. "Universal Camera Corp., 28-30 W. 23rd St., New York, N. Y.—Radio Today.

Paper Replacement Condensers
★ Paper insulated condensers for replacing dry electrolytics have same size containers. Inverted can types are available in 4, 8, 4-4, 3-8 mfd. Cardboard type RP in 8, and 8-8 mfd. Sprague Products Co., N. Adams, Mass.—Radio Today.

Ventilated Capacitors

Attachable Loop
★ Self-contained loop antenna called "Antenna-Scope" attaches easily to any broadcast receiver with two double vacuum cups. May be matched to inductance requirements of any TRF or super-het receiver. Has iron core, permeability tuned, tracking coil. Reduces noise-to-signal ratio, eliminates static, and prevents noise induction through a high Q circuit. Consolidated Wire & Associated Corps., 516 S. Peoria St., Chicago.—Radio Today.

Modern Cabinets
★ Streamlined A & B power supplies made more compact, easier to handle. All wiring and terminals are at rear. Units restyled are Model E silent 1-4-3 volt AB eliminator, Model G 6-volt A eliminator, and Model J, AB eliminator for use with any 6 volt d-c power source. Model G price reduced. E and J same price. Electro Products Labs., 549 W. Randolph St., Chicago.—Radio Today.

Tele-receiver
★ Five-channel push-button tuned television receiver has 8-tube chassis and 21-tube video channel. Uses 8-inch picture tube with magnetic deflection and black and white screen. Four panel controls and push-button panel. Model 4995. Pilot Radio Corp., 37-06 36th St., Long Island City, N. Y.—Radio Today.

Intercommunicator
★ Seven station communication system employing AC/DC amplifiers in plastic cabinets will handle three simultaneous conversations without interference. Combination speaker and microphone is used. Lafayette Radio Corp., 100 Sixth Ave., New York, N. Y.—Radio Today.

Labyrinth Model
★ 10½ inch leather cone speaker, acoustic labyrinth, bi-focal visual tuning and automatic drift compensation are featured in the 9 tube console model 430-M. Two wave bands and provision for television sound. Stromberg-Carlson, 100 Carlson Rd., Rochester, N. Y.—Radio Today.
**UHF Antenna**

- Custom built antenna for transmitting or receiving with increased efficiency employs a system of ground rods to reduce field concentration about the RF feed line. Five quarter wave rods make up the unit. Four of the rods, in the design of a cross, form the ground system and the fifth acts as the radiator in the vertical plane. RCA Mfg. Co., Camden, N. J.—Radio Today.

**Power Pack**

- Dry cell power pack operating from 110 AC furnishes filament and plate power for portable and farm sets up to 6 tubes. Universal power outlet sockets. Two sizes, $62.50; $75. General Transformer Corp., 1250 W. Van Buren St., Chicago.—Radio Today.

**Tele Antenna**

- Dipole type television antenna with telescoping brass rods allows for adjustment to exact frequency to be picked up. Chromium finished fittings. Comes with 25 feet of low-loss transmission line matching input of all television receivers—100 ohms. Consolidated Wire & Assoc. Corps., 516 S. Peoria St., Chicago.—Radio Today.

**Vitreous Enamed Resitors**

- Adjustable wire wound resistors in 10 to 200 watt power ranges and 1 to 100M ohms. Mounting brackets. Lectrohm Inc., 5133 W. 25th Place, Cicero, Ill.—Radio Today.

**Filter Condenser**

- Oil filled, oil impregnated 2 and 4 mfd., 600 volt and 1 and 2 mfd. 1000 volt condensers designed for transmitters, PA systems and television amplifiers. Sprague Products Co., North Adams, Mass.—Radio Today.

**Tele Tubes**

- Line of nine television receiver tubes includes four Kinescope picture tubes, three amplifier pentodes, and two half-wave, high vacuum rectifiers. List prices are: Kinescopes—3-inch, $18.25; 5-inch, $27.50; 9-inch, $62.50; 12-inch, $75.00. Television amplifier pentodes—Type 6AG7/1852, $2.50; type 6A87/1855, $2.50; type 6A7, $2.75. Half-wave vacuum rectifiers—Type 2V3G, $2.95; type 879, $2.00. RCA Mfg. Co., Camden, N. J.—Radio Today.

**Molded Tubular Condensers**


**50 Watt Variable**


**Phono-radio**

- 4 tube, 1½ volt superhet has AVC, 5 inch P.M. dynamic speaker. May be used with conventional A and B batteries or with special AB power pack. Latter gives approximately 1,000 hours battery life. Built-in phonograph features spring wound motor, crystal pickup. Plays 2½ or 1½ inch record each winding. “Knight” Allied Radio Corp., 833 W. Jackson Blvd., Chicago.—Radio Today.

**Power Tap Switches**

- Ceramic insulated rotary switches in four sizes, 10 to 75 amperes capacity at 240 volts AC. Ohmite Mfg. Co., 4855 Flournoy St., Chicago, Ill.—Radio Today.

**Record Changer**

- Automatic changer for twelve 10 in. records or ten 12 in. records comes in carrying case. Has push button control for rejecting and change to manual record shifting. Model W1250, 117V AC, Crystal pickup, list $77.50. Webster Co., 5622 Bloomington Ave., Chicago, Ill.—Radio Today.

**Rechargeable Portable Battery**

RCA Victor Announces
A New Merchandising Policy

...planned to meet the needs of dealers
in an era of changing buying habits

RCA Victor will design, engineer and manufacture to the best of its ability, the finest radios, Victrolas, records, tubes, television equipment and allied products, consistent with the development of the art.

RCA Victor will advertise and promote its products as aggressively as good business practice permits.

RCA Victor will introduce new merchandise at timely intervals and as market conditions warrant.

RCA Victor's current policy will be to not introduce AT ANY ONE TIME DURING THE YEAR A LARGE AND COMPLETE LINE OF MERCHANDISE TO DISTRIBUTOR, DEALER OR PUBLIC. New models will be announced to enable you to take full advantage of all the latest developments of the RCA Laboratories as well as seasonal, style and market trends. In short, YOU WILL RECEIVE THE MERCHANDISE YOU NEED WHEN YOU NEED IT.

President, RCA Manufacturing Co., Inc.

This new policy will help your business. Buying habits, consumers' likes and dislikes, change rapidly. The swift adoption of new styles means better business for the dealer who can offer his customers something new while it is new. And the new RCA Victor merchandising policy enables you to do this.

The wealth of advantages dealers derive from RCA Victor's new policy are clearly outlined in a booklet recently mailed to all RCA Victor dealers. This new policy eliminates the need for high pressure selling. It puts an end to the danger of your overloading. It makes it possible for you to avoid freezing your capital. You are enabled to offer better values, display a more complete line of merchandise in your store.

A new day dawns! Again, RCA Victor is first—helping you to greater profits!

For finer radio performance—RCA Victor Radio Tubes
Here's an instrument you'll display in your store with pride! Because it's a radio that symbolizes the kind of VALUE you like to offer your customers. Not only does it provide typical RCA Victor advance styling... full, clear, vibrant tone... and RCA Victor quality workmanship—but also a price that’s remarkably low for an instrument of such high calibre. Look at the picture at the right. You can't help but agree that this RCA Victor instrument is a beauty. Now, examine the features listed in box at right. They’re just what you’ve been asking for! And when you hear the price, you’ll agree—here’s a radio that will bring you real business! Back up the big sales push on the K-60—and make more money!

Looking at all the features you can offer:
- Plug-in Connection for Victrola or Television Attachment
- Power-Line Antenna (no outside aerial needed)
- Improved Push-Button Tung for 8 stations
- New, 3-band Super-sight, streamlined dial
- Domestic and foreign reception—also police, aviation and amateur calls
- Refreshingly beautiful modern cabinet
- RCA Victor Tubes
- Victrola or Television switch
- 12" Electrodynamic Speaker
- Magnetic "frequency-locking" transformers

For finer radio performance—RCA Victor Radio Tubes

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

July, 1939
RCA Victor Announces
A New Merchandising Policy
...planned to meet the needs of dealers in an era of changing buying habits

RCA Victor will design, engineer and manufacture to the best of its ability, the finest radios, Victrolas, records, tubes, television equipment and allied products, consistent with the development of the art.
RCA Victor will advertise and promote its products as aggressively as good business practice permits.
RCA Victor will introduce new merchandise at timely intervals and as market conditions warrant.
RCA Victor's current policy will be to not introduce AT ANY ONE TIME DURING THE YEAR A LARGE AND COMPLETE LINE OF MERCHANDISE TO DISTRIBUTOR, DEALER OR PUBLIC. New models will be announced to enable you to take full advantage of all the latest developments of the RCA Laboratories as well as seasonal, style and market trends. In short, YOU WILL RECEIVE THE MERCHANDISE YOU NEED WHEN YOU NEED IT.

President, RCA Manufacturing Co., Inc.

This new policy will help your business. Buying habits, consumers' likes and dislikes, change rapidly. The swift adoption of new styles means better business for the dealer who can offer his customers something new while it is new. And the new RCA Victor merchandising policy enables you to do this. The wealth of advantages dealers derive from RCA Victor's new policy are clearly outlined in a booklet recently mailed to all RCA Victor dealers. This new policy eliminates the need for high pressure selling. It puts an end to the steady drum of your over-selling. It makes it possible for you to avoid lowering your capital. You are enabled to offer better values, display a more complete line of merchandise in your store.

For finer radio performance—RCA Victor Radio Tubes

Here's an instrument you'll display in your store with pride! Because it's a radio that symbolizes the kind of VALUE you like to offer your customers. Not only does it provide typical RCA Victor advance styling, full, clear, vibrant tone, and RCA Victor quality workmanship—but also a price that's remarkably low for an instrument of such high caliber. Look at the picture at the right. You can't help but agree that this RCA Victor instrument is a beauty. Now, examine the features listed in box at right. They're just what you've been asking for! And when you hear the price, you'll agree—here's a radio that will bring you real business! Back up the big sales push on the K-60—and make more money!隐蔽

Sensational New 1940 RCA Victor Model K-60

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

30

RCA Victor

A big market to shoot at...a great product to shoot with!

THAT'S WHY YOU'LL CALL RCA VICTOR RECORDERS

Double-Barreled Money Makers!

Here's a profitable new business—and RCA Victor supports it with sales aids that will bring you profits!

Look at this picture! A huge market, practically untouched — yet able to buy! A great new product, designed for that market — and backed by a powerful plan that will produce sales!

You'll make big money selling RCA Victor Recorders and custom-made records in your town. The market includes schools, music teachers, home movie fans, parents, and many others. The RCA Victor Recorder is backed up by a four-way profit plan. By all means see your RCA Victor distributor today—or mail the coupon for full details.

Prices f.o.b. Camden, N. J., subject to change without notice.
For finer radio performance...
RCA Victor Radio Tubes

RCA Victor 4-way plan gives you material with which you can:
1. Demonstrate. 2. Use your window. 3. Advertise. 4. Use the mails.

As a result, you can profit in these six ways:
1. On recordings made in your store. 2. On recordings made outside your store. 3. On the sale of RCA Victor Recorders. 4. On the sale of RCA recording discs. 5. By the increase in store traffic. 6. By making sales of RCA Victor Radios, RCA Victrolas and other musical instruments.

Put it on a record

RCA Victor Recorders

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

Begin a new era of Profits by selling these outstanding RCA Victor Products!

Console-type features score in new

RCA VICTROLA TABLE MODEL

U-12

Electric tuning for 6 stations...foreign and domestic reception...New Mercury fully automatic on-off switch...visschoid damped pick-up...new edge-lighted dial...Victrola switch...designed for use with Television Attachment. You'll call this instrument a red hot seller. Price includes $1.50 in any Victor or Bluebird Records. $59.95*

RCA Victrola

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


ARTIE SHAW

one of the greatest all-time record sellers, and EXCLUSIVE BLUEBIRD ARTIST

BLUEBIRD RECORDS

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

Bluebird records for hot bands, new tunes, big hits—and only 35¢! That's the slogan and these are some of the artists that are putting Bluebirds right at the top of the money-makers—Artie Shaw, Van Alexander, The Smoothie (Babs, Charlie and Little), "Fats" Waller, Glenn Miller, Vincent Lopez and his Swing, Shep Fields, Ozie Nelson, Dorothy Lamour, and many others. Keep in the big money with these "big-timers."

PORTABLE RCA Victor Recorders

Portable RCA Victor Records 212/201 comes in gray carrying case. Turntable speed 78 r.p.m. Will handle discs up to 12". Volume indicator meter, tone control, completely self-contained, RCA aero-dynamic microphone. $179.90. Also available in console model for $175.00.

RCA Manufacturing Co., Inc.
Dept. RT-7, Camden, N.J.
Please send me without obligation, full details on RCA Victor Recorders.

Name ____________________________
Street ____________________________
City ____________________________
State ____________________________

RCA Victor Recorders

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

Distributors Association sets new aims, elects new officers to carry out expanded policies for benefit of business

Expanded plans for the National Radio Parts Distributors Association are announced by Arthur Moss, the new executive secretary of the jobbers group, who will carry out plans for developing the association as a medium of co-operation between jobber and manufacturer for the improvement of industry conditions.

Mr. Moss resigned recently as sales-manager of the Solar Mfg. Co., and previously was president of Electrad, Inc., which was purchased several years ago by P. R. Mallory & Co. Mr. Moss has been prominent as a director of the RMA, and as secretary-treasurer of the Radio Trade Show group. His present quarters are at 5 West 86th Street, New York, N. Y.

New officers of the association are: President, Walter C. Braun; first vice-pres., Elliott Wilkinson; second vice-pres., A. D. Davis; third vice-pres., Alex Hirsch; fourth vice-pres., Aaron Lippman; secretary, George D. Barbee; treasurer, Wm. Schoning.

NRPDA DIRECTORS


Aims and purposes of the N.R.P.-D.A. as defined by Secretary Moss:

A. To organize into an association every parts distributor eligible for membership, and to promote cooperation and harmonious dealings between them.

B. To present to all branches of the radio industry a voice which will speak for the parts jobbers as a national unit.

C. To represent the parts distributors in discussions with manufacturers of problems which face its members and by a careful study to endeavor to find a solution satisfactory to both the jobbers and manufacturers.

D. To cooperate with the manufacturers in establishing and maintaining definite standards and qualifications necessary to be rated as a distributor.

STUDY COSTS, PROMOTION PLANS

The Association also plans to provide for the distributor a national office which will assist its members in many ways, such as:

1. Proper cost accounting methods. It is the intention of the Association to make available to its members results of surveys showing by percentages average costs of doing business. To furnish forms to its members so that they can compare their expenses with other jobbers throughout the country.

2. The development of merchandising plans which will suggest new and additional markets.

3. To provide a means for satisfactorily ironing out any internal dissensions.

4. To assist its members through local jobbing cooperation in the problem of credit so that credit losses may be cut down to a minimum throughout the industry.

5. To create, through promotional and advertising campaigns to service-men, dealers, and amateurs, a feeling of absolute confidence in the business ethics of the members of N.R.P.D.A.

A code of ethics will also be prepared to which all members are expected to adhere. In disputes between members all facts will be submitted to a grievance committee for final arbitration. Any member who willfully continues to violate the code of ethics after proper notice may lose his standing as a member in good standing in the Association.

MEMBERSHIP POSSIBILITIES

The present membership, following a very successful series of meetings during the June Trade Show at Chicago, numbers about 125 and includes many of the most prominent companies in the country. A rough estimate is that the membership at present represents about 30 per cent of the buying power of jobbers. "This is a good start," comments Mr. Moss, "and we expect within a short period of time to include in our membership every parts distributor doing a business of $25,000 or more annually of a strictly wholesale nature. Only through the real cooperation of large and medium-size distributors will important problems which affect all alike be solved. The N.R.P.D.A. will definitely be the voice of the entire jobbing industry and carry on all its activities in a manner fair and equitable for each and every member in the Association.

"It is the sincere aim that through the N.R.P.D.A. members will promote their best interest; get to know their competitors better; collectively solve their problems; be able to build their own business through cooperation and achieve the real objective in all business—A Fair Profit."

Arthur Moss, new Executive Secretary of the National Radio Parts Distributors Association.
Centralab plays an important part in the electronic industry... among set manufacturers as well as on the benches of experimenters—in the service-man's kit and in ham shack... for wherever Quality, Dependability and Reliability count—there Centralab serves supreme.

- **LEVER ACTION SWITCH**: available in various combinations—with or without special mounting plates.
- **FIXED RESISTORS**: Insulating and conducting area baked together into one... copper sprayed end connections.
- **RADIOHM**: In standard or midget... non-rubbing contact—low noise level... long life.
- **CERAMIC CAPACITOR**: Where permanence or temperature compensation is important.
- **WAVE BAND SWITCH**: In Isolonite or Bakelite... available in various combinations.

Centralab
Division of Globe Union, Inc.
900 E. Keefe Ave.
MILWAUKEE, WIS.

LET'S LOOK AT
The Record

That Polka Craze

Offering musical merchandisers dealers an opportunity to capitalize on the popularity of the polka, newcomer to the ranks of best-selling recorded music, the Victor International recording list contains many polkas recorded both here and abroad. Included among these popular discs are "Beer Barrel Polka" and "Hot Pretzels," "Village Polka" and "Cricket Wedding," and "Dopey Polka" and "Banana Split," all played by Will Glohe and his orchestra; "Hopassaa" and "Peasant Wedding" by Barnabas Von Geezy and his orchestra; "Holla Lady" and "Hot Pretzels" by Harry's Tavern Band; "Unita Polka" and "Dark Forest Polka" by the Silver Bell orchestra; and "Hot Clarinet Polka" and "Jolly Coffemeister Polka" by Lawrence Duchow and his Red Raven Inn orchestra.

Maraniss Joins Columbia

H. S. Maraniss has joined the executive staff of the Columbia Recording Corporation, Bridgeport, Conn., as assistant to the president, recently announced Edward Wallerstein, president.

Mr. Maraniss comes from the R.C.A. Mfg. Company, where his activities included problems of distribution, merchandising, advertising and sales promotion. He has worked in the record business from coast to coast for many years, and has a wide acquaintance with distributors, dealers, coin operators and sales people throughout the country. Mr. Maraniss is a graduate of Harvard. He was a Captain in the army and has been engaged in the record business since the war.

Wax Worth Watching

BING CROSBY assisted by The Four Sons with John South Trotter and his orchestra singing El Rancho Grandes and Ida Sweet As Apple Cider—Decca 2494.

HORACE HEIDT and his Musical Knights playing I Found My Heart Into A Song with VC by Larry Cotton and Helmut's High Lights and Back To Back with VC by The High Lights—Brunswick 8393.

OZZIE NELSON and his orchestra playing South American Way with VB by Horace Hilliard and Is It Possible with VB by Mr. Nelson—Bluebird—B-10298.

EDDY DUCHIN and his orchestra playing Norwegian Dance and Lunden Bridge Is Falling Down—Brunswick 8386.

TOMMY DORSEY and his orchestra playing Well All Right with VB by Edythe Wright, and All I Remember Is You with VB by Jack Leonard—Victor 26281.

ARTIE SHAW and his orchestra playing When Winter Comes with VB by Tony Pastor, and I Poured My Heart Into A Song with VB by John Forrest—Bluebird B-10367.

GUY LOMBARDO and his Royal Canadian playing Concert In The Park with vocal trio, and A Blue Serenade—Decca 2551.

DICK ROBERTSON and his orchestra playing Pipinella and Where Do You Work A John, both with VB by Mr. Robertson—Decca 2497.

AL KAVELIN and his Counting Chords playing Nela and Gratified with VC by Al Shalaby—Victor 4093.

HARRY OWENS and his Royal Hawaiian Hotel Orchestra playing Nela Blues and Calling All Lovers with vocal trio—Decca 2525.


United States Records

New company in the recording field is United States Record Corp., 1775 Broadway, New York, N. Y. Citing the fact that in 1919 twenty-two manufacturers sold 107 million records, Eli Oberstein, president of the new
firm, will add his company's name to the group of three who will in 1939 sell over 50 million records.

Mr. Oberstein has long been a top man in recording field having been connected with Victor, Okeh and Columbia. Such numbers as Vieni, Vieni, Josephine, My Reverie, Heigh-Ho and My Heart Belongs to Daddy were first put on wax at Mr. Oberstein's suggestion.

The company is starting with a catalog of 500 standard and classical 10 and 12 inch records. Weekly releases of popular, hill-billy, race, etc., are planned to retail for $3.50. Popular and standard selections at 75c will also be released weekly. Monthly releases of classical and standard pieces will sell at $11.00. Shipments are planned for the latter part of July.

Instructors Pick Kemp

Hal Kemp and his orchestra have been selected by the Dance Educators of America, comprising the country's foremost professional dancing instructors, as the band to record an album of dance tunes for Victor.

The album, now being recorded, will serve as a basis of instruction for the Educators' member instructors, who will fit their set routines to the Kemp arrangements. It will include the six major forms of dancing being taught by the majority of the country's dancing teachers, the waltz, slow fox-trot, fast fox-trot, tango, conga and rumba.

Record Trends

Jitterbugs will keep buying hot plates recorded by Benny Goodman, Bing Crosby, Artie Shaw, Count Basie, Tommy Dorsey and Duke Ellington.

Ella Fitzgerald is still riding high as a vocalist, while the ever-popular Bing Crosby will keep selling records until someone steals the frog in his throat. Other popular vocalists include Mildred Bailey, Martha Tilton, Jack Leonard and Connie Boswell.

Watch Marion Anderson's recordings, especially her Ave Maria, Victor 1210.

Serious "Wax Worth Watching" is listed, too, this month.

The Wilcox-Gay Corporation held dealer showings of their new Recordio models at the Benjamin Franklin Hotel, Philadelphia, in connection with the Philadelphia distributor, Elliott-Lewis Electrical Co., 1017 Race Street; and at the Carter Hotel in Cleveland with the Goldhammer Co., 616 Huron Road recently.

A large number of dealers attending these showings were reported enthusiastic with the new Recordio models and the merchandising possibilities. July 6th, 7th and 8th, another Wilcox-Gay Recordio showing was held at the Statler Hotel in Boston, with the Boston distributor, Millhender-Afes Electrical Co., 617 Atlantic Ave., under the supervision of D. E. McGaw from the Wilcox-Gay factory.
Radio and sound men have been helping a great deal in making efficient installations from the exhibit in operation at the N. Y. World's Fair. Planned by technical experts and kept in excellent condition by a corps of engineers, public address systems at the Fair are educating people to expect the best in sound coverage at their favorite amusements.

The two installations described this month which could be executed by the average sound man in the average town. Many public gatherings such as county fairs, parks, conventions, etc., present the same problems overcome by Alexander Fisher, president of Commercial Radio-Sound Corp., metropolitan New York distributor of RCA sound equipment in two of his many Fair installations.

WILD WEST SHOW

The sound system at the Wild West and Rodeo Show consists of two units, one of which serves a huge outdoor stage of several levels and ramps, on which musical presentations and other features of the rodeo program are presented. The other unit is a large arena with riding rink, measuring about 200 x 400 feet, at one end of which a band platform is located approximately 15 feet above the ground. On both sides of this awning-covered seats have been placed around the full length of the riding rink, 20 or 40 rows deep, elevated towards the rear.

Sound coverage of both of these units is absolutely essential and is accomplished as follows:

Outdoor Platform: Pickup of sound is accomplished by means of any or all of four microphones, controlled by a 4-position electronic mixer unit, complete with master gain control, expansion and suppression control and switch, all housed in vertical steel cabinet, located in winx of stage.

Amplification consists of two 50-watt power amplifiers feeding two 25-watt weatherproof exponential horns equipped with permanent field driving units, located at high points of stage background on either side of stage. This system affects a sound coverage of the space immediately in front of the stage and platforms, and for considerable distance around, and is used for amplification of musical and announcement programs originating from the stage.

Indoor Unit: The indoor unit covering the seating area of the Arena, consists of one ribbon microphone for pickup of music and one pressure operated microphone for announcements. Both of these microphones are located on band platform at which location, control cabinet, consisting of input control, master gain control, expansion and suppression control and switch are housed in vertical steel cabinet, driving two 100 watt power amplifier units, each consisting of two 50-watt amplifiers. Two 36-inch cube, two-way loudspeakers are located on platform on either side of base stand, positioned to effect uniform coverage around seating area.

Well laid-out equipment solves sound coverage problem of the large area in the Wild West Show at the N. Y. World's Fair.

FOUNTAIN LAKE

One of the feature spectacles at the New York World's Fair is the fireworks show on Fountain Lake every evening at 10 o'clock. This spectacle is accompanied by sound program and is featured by announcements originating from the high-powered sound system which has many novel features.

The system consists of eight 100-watt exponential-horn type sound projectors equipped with permanent field driving units located four on each of two barges, anchored on each about 400 feet off shore and about 400 feet from center control, with horns directed to effect uniform coverage of the south shore of Fountain Lake for about ¾ of a mile.

These projectors are powered by two 50-watt amplifiers each, or a total of sixteen 50-watt amplifiers of 800 watts. The amplifiers are located in a small room in the permanent boat house on the south shore of the Lake and are arranged so that they may be operated from this point or from a remote location in the "light and fireworks control room" on north shore of Lake.

A 2-position input amplifier, together with suitable booster drivers, is located adjacent to powered amplifiers, so that any program up to four inputs may be controlled from this point locally, or by means of a remote-control mixer console. It may be operated from announcers' platform erected in front of the boat house.

PICK-UP SYSTEM

Telephone lines connect the system to the north shore control room, to band studios near the Lagoon and to the master control deck, so that the system is capable of handling programs originating at amplifier location or announcers platform in front of amplifier room, north shore control room, pickup of live band from control room near Lagoon or any program which originates in any one of the studies of the P.A. Center or are fed to the master desk by means of telephone lines.

Two 400-watt groups of floating speakers, 400 feet from control center on right give ample sound coverage for Fountain Lake area.
Entrance to World Fair's Rodeo showing barker's platform and ramps. Sound is fed through amplifier in arena to inconspicuous speakers above clock.

Sound Increases
Clock-Sign's Value

Will Whitmore, sound enthusiast of Western Electric Company, tells of an electric clock sign which sounds a bell to attract attention of many people who passed it. Pedestrians intent on traffic and their own affairs would go by without noticing the clock or sign.

At this point a sound man suggested installing chimes to mark the quarter-hours and thus attract attention to the clock. A chiming clock was obtained and placed in front of the microphone leading to the large speakers behind the sign. Each time the clock chimed, its tones were heard in thunderous volume above the traffic. People's attention was thus attracted, they came to be familiar with the presence of the clock, and now the clock-sign has a large and appreciative regular "circulation," both when the clock is chiming and during the intervals between "sound effects."

Sound Seller

Sound equipment sales booster released by the Transformer Corp. of America, through the Clarion Institute of Sound Engineers, consists of two color Duo-Tone poster depicting the use of sound equipment. Designed to attract the laymen to establishments handling Sound Equipment, May be used for window displays, or as store posters. Size: 11" x 23". Color: Maroon brown and orange yellow. Supplied free on request.

Wright-Decoster, Inc., have announced the resignation of D. H. Wright as president of the firm and the election of D. W. Decoster, president-treasurer, R. R. DuPuy, vice-president, L. L. Erickson, secretary.

Store Are Prospects for Sound Men

An excellent example of successful installation and a powerful sales story for sound men is contained in the enthusiasm of Lee W. Court, assistant operating superintendent of Filene, one of Boston's leading department stores. He finds the new amplification and distribution system "unlimited in its possibilities."

Style shows, special events, sales recorded music programs, emergency calls for lost persons, broadcasts by the store orchestra, management talks, time signals—all these and many other programs have been presented "most successfully," Mr. Court reports. "And as the weeks go on we will continually add to this list of services," he said.

Providing complete and instantaneous coverage of the huge store, Filene's new RCA sound system carries a wide variety of programs for both employees and customers broadcast from a specially constructed studio on the first-floor balcony. The broadcasts are routed through a master control console unit located in the studio, and instantly selective distribution in any part of the building is easily effected through a two-channel system of 28 powerful loudspeakers. The console unit incorporates a phonograph turntable and has facilities for picking up radio programs through two all-wave receivers.

Microphone pickup facilities are provided for each floor, the store manager's office, and the studio. Selective switching permit selective routing of calls through either the 100-watt "A" channel or 50-watt "B" channel. The "A" channel is used for an executive call system during business hours with coded call signals originating from a telephone switchboard. Separate circuit hookups for each floor and, in some cases, for smaller areas, provide flexible control of program outlets. Thus, during the lunch hour, recorded music programs may be carried to the store's restaurant through the "B" channel while at the same time business announcements may be routed through the store over the "A" channel.

Sound as Jobber's Aid

Having first started the delivery of merchandise to dealers as a distributor and seeing how effective it was, W. L. Fuller, Jr., Parkersburg, Va., is operating similarly selling only to distributors. This truck will be used as a demonstrator to help the distributor promote sound.

The truck is equipped with four University speakers and units, and a complete electric light plant in the rear which is remote controlled from the front. At the present time, the amplifier is a rebuilt job. The panel inside the truck contains an AC voltmeter, a three input electronic mixer, and matching arrangements on the speakers. In the rear are shelves to carry samples and equipment to give a complete demonstration to distributors and their dealers.

W. L. Fuller, Jr., when a jobber, found delivering by truck to dealers an effective method of merchandising. Now a factory rep he uses this demonstrator to help distributors promote sound.
The Typical Service Business

Radio Today's nation-wide survey shows that "expense-to-sales" ratio is too high. Three things can be done about it.

The radio service business is growing in importance almost daily, made up in total of thousands of independent and individual little businesses.

After sending out thousands of questionnaires, Radio Today has tabulated and analyzed reports received from servicemen all over the country. In this way only could the true story of the operation of a typical service business, so that all servicemen may have a standard of comparison by which to check their own operations.

THE TYPICAL SERVICEMAN

The independent business of servicing radio sets reaches from the part-time group with annual sales of less than $1,000, to the flourishing service business with annual sales of $10,000.

The typical serviceman, however, has annual sales of $2,480. expense of $795, and draws $1,321 from his business.

His income results from $630 of tube sales, $530 of parts sales, and $1,320 for labor.

His income and his profits can be increased with just a little extra effort at the proper time and place. It is apparent from the advertising cost of $59 per year, that more direct mail advertising should be done.

With an average tube stock of $285 at list, and annual sales of $630 the tube stock turnover is 2.21.

EXPENSE-TO-SALES RATIO HIGH

Most of the typical serviceman's expense is fixed in dollars, and is at a minimum. But still, because sales are low, expense builds large, and eats up too much of income.

While annual service income has a range of 10 to 1, ranging from $10,000 to $1,000, corresponding expense has a ratio of only 2.75 to 1, ranging from $1,629 to $589, but in per cent of sales the ratio is 3.2 to 1, or from 17.8 per cent to 57.4 per cent of sales.

The highest ratio of expense to sales, 57.4 per cent, is borne by the part-time service man, with income of $1,000 per year, as is to be expected. But a very significant fact is that the lowest expense, 17.8 per cent is shown by the group with income between $3,000 and $5,000 per year. Beyond this limit expense slowly increases again, until in the $5,000 to $7,500 income group expense is 22 per cent of sales.

It appears that at certain income levels, rent and office help are increased, though although this is the cause, or the result of increased sales, is not apparent.

Depreciation alone takes almost 7 cents of every dollar of income, and rent, heat and light takes another 11 cents. The car costs 5 cents; office help 2 cents; equipment 1½ cents; taxes 1½ cents; and miscellaneous other expenses take 3 cents.

This all adds up to 32 cents out of each dollar of income, that goes to pay the cost of doing business.

First—The charge to the customer is too low.

It appears that in most cases, the serviceman has sold his tubes and parts at regular prices, but has charged only a fair hourly rate for his labor, overlooking the "cost of doing business" in establishing his charge to the customer.

The difference between your cost and the retail price of tubes and parts will take care of your expense in selling them, but to your hourly labor charge should be added 50 per cent to cover the expense, which amounts to 32 per cent of sales, or 50 per cent of cost.

Second—Since the income per call increases in each income group, it appears that selling ability, or at least selling effort, is largely responsible for increased sales.

It appears that servicemen are technically minded to the exclusion of "sales-mindedness," although they are in a business where sales effort is vital to success. More thought and effort should be given to the sales end of the business, to selling each customer more than just enough to put the set back into operation.

Third—Since dollar expense will support almost double the sales volume without much increase by pushing tube and service sales, by more advertising to increase the number of customers, as pointed out below, expense will require a smaller portion of the increased income, which then becomes added profit.

SOME BETTER THAN OTHERS

Some servicemen have been particularly successful in their sales promotion work. They keep in monthly contact with their customers on tubes giving seasonal check-ups, and also checking the set before each important

Average of Thousands of Servicemen's Questionnaires

<table>
<thead>
<tr>
<th>Item</th>
<th>Operating Expenses for One Year Period</th>
<th>Year Expense</th>
<th>Sample Size</th>
<th>Year Expense</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rents (monthly)</td>
<td>$167</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Telephone (monthly)</td>
<td>25</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Electricity and gas (monthly)</td>
<td>36</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Heat, if not included in rent</td>
<td>None</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Car depreciation for year</td>
<td>100</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Garage rent (monthly)</td>
<td>15</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Grainage and oil</td>
<td>55</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Car repairs</td>
<td>35</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Service for car</td>
<td>10</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Auto Repair</td>
<td>10</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Auto Insurance (Pub, Habil, etc.)</td>
<td>40</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Workman's compensation</td>
<td>None</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Social security, unemployment insurance</td>
<td>None</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Operating Expenses for One Year Period</th>
<th>Year Expense</th>
<th>Sample Size</th>
<th>Year Expense</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Advertising expenses inc. postage</td>
<td>$21</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Depreciation of office furniture if owned by you</td>
<td>$21</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Delivery and shipping charges (expenses, parcel post, etc.)</td>
<td>$55</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Salary of office help</td>
<td>None</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Cost of service manuals, books, magazines</td>
<td>$20</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Depreciation of service equipment (5% of cost)</td>
<td>$35</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Tools and shop supplies</td>
<td>$30</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Bad debt</td>
<td>$25</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Other expenses</td>
<td>None</td>
<td>10</td>
<td>120</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Annual Expenses:** $796

**Operating Income:**

**WAGES PAID**

- **Non-technical wages (helper, chauffeur for servicemen, etc.)**
- **Edison's wages and commissions if any (for service department only)**
- **Technical wages (servicemen and technicians only. Do not include owner)**
- **Number of servicemen employed**
- **Owner's salary (make nature of owner's duties so that we can properly classify this item).**

**Duties**

**HOURS WORKED AND HOURS SOLD**

- **Total number of hours worked per week by all servicemen (including owner salary for service).**
- **Percentage of service time chargeable to customer for work performed.**

**INCOME FROM CUSTOMERS**

<table>
<thead>
<tr>
<th>Item</th>
<th>Year Expense</th>
<th>Sample Size</th>
<th>Year Expense</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. Dollars paid by customers for tubes (yearly)</td>
<td>$600</td>
<td>10</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>20. Dollars paid by customers for parts, supplies</td>
<td>$350</td>
<td>10</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>21. Dollars paid by customers for labor</td>
<td>$260</td>
<td>10</td>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL INCOME FROM CUSTOMERS:** $1,200

**COST OF TUBES AND PARTS**

<table>
<thead>
<tr>
<th>Item</th>
<th>Year Expense</th>
<th>Sample Size</th>
<th>Year Expense</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>24. Net value of new tubes in stock at beginning of year</td>
<td>$540</td>
<td>10</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>25. Net value of new tubes in stock at end of year</td>
<td>$550</td>
<td>10</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>26. Net value of tubes purchased during year</td>
<td>$550</td>
<td>10</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>27. Net value of new parts in stock at beginning of year</td>
<td>$150</td>
<td>10</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>28. Net value of new parts in stock at end of year</td>
<td>$150</td>
<td>10</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>29. Net value of parts purchased during year</td>
<td>$150</td>
<td>10</td>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>

**Radio Today**
special broadcast event. These men have greater sales and profits, and draw more from their business than the typical serviceman pictured here, as a composite of all.

**CONCLUSIONS**

Since these men are located in all parts of the country, the conclusion is that servicemen everywhere can improve their position and their business—

1. By thinking at least as much about "getting the job to do" as they now think about "doing the job right."
2. By systematically selling "preventive service," rather than waiting for a set to go haywire, and the customer to call.
3. By spending more advertising effort to get new customers.
4. By selling each customer more, enough to make the set operate properly.
5. By charging enough for their labor to cover their cost of doing business.

**RMA-NAB Campaign Aids Servicemen**

Many dealers are already reporting benefits derived from the RMA-NAB campaign "to promote the best interests of American radio." Servicemen too are beginning to feel the effects of radio plugs advising the public to have their sets checked for better reception.

Following samples of the announcements being used on cooperating stations are those of T. C. McCray, program manager of WTIC. Dealers no doubt will find them useful as tie-ins with window displays, slogans on direct-mail pieces, etc.

The best summer radio entertainment ever is ahead of you. Don't miss it. Take a receiver with you wherever you go and listen while you play.

Wherever you drive this summer, take your favorite radio programs along with you. Have your car-radio checked now for perfect reception and listen while you play.

Your enjoyment of Radio is largely measured by the efficiency of your receiver. Don't let outmoded equipment spoil your pleasure. Call your Radio service man today.

**RMA Statement on Television**

By unanimous action the board of directors of the Radio Manufacturers Association, in its annual convention at Chicago, authorized President A. S. Wells to make the following statement on television for the association and the industry:

The membership of the Radio Manufacturers Association includes practically all of the U. S. makers of television sets.

No group has so great a stake in the development of television. No group has a greater faith in the future of this art, or a firmer belief in its eventual growth from its experimental stage to that of one of the country's greatest services.

They would like to present television to the whole country, but because of the many problems involved it will be a long time before such a reality can be achieved.

They feel that this statement is necessary because of the nation-wide interest in this matter; because television has suffered from over-statements; and because the inauguration of television in New York may arouse false and ungrounded hopes in the minds of the people throughout the country.

**FAR OFF FOR MOST**

As a matter of fact, television is something that those living in New York may now have in a limited way, and a few additional stations are in prospect at the present time, while others will probably develop when a solution to the financial side of such broadcasting can be found. In all probability, however, over 90 per cent of the geographical area of the United States will not be served for some time to come, for the economic questions are serious ones and will have to be solved by broadcasters in the future.

Even where television is available, it must be remembered that for technical reasons it can only be received to the optical horizon. The average useful reception distance from the antennae on top of the Empire State Building in New York (the world's tallest building) is only fifty miles. This means that the horizon, or useful distance from any building or mast less in height than the Empire State Building will be considerably less than that available in New York.

**EXPERIMENTAL BASIS**

It must also be remembered that television broadcasting is on an experimental basis. The experimental character of such broadcasting, or telecasting, as it is properly called in television, means that the program will be on a trial basis, and until experience has been gained in the kind of programs that are of real service to the public, they cannot be broadly duplicated over many stations. Therefore, these programs for some time to come will, of necessity, be limited at best to a few hours a day.

Even where television is available, or may become available, it must be considered as a supplemental service to radio broadcasting, and for that reason will not render the modern radio receiving set obsolete any more than an aeroplane renders the modern automobile obsolete. These are and will be different types of services.
Remote Control Receiver

The RCA 5X5 is a combination super-het receiver, tuning 540-1,720 kc., and remote-control unit. A phonograph input jack makes it possible to use the receiver as an amplifier or a wireless record player.

Most interesting feature of the circuit is the remote control system. One half of the twin-triode, 12SC7, functions as a TNT oscillator at a frequency, which is adjustable between 540 and 990 kc. A control switch in the rear of the chassis puts plate voltage on this oscillator when this switch is in the "remote" position, and at the same time shunts the secondary of the output transformer through a resistance of five ohms and opens the voice-coil circuit. The remainder of the receiver circuit functions normally with the switch in the remote position and the audio frequency voltages derived from any signal that happens to be tuned in by the 5X5 will modulate the 540 kc. oscillator, the 35L6GT being the modulator tube. The modulated RF is connected to the power line through a tuned circuit.

If nearby receivers connected to the same power line are tuned to the frequency of the control oscillator, the station which has been tuned in on the 5X5 will be heard in the remote receiver. The power line filter-coupler serves to keep RF out of the remote receiver power supply and to give better coupling between the control oscillator and the input circuit of the remote receiver.

Television Books in NRI Course

In line with its policy of maintaining a complete and up-to-date course, the National Radio Institute of Washington, D. C., announces that a new series of text books concerning television theory and practice has been added to the training in radio and television which all N.R.I. students receive.

The following titles of these text books give a general idea of the subjects covered:

Requirements of a Television System
The Theory of Light
Geometric and Electronic Optics
Uses for Optics in Electronics and Television
Practical Electronic Control Equipment
Essential Circuits in a Television Receiver

Cabinet for Servicemen

Dumont Electric Co., 514 Broadway, New York, N. Y., have announced a new plan whereby dealers and servicemen may obtain a metal cabinet for carrying their stock of small hardware and parts. The cabinet has six drawers, each divided into three sections and is so constructed that it may be interlocked with other cabinets, making it possible to construct a master unit comprising four to 10 cabinets.

Dumont is giving the cabinets free to servicemen purchasing 100 electrolytics through their jobbers at regular discounts. It is not necessary for the serviceman to purchase the entire 100 at one time.
G-E Model GA-62
Auto Radio

Mechanical push-button tuning with a 2-gang condenser is used in the G-E GA-62 auto radio. A total of 6 tubes is employed in a superhet circuit employing a radio-frequency amplifier stage.

Somewhat unusual is the use of an untuned transformer or coil between the 6K7 r-f tube and the 6A8 converter. This untuned stage makes it possible to have an r-f amplifier in a 2-gang receiver.

The I.F. is aligned in the usual manner at 455 KC. At 1,400 KC the oscillator trimmer and antenna trimmer on the condenser gang are adjusted for maximum signal output.

With the oscillator tuned to 600 KC and connected to the antenna terminal through a 100 muf. condenser, the antenna paddler is peaked while rocking the condenser gang back and forth through resonance. The paddler is left at the adjustment giving maximum signal.

After installation in the car, the antenna paddler should be adjusted for maximum output when the set is tuned to a weak signal near 600 KC.

For ease in tracing the circuits the AVC is indicated by a line of dashes and dots, the negative bias by a line made up of a dash and 2 dots. The B plus is an extra heavy line, while the arrowheads show the signal path.

Insulation at High Freqs

The popularity of short wave receivers and the introduction of television increases the importance of insulating materials used in antennas, coils, tube sockets, etc. When installing antennas and other parts subject to high frequency currents, an insulating material suited for the job should be used. For outdoor service, as antenna insulators, a low moisture absorbing material is necessary. In general, the lower the power factor rating of a material, the better the insulator it is for high frequencies.

For purposes of comparison, the following table gives some of the more important characteristics of the common insulating materials.

<table>
<thead>
<tr>
<th>Material</th>
<th>Dielectric Constant</th>
<th>60 cy. 1 kc. 1 mc. 24 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fibre</td>
<td>4.5</td>
<td>6.9</td>
</tr>
<tr>
<td>Glass (crown)</td>
<td>6.2</td>
<td>1</td>
</tr>
<tr>
<td>Glass (pyrex)</td>
<td>4.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Mica</td>
<td>7.3</td>
<td>0.03</td>
</tr>
<tr>
<td>Mica-x</td>
<td>6.8</td>
<td>0.6</td>
</tr>
<tr>
<td>Bakelite (pure phenol)</td>
<td>5.2</td>
<td>1</td>
</tr>
<tr>
<td>Bakelite (yellow phenol)</td>
<td>5.3</td>
<td>2.5</td>
</tr>
<tr>
<td>Porcelain (vitreous)</td>
<td>6.5</td>
<td>2</td>
</tr>
<tr>
<td>Porcelain (crystalline)</td>
<td>6.2</td>
<td>2</td>
</tr>
<tr>
<td>Quartz fused</td>
<td>4.2</td>
<td>0.03</td>
</tr>
<tr>
<td>Rubber, hard</td>
<td>2.3</td>
<td>1</td>
</tr>
<tr>
<td>Steling</td>
<td>6.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Shellac</td>
<td>2.5-4</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Duvall Heads RSA

Elected as National President of RSA was George F. Duvall of Brooklyn, N. Y. Mr. Duvall has been a serviceman since before the war, served as president of Metropolitan N. Y. chapter in 1938 and 1939. He is now manager of Television Technicians, Inc. His company is comprised of a group of former servicemen now doing a fine job of television antenna installation in the New York area. Duvall succeeds T. P. Robinson, Dallas, Texas, who served two terms as first National President of RSA.

In his inaugural address to the members of RSA gathered at their Convention in Chicago, June 16-17, Mr. Duvall said:

"Our organization is the result of cooperation; cooperation between servicemen, cooperation with the sales managers clubs, the RMA, the trade journals, and other branches of the radio industry, and now cooperative action in the RMA-NAB campaign for the betterment of radio. Indeed, that word 'cooperation' is a grand word, a word of great potentiality, whereby servicemen gather together in mutual interest and for mutual benefit, and because of that cooperation between servicemen are invited to participate in cooperation with other branches of the radio industry, to the mutual benefit of the entire industry as well as the serviceman. Cooperation, then, is the foundation of RSA."
**Andrea Servicemen's Meeting**

Three hundred metropolitan New York servicemen were present at a general meeting called recently by the Andrea Radio Corporation for the purpose of explaining a cooperative television training course.

The importance of correct antenna installation and television receiver placement was emphasized by Mr. B. Sleeper, district sales manager. Because of highly individualized reception conditions, no definite rules were stated for the "perfect antenna installation." Servicemen were urged to give careful consideration and sufficient time to this problem. Good intelligent workmanship can command a better return in the television field, said Mr. Sleeper because of the greater cost of the serviced article. Andrea will offer basic technical training to the metropolitan servicemen under two plans. First plan consists of a course of six lecture-demonstrations on the construction of a television receiver. The second plan calls for the serviceman to construct his own kit under technical supervision at the same six-session lecture course.

**RSA News**

At the annual board meeting of the Radio Servicemen of America during the Chicago Trade Show, George Duval, New York City, was named president.

Elected vice-president for 1939-1940 was Kenneth A. Vaughan, Johnstown, Pa.; Donald H. Stover, Freeport, Ill., and Lee Taylor, Carnegie. They were re-elected secretary and treasurer respectively for the fiscal year 1939-40.

New RSA Directors seated during the Convention were: Frank L. Clark, Nashville, Tenn.; Winston B. Jones, Washington, D. C.; Fred Olson, Green Bay, Wis.; Ingvar Paulsen, Roxbury, Mass.; Norman W. Smith, Jamestown, N. Y.; Carl Williams, Phillipensburg, N. J.; George D. Wooley, Rock Island, Ill.


Danville, Ill.—A radio program donated as long as material can be furnished affords an excellent opportunity for RSA to acquaint the public with its services.

**Our Miami Beach Cover**

The pictures on this month's cover illustrating "New Models and Specifications." was taken especially for Radio Today by Steve Hannigan, well-known publicity director for Miami Beach, famed Florida resort. The gentleman with the pleasant task of finding the models' "specifications" is Karl Hinsdale of Hannigan's staff. The five pictures from left to right are: Edyth Stanley, Elaine Carraway, Lorraine Barnhill, Emma Steele, Bernice Garri-gus.
SERVICE NOTES

Anthony Berumen, owner of the Broadway Radio Shop, 1508 Broadway, San Antonio, Texas, believes in making things handy for himself when he works, in order to save his nerves and time as well.

All the parts for a special board with holes in it where he can stock tubes for which there is a great call, and this simplifies things when he is testing, etc. Also, he has strung strips of packing wire above and below these tube boards. On the top packing-case wire, tube prongs will fit over very nicely and keep from falling.

On the low two wires, also below the tube board, he has small boxes filled with parts, and these boxes rest on the lower wire and against the upper one to keep them in place and handy when Berumen wants small parts, etc.

"This arrangement has saved us a lot of time and inconvenience," says Berumen. "No one likes to be getting up from a service bench continuously, to run to get a tube or some small part. Packing-case wire is fairly strong and can be used at the average service bench very nicely in this way."

BOOK REVIEW

Audel's Radioman's Guide


A new 766 page handbook for the radio-electrician, and student covers the field of land, air, and marine radio, television and modern servicing.

A section of the guide devoted to basic fundamentals, provides the necessary background for covering the more advanced material. A series of review questions and their answers tests the reader's progress.

The subject of receivers is built up from components to the complete diagram. Automatic frequency control, push button tuning, and remote control systems are explained with diagrams, drawings and photographs.

For sound men, there is a chapter on PA systems and phonograph pickups.

A section on marine and aircraft radio, including the radio compass, blind-landing beam, and direction finder covers this new and important field. Electronic television systems are well explained and illustrated.

Much space is devoted to testing methods and equipment. The wiring diagrams for modern test instruments are shown and series of radio troubles and their cures provide valuable pointers for the serviceman.

RCA to Build and Sell Chanalyist

The manufacturing and sales rights to the Rider chanalyist and volt-ohymst have been acquired by the RCA Mfg. Co. from Service Instruments, Inc. This is a step in the RCA policy to minimize obsolescence in the service instrument field by offering universal equipment with a long-range use.

Two Way Television

A two-way television system using one cathode ray tube at each end, has been patented by Allen B. DuMont Labs, Inc. The heart of the system is a cathode ray tube using a photo-sen-

sitive surface and fluorescent screen in the same glass envelope. A common electron gun serves both surfaces, switching of the stream being either manual or automatic. Previous two-way systems involved the use of two tubes, one receiving and one transmitting at each end.

JULY, 1939

A. Berumen at his work-bench

A unique service bench layout at Herring Radio and Television Service, Columbia, S. C.
NEW SERVICE EQUIPMENT

Manufacturers' products to make the serviceman's job easier

**Graphic Tube Checker**

**Dial Lights**
* A line of eight dial lights covering most replacement needs are packed in cartons of ten lamps each. Arcturus Radio Tube Co., 720 Frelinghuysen Ave., Newark, N. J.—Radio Today.

**Tube Tester**
* Counter or portable tube tester tests all newest types of radio and television tubes including 35, 50, 75, 85, and 117 volt filaments. Tests locotals, bantams, gas rectifiers, ballast, electric ray, thyratrons, cathode ray tubes and pilot lights as well as remote radio control units, etc. Model 440. $32.95 net. Triumph Mfg. Co., 4017 Lake St., Chicago.—Radio Today.

**Non-corrode Soldering Iron**
* Heavy duty soldering iron with new type element retains heat in lower chamber. Will not corrode or freeze. Tip is of specially drawn copper. All outside metal chrome plated. Comes with 8 foot rubber covered cord and plug. Approved by underwriters. Available in 100, 125, 150 and 200 watts 110-120 volts AC or DC. $3.50 and $4.90 net. Albert F. Ross & Co., 2341 Wolfram St., Chicago.—Radio Today.

**Service Instruments**
* Vacuum tube voltmeter with high-impedance, low-capacity input uses a 955 tube at the end of a 4 inch cable. Measures AC volts to 150 and DC volts to 7,500. Also available is mutual conductance tube tester combined with volt-ohm-milliammeter and condenser checker Hickok Electrical Instrument Co., 19514 Du Pont Ave., Cleveland, O.—Radio Today.

**Television Tester**
* Safe high voltage measuring instrument has 2,500 & 10,000 volt ranges AC or DC and 50, 500 & 5,000 microamps DC. Meter and terminals are set below metal panel. DC sensitivity, 25,000 ohms per volt, AC sensitivity, 5,000 ohms per volt. Triplet, Elec. Instrument Co., 193 Harmon Ave., Bluffton, O.—Radio Today.

**Electronic Volt-ohmmeter**
* Electronic volt-ohmmeter with total of 12 scales has voltage range of 0.1 to 6,000 volts and resistance range of 0.1 ohm to 1,000 megohms. Input resistance is 200 megohms on all voltage ranges above 6 volts and 40 megohms on ranges below 6 volts. Model 660. Radio City Products Co., 88 Park Pl., New York, N. Y.—Radio Today.

**Safety Blow Torch**
SHORT WAVE CONVERTER FOR CAR RADIO

Can be attached to any car radio. Has on and off switch. Does not affect the reception on the standard broadcast bands.

MODEL 600—Covers 40, 31, 35, 20, 18, and 16 meter bands. Designed for reception of American and foreign short wave broadcast. Especially adapted in tropical countries and the more remote parts of the world. Distance range 5,000 to 10,000 miles. LIST PRICE $12.50.

MODEL 700—Long wave converter covers 135 to 410 kc. Used in the U.S. to receive government weather reports, and in cars and boats of the water front districts. LIST PRICE $24.95.

For Use of Police and Other Law Enforcement Officers

MODEL 100-A—A police converter with single metal tube and triple variable tuning condensers. Covers 1,500 to 2,600 kc. LIST PRICE $12.95.

MODEL 200—Police converter with variable condenser and illuminated dial. Covers 1,500 to 5,500 kc. LIST PRICE $17.95.

MODEL 500—Police converter with two metal tubes, variable condenser and illuminated dial. Very sensitive. Has exceptional distance range. LIST PRICE $21.95. WITH AEROPLANE DIAL $23.95.

MODEL 800—Police converter with two metal tubes and triple tuning condensers. Covers 1,500 to 2,600 kc. Has exceptional distance range. LIST PRICE $15.95.

MODEL 900—Police converter with one metal tube and double tuning condenser. Covers 1,500 to 2,500 kc. Has fair distance range. LIST PRICE $7.95.

Jobsbers and dealers wanted.

ABC RADIO LABORATORIES
3334 N. New Jersey Street Indianapolis, Indiana

YOUR SHIP COMES IN/

...BRINGING A CARGO OF EXTRA PROFITS
from the ARCTURUS EQUIPMENT DEAL!

- Signing up for an Arcturus Equipment Deal means Full Speed Ahead to better tube business! Arcturus Tube quality, the completeness of the Arcturus line and the sales-pulling Arcturus Dealer Helps will help you increase your regular business—pave the way to a more profitable tube and service business.

Then too, by taking advantage of the Arcturus Equipment Deal, you can equip your shop with the newest, most modern store and testing equipment—at almost no cost to you! No other Equipment Deal on the market today gives you such liberal, easy terms—Lower Down Payments. Standard Tube Prices. Low Tube Requirements. The Latest Models of high-quality equipment, a wide selection of valuable, useful items that you need every day.

NEWEST EQUIPMENT NOW AVAILABLE!

The recently announced models of famous makes of store and shop equipment are now included in the Arcturus Deal! Take time NOW to mail the coupon below for complete details about the Arcturus Plan. Get started now to get your share of the EXTRA PROFITS Arcturus dealers enjoy!

ARCTURUS

TRANSFORMERS AVAILABLE FOR TELEVISION!

JUST 8 MODELS for 90% of ALL RADIO SERVICE CALLS . . .
Including Both Power and Audio Transformers

- For $18.93 a service dealer can stock 8 models of Halldorson Transformers that will answer 90% of all radio service calls covering both power and audio requirements.

And remember, the design of each transformer covers the requirements of all the makes of sets for which it is intended. When the investment is so low, why not be prepared to give prompt service with the outstanding Vacuum Transformer line.

Write for details!

Halldorson Vacuum Transformer
THE HALLDORSON COMPANY
4500 Ravenswood Ave. Chicago, III.

JULY, 1939
YOU'LL WITH TUNG-SOL

If you operate an established radio service business...can turn over a price-protected tube stock at least three or four times a year...have the setup to cash in on helpful advertising displays...and a reputation for maintaining standard prices...you'll "CLICK" with Tung-Sol.

This means a profitable franchise—selling to a market free from conflict with already established Tung-Sol dealers—plus an adequate supply of tubes without buying them.

* * *

IF YOUR BUSINESS FITS THIS "PICTURE" WRITE US TODAY

TUNG-SOL LAMP WORKS, Inc.
Dept. C Radio Tube Division

TUNG-SOL VIBRATION-TESTED RADIO TUBES

SALES OFFICES: Atlanta • Chicago • Dallas • Denver • Detroit
Kansas City • Los Angeles • New York. General Offices: Newark, N. J.
7940 Models and Specifications

Number

Cabinet

Model

List
Price

Style

Tubes

RP-1
RP-2
RP-3

734x1334x734
6x1034x534
7J4xl33 4 x734
10x1334x11
7x1234x834
8x1434x11
13x13x1334
34x2634x14

Port
Port
Port

PRP
PC
PC
PC
PC
PC
PC
PC
PCA
PCA
PCA
PCA
PCA

40-507
40-508
40-509
40-510
40-516
*Wireless record player

Wave Power
Bands Supply

3^x10x10
534x14x13
6x1334x14
34x3134x17
35x3234x16
3434x3334x173 1
38x4034x21
38x403^x21

4

1

4
5

2

4

1

1

5

5
6

6

6
2
2
2
6

2
2

6

3

8

8

3

12
14

7

3

1

3

RCA—RCA Mfg.
9TX31
5X5
5X5 IV.

TRK-5

TRK-9

450.00

TRK-12

600.00

5Q55

9TX50
40X50
40X51
40X52
40X53
40X54
40X55
40X56
40X57
96X1
96X11

W
W

T-64
T-80

96E2
U-8
U-112

BT-40
R-98
K-60
K-80
U-121
U-125
U-30
U-129
U-50

94BP1
94BP80
U-123
U-25
U-26

R-93B
R-100

M-50
M-60
M-70
TT-5

EP

S

15x15x83^
13x834x9
8J4xl3x8}4

Port
Port

Co ., Front

9.95
14.95
16.95
29.95
18.95
16.95
16.95
14.95
15.95
16.95
14.95
16.95
16.95
14.95
19.95
39.95
49.95
69.95
19.95
39.95
14.95
79.95
49.95
69.95
79.95
175.00
185.00
185.00
69.95
16.45
26.45
129.95
149.95
165.00
14.95
14.95
24.95
29.95
44.95
199.50
295.00

W

Type Features

T
T
T
T
T
T
T
T
T
T
T
T
T
T
T
T
T
T
T
T
T
T
Con
Con

Con
Con
Con
Con
Port
Port
Port

PCA
PCA
PCA
EP
EP
A
A
A
TELT
TELC
TELC
TELC

&

8

s

;

>

9«xl4J4xl8}|
9x634x12
9x12x634
34x17x3034
34x3034x17
35x1634x3334
534x834x12

534x8^x12

J.

5

3

AC

1

5

5

1

5
5
5

1
1
1

5
6

2
2
3

AC
AC
AC
AC
AC
B
AC
AC
AC
AC
AC
AC
AC
AC
B
B
AC
AC
AC
AC
AC

6
8

5

3
1
1

5

4

1

5
8
8
5

8

10
10

8
8

5

'3

3
1

3
3
3
3

4
4
6
8
8

5
8
8

'5

'5

6

5
5

6x6x1034
6x6x1034
9x6x234
1634x1934x19
4334x2934x1834

24

'6

4734x3134x2434

36

9

4034x3434x20

36

9

7
16

j£

ta'

TA
TA
TA

TA-IA
TA-IA
TA-IA
IA
IA

Philco Model 501

EE

4
4

4
5

AC/DC 4
AC /DC- 4
AC/DC 4
AC/DC 4
AC/DC 4
AC/DC 4
AC/DC 4
AC/DC 4
AC/DC 4
AC/DC 5
AC/DC 5

1

5

6

IA
IA
IA

2

3

6
6
12

5
5
4
8
12
12
12
12
12
12

8

4
5
12
12

12

B
B
B

i
1

PW
PW

15
15

P. 28-30

.

AC/DC
AC/DC
AC/DC

1

1

8

EE
EE
EE
EE
EE

i2
12
12
12
12

AC/DC

Ad\

5
5

6

AC
AC
AC
AC
AC

AC
AC DC

2
3

Cooper Streets, Camden, N.
5
5x834x4M

5
6
6
6
8
6

EE
EE
TM
EE

AC/DC
AC/DC
AC/DC
AC/DC
AC /DC
AC DC

4

5x834x43i
5x834x434
934x1334x9
834x11x634
734x534x9
734x534x9
734x534x9
734x534x9
734x5? 4 x9
734x534x9
734x534x9
734x53 4 x9
734x734x11
734x734x11
1334xl4J4x9
14x1634x10
22x133^x243^
634x15x834
11x1534x13
634x9x434
1434xl9 4 xl4
38x2534x1234
4234x28x14 4
34x17x2534
34x3034x1634
34xl7x36J4
35x3334x17

PM
PM
PM
PM

B
534
B
5
B
534
B
534
AC/DC 4
AC/DC 4
AC
5K
AC
10

York, N. Y.

,

54.50
49.50
64.50

Special
Size

*

PORT-O-MATIC— Port-o-matic Corp., 1013 Madison Avenue New
2434xl5> 2 xl0
210F
PRP
8
2
S125.00
212F
145.00
PRP
2434x1534x10
2
8
2434x15^x10
250F
165.00
PRP
3
'4
90F
99.50
EP
23x1534x10
120F
125.00
EP
23x1534x10
6
PRP
21x15x8
80F
89.95
2
50F
18A
25A

Radio Today

Buttons

26.45
17.45
36.45
46.45
25.00
35.00
59.95
79.95
19.95
25.00
29.95
119.95
139.95
185.00
350.00
395.00

40-504
40-501
40-502
40-503
40-506

Push

n)

Speakei

of

Station

Size

HX W XD

PHILCO--Contd.
40-74T
40-81T
40-88T

(continued from page

AC
AC
3 Radio
5 Tel. AC
3 Radio
5 Tel. AC

5 Tel.
5 Tel.

12

12
12

EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
EE
PM
EE
EE
EE
EE
EE
EE
EE
EE

PM
PM

EE
EE
EE

EE
EE
EE
EE
EE
EE

IA

RC
RC

^^^— & to

'

IA
IA
IA
IA
IA
IA
IA
IA

to

•

-

Port-o-matic

—

Model

--w**

USW— 17C

aa'

PW-734

aa'

'.

.

.

PW-35
PW-7
PW-714

v"

HF
HF

=is

RCA

3Rad

Model T64

*Less Batteries

SENTINEL —Sentinel Radio
194UTW
T
194UTI

195UTN
195UTI

195UTWD
193UTW
193UTI

193UTWD
196AT
198AT
175BT

175BTW
168BT
176BT
200XT
186BT
189LT
196AT-CB
193UC
198AC
199AC

175BCT
168BC
176BC
186BC
189LC
196AC-CB
199AC-CB
175BT-CD
175BC-CB
178BL
180-XL

JULY,

T
T
T
T
T
T
T
T
T
T
T
T
T
T
T
T
T

Con
Con
Con
Con
Con
Con
Con
Con
Con
Con

PC
PC

Port
Port

1939

Corp., 2222 Diversey Parkway, Chicago,
1
5
5
1
5
4
5
4
1
5
4
2
6
2
6
2
6
1
6
6

4
4
5
6
5

2
1

1

4

2
2
1

5
6
6

2
2

6
7
11

2
6

6

2
3

4

5
6
5
6
6
6
4
4
4
5

2
4

2

2
2
1

6

3
1
1
1
1

111.

AC, DC

AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC
AC/DC

AC
AC

B
B
B
B

ABD

B
B
AC
AC/DC
AC

AC

B
B
B
B
B
AC
AC
B
B
B

ABD

4

4
5
5

5
5
5
5

6

6
5

6
6
6
6

6
6
6
8
10
12
8
10
10

10
10
10
12
6
10
5

5

EE
EE
EE
EE
EE
EE
EE
EE
EE
EE

PM
PM
PM
PM
PM
PM
PM
PM
EE
EE
EE

ta'

TA
TA
TA
TA
TA
TA
TA

r
if

f

....

|
l-~

ta'

TA
TA
TA
TA
TA

PM
PM
PM
PM ta"
PM TA
PM TA
PM TA
PM TA
PM TA
PM
PM

(Continued on pg. 49)

RCA

Model U-121

45


**New Sound Products**

**Cinema Microphone**
- Crystal or dynamic mike in several impedances with special application to stage and orchestral use has wide-range pick-up. Supplied in golden gun-metal finish. Comes with 25 foot cable. Universal Microphone Co., 424 Warren Lane, Inglewood, Cal.—Radio Today.

**Deluxe Amplifiers**
- 13 tube, 40-62 watt Amplifier has 4 mike input channels with overall gain of 129 db, 2 phone channels with 84 db gain. Uses output meter with watts and DB balance and treble equalizer and switch-controlled multi-impedance output transformer. Model A-70-R list $102.96 less tubes. Also Model A-92-R same as A-70 but with 70-102 watt output. List $184.50, less tubes. Transformer Corp. of America, 69 Wooster St., New York, N.Y.—Radio Today.

**Mobile Amplifier**
- Streamline 18-25 watt, AC-DC mobile amplifier and system has built-in power supply. Instantaneous change-over, optional phono turntable and crystal pickup. Three input channels, mixing facilities, tone control, and output impedances of 2 to 500 ohms. Amplifier has six tubes, max. gain 122 db, separate "off-on" AC-DC switches, standby and phono motor. Amplifier only with phono attachment, less tubes, Model A-30 MR, $89.80 list. Complete sound systems with 2-12 inch P.M. speakers, 2-parabolic reflector horns, dynamic hand-mike, ready to operate, $155.12. Transformer Corp. of America, 69 Wooster St., New York, N.Y.—Radio Today.

**20 Watt PM**

**Magnetic Cutter**
- Magnetic recording cutter with flat response from 500 to 5,000 cps. Standard Impedance, 15 ohms, weight, 7 oz. Sound Apparatus Co., 150 W. 46th St., New York City.—Radio Today.

**"Elbow" Sound Projector**
- Dual exponential horns mounted with 90 degree included angle gives wide range sound coverage. Utilizes both sides of speaker cone, increasing efficiency. Model LW; 4 sizes; 6 to 12 inch speakers. University Labs., 155 Chrystie St., New York, N.Y.—Radio Today.

**Dynamic Microphone**
Crosley Bantam Auto

The new Crosley automobiles were introduced in Cincinnati at the Music Hall with Junior League girls driving cars about the city. Those in charge of the exhibit said that hundreds of prospects were booked by Crosley dealers in the Cincinnati territory who cooperated in conducting the show. It was also reported that a large number of orders were booked, and that the dealers were enthusiastic over the reception.

The car comes in two models, a two-passenger convertible coupe at $325.00 and a four-passenger convertible sedan with additional equipment for $350.00. Prices are f.o.b. Richmond, Ind.

N. W. Ayer Now Farnsworth Ad Agency

Announcement is made by Ernest H. Vogel, vice president of Farnsworth Television and Radio Corp., that N. W. Ayer & Son, Inc., has been appointed to handle advertising and public relations for the company. Accordin,.

Mr. Vogel also states that the company's plant at Fort Wayne is currently in production of the new Capehart line of Panamuse instruments, and that the Marion factory will soon be producing the new line of radio and radio-phonograph combinations. Initial shipments of Farnsworth models are planned for the latter part of July.

* * *

Enos P. Schaffer, advertising manager of American Steel Export Company, export department for Philco Radio & Television Corp., has been appointed as an instructor for the evening school classes of the Marketing, Advertising and Selling Division of Pace Institute, New York.

Dr. Ralph L. Power, ad manager for Universal Microphone Co., Ltd., Inglewood, and American representative for the Maquarie network of Sydney, sails for New Zealand and Australia early in August on a four months' business trip.

Streamline Mikes

* Crystal and dynamic mikes for low-cost PA, home recording, and call systems are finished in satin chrome case. Crystal model 7-A, $16.50. High impedance dynamic model 9G, 9S$; also available in 35-50 and 200-250 ohms. Shure Bros., 225 W. Huron St., Chicago.—Radio Today.

Chimes Amplifier

* Line of sound amplifier for reproducing chimes, special recorded music, and organ recitals from church, school, and cemetery towers. Offered in “units” leading to a complete installation including chimes, vibro-harp, etc. May be used in conjunction with any organ. Selectone Mfg. Co., 108 S. Calvert St., Baltimore, Md.—Radio Today.

Contact-unit Strap


55 Watt Amplifier


Crystal Pickup

* Single pickup unit features spring axial cushioning, bakelite cartridge assembly, torque crystal element, waterproof crystal coating and massive die-cast arm. Model AB-8, list $10. Astantic Microphone Lab., Inc., 830 Market St., Youngstown, Ohio.—Radio Today.

You may not be able to see the difference, but you can HEAR the difference in

OPERADIO SPEAKERS

Speakers by Operadio have been used by practically every large set manufacturer and have withstood the test of time and service.

You can’t be more natural than that you should choose these industry accepted speakers for replacement or public address. Send Name for Our Speaker Catalog Address Dept. R. T. 7

Export Division
145 West 45th St., New York

The Outstanding Name
in Speakers, Public Address
Equipment and Intercommunicating Systems

All Operadio Sound Systems are licensed by Electric Research Products, Inc., under U. S. patents of the American Telephone and Telegraph Company and Western Electric Company, Incorporated.

Opposite page:

A GOOD NAME GOES A LONG WAY

One of the outstanding superlatives of Ken-Rad Radio Tubes lies in the unusual skill in assembly which makes for dependability in use. KEN-RAD TUBE & LAMP CORP., O\\'WINSBRO, KY.

Export Dept., 116 Broad St., New York, U. S. A.
Cable Address: Mithborne, New York

JULY, 1939
Like a piece of fine furniture this matched, burr walnut cabinet harmonizes with the finest surroundings.

NEW 30-WATT FEATURING
QUALITY OF PERFORMANCE
BEAUTY OF DESIGN
FLEXIBILITY OF APPLICATION

The four-stage circuit with inverse feedback insures "distortionless" operation at full output with this amplifier. Five controls in the specially designed glass control panel are illuminated by the new "Edge Glow" method. These five controls are: two microphone, one phon, one bass tone control, one treble tone control. Output impedances match almost any speaker combination. Provides 26-watt speaker field supply.

Model T-25W30 (less tubes) $110.00 List

See your parts distributor or write factory for free Catalog No. 600-D on the full line. Lists eight models including a new 28-watt mobile unit.

RSA Membership is as Necessary to You as Your Test Equipment

RSA is the only organization of Servicemen that has the sponsorship of the Radio Manufacturers' Association and the Sales Managers' Clubs, as well as the endorsement of the entire industry. RSA has sponsored over 200 service meetings the past year in cooperation with manufacturers and engineers.

RSA has members in every State in the Union — and in most foreign countries.

RSA provides service diagrams, advanced circuit notes for members each month, technical help on service problems, access to its National Speakers Bureau, advanced service courses to mem-

MAIL THIS COUPON NOW!

RADIO SERVICEMEN OF AMERICA, Inc.
304 S. Dearborn St., Chicago, Ill.

Name ..................................................
Address ..................................................
City .................................................... State .....................
I am interested in RSA membership. Tell me about it........
I am enclosing $4.00 for National dues and initiation........
(Does not include Local Chapter dues where Local Chapters are organized.)

RSA is constantly developing new Ideas—New Services — and expanding old services. RSA will soon announce a plan to help members get more business.

Help yourself by joining RSA—Do It Now!

Let's Grow Together in 1939

RADIO SERVICEMEN OF AMERICA, Inc.
JOE MARTY, JR., Executive Secretary
304 S. Dearborn St. Chicago, Ill.
### 1940 Models and Specifications (Continued from pg. 47)

<table>
<thead>
<tr>
<th>Model</th>
<th>List Price</th>
<th>Style</th>
<th>Size</th>
<th>Number of Tubes</th>
<th>Station Buttons</th>
<th>Wave Bands</th>
<th>Power Supply</th>
<th>Special Features</th>
</tr>
</thead>
</table>

#### SETHCELL-CARLSON—Setchell-Carlson Company, 2233 University Street, St. Paul, Minn.

<table>
<thead>
<tr>
<th>Model</th>
<th>List Price</th>
<th>Style</th>
<th>Size</th>
<th>Number of Tubes</th>
<th>Station Buttons</th>
<th>Wave Bands</th>
<th>Power Supply</th>
<th>Special Features</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th>Model</th>
<th>List Price</th>
<th>Style</th>
<th>Size</th>
<th>Number of Tubes</th>
<th>Station Buttons</th>
<th>Wave Bands</th>
<th>Power Supply</th>
<th>Special Features</th>
</tr>
</thead>
</table>

#### SPARTON—Sparks-Withington Company, 2400 East Ganson Avenue, Jackson, Michigan

<table>
<thead>
<tr>
<th>Model</th>
<th>List Price</th>
<th>Style</th>
<th>Size</th>
<th>Number of Tubes</th>
<th>Station Buttons</th>
<th>Wave Bands</th>
<th>Power Supply</th>
<th>Special Features</th>
</tr>
</thead>
</table>

#### STEWART-WARNER—Stewart-Warner Corp., 1835 Diversey Parkway, Chicago, Ill.

<table>
<thead>
<tr>
<th>Model</th>
<th>List Price</th>
<th>Style</th>
<th>Size</th>
<th>Number of Tubes</th>
<th>Station Buttons</th>
<th>Wave Bands</th>
<th>Power Supply</th>
<th>Special Features</th>
</tr>
</thead>
</table>

#### STROMBERG-CARLSON—Stromberg Carlson, 160 Carlson Road, Rochester, N.Y. Adv. P. Cov. 4

<table>
<thead>
<tr>
<th>Model</th>
<th>List Price</th>
<th>Style</th>
<th>Size</th>
<th>Number of Tubes</th>
<th>Station Buttons</th>
<th>Wave Bands</th>
<th>Power Supply</th>
<th>Special Features</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th>Model</th>
<th>List Price</th>
<th>Style</th>
<th>Size</th>
<th>Number of Tubes</th>
<th>Station Buttons</th>
<th>Wave Bands</th>
<th>Power Supply</th>
<th>Special Features</th>
</tr>
</thead>
</table>

---

**Radio Today**

Sonora Model TW-49

Sparton Model 880

Stewart-Warner Model O1-5H7

Stromberg-Carlson Model 400S

---

**JULY, 1939**

---

**Radio Today**

Sonora Model TW-49

Sparton Model 880

Stewart-Warner Model O1-5H7

Stromberg-Carlson Model 400S

---

**JULY, 1939**
Cabinet Troubles
Due to Moisture

* "The radio cabinet, like the body of an automobile, is the first thing that meets the eye of the prospective purchaser of a radio set. Regardless of the merits of the receiver, if its housing is not attractive, the chances of making the sale are relatively small. More attention to the cabinet should be given by the men who sell, if the customer is to have permanent satisfaction and enjoyment of his set," declares N. P. Bloom, after twenty-five years' experience in cabinet manufacturing. Mr. Bloom recently organized the Castlewood Manufacturing Company, Louisville, Ky., of which he is president.

Up to the "crash of 1929," most console cabinets cost from $20 to $35. Today, the average price is somewhere between $8 and $9, and in forcing the price down to this level many of the fundamentals of good cabinetry have been violated. In place of %-inch sides and panels as used in former times, some radio cabinets today employ panels only 3/16 of an inch thick, resulting in a fragile cabinet with poor acoustical qualities.

With the use of panels which are too thin, comes the grief of cupping, warping, blistering and checking of finish. The tendency of moisture causes most of this. In cabinets to be used for export, particularly to hot, moist climates, all surfaces, even though hidden, should have a heavy moisture-proof sealer coat, and particular attention should be given to the sealing of edges of panels where cut-outs are made.
P. Boucheron, Farnsworth sales manager

Pierre Boucheron has been appointed general sales manager of the Farnsworth Television & Radio Corporation, Fort Wayne, Ind., according to an announcement by Ernest H. Vogel, vice-president.

Mr. Boucheron will direct sales and merchandising of the Farnsworth and Cepheus divisions, and will also supervise all advertising, and promotional activities of the Farnsworth organization. Mr. Boucheron, who for the past four years has been general merchandising manager of the Remington Arms Company, Inc., Bridgeport, Conn., brings to the new organization more than twenty years of sales, merchandising and advertising experience in radio and other fields.

A pioneer of radio, he started as a wireless operator in 1912. In 1916 he entered the employ of Montgomery-Ward as a sales engineer to specialize in electrical and amateur radio accessories. When America entered the war, he enlisted in the U. S. Navy for communications service, an interest which he has continued to the present day as a Naval Reservist with the rank of Lieutenant Commander.

After the war, Boucheron became editor of Radio News, and in 1920 was appointed director of advertising of the newly formed Radio Corporation of America. He held this and other sales and merchandising posts, including that of vice-president and general manager of Wireless Press, Inc., an RCA subsidiary, until 1935, when he resigned to join the Remington Company, a unit of the DuPont interests.

E. T. (Gene) Turney new sales and advertising manager of Kenyon Transformer.

Gene Turney, sales manager of Kenyon Transformer Co., reports that many new reps and jobbers have been appointed to take on the Kenyon line. Most recent jobber appointments include: Montgomery-Ward, Chicago; Allied Radio, Chicago; Newark Electric Co., Chicago; Burnstein-Applebee, Kansas City; Wholesale Radio Service Co., New York City; Aaron Lippman, Newark, New Brunswick and Patterson, N. J.

Recent meeting of Meissner sales reps at Meissner factory, Mt. Carmel, Ill. New products were discussed and equipment demonstrated.
Radio Dealers to Stage Exhibition

Radio distributors through the District of Columbia will display their latest models in station WJSS's reception room in Washington beginning July 10. Each week a different distributor will arrange an exhibit of his newest radios and accessories. Placards and advertising literature will be handed out and the WJSS receptionists will answer any questions visitors may ask. The exhibit will last indefinitely until every distributor has an opportunity to display his goods. Exhibitors will take turns in order of their alphabetical order of the trade names of their displays. Idea was advanced by WJSS general manager A. D. Willard, Jr., at a recent joint session of the NAB and RMA.

Stromberg-Carlson Television Shown in Kansas City

The first television demonstrations in Kansas City on a standard commercial receiver were made June 6th and 7th in conjunction with a presentation of 1840 Stromberg-Carlsons, sponsored by the Jenkins Music Co.

A Stromberg-Carlson No. 112-M Labyrinth Radio and Television Receiver was connected directly to camera and video amplifying apparatus supplied by First National Television, Inc. A pianist in a short recital was televised. The complete realism of music and pictures combined was applauded by all at the demonstration, according to Kenneth Gillespie, Stromberg-Carlson, Kansas City radio sales manager. Dealers from Kansas and western Missouri attended.

Another Stromberg-Carlson dealer showing was held a few days later in Oklahoma City.

W. G. H. Finch, president of the Finch Telecommunications Labs., N. Y. City, has announced that WOKO in Albany, N. Y., has concluded an agreement for use of Finch Facsimile apparatus and will go on the air as soon as it receives its FCC facsimile grant.

Other broadcasters using Finch facsimile equipment are WLW, WOR, WGN, WSM, WHO, WWJ, KSTP, WHK-WCLW, WSAI, WGH and WZXBF.

Joyce Discusses Television

Thomas F. Joyce, RCA Victor's vice president and advertising director, spoke on "Television and the Future of the Radio Dealer" at the tenth annual Western Radio and Appliance Trade Dinner in San Francisco on June 28. Over 800 radio and electrical appliance manufacturers, distributors and dealers, and department, furniture, hardware and specialty store representatives were reported attending the banquet which is held twice each year by the Western Furniture Exchange and Merchandise Mart.

Mr. Joyce will discuss the possibilities of television's future growth with dealer groups in Los Angeles, Portland, Seattle, Spokane, Salt Lake City, and Denver during his trip through the West.

Charles Robbins, foreign rep of Arcaturus Radio Tube Co., Newark, N.J., recently returned from an extended trip to South America then sailed for Europe. He expects to cover all of Europe, the Near East and South Africa—upwards of twenty thousand miles.

Howard J. Fairbanks, Pittsburgh division manager of Hygrade Sylvania Corporation since 1937 has recently been given charge of his company's Baltimore territory in addition to his present assignment and has already transferred his headquarters to Baltimore.

Du Mont Appoints N. Y. Reps

Six sales representatives to cover metropolitan New York and New Jersey territory for Allen B. Du Mont Labs are: Fred Kuezl, Manhattan; Arthur Lax, Brooklyn; William F. Walker, Long Island; Sidney Lane, Westchester; M. Burkham Meyers, Bronx; and Mark B. Lajoie, New Jersey.

Norman C. Hall has been appointed service manager for the Du Mont organization.

Charley Golenpa of Aerovox Corp. and Paul Ware of Ware Radio, Brookton, Mass., one of Massachusetts's leading parts jobbers.

$75.00 RETAIL...Quick Sales...Volume Profits

Here is your opportunity to get started in the lucrative health appliance field. Everybody is interested in health. Nearly every home a possible buyer.

DIATHERMY is not a fad, but a medically-proved method. Used and recommended by thousands of physicians. The MERIT is practical—proven in actual service. Hundreds of satisfied customers.

Full profit is yours. No trade-ins to cut your margin. Rentals very profitable—many result in sales.

Health equipment provides a great field for profit. Build up your "off" season with this new item. Write at once for Special Introductory Offer. You will find the MERIT sells readily at this low price. Hundreds of buyers waiting.

Proven Selling Plan Furnished. Costs nothing to investigate. Address

MERIT HEALTH APPLIANCE CO.
Manufacturers and Distributors
1303 S. Lorena Street, Los Angeles, Calif.

Claroast's Flying Salesman

It's 11 o'clock. Customer in Philadelphia wants some special volume controls by afternoon. Normally an impossible request, so off goes Al Cadwallader, Claroast's flying salesman, on the job. For Al simply goes to the nearby airport, hops into his plane, flies to New York, and in an hour or so is at the Claroast plant with the drawings and specifications. A couple of hours later he's back at the customer's plant in Philadelphia with the desired samples.

Al Cadwallader is in charge of special manufacturers' accounts in the Philadelphia territory, for Claroast. Several months ago Al trained for flying. He received his pilot's license in jig time, and today he flies everywhere on both business and pleasure. "You can't beat flying when it comes to serving radio customers who are in a hurry," says Al.
Diathermy Source of Profits for Radio Dealer

High frequency diathermy has been much in print lately, as the medical profession became more conscious of its efficacy in the treatment of some of the ills to which the human body is prone.

It is said that high frequency diathermy has proven very beneficial in the treatment of such common and chronic ailments as rheumatism, arthritis, neuritis, pleurisy, sinus, asthma, bronchitis, and the common cold.

The Merit Health Appliance Co., 1303 S. Lorena St., Los Angeles, Calif., make a portable diathermy set, simplified for home use, for which, at a retail price of $75, the manufacturer claims a vast potential market.

The merchandising of such apparatus can best be done by alert radio dealers in cooperation, or collaboration, with their local physicians.

Earl L. Hadley, advertising manager of the Philco refrigeration division, has joined Associated Engineers, Ft. Wayne, Ind., as vice-president. He will act as sales promotion and advertising counsel in his new connection.

W. L. Jones has been appointed national service manager by the RCA Manufacturing Co. Mr. Jones joined the RCA organization by way of the old American Marconi Company, one of the RCA predecessor companies in 1919. He was a marine radio operator until 1928, when he became a motion-picture field engineer with Photophone in New York. In the following year he opened and managed the Photophone installation and service office in Philadelphia. In 1931 he returned to New York as district service manager, becoming service manager of the Eastern Division four years later. In 1936 he was placed in charge of Photophone service contract sales, the next year moving up to head all Photophone service activities.

Television as Merchandiser

Bloomingdale's, New York City department store, in collaboration with Audio productions, Inc., and American Television Co., will present the first of a series of merchandising-television shows to be known as "Tele-sales" or "Television," during the early part of July according to an announcement by L. A. Hirschmann, vice-president.

Using a specially prepared motion picture the merchandising-movie will be scanned then conducted by coaxial cable to the kinets on other floors.

American Television Corp. plans to develop a television network of department stores which will use the "tele-sales" idea for national advertisers. Plan provides for stores to be equipped with the necessary apparatus and rates for the advertising to be based on clocked audits of customer circulation and number of stores in the network. American will provide the stores with two engineers to operate the studio and receiving equipment.

Aerovox Corporation, New Bedford, Mass., facing the largest jobbing business in its history, announces a peak stock of jobbing items ready for immediate shipment. For months past the new giant plant has been humming along not only producing items for current manufacturers' and jobbers' requirements, but also piling up a surplus for its jobber stockroom. Today thousands of feet of steel shelves are loaded down with neatly packaged items, so that jobber orders can be filled and shipped within 24 hours of receipt. Back-ordering has been reduced to a minimum even when orders call for the less common values. Meanwhile, a perpetual inventory and automatic re-ordering system insures constant replenishment of stock and fast turnover which provides exceptionally fresh items for the trade.

Dave Trilling, Andrea distributor, gets special information at Andrea Servicemen's television meeting from Dave Spector, left, and M.B. Sleeper, center.

If you're going to sell speakers

SELL CINAUDAGRAPH

If you're going to sell speakers sell Cinaudagraph. It's easier to make money the Cinaudagraph way. For one thing, you've got a complete line of quality-built indoor and outdoor speakers to offer. For another, Cinaudagraph speakers are priced economically. Finally, you've got the speaker line that was specified for 76 World's Fair installations, (including the Lagoon of the Nations and General Motors installations).

Make your next P. A. job a Cinaudagraph installation and watch your customer's reactions.

Description of the Cinaudagraph 27" electro-dynamic speaker installation at the New York World's Fair available on request. Also complete catalog describing the entire line of Cinaudagraph electro-dynamic and permanent magnet speakers from 5½ to 27".

We cordially invite you to visit our plant when you come to see the New York World's Fair. Call or write for guide.

CINAUDAGRAPH CORPORATION
Stamford
Connecticut

IT'S EASIER TO MAKE MONEY
the CINAUDAGRAPH way
The KonRad Tube & Lamp Corp., Owensboro, Ky., were recently notified by the French government that the Ministry of Post and Telegraph had adopted KonRad tubes as the only American tubes to be purchased by France for the coming year. Exclusive KonRad distributor in France is Etta Camile Dreyfus.

New rep for Selter-Carlson is Robert Mills, 2964 Gladstone Ave., Detroit, Mich. He represents the entire line in Michigan and Indiana.

Elliot-Lewis Co. of Philadelphia and Henry O. Berman of Baltimore are recently appointed distributors of the Stromberg-Carlson line of radios and radio-phonographs. The Elliot-Lewis Co., with headquarters at 2518 North Broad Street, Philadelphia, will handle the line in Philadelphia, New Jersey, Delaware and Maryland. Henry O. Berman will concentrate on the Baltimore area. Head offices of the company are located at 25 W. Baltimore St., Baltimore, Md. Other distributors announced are The Joseph Hornberger Co. of Reading, Pa., and the J. R. S. Instrument Co. of York, Pa.

Leon Adelman, jobbers sales manager at Cornell Dubilier, is making a tour covering the entire United States. The itinerary calls for a fast trip to the northwest then to Washington, California, Nevada, Arizona and Texas. The south and southeast will then be covered.

Through error, Samuel E. Eger, now representing Browning Labs, was reported in the June issue of Radio Today as formerly representing Utah Radio Products Co. and Webster Co. Mr. Eger has represented these firms for several years and is at present actively engaged as their representative.

John Altomayer, advertising manager of The Brush Development Company, Cleveland, for more than two years, has just joined the advertising agency of Gregory and Bolton, Inc., with offices in Cleveland and Youngstown, Ohio. In the capacity of account executive and technical consultant, the Brush Development Company advertising continues to be handled by Gregory and Bolton, Inc.

Larry E. Gubb, president, Philco Radio & Television, addressing Philco's national convention at French Lick, predicted an all-time peak for the coming year not only for Philco but for business as a whole. In making his statement, Gubb stated that Philco's dollar volume had increased more than two- and-one-half times over the past corresponding period. General radio sales were several hundred thousand dollars over those of the year before, with a corresponding increase in auto-radio.
New Booklets

Capacitor test instrument catalog gives features of capacitor analyzer, and capacitor decade boxes. No. 167A, Cornell-Dubilier Electric Corp., S. Plainfield, N. J.


Speaker baffle characteristics including frequency cut-off, dimensions, and sound projection angle are available in new catalog sheets, University Labs., 195 Chrystie St., New York, N. Y.

Battery replacement guides for all radio service instruments and portable battery receivers. Issued June 1939. Available on request from Burgess Battery Co., Freeport, Ill.

Products, hints on electrical machine maintenance, and definitions of electrical terms are included in the new catalog-handbook of the Ideal Commutator Dresser Co., Syenmore, Ill.

Interference filters and spark suppression devices for various applications are listed in catalog 166-A. Cornell-Dubilier Corp., S. Plainfield, N. J.

New test instruments including high voltage television tester and portable power analyzer are shown in a catalog and leaflet available from Triplet Electronics Instrument Co., 122 Main St., Bluffton, O.
Radio transformer replacement guide and catalog lists power, audio transformers, and filter choices for all radio receivers. Standard Transformer Corp., 1500 N. Halsted St., Chicago.

Booklet of new 1,100 series test instruments including tube tester, signal generator, and multi-meter. Superior Instrument Co., 156 Liberty St., New York, N. Y.


Alloy components and melting temperatures of solder and an English wire gauge table are available in a circular from Gardiner Metal Co., 4820 S. Campbell Ave., Chicago.

A 56-page catalog with complete listings of all RCA sound equipment has been announced by the Commercial Sound Section of RCA Mfg. Co. All items are indexed and cataloged with photographs, prices, specs, and descriptions. Included is a chart of six basic sound systems covering every standard application. Special sections are devoted to electric chime systems, recording and playback instruments, complete sound systems with single master control units and wired and wireless inter-communication systems. Also included is a directory of RCA sound jobbers.

Illustrated catalog of dials, name plates, and control knobs available from Crowe Name Plate & Mfg. Co., 3701 Ravenswood Ave., Chicago.


Coaxial transmission line and fittings leaflet showing line construction. Ionlantite, Inc., 233 Broadway, New York, N. Y.

JUST OFF THE PRODUCTION LINE!

THE FIRST 1940 WESTINGHOUSE
20th Anniversary Series RADIOS

This year, Westinghouse offers the finest line of radios to ever bear the Westinghouse name—the 20th Anniversary Series! Every model in the line Styled, Equipped and Priced to celebrate the first radio broadcast from Westinghouse Station KDKA in 1920!

They lead in Eye-Value! Exclusive styles created by America’s outstanding radio designers! Beautifully constructed cabinets of genuine, carefully-selected and matched grain veneers. Here is the appearance so helpful in boosting your sales in 1940.

They are equipped for excellent Performance! Truly high quality materials and precision manufacture give you results that back up your demonstration story convincingly . . . and will help you build customer satisfaction, goodwill, and repeat business.

As for prices . . . we know you’ll be enthusiastic! The 20th Anniversary Series enables you to offer tempting, hard-to-resist dollar values. Every model is created to be a leader in its price class and yet provide you with an ample margin of profit.

It will pay you to investigate the 1940 Westinghouse 20th Anniversary Radio Series Promptly! Phone your distributor.
New Stromberg-Carlson Labyrinth Radio with Carpinchoe Speaker
for only $99.95*

If ever a radio were built that is beyond competition, it is the No. 430-M. Into this model Stromberg-Carlson has poured exclusive features, beauty and value that make it the radio sensation of the year. It has Electric Flash Tuning with push buttons for favorite stations and one button for television and phonograph connection. .. new Slide Rule Dial. .. Bi-focal Tuning Eye .. Automatic Drift Compensator .. Separate Base and Treble Tone Control. But most important of all it has the patented Labyrinth and Carpinchoe Leather Speaker, features never before included in a radio at this price. It is equipped with 9 tubes.

MAIL THIS COUPON!

3 STROMBERG-CARLSON
HEADLINERS
MAKE STROMBERG-CARLSON
THE LINE TO HANDLE FOR
PROFIT-GIVING VOLUME SALES

A New Portable Radio that Reaches Out for Distance, only $29.95*

Gives Dealers
Volume Profit NOW!

Here is a portable radio that will build repeat sales. So unusually fine is its performance that everyone who operates it and hears it will be satisfied with no other. It has Beam Power Output that provides extreme sensitivity so that programs can be easily tuned in at points where most portables fail to get a signal. .. Dynamic Speaker that gives tone quality so natural it can be compared favorably to large home radios. .. new Light Weight, Long Life Batteries that assure months of care-free operation. .. built-in Loop Antenna with alternate connection for External Aerial that multiplies its usefulness. .. Compact Dark Blue and White Striped Airplane Luggage Type Case makes it smart and attractive in all surroundings.

New Automatic Radio-Phonograph for only $139.50*
Brings Flood of Orders

It's not hard to understand why the No. 420-PL has met with such success. Never before have you been able to offer prospects such an outstanding eye and ear value in an automatic combination. A volume profit maker if ever there was one!

*All prices f.o.b. factory.

MAIL THIS COUPON!

STROMBERG-CARLSON TELEPHONE MFG. CO.
614 Carlson Road, Rochester, N. Y.
Send full information on Radio's Finest Line.

Name_________________________________________
Street________________________________________
City___________________________________________
State_________________________________________
Programs that Help You Sell Radios: 1—Charley McCarthy & Co. (See p. 10)

PLAN NOW FOR A BUSY FALL! (See p. 12)
The Biggest News of the Year

READY AUGUST 31st
THIRD EDITION
MALLORY-YAXLEY
RADIO SERVICE
ENCYCLOPEDIA

Order from your
Distributor NOW

Keeps Pace With Progress!
Includes Vital Changes
That Help You!

Changes That Obsolete the 1st and 2nd Editions
Everything you want to know about *23,000 makes and models. All the dope on each set in one book—on one page—in one line.
The startling special low net price of the 3rd Edition MYE is Mallory’s contribution to every Radio Service Engineer. Again in one handy book—is up-to-the-minute, split-second reference to vital information you need every day. Proven the biggest help service engineers ever had—it continues to pay for itself over and over on every job you handle.

*200 Pages of Listings Alone
The tremendous increase in the number of different sets manufactured and sold to the public since publication of the 2nd Edition MYE has made it necessary to devote *200 pages to listings in order to accommodate the *23,000 makes and models you will have to work on. Every set listing is complete and in addition even gives the correct Rider’s Manual Volume and page number for instant reference to specific schematics if needed.

The Greatest Reference
Work Ever Published
Special Authorized Service Engineer’s Price $75c

Keep Pace with Progress!
Vital changes have taken place in set design and particularly servicing, during the last eighteen months—so that no longer is it possible to use old-time servicing methods. Mallory—alert to every change—foremost in many “original equipment” developments—has kept pace with the industry’s progress. That’s why Mallory is first to bring you dope on these vital changes so you, too, may profit through their daily use.

Don’t Delay!—Get Your Copy Today
Only from authorized Mallory-Yaxley distributors can you buy your copy. Their supply is limited. To avoid disappointment, get your copy today. You’ll never regret it because not only will you profit from its daily use, but your ownership of the 3rd Edition MYE will entitle you to participate in a monthly service—the Mallory Supplementary Monthly Technical Service—a service you can’t do without—and at a cost (to owners of the 3rd Edition MYE) of less than a third of a cent a day.

Full particulars are in the 3rd Edition MYE. Get your copy today!

*Approximation. Count indicated accurate as this advertisement was written.

Use MALLORY
REPLACEMENT CONDENSERS . . . VIBRATORS

Use YAXLEY
REPLACEMENT VOLUME CONTROLS

P. R. MALLORY & CO., Inc.
INDIANAPOLIS 3, INDIANA
Cable Address—PEMALLO
ALREADY DEALERS REPORT

"Action"

WITH THESE NEW STROMBERG-CARLSON RADIO VALUES!

"Console sales on increase," says Retailing. "No manufacturer has a finer line of consoles."

"War or no war, business revival sure," says Sales Management. "It's going to be a big year no matter what happens in Europe."

Color ads in national weeklies start telling Stromberg-Carlson's value story August 19th.

Stromberg-Carlson Authentic Period furniture styles show sales gains in every single territory.

An Unprecedented Full Season Promotion Program is under way to help Stromberg-Carlson dealers build the greatest volume ever.

Repeat orders from every section of the country keep pouring in for 420-PL's and 430-M's. The outstanding values of the industry, they keynote the entire new Stromberg-Carlson line.

With a public favoring consoles, the new Stromberg-Carlsons have been "sure-fire". Dealers have sold initial stocks and reordered in larger quantities to be ready to meet the even greater demand they know will come when the season opens.

Present conditions create a "set-up" for Stromberg-Carlson dealers. People want good radios; big radios; radios packed with value like the new Stromberg-Carlsons. They are fitted to today's market and, with them, you as a dealer can realize a worthwhile volume at a worthwhile profit.

MAIL THIS COUPON

Stromberg-Carlson Telephone Mfg. Co., 240 Carlson Road, Rochester, N. Y.

Send full information on Radio's most timely line.

Name

Street

City

State
Farnsworth RADIO

THE HISTORY OF TELEVISION IS

MODEL AT-12... Farnsworth creates an entirely new molded plastic table model for this splendid performer! 5-tube AC-DC superheterodyne circuit; standard broadcast; beam power output; Bilt-In-Tenna; 5" P.M. speaker. Cabinet dimensions: Height, 6%"; Width, 11%; Depth, 6%".

MODEL AT-50... A table model of original design combining classic simplicity with modern charm. 7-tube superhet; two wave bands; Slide Rule Dial; treble and bass tone control; Bilt-In-Tenna; push-buttons; 5" electro-dynamic speaker; beam power output; phonograph and TELEVISION-sound connection. Cab. dim.: H., 12"; W., 16%": D., 10".

MODEL AK-76... A beautifully proportioned radio-phonograph combination of outstanding artistic design. Chassis Specifications... 8-tube highly developed superhet; Flo-Lite dial; three wave bands, 540 to 1600 K.C., 1.6 to 5.5 MC., and 5.5 to 16.1 MC.; tone control; shielded loop antenna; push-buttons; 12" dynamic speaker; beam power output; phonograph with Capehart record changer; TELEVISION-sound connection. Cabinet dimensions: Height, 36%": Width, 33%": Depth, 15%/".

MODEL AT-16... The designer, with an eye to beauty, has challenged the dictates of convention with artistic results in this radio cabinet that command instant admiration. 5-tube AC-DC superbhet; airplane dial; standard broadcast; push-button tuning; Bilt-In-Tenna; 5" P.M. speaker. Cabinet dim.: H., 7%": W., 10%": D., 6%".

MODEL AC-90... The instrument panel of this truly magnificent console slopes well back, so that tuning may be easily done from a standing position. Chassis Specifications... 10-tube superhet; Flo-Lite dial; three wave bands; push-buttons; shielded rotatable loop antenna; continuously variable tone control; 12" electro-dynamic speaker; phonograph and TELEVISION-sound connection. Cabinet dimensions: Height, 40%": Width, 29%": Depth, 12%/".

MODEL AC-70... Tall and stately, an impressive console is definitely in the luxury class in appearance, though not in price. Chassis Specifications... 8-tube superhet; Flo-Lite dial; three wave bands; push-butt tuning; shielded rotatable loop antenna; continuously variable tone control; 12" electro-dynamic speaker; phonograph and TELEVISION-sound connection. Cabinet dimensions: Height, 40%": Width, 27%": Depth, 12%

MODEL AK-91... A lowboy console expounding the rare artistry of Farnsworth Radios. Chassis Specifications... 10-tube superhet; Flo-Lite dial; three wave bands; shielded rotatable loop antenna; continuously variable tone control; push-butt tuning; 12" electro-dynamic speaker; beam power output; phonograph and TELEVISION-sound connection. Cabinet dimensions: Height, 35%": Width, 32%": Depth, 13%

ONLY TEN MODELS OF THE COMPLETE FARNSWORTH RADIO LINE ARE SHOWN!

Space didn't permit showing every one of the 28 towerings in the Farnsworth Line. But the values built into these 18 models extend right down through the line! BIG THINGS have been happening at FARNSWORTH! The radio industry has been looking forward to them. And here's evidence that no one is going to be disappointed! All over the United States, distributors' preparations are being rushed for dealer 'open house' meetings. Discounts, policies, advertising and merchandising programs are some of the other Farnsworth facts your Farnsworth Distributor will have ready for you at his 'open house' meeting. Don't miss it!
price THIS line!

of your life
Distributor's "OPEN HOUSE"

Here are a lot of words in Daniel Webster's book. But instead of using all the high-powered lies to give you some idea of the values packed into the Farnsworth Line—we're ready to let your ears do the talking! That's how confident we are that each of these models has more built-in value—that the Farnsworth Franchise packs a hefty competitive wallop!

This is a bold challenge, but one there's no mistaking. With an open mind—specifications considered—as an experienced radio merchandiser—look at these models—note all their features—and then you believe is a fair price. Then take those prices to your local Farnsworth Distributor's open house—meeting—and get set for a pleasant shock that's going to reach right down to the bookroom nerves of your radio prospects! If you don't know where or when it's going to be held in your community—send in your pricing estimate and we'll gladly tell you. But get out that pencil and judge for yourself!

FARNSWORTH TELEVISION & RADIO CORPORATION
FORT WAYNE, INDIANA

MODEL AC-55 . . . Smartly styled, this radio console has a crisp, sparkling style as new as tomorrow. Chassis Specifications . . . 7-tube superheterodyne; two wave bands; Slide Rule Dial; treble and bass tone control; Bilt-In-Tenna; pushbuttons; 8" electro-dynamic speaker; beam power output; phonograph and TELEVISION sound connection. Cabinet: Height, 36"; Width, 25"; Depth, 11 1/2".

MODEL AK-59 . . . A beautiful radio-phonograph combination whose unadorned simplicity and graceful proportions identify it as a luxurious piece of furniture. Chassis Specifications . . . 7-tube superheterodyne circuit; two wave bands; tone control; Bilt-In-Tenna; beam power output; pushbuttons for five stations; 12" electro-dynamic speaker; phonograph with Capehart record changer; TELEVISION-sound connection. Cabinet dimensions: Height, 34 1/2"; Width, 31"; Depth, 16 1/4".

MODEL AK-95 . . . Pleasingly massive, smart, crisp styling achieves for this model a character always identified with the tastes of those who demand the finest. Chassis Specifications . . . 10-tube superheterodyne; three wave bands; Flo-Lite dial; pushbuttons for six stations; shielded rotatable loop antenna; continuously variable tone control; 12" electro-dynamic speaker; bass compensation; phonograph with Capehart record changer; TELEVISION-sound connection. Cabinet dimensions: Height, 36"; Width, 35"; Depth, 19 1/2".

I Price the New
Farnsworth Line

MODEL AT-12 $
MODEL AT-16 $
MODEL AT-50 $
MODEL AC-70 $
MODEL AK-76 $
MODEL AC-90 $
MODEL AC-91 $
MODEL AC-55 $
MODEL AK-95 $

Name
Address
City State

THE HISTORY OF FARNSWORTH

AUGUST, 1939
YOU know radio values!
Then get the
at Your
Distribution's "OPEN HOUSE"

Farnsworth TELEVISION & RADIO CORPORATION
FORT WAYNE, INDIANA

THE HISTORY OF FARNSWORTH
AUGUST, 1939
GREATLY IMPROVED TUBULARS employing a NEW INSULATING MEDIUM and PROCESS ...

Several months ago, the Micamold Engineering Department completed the development of a process which makes a certain cellulose derivative become a remarkable insulation medium.

Exhaustive tests have proven that KODACAPS have a longer life at much higher voltages than standard tubulars of equal size and cost. On one test a group of KODACAPS, which are somewhat smaller than standard 600 volt condensers, have withstood 1,800 volts for more than 3,000 hours and are still functioning. Tests run in high humidity show KODACAPS to have a life three times as long.

KODACAPS which cost no more than the standard 600 volt tubulars are conservatively rated at 1,000 volts DC and each one is tested at 3,000 volts. They should find universal application at any point in radio receivers, power amplifiers, etc. . . . and outlast the equipment in which they are used.

AVAILABLE IN STANDARD CAPACITIES AT LEADING DISTRIBUTORS.

MICAMOLD RADIO CORPORATION
FLUSHING & PORTER AVENUES, BROOKLYN, NEW YORK
40% Minimum Discount

...an 63 New 1940 Models Emerson is YOUR "No. 1" Profit Line

For Every Purpose and Every Purse—from $7.95 to $99.95—63 of the greatest values in the market, each with a LONG DISCOUNT—backed by the greatest national, local and point-of-sale campaign in Emerson history! These are the "high spots." Your Emerson distributor will give you the rest of the story. Get in touch with him today.

Model CZ-282—KEY-TOUCH TUNING—INNER-CEPTOR LOOP ANTENNA—MIRACLE TONE CHAMBER . . . 5-Tube Superheterodyne—AC or DC Operation.

Model 306
SELF-POWERED PORTABLE—COMPLETELY SELF-CONTAINED—NO WIRES—NO ELECTRICAL CONNECTIONS NEEDED . . . 5-Tube Superheterodyne . . . Inner-CEPTOR Loop Antenna . Attractive Pigskin Fabricoid Case.

$22.95

Model DB-301 (Natural Onyx Plastic)—INNER-CEPTOR LOOP ANTENNA—MIRACLE TONE CHAMBER 5-Tube AC-DC Superheterodyne.

$14.95

Model CV-291—COMBINATION RADIO-AND-PHONOGRAPH—INNER-CEPTOR LOOP ANTENNA—MIRACLE TONE CHAMBER . . . 5-Tube Superheterodyne • 6½" Permanent Magnet Dynamic Speaker • Crystal Pick-up.

$39.95

Ask Your Distributor—NOW HOW
YOU WILL MAKE MORE MONEY WITH EMERSON IN 1939-40

EMERSON RADIO AND PHONOGRAPH CORPORATION • NEW YORK, N. Y.

World's Largest Maker of Small Radios

AUGUST, 1939 5
Ken-Rad Radio Tubes Are Made In This Modern and Efficient Plant

The Ken-Rad factory at Owensboro, Kentucky, is a model of present-day efficiency. It was planned, built and equipped to manufacture radio tubes and incandescent lamps of the finest quality. Ideal working conditions and skilled, intelligent workers who have an ambition to excel are vitally important factors in the Ken-Rad success.

The Ken-Rad engineering department is made up of men of outstanding ability in the design and development of radio tubes. In every detail of Ken-Rad production the highest known standards are maintained. Ken-Rad has but one standard of quality. Tubes which fail to meet these rigid requirements are immediately destroyed.

Careful buyers everywhere use and specify Ken-Rad Radio Tubes.

KEN-RAD TUBE & LAMP CORPORATION
Manufacturers of Ken-Rad Radio Tubes and Ken-Rad Electric Lamps
Owensboro, Kentucky
Majestic PRESENTS
A Practical Way To
PUT THE PROFIT BACK
INTO THE RADIO BUSINESS

It's incredibly simple. That's why it works. Majestic demands no quotas. Majestic's job is to supply you with items that have real popular appeal. A few examples are shown here. You select the items you know will be "hot" in your community, in the volume you can handle. Majestic backs you with national advertising. Each ad puts a hard, direct sell on popular numbers. Finally, Majestic's production methods permit of discounts that give you a solid profit, while allowing Majestic a solid profit, too. Why not see how this sane, horse-sense policy and the complete Majestic line can help put profit into your radio business? Write today!

Majestic
MIGHTY MONARCH OF THE AIR

Majestic Radio & Television Corp., 2602 W. 50th St., Chicago, Ill.
Cable Address, Majestic, Chicago

TYPICAL MAJESTIC SCOOP—A powerful portable weighing less than 4 lbs! Out months ahead of competition, at height of portable season. Of course it's a red-hot seller and traffic builder. (Model 130)

BRILLIANT NEW CONSOLE STYLING—Powerful new receivers with strong new "talking-point" features—in cabinets in line with what the public likes right now in furniture! (Model 3690 illustrated)

EXTRA VALUE THAT SELLS—5-tube AC superheterodyne with wonderful tone, combined with fine electric clock in lovely ivory oronyx plastic cases! They're eye-catchers and fast sellers. (Model 5T and 3TO)

COMPLETE LINE OF RECORD PLAYERS—Includes radio-phonograph combinations, and this 4-tube oscillator "miniature broadcasting station." Cash in on the record craze! (Model 4 PWO)

DOUBLE-VALUE PORTABLE—Powerful 200-hour battery pack for outdoor playing; AC plug-in makes it an attractive table model for the house. Looks like smart airplane-club luggage. (Model 1 BR 50B)

"ZEPHYR" BEAUTY AND PERFORMANCE—Sell "no aerial, no ground."
 pushes button tuning, true Majestic tone and its flawless designing—and this number will move fast (Model 250 MI)

8 Million MAJESTIC OWNERS ARE RED-HOT PROSPECTS FOR NEW MAJESTICS!

AUGUST, 1939
PHILCO for 1940

with the Built-in Super Aerial SYSTEM

gives you Performance as well as Convenience!

Philco for 1940 has set the pace of radio progress again!
Aerial and ground wires are old-fashioned now. The modern radio needs no installation. You just place it wherever the customer prefers, plug it in to a wall socket... and play.

Philco's Built-in Super Aerial System has brought about this revolutionary change in the use and enjoyment of radio. It was created and developed by Philco engineers and is found ONLY in the 1940 Philco.

The Built-in Super Aerial System is a combination of several vital features, working together to establish an entirely new standard of radio reception and convenience:

1. A specially shielded refined Loop Aerial
2. A newly developed Twin-Loop Aerial for American and Foreign Short-Wave Reception
3. The new Philco Loktal Tubes
4. The Costly R. F. Stage
5. The new, triple power 1232 Television Tube

This combination of features makes up the Built-in Super Aerial System. It's more, far more, than a mere "built-in aerial". And every feature is NEEDED to deliver to your customers the PERFORMANCE you must offer in addition to the new convenience.

For convenience and noise reduction without performance is not enough. Performance without freedom from the annoyance of power line noises and man-made static is not enough.

You need all three—convenience, noise reduction and performance. And you need it not only on standard broadcasts but on short-wave reception as well! Only then do you deliver genuine value to your customer, genuine advantages over any radio of the past. And only Philco offers you the Built-in Super Aerial System which enables you to deliver that full satisfaction.

From all parts of the country comes the confirmation of this superior performance. Amazing noise reduction plus sensitivity in localities that have never known enjoyable radio reception before. Good floor demonstrations in stores where power line noises made clear, noise-free tone impossible until now—and all without that intolerable, expensive fuss with aerial and ground.

Yes, Philco for 1940—the only complete new line on the radio market today—is a sensation! And it's selling, beyond all early season records of the past!

Put PROFIT in your business NOW. Display Philco—advertise it—promote it NOW!
In some 28,000,000 homes in our country there are 44,000,000 radio sets in use.

To men who are discouraged this means the radio market has dried up.

But to men of vision, 44,000,000 radio sets spells unsurpassed opportunities for the sale of service, tubes, parts, and new radios.

More than 20,000,000 sets are over 5 years old.

Every home in America needs another radio, and 10,000,000 may be sold this model year.

Salability goes up in proportion to use. No article of consumer use has ever found a “saturation point” in this country of ours, from silk stockings to automobiles, from cosmetics to electric refrigerators.

With more radios in use than ever before we have greater sales opportunities this year than the radio industry has ever known.

Not that 10,000,000 people will come trooping into our stores to buy these radios. They won’t. But 10,000,000 people are willing, and able to be sold more radios than we have ever sold before.

Seventy-five percent of the sets in use today, cannot reproduce all the programs of their favorite station because of poor tubes, parts, adjustment, or original design limitations.

30,000,000 sets need 150,000,000 tubes, and they can be sold.

25,000,000 sets need service work, and parts, resistors, condensers, coils, speakers, and cleaning adjusting, aligning, and this work can be done.

Let’s shake off the lethargy of order-taking and go out to sell this greatest market we’ve ever had, the best radio values we’ve ever been able to offer.

Sales will roll up in an unbelievable wave, in proportion to our selling effort.

Start out by selling service, and let every service sale but pave the way for a set sale.

20,000,000 sets should be replaced, 10,000,000 can be sold.

But with the lessons of the past fresh in memory, and with our vision of the future clear, let’s sell ‘em, service ‘em, satisfy ‘em, and be on hand to sell ‘em again, when the “sell ‘em and forget ‘em” fraternity are themselves forgotten by those they’ve scalped.
First Half '39 Up 23%  
Radio industry payments of the federal 5 per cent excise taxes were 23 per cent larger in the first six months, ending June 30, 1939, than in the similar half-year period of 1938, although the fiscal year radio tax collections were 17.3 per cent below 1938, according to Bond Geddes, executive vice-president RMA.

Radio tax collections in June, largely covering industry operations for last May, however, showed a sharp reduction of 42.4 per cent from June 1938. The June radio tax collections were $238,438.23 compared with June 1938 collections of $414,851.61.

Unemployment Falling—More Buyers for Radio  
Unemployment in the U.S. declined 4.3 per cent in June, according to the monthly estimate prepared by the Natl. Indus. Conference Board.

Since February of this year, the number of jobless has declined 11 per cent, and the total of 9,555,000 in June is the lowest since December, 1937. In June, 1938, the jobless numbered 10,959,000.

In relation to the total working force, which the Conference Board estimates at 54,580,000 in June, 18 out of every 100 available workers were out of jobs. In March, 1933, the trough of the depression, 29 out of every 100 workers were idle. These ratios are in sharp contrast to those of September, 1937, when 11 out of every 100 workers were unemployed, and 1929, when less than 1 per cent of the workers were without jobs.

Dr. Lee de Forest who will be guest-of-honor at the N. Y. World's Fair celebration of DeForest Day, Sept. 22.

DeForest Day, Sept. 22  
Dr. Lee DeForest, "father of radio," will be honored during a day named in his honor and a jubilee dinner at the New York World's Fair on September 22, 1939.

Present plans include a welcome by Mr. Whalen, president of the Fair Corporation, a broadcast of features of the day, and a dinner at the Sutcliffe Club in the Merry England Village at the Fair grounds. Leading scientific societies are participating in the plans to make DeForest Day a real tribute to the prolific inventor. Dinner tickets will include admission to the Fair.

Radio's Number One Program  
In the two short years since their appearance on the air in May, 1937, Charlie McCarthy and Edgar Bergen have rapidly become America's favorite comedians, while the Chase and Sanborn program is number one in public estimation. Sixty-five stations of the Red Network of the NBC carry the antics of the inimitable McCarthy from Maine to California.

Of the 44,000,000 radio sets now in use 28,000,000 are tuned to this one form of entertainment each Sunday evening. Such interest in programs must be interpreted by dealers as the greatest single urge to buying the industry has at its command. The public have bought their millions of receivers with the prime motive of listening to the $100,000,000 worth of entertainment provided by broadcasters and advertisers. To get people to replace their present sets with modern models they must be convinced that they can hear more programs to better advantage.

Distributors See 28 New Farnsworth Models at Ft. Wayne  
Before an impressive audience of 250, including some of the best known names in radio and merchandising distribution in the country, the new line of radios being launched by Farnsworth Television & Radio Corporation, was presented for the first time at Fort Wayne, Ind., Aug. 7 and 8. Headed by E. A. Nicholas, president, the new corporation, with manufacturing plants at Ft. Wayne and Marion, Ind., displayed its 28 new models to representatives of more than fifty distributors' organizations from all parts of the country.

With a complete line of models, Farnsworth radios are regarded as occupying a strong competitive position in the industry. Chassis design includes all the modern features approved by sound engineering practice, and the cabinets, including seven of molded plastics, are smartly styled to reflect present-day emphasis on simplicity and good taste.

The line includes 16 table and portable models, six receivers of the console type, and six radio-phonograph combinations. Of the combination instruments, one is a table model and the five others are consoles. In four of these combinations the phonograph is equipped with a new Capehart record-changer.

Further descriptions of the new Farnsworth models are given on pages 22 and 54 of this issue, outlining the main points of the new line.
25% of Public Gets
News from Radio

While newspapers still hold a substantial lead in furnishing the nation with news, radio has made deep inroads into the field, a survey published in the current Fortune discloses.

In answer to the question, from what source do you get most of your news about what is going on, the investigators obtained the following replies:

<table>
<thead>
<tr>
<th></th>
<th>Upper</th>
<th>Middle</th>
<th>Lower</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Poor</td>
<td>White</td>
<td>Negro</td>
</tr>
<tr>
<td>Newspapers</td>
<td>62.6</td>
<td>70.7</td>
<td>70.9</td>
</tr>
<tr>
<td>Radio</td>
<td>25.4</td>
<td>17.8</td>
<td>21.0</td>
</tr>
<tr>
<td>Friends</td>
<td>3.4</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Both</td>
<td>5.1</td>
<td>4.0</td>
<td>3.3</td>
</tr>
<tr>
<td>Magazines</td>
<td>2.3</td>
<td>4.5</td>
<td>2.7</td>
</tr>
<tr>
<td>All others</td>
<td>1.3</td>
<td>1.2</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Commenting on the tabulation, Fortune says:

"Here a cloud, no bigger than a man's hand, shows itself above the horizon. True, the newspaper lead is ample; but there is good cause for concern on the part of publishers in the fact that nearly two-fifths of the nation has found it can get most of its news without turning to newspapers; and that one-fourth relies most heavily on radio—an entertainment medium to which news transmission is admittedly a by-product."

Question 2 deals with which does the better job—radio or newspaper—in the opinion of the people. According to the survey, 83 per cent believe radio gets news to them more quickly, and surprisingly, Fortune says, 12.9 per cent consider the newspaper faster. The press presents news more fully, in the opinion of 79.6 per cent, and on the score of accuracy the totals were almost identical—38.3 for newspapers and 38.0 for radio. A total of 49.7 per cent said radio gives news freer from prejudice.

All-Year Auto-Radio

Auto-radio is fast becoming an all-year-round business, reports Sayre M. Ramsdell, vice president of Philco Radio & Television Corporation.

"While seasonal peaks in auto-radio still remain, these peaks are showing a tendency to level off," Ramsdell declared. "I believe the reason for this trend is two-fold—first, the tremendously high peaks in automobile sales themselves are showing definite signs of spreading over much longer periods of time; second, auto-radio sales are becoming less closely geared to the automobile touring seasons."

"The weight of almost 7,000,000 auto-radios now in use has had a tremendous effect in accustoming the public to the auto-radio, in January as well as June. Dealers are realizing this, with the result that sales efforts are not allowed to lag or lapse during the periods which are not the heavy seasonal periods," he said.

RMA Committee Chairmen

The RMA committee organization, to carry on and develop Association services during the ensuing year, has been named by President A. S. Wells. Following are committee chairmen appointed:

Credit Committee—Jerome J. Kahn of Chicago.

Engineering Department—W. R. G. Baker of Bridgeport, Conn.

Export Committee—S. T. Thompson of Chicago.

Legislative Committee—A. H. Gardner of Buffalo, N. Y.

Traffic Committee—George A. Sco-ville of Rochester, N. Y.

SPECIAL COMMITTEES

Commercial Television Committee—James S. Knowlson of Chicago.

Engineering Allocations Committee—W. R. G. Baker of Bridgeport, Conn.

Convention Committee for 1940—Paul V. Galvin of Chicago.

Cooperative Promotion Committee—James T. Buckley of Philadelphia.

Fair Trade Practice Committee—E. F. McDonald, Jr. of Chicago.

Receiving Set Statistics Committee—Henry C. Bonfig of Camden, N. J.

Tube Control Committee—W. R. G. Baker of Bridgeport, Conn.

Walsh-Healey Minimum Wage Committee—Octave Blake of So. Plainfield, N. J.

Trend to Larger Plastic Cabinets

With the richness of wood and economy of plastic, clean-lined in appearance, the new Stewart-Warner 1940 upright Model 92-5E1 designed by Barnes & Reinecke, represents the largest one-piece molded plastic cabinet undertaken to date. Weight, while less than that of wood, exceeds the average one-pound plastic cabinet by five times.

Finish is gained through clever application of deacelamania over the plastic to furnish an exact reproduction of costly buril and rich sliced walnut. Cabinet measures eight inches deep, thirteen inches high and twelve and three-quarters inches wide.

Ben Abrams (right) presents Emerson Grand Award to Jacob Beckwith of Hucycle & Radio Co., Boston, during Emerson national distributors' convention, New York.
Plan Now for Fall Selling

Things to think about as you shape up policies and activities for the four profit-making months ahead.

Only profits are more important to radio business than are satisfied customers, and even profits are largely dependent upon an adequate supply of customers.

Too many dealers try to entice people into their stores by the lure of cut prices, and too few have cherished their own customers, and cultivated them. In the long run it costs a lot more to find a new customer than it does to satisfy an old one, and sell her again. The daily fight for each day’s new customers has reached such a state that many dealers freely express their doubts that radio alone can now be sold profitably from the store, only.

During the “roaring 20’s” when the public demand for radio often taxed the supply, many dealers softened up to a point where they gave little consideration to their future business. In the plentiful day by day rush of customers to buy, many dealers lost the fine art of creative selling, perhaps in the mistaken belief that they would never have to practice it.

But when these customers no longer rushed to his store, as they have not for many years now, the softened dealer tried to lure them back with price. Cut-price did bring back the old time units, and more, but at the expense of profits, and reduced a one time dignified and prosperous business fraternity at least to the point where they were on speaking terms with business oblivion.

It is not too late to put our business back on a sound operating, sales creating, basis. Many dealers are already doing it, very successfully, and more smart dealers will do so this year, because this year offers greater sales opportunities, both in units and in dollars, than any year since 1929.

SMART MERCHANTS USE PLAN

Dealers who want to be in business the next ten years or more, will plan their business, and run it, and forget the cut-price era of the last decade, when their business RAN THEM—RAGGED.

There is a logical, long-range method which some radio merchants have practiced for several years. It is as simple as it is logical, and as effective as it is simple.

The plan is based upon four sound premises.
1. The fact that some 75 per cent of radios are BOUGHT, and only 25 per cent are SOLD.
2. The fact that no one pays for a radio for any other purpose than to enjoy the entertainment that is broadcast.
3. The fact that the vast majority of radios in use are not capable, because of poor tubes, poor antennas, mis-alignment, speaker adjustment, or deteriorated resistances, condensers, or coils, of reproducing anything like the clarity or quality of the transmission.
4. The fact that about 40 per cent of the radios in use are over 5 years old, and fit subjects for replacement, now.

Based upon these facts, the simple plan of these alert radio merchants has three functions.
1. It looks for new customers.
2. It seeks to satisfy old customers.
3. It seeks to sell more radios, to customers, old and new, at a greater profit.

GET NEW CUSTOMERS

Let’s see how this planned operation accomplishes these functions.

First, in seeking new customers, the plan is to encourage store traffic, by including such items as records, cameras, photo supplies, or any other merchandise of a high repeat character appropriate for radio stores.

Records are particularly appropriate, being so closely related to radio itself. They appeal to the horde of youngsters who want their music “hot” when they want it, and to the middle-aged folks who find their preference for the “sweet” music of twenty or thirty years ago has little place on present radio programs. Young and old will come back to your record department time and time again, being exposed each time to your display of radio, combinations, and record players. They are fine prospects for an automatic combination when their present radio is replaced, too.

Second step in the plan’s search for the new customers is an active pro-
motion of your service division, by
direct mail and phone solicitation, fol-
lowed consistently and honestly, present-
ing the need for Spring and Fall
check ups, annual tube replacements,
and preparation for all big broadcast
events. This promotion of the ser-
vice department is not alone for the
dollar sales it accounts for, but much
more particularly for the future set
sales it sets the stage for. When you
get a new service customer, you can
be sure that the customer is not satis-
fied with the service rendered by the
dealer from whom the radio was pur-
chased. This is the finest oppor-
tunity possible to show this new cus-
tomer why she should buy her next
radio from you, why your better ser-
vice more than justifies the price you
ask for your radio.

Third step in the search for new
customers is to constantly keep your
store identified with the products you
sell. An excellent way to do this is
through your windows. Make them as
attractive as possible, with displays
which tie in with the national maga-
azine advertising of the manufactur-
ers of your lines, and which include either
a blow-up of the ad as a background,
or the ads themselves, mounted on a
cardboard easel, with the magazines in
which the ads appear, too, for closer
association in the looker's mind.7

These methods are attracting plenty
of new customers to those stores fol-
lowing them consistently. But get-
ing the new customer is only one-
third of the plan. We must also sat-
sify our old customers, so that they
may not care to go to our competitor
for their next radio.

FRIENDLY CUSTOMER-CONTACT

And so the plan keeps in touch with
customers, at least once a month,
by mail, phone or personal call, always
on a friendly basis, and to unmistak-
ably tell the customer that you are
very much more interested in the cus-
tomer, and her satisfaction with the
performance of her radio, than you
are in the sale of the radio itself. On
this basis of friendship you build con-
fidence, on the basis of this confidence
you build a progressively greater ad-
vantage over all of your competitors,
and almost insure to yourself the re-
peat business, and the extra set sales,
which sooner or later, some dealer is
going to get. The plan also includes a
service "inspection" once a year,
which gives tangible effect to the in-
terest in the customer you are trying
to create, as well as resulting in paid
service work and good will, and pay-
ing the way for the third step in the
whole plan.

Remembering that some 40 per cent
of all radios in use are over 5 years
old, and that a modern radio will out-
perform almost any radio that has
been in use for a period of time, the
plan seeks to sell more radios to cus-
tomers old and new, on the basis of
actual home demonstration, compar-
ing the old and the new as to appear-
ance, tone, and performance.

Practically every home that now
has a radio should have another one,
combination, console, or compact.

EVERY HOME NEEDS ANOTHER RADIO

Most of these owners think that their
present radio equipment is adequate
for their needs, and they will not,
then, beat a path to your door to buy
another radio. But they can be sold
one. That is why this plan has proven
so effective, it creates sales. By keep-
ing in contact with your customers,
and by having the opportunity of talk-
ing with more people in your store,
you can arrange for many more home
demonstrations. Your service work
offers prolific, and very appropriate,
opportunities to arrange for such
demonstrations. Now that so many of
the new sets do not require an outside
antenna, and can be installed by plug-
ging them in, home demonstra-
tions, which have always been a very
effective way of selling, now becomes, also,
an economical way. Home demons-
trations will be the vehicle for car-
rying most of the console and combi-
nation sales increase. This, too, is
an opportune time to again lay stress
on the larger sets, since they carry
provision for television sound, and lay
the bogey of "I'll wait for television." Cen-
trally the new sets look better
than the older ones, we know they per-
form better, with perfected touch tun-
ing, and there is no question about
their sounding better. So the real key
to increased console set sales logically
lays in the ability to show the cus-
tomer that these things are so, and
create the desire to own one. To do
this there is no better place than the
customer's own home. The plan not
only provides an easy means of get-
ting into the home, but also of getting
into more homes, to arrange more
demonstrations, easier.

SELL THE EXTRA COMPACT

Most of the sets sold this year, and,
for many years to come, will not be
consoles. Compact sets will outsell
consoles, in units for a long time.
There are few homes that can use
another compact, in the bedroom,
nursery, child's study, kitchen, den,
or play room. Maintaining contact
with your customers, and attracting
new people to your windows and store,
provides you with the opportunity of
telling many more people about that
other compact than would come to
you all primed to buy. And a not un-
important part of this whole plan is
that when you have put your business
on the friendly plane, maintain con-
tact with your old customers consis-
tently, and actually create the de-
sire for a new radio in the minds of
those who are friendly, and have con-
fidence in you, you have very defi-
nitely placed your business above
price alone. When you have proven

(Continued on page 43)
Stock Guide for 1940 Lines

Composite action of manufacturers reduced to typical line and average models for guidance of dealers.

An analysis of the lines of 28 manufacturers, comprised of 661 new 1940 models, discloses these facts of general dealer interest:

The typical line consists of 3 portables (including portable combinations), 6 compacts, 6 table models, 4 consoles, 2 combinations (including auto-record changers), 2 auto-radio, and 1 farm set, or a total of 24 models. Of these 21 models, 10 are AC powered, 10 are AC/DC powered and 4 operate from batteries.

In the 1940 lines, the typical console retails for $85.00, compared with $100.50 last year, and $116.00 the year before.

It uses 7 tubes, compared with 8.6 tubes last year and 8.5 tubes the year before, and has a 12-inch dynamic speaker.

This typical 1940 console will also have a self-contained antenna system, six to eight push-button station selectors, and provision for phonograph, and television sound reproduction.

THE AVERAGE TABLE MODEL

The average 1940 table model consists of 6 tubes, a 6-inch speaker, push-button tuning, built-in antenna, provision for phonograph and television sound reproduction, and will retail for $34.50. This is a reduction of 50 cents in the list price, and an increase of half a tube as compared with the 1939 models.

MORE COMPACTS

The 6 compacts in the typical 1940 line form this average compact picture. Five tubes, 4-inch speaker, push-button tuning, self-contained antenna, at an average list price of $17.00. This represents a slight increase in average price over last year, and is the first indication that the bottom has probably been reached in prices.

BATTERY PORTABLES BACK AGAIN

This year the old-time battery operated portable has returned in a new dress. It consists of 4 tubes, a 5-inch speaker, self-contained antenna, and will retail for an average price of $24.00.

PHONO RADIO COMBINATIONS

The average of 2 to the typical line, will have 8 tubes, a 12-inch speaker, and retail for $125.00. The lower priced combination will have push-button tuning, self-contained aerial, and a crystal pick-up — while the higher priced model will have an automatic record changer in addition.

Assuming that unit sales will be in fairly close relation to this model assortment, the dealer's average price per unit on all sales will be $49.00 compared with $57.00 last year.

SALES AND STOCK GUIDE

Sales and stock should break down fairly close to this basis, which can be used as a guide in buying—

<table>
<thead>
<tr>
<th>Type</th>
<th>Per cent of units</th>
<th>Per cent of dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consoles</td>
<td>19</td>
<td>38.2</td>
</tr>
<tr>
<td>Table models</td>
<td>28.5</td>
<td>20.1</td>
</tr>
<tr>
<td>Compacts</td>
<td>28.5</td>
<td>10</td>
</tr>
<tr>
<td>Combinations</td>
<td>9.5</td>
<td>7%</td>
</tr>
<tr>
<td>Portables</td>
<td>14.3</td>
<td></td>
</tr>
</tbody>
</table>

How much better than these figures any individual dealer can operate will be a fair index of his ability to sell up—for which the typical 1940 line is well adapted.
Of three radio stores in this block one said, "Business is terrible," the chain-store said, "Normal," this dealer said, "Great!" His reason? Friendliness!

Seventy-five per cent of old customers come back again to this smiling group. Partners Ed Newmark and Mal Lewis of Newmark & Lewis, Inc., Hempstead, N. Y., have stressed friendliness and shrewd buying.

Stone speaks four languages, finds the ability invaluable in making friends with the town's many foreign born customers. Complete stock of wanted merchandise proves its sales worth continually.

Here the prospect is shown a picture of a popular radio group and is told why they'll sound better on the large console. Broadcast programs are brought into the sales talk because this dealer realizes their importance as an urge to buying.

A comfortably seated customer will give better attention and more time to the salesman, believes C. W. Stone, store manager, who maintains high average unit sale by always showing combinations and consoles.

Keeping up-to-date is an important sales factor. Capitalizing on television interest, this dealer displays tele-receivers in a special viewing-booth. Prospects must pass other displays.
Meeting Chain Store Competition

Using present weapons to combat low-price appeal. More important to sell than to cry "unfair." "Kill the Chains" legislation threatens independent dealers' rights.

To most independent radio dealers chain stores are like vampires, sucking the life's blood of the small dealer, and a natural feeling of fear and hatred has grown up.

Reflecting this feeling in the last few years has been the urge of politicians to plunk for "kill the chain" tax laws, many of which have been placed on the statute books of several states, and at least one has been considered by the Congress.

Dealers should dispassionately consider all attempts to petition legislators to pass laws calculated to harass, or eliminate, any legitimate competitor, because when you "put the bee" on the other fellow, you have taken the first step in getting stung yourself. The power to tax is the power to destroy, always, and politicians being what they are, you can expect that any law fitted to others will soon be fitted to you, too.

Independent dealers should not want chain stores put out of business. Chain stores serve a very useful purpose, as well as an economic need.

True, they have taken some business away from the independent dealer, but only because the dealer has let them.

Chain stores sell for lower prices than you can, but all they have to offer is price.

Price, of course, is an important factor, but not the most important by a long shot, in influencing people to continue to buy.

Only when you do not offer the other controlling factors, which you can, and the chains cannot, does price alone become the dominant trade factor.

FRIENDLY SERVICE

And what are these vital factors in influencing trade which you can use to beat the chains?

First, is friendly personal service.

Every chain store is an impersonal merchandising machine, to whom each customer can only be a cog in that machine.

Your store is you. It has your personality, your friendly greeting, your sincerity, your integrity, all of which is strongly in your favor.

Chain stores take little or no part in civic affairs, and so can attract only negative public opinion.

You and your store can take part in many civic activities. You can help the Junior -debs, the women's clubs, the boy scouts, the girl scouts, etc., by cooperating in their many activities, and thereby reflect on your store a friendship of people, young and old, which can be translated into far greater sales than the chain store's prices alone.

Chain stores sell you an article at a low price and its yours.

You can sell the service and satisfaction that article should give, see that it does give it, and far more than justify the difference in price, for it is a proven fact that women soon forget the price they paid, but long remember the satisfaction they got. No chain store can compete with your honest "satisfaction guaranteed."

Unfailing courtesy and personal service are the independent dealer's most useful weapons against the chains and their mechanized selling.

Chain stores close each transaction and customer relation when the customer walks out the door, and depend upon price to bring them back.

You can, and should, follow each customer up with a friendly attitude by mail, by phone, and by personal call, to make sure the radio you sold is giving satisfactory use, to get a lead on any friend who is in the market for a radio, and by your friendly service to be on the job when this customer can be sold another radio.

Chain selling can defeat chain store selling every time, when properly conceived and sincerely carried out.

In the final analysis, it comes down to the simple premise that you must justify your higher prices by service and friendliness, which is worth more to the customer than it costs her, and you can do this by putting your customer relations on a personal, friendly basis, while your chain store must always be very impersonal and mechanical.

MEET 'EM & BEAT 'EM!

If you meet, and beat the chains in this way, there will be no need of trying to kill them by legislation. You will be a better merchant, and yours a better store for having met open competition in the true American way. Henry Ford sells millions a year, to people who can afford no better, and who are enabled to enjoy all the benefits of economical private transportation for business and pleasure, but there are plenty of customers left to make the Buick dealers, as a class, the most prosperous in the industry, and there are plenty of buyers, too, for Nash, Studebaker, Hudson, Packard and Cadillac.

So, too, with the chains.

Many people must buy on a price basis, but there are plenty who will buy better merchandise with better service in a more friendly spirit from you. And isn't it better that as many as possible enjoy the great wealth of radio entertainment that is on the air, even though some of this business does go to low price retailers, than that we should deny these people radio because prices were beyond their reach?

Sure it is, but let's see that the
chains don't get any business that really belongs to us. Let's not fall into the viewpoint that we are being wronged, when actually we're only "laying down on the job."

Radio sales belong to those who go after them fairly, but by the same token, service is the responsibility which must always go with the sale of a radio.

So let's sell our radio with service and satisfaction, and you will find no chain can meet your competition, for your rightful customers. This is so because no chain can function economically unless it maintains a highly centralized management, which must always mechanize and de-personalize their operation, making them unwieldy and slow to change, and highly vulnerable to the sound merchandising of an alert, smart dealer who will capitalize his personality, make his customers his friends, and keep everlastingly after it.

Heat and Humidity— Radios Enemies

Tropic temperatures play hob with U. S.-built sets and injure export sales to the benefit of European makers. How to overcome some common troubles in this line is told by the American Consulate General at Panama in a bulletin from the U. S. Bureau of Foreign Commerce.

Waxing certain parts of a set won't do for a climate where 80 degrees is the average room temperature year 'round, the Panama official says. He suggests:

That by-pass condensers have mica dielectric instead of paper to resist peak voltages.

Filter condensers should have copper containers instead of aluminum to prevent evaporation of solution.

Silk or rubber, not cotton, should be used for wire covering. Silk is preferred to cotton in the inner insulation of transformers.

SETS FOR THE TROPICS

That heavier gauge wire (not 39 or 40 as at present) with double the present capacity, be used on transformers and choke coils in general. Of this he says: "The winding should not be so tight as the paper insulation on which the winding takes place, swells and breaks the fine wire used. The moisture absorbed by the paper insulation also causes oxidation of the copper wire. This is also true in the case of the coils now being furnished."

The capacity of wire used on coils should be doubled.

Glass tubes will give the best performance as metal shields retard heat dissipation.

Metal cabinets preferred to wooden,
Battery Portables Win New Triumphs

Extended vacation season will swell present demand. College youngsters see portables as ideal campus companions. AC-DC operation makes portable a 12-month investment.

Battery portables occupy a star position in radio selling this summer. These handy little self-contained receivers have quickly earned a place for themselves with the public, and now no vacation trip—whether by car, train or boat—is complete without one of these delightful radio companions.

Vacation time is "portable time," and already the activity of the "portable" market has demonstrated that the new battery type of receiver has a welcome place in every radio family—no matter how complete was its prior equipment in consoles, compacts and combinations!

The portable is "something new": the young people want it, and the old folks want it. The portable supplies a universal need for "radio wherever you like it?" Hence, the public is flocking into dealers' stores for portables, in a way that brings back memories of radio's early bonanza days.

And with August and September still preferred vacation months for many people, this vacation rush of portables is scheduled to go on well into the Fall.

In September, too, begins the young people's exodus to college and boarding school. Already it is evident that these youngsters, intrigued with the trim lines of the new portables, are specifying such sets as preferred campus companions for the 1939-40 school year. For not only can the college boy or girl point with pride to the portable for dormitory use, but the college crowd also perceives that with a portable in hand, excursions afield and other extra-curricular events can be accompanied by dance music, classical selections, and events of the big world outside.

AC-DC PORTABLES

Meanwhile the portable makers have scored a new triumph, in adding to their lines sets which will operate on alternating or direct-current house service, in addition to the usual self-contained batteries. Keen-witted sales managers and designers were quick to see, after the first flush of the original portable sales, that soon these little portable units would be coming back from vacationland, to occupy places as extra sets in the homes of their owners.

Why not provide such sets for operation also from the nearest electricity outlet? Soon this was done, and now some 20 manufacturers are ready with battery portables which also operate AC-DC. Use them as summer companions at lake, ocean or mountain summer resort; then bring them back home to become regular power-driven household radios all during the rest of the year!

And for owners of those portables operated exclusively by batteries, there are now on the market power-pack devices which can be connected up to convert the battery portable into house-current operation. So the modern portable has become a solid 12-month investment in pleasure and satisfaction, adaptable for either battery operation or house-current supply.

CUTTING DOWN WEIGHT

Portables show a tendency to grow more and more compact as the year rounds out, and to shave weight of chassis and battery down to the minimum. Already "brief-case" portables have appeared, followed by "sports" models resembling cameras in size and appearance, and provided to be slung over the shoulder by similar supporting straps.

Some observers who have watched these battery radios successively penetrate new markets, think that the next frontier of purchasers' dollars will be opened up by a "pocket portable," with earphone which can be held to the user's ear to pick up news broadcasts. Such a pocket-portable, weighing only a pound or so, could be the constant companion of listeners who now have to spend many hours a day separated from their radios in home, car or office. So watch out for the pocket-portable. Perhaps it will be the next step to make the public more radio-minded than ever!

Clown pickets Main St.

Unique inexpensive promotion which brought interest, traffic and actual sales was used by Household Appliance Co., High Point, N. C., recently. A parading clown carrying a portable radio killed two birds with one receiver and a sign announcing the screen fare at the local picture palace. The Carolina Theatre paid for the clown and the cards while Household furnished the portable. Says dealer C. B. Blackburn, "Several sets were sold right after the promotion and many telephone calls were received while the clown was on the streets. Store traffic, too, was considerably increased by curious customers who had not seen portables."
HERE’S THE NEXT GROUP OF 1940 WESTINGHOUSE 20th Anniversary Series RADIOS

JUST OFF THE PRODUCTION LINE

YOU TOO CAN MAKE MONEY IN 1940 WITH WESTINGHOUSE

MODEL WR-473
Seven tube radio-phonograph console combination with edge-lighted slide-rule dial and push-button tuning for six stations.

MODEL WR-169
Five tube table model with five inch dynamic speaker and push-button tuning for five stations.

MODEL WR-468
Five tube radio-phonograph table model combination with five inch dynamic speaker and edge-lighted slide-rule dial.

MODEL WR-373
A seven tube console with edge-lighted slide-rule dial, 12 inch dynamic speaker, precision eye, automatic volume control, and push-button tuning for six stations.

You’re invited to join in a radio celebration that opens new profit opportunities for you!

This is the year Westinghouse celebrates the 20th Anniversary of the first radio broadcast from Westinghouse Station KDKA by offering a remarkable radio line... the 20th Anniversary Series! In every respect these new 1940 radios are superior instruments... superior in appearance, performance and dollar value! This line enables you to celebrate with unprecedented Westinghouse sales! Here’s why—

Instantly Visible is the distinctive beauty of these 20th Anniversary Radios. Styles have been created by America’s leading radio designers. Cabinets have been constructed of choice, finely grained, carefully matched woods. They offer eye-appeal no end!

Their Outstanding Performance is demonstrable! High quality, precision-built parts, improved chassis design, and exacting manufacture give you exceptional tone, selectivity and sensitivity. Here are radio results that help you close sales and build repeat business!

And, prices on the 20th Anniversary Series will help you celebrate. They enable you to offer top-dollar values yet give you ample margin of profit. Get the de luxe Sales Book and complete details from your distributor—now!

You’re invited to join in a radio celebration that opens new profit opportunities for you!

This is the year Westinghouse celebrates the 20th Anniversary of the first radio broadcast from Westinghouse Station KDKA by offering a remarkable radio line... the 20th Anniversary Series! In every respect these new 1940 radios are superior instruments... superior in appearance, performance and dollar value! This line enables you to celebrate with unprecedented Westinghouse sales! Here’s why—

Instantly Visible is the distinctive beauty of these 20th Anniversary Radios. Styles have been created by America’s leading radio designers. Cabinets have been constructed of choice, finely grained, carefully matched woods. They offer eye-appeal no end!

Their Outstanding Performance is demonstrable! High quality, precision-built parts, improved chassis design, and exacting manufacture give you exceptional tone, selectivity and sensitivity. Here are radio results that help you close sales and build repeat business!

And, prices on the 20th Anniversary Series will help you celebrate. They enable you to offer top-dollar values yet give you ample margin of profit. Get the de luxe Sales Book and complete details from your distributor—now!
Fair Trade Facts

Washington body officially approves Trade Practice regulations to promote fair competition and protect the public.

At long last the Federal Trade Commission has issued its Trade Practice Rules for the Radio Receiving Set Industry, as the result of hearings which have extended over a period of years. These rules have the force of law, being interpretations of existing law, and supported by the Federal Trade Act.

Of particular interest to dealers are the following rules, translated into everyday language:

1. It is an unfair trade practice, to use any mark, brand, label, advertisement, or trade promotional descriptions, which directly or by implication, are false, or which have tendency, or capacity to mislead or deceive the purchaser.

This rule covers a multitude of tricky advertising practices, wherein type faces, and illustrations of sets other than those to which the copy applies, have long deceived the unwary public, and put the honest dealer at a disadvantage.

"ALL-WAVE" DEFINITIONS

2. (a) Such terms as "All Wave," "World Wave," "World Wide Wave," shall not be used as descriptive of a radio set, advertised or sold, when such set is not capable of receiving the entire spectrum of frequencies in recognized use, foreign and domestic, except point-to-point transmissions which are confidential, radio beacons, and radio lighthouses.

(b) When used with the word "limited" and the exact frequency band which can be consistently received the words, All Wave, World Wave, World Wide Wave may be used, as "Limited All Wave" from 540 to 18,000 kilocycles. Limited World Wave from 540 to 18,000 kilocycles and from 19,000 to 25,500 kilocycles.

(c) The words all wave, etc., may be used as integral words in a statement which truthfully sets forth the frequencies consistently received and when these words are given no more prominence than the other words of the statement.

(d) The term "standard broadcast" may not be used to describe a set the frequency range of which is less than 540 to 1,600 kilocycles, or which is incapable of receiving all the stations claimed that it will.

Advertisements must plainly state the frequency range which the set will receive consistently.

Rule 3 covers the whole gamut of tricky and misleading phraseology commonly employed by unethal dealers and manufacturers to mislead the public into believing the set being advertised is better in quality, performance or value than it actually is. The important features of the rule follow below but in the more common, every-day terms.

The use of names or statements of consistent, foreign, worldwide reception, superior reception under adverse local conditions, freedom from noise and interference, when such claims or statements are false, mis-represented or capable of misinterpretation.

Advertisements, statements, and claims of tube count must be made with the accepted definition of a radio tube. Ballasts, dial lights, plug-in resistors, and other devices not serving in the amplification, detection, or accepted functions of signal reception shall not be considered as tubes and may not be advertised without identification to their true function as being included in the tube complement. Mis-leading or false statements or claims, of superior performance or reception through any part, tube, or accessory are prohibited.

Prohibited statements, claims, and advertisements with regard to price include; statement or implication of false or fictitious price reduction, statement or implication that set offered is a certain model as the same as a certain model when such is not the case, advertisement or offering of accessories, or parts as being included in stated price when such is not the case, advertisement or statement of a previous and fictitious list price, advertisement or offering of a bona fide trade-in allowance when price of new set has been deceptively inflated or marked up to offset the trade-in allowance.

Rule 4 prohibits the use of names prominent in the industry or in the public mind, when such names are not in fact, properly related to the radio so advertised.

Rule 5 prohibits the removal, or defacement of the correct nameplate, or the placing of a chassis of one manufacturer in the cabinet of a different manufacturer, or a cabinet made for a chassis of different size, model or type.

Rule 6 prohibits the imitation or simulation of any trade-mark, trade name, label or brand.

(Continued on page 48)
Overwhelming response from dealers on new policy indicates it ideally fits their requirements—is well planned for their future profit! Less than 4% said "no"!

RCA Victor recently announced a new merchandising policy—timely and periodic introductions of new models instead of an annual introduction. By direct mail dealers were asked for comments. Already, hundreds of them have written in—and their words indicate that once more, RCA Victor has taken the proper course.

Some of the dealers' comments are shown at right. They reflect the sentiments expressed by the large majority of those who replied. They are concrete evidence that it pays to deal with RCA Victor, the company that's first with the "firsts" that count.

For finer radio performance—RCA Victor Radio Tubes.

Listen to the Magic Key of RCA every Monday, 9:00 to 10:00 p.m., E.D.S.T., on the NBC Blue Network

HERE'S WHAT DEALERS SAY ABOUT RCA VICTOR'S NEW MERCHANDISING POLICY

NORTH... A dealer in Boston, Mass., says: "We think you're a year ahead of competition, both in vision and merchandise. Good luck"... A dealer in New York City, N. Y., says: "I have predicted that just this would happen, and am glad to see it. We have handled RCA just two months today and have averaged one set every two days."

SOUTH... A dealer in Atlanta, Ga., says: "One of the best plans I have ever seen. I think dealers will carry more merchandise which will enable them to do a better selling job. I also think this is the making of radio dealers."

EAST... A dealer in Washington, D. C., says: "This is the most constructive forward step in the industry for the dealers, distributor and manufacturer in the 17 years I have been selling radios"... A dealer in Pittsburgh, Pa., says: "We like it. The first year for several we have not been obliged to sacrifice profit to move models before the new line was received."

WEST... A dealer in San Francisco, Calif., says: "I think this new plan to be the most sensible and business-like plan ever offered by any manufacturer of musical instruments."
New Things
Latest radio products from manufacturers

Radio Slide Rule
★ Slide rule for radio men quickly accomplishes conversion of decibels to power ratios, voltage and current relations, LC ratios for a given frequency, and transformation of vector equations from rectangular to polar form. Keuffel and Esser Co., 127 Fulton St., New York, N. Y.—Radio Today.

RCA Receivers

Philson Auto Antenna

Burlington Loop Antenna
★ Loop antenna for use on any receiver is attractively cased and furnished with rubber suction cups for mounting. Burlington Labs., Inc., 1617 N. Damen Ave., Chicago.—Radio Today.

GE Freq Modulation Receiver
★ First of a group of three receivers for frequency modulation reception, HM-80 above employs 8 tubes, 6½-inch dynamic speaker, has 5 watt output, input jack for phone and television audio, and output terminals to feed into PA system. Tuning range, 39 to 44 mc. General Electric Co., Bridgeport, Conn.—Radio Today.

Ward Auto Antenna
★ Automatic telescoping auto antenna raised or lowered with pneumatic dash control. Is quickly installed and cannot jiggle down during use. Anti-static ball tip. Exposed length, closed 3 inches, open 42 inches. Complete with 30-inch low-loss lead. Ward Products Corp., 1523 E. 45th St., Cleveland, Ohio—Radio Today.

Farnsworth Radio
One of new Farnsworth line of radios, model AC-70. The receiver has 8 tubes, three wave bands, and push button tuning for six stations. A 12-inch speaker is a factor in its high fidelity reproduction. For additional details, see pages 10 and 54.

Radio Today
Paul Revere could have stayed in bed

Radio could have reached "every Middlesex village and farm" before the famous silversmith got started

Had RADIO broadcasting been available in 1775, Paul Revere could have spread the alarm in a split second, and been spared his all-night ride. As we look back, it is difficult to realize how the patriots of the Revolution were able to carry their task to successful completion in the face of the time required to exchange communications among the thirteen colonies. What an amazing difference radio makes in life today!

Today, matters of importance, whether to nations or to individuals, are flashed around the world instantly. R.C.A. Communications provides communication to and from 43 countries and among leading cities of the United States.

RCA services and RCA equipment put radio at the service of the world in many other ways, and thereby creates a profitable business for dealers, servicemen and distributors.

RCA activities are portrayed in RCA exhibits at the New York World's Fair and the San Francisco Exposition. You are cordially invited to visit these exhibits and learn how you can profit by going "RCA All the Way."

RADIO CORPORATION OF AMERICA
RADIO CITY, NEW YORK

Paul Revere could have stayed in bed

Radio could have reached "every Middlesex village and farm" before the famous silversmith got started

Had RADIO broadcasting been available in 1775, Paul Revere could have spread the alarm in a split second, and been spared his all-night ride. As we look back, it is difficult to realize how the patriots of the Revolution were able to carry their task to successful completion in the face of the time required to exchange communications among the thirteen colonies. What an amazing difference radio makes in life today!

Today, matters of importance, whether to nations or to individuals, are flashed around the world instantly. R.C.A. Communications provides communication to and from 43 countries and among leading cities of the United States.

RCA services and RCA equipment put radio at the service of the world in many other ways, and thereby creates a profitable business for dealers, servicemen and distributors.

RCA activities are portrayed in RCA exhibits at the New York World's Fair and the San Francisco Exposition. You are cordially invited to visit these exhibits and learn how you can profit by going "RCA All the Way."

RADIO CORPORATION OF AMERICA
RADIO CITY, NEW YORK

Paul Revere could have stayed in bed

Radio could have reached "every Middlesex village and farm" before the famous silversmith got started

Had RADIO broadcasting been available in 1775, Paul Revere could have spread the alarm in a split second, and been spared his all-night ride. As we look back, it is difficult to realize how the patriots of the Revolution were able to carry their task to successful completion in the face of the time required to exchange communications among the thirteen colonies. What an amazing difference radio makes in life today!

Today, matters of importance, whether to nations or to individuals, are flashed around the world instantly. R.C.A. Communications provides communication to and from 43 countries and among leading cities of the United States.

RCA services and RCA equipment put radio at the service of the world in many other ways, and thereby creates a profitable business for dealers, servicemen and distributors.

RCA activities are portrayed in RCA exhibits at the New York World's Fair and the San Francisco Exposition. You are cordially invited to visit these exhibits and learn how you can profit by going "RCA All the Way."

RADIO CORPORATION OF AMERICA
RADIO CITY, NEW YORK
More New Things

Kester Iron Holder
★ "Third hand" for the solderer is this adjustable bracket for holding a soldering iron in any position. Kester Solder Co., 4201 Wrightwood Ave., Chicago, Ill.—Radio Today.

Leach Recorders
★ Line of new recording and playback equipment. Model L-16 is a 16 inch recorder with dual speed, two input channels, TRF broadcast receiver, and 14 watt amplifier with flat range of 50 to 15,000 cycles. Complete in case with crystal mike, and 12 inch speaker. Electrical Industries Mfg. Co., Red Bank, N. J.—Radio Today.

Andrea Portable
★ A new portable receiver with big set features. 5-tube super-het circuit with tuned rf stage is mounted on 11½ inch chassis. Switching from battery power to AC/DC is automatic while low-drain tubes give long battery life. Audio power of 260 mw. from PM speaker. Andrea Radio Corp., 4229 48th Ave., Woodside, New York.—Radio Today.

Kester Iron Holder
★ "Third hand" for the solderer is this adjustable bracket for holding a soldering iron in any position. Kester Solder Co., 4201 Wrightwood Ave., Chicago, Ill.—Radio Today.

Leach Recorders
★ Line of new recording and playback equipment. Model L-16 is a 16 inch recorder with dual speed, two input channels, TRF broadcast receiver, and 14 watt amplifier with flat range of 50 to 15,000 cycles. Complete in case with crystal mike, and 12 inch speaker. Electrical Industries Mfg. Co., Red Bank, N. J.—Radio Today.

Andrea Portable
★ A new portable receiver with big set features. 5-tube super-het circuit with tuned rf stage is mounted on 11½ inch chassis. Switching from battery power to AC/DC is automatic while low-drain tubes give long battery life. Audio power of 260 mw. from PM speaker. Andrea Radio Corp., 4229 48th Ave., Woodside, New York.—Radio Today.

Mallory Tubular Capacitors
★ Line of cardboard tubular capacitors designed to give complete coverage of the replacement field. Available in common cathode, common anode, and separate sections. P. R. Mallory & Co., Indianapolis, Ind.—Radio Today.

Mallory Tubular Capacitors
★ Line of cardboard tubular capacitors designed to give complete coverage of the replacement field. Available in common cathode, common anode, and separate sections. P. R. Mallory & Co., Indianapolis, Ind.—Radio Today.

Stancor Midget Transformers
★ Line of light weight audio units measuring 1½" in diameter by 1¼" high are especially adapted for aircraft and hearing aid use. Units not carrying DC in the primary are high fidelity with flat response from 30 to 15,000 cps. Units are vacuum sealed. Standard Transformer Corp., 1500 N. Halsted St., Chicago.—Radio Today.

Stancor Midget Transformers
★ Line of light weight audio units measuring 1½" in diameter by 1¼" high are especially adapted for aircraft and hearing aid use. Units not carrying DC in the primary are high fidelity with flat response from 30 to 15,000 cps. Units are vacuum sealed. Standard Transformer Corp., 1500 N. Halsted St., Chicago.—Radio Today.

Dumont Condensers

Dumont Condensers

Electronic Labs Inverter
★ One of a line of new DC to AC inverters designed to operate from 6, 12, 32, 110, and 220 v. DC and inverting to 110 AC. Featured for use with the new fluorescent lamps thus giving the equivalent of 100 watts of incandescent light with 45 watts of the fluorescent illumination. Electronic Lab. Inc., 122 W. New York St., Indianapolis, Ind.—Radio Today.

Electronic Labs Inverter
★ One of a line of new DC to AC inverters designed to operate from 6, 12, 32, 110, and 220 v. DC and inverting to 110 AC. Featured for use with the new fluorescent lamps thus giving the equivalent of 100 watts of incandescent light with 45 watts of the fluorescent illumination. Electronic Lab. Inc., 122 W. New York St., Indianapolis, Ind.—Radio Today.
CROSLEY Products are quality merchandise

You can sell easier, faster, more profitably when you know the materials and the manufacturing methods in Crosley products are QUALITY all the way through.

NEW FREEZORCOLD SHELVADO

Here is a new development in Crosley Shelvadors where frozen foods can be easily stored, fresh meats, game and fish frozen and kept deliciously until used, salads quickly chilled and ice cubes made and held against any party demand. Like all Shelvadors, quality manufacturing marks every step in fabrication. Finest American steel. Armco Ingot Iron, Bonderizing for perfect enameling. Air-conditioned enamel applications for satin-like surfaces. Rock wool insulation. Hydrogen electric brazing for permanent joints and seams, Oversized hardware, Scientific precision in compressor construction, "Freon"—the efficient, harm less refrigerant. Every detail is a quality operation to provide . . . "the best you can buy."

SHELVADOR PRICES BEGIN AT $99.50 and offer a complete step-up for all sizes of purses and families.

THE CROSLEY CAR

Manufacturers selected for their high standing as suppliers of automotive parts have developed the CROSLEY car into an amazingly rugged, easy riding, incredibly safe, smart appearing automobile performing at unbelievably low costs.


Doors and rear quarter of body now lined to match upholstery. Many other body refinements emphasize the car's outstanding value.

NEW CROSLEY RADIO

In circuit development, audio improvement, and design, Crosley Radio reaches a new high in value. Pictured is the extraordinary Curveflector receiver embodying feather-touch electrical tuning, 8-tube superheterodyne circuit, 3 bands and the amazing new curved tone diffuser called the CURVEFLECTOR. See Crosley radio quality evident in construction . . . cadmium plated all metal spot welded chassis compensated for all temperature changes . . . switches with silver plated contact points . . . ball-bearings in tuning mechanisms . . . etched dials . . . individually balanced speakers.

Crosley Radios are manufactured in all popular types and models. Prices begin at $7.99 and offer dealers a full line of smashing superiority at every price level.

THE CROSLEY CORPORATION

WLW—Home of "the Nation's Station"—70 on your dial
POWEL CROSLEY, Jr., President
CINCINNATI

See the Crosley Building at the New York World's Fair

AUGUST, 1939
More New Things

Hickok Voltmeter-Oscillator

.crystal controlled oscillator with dual 100-1,000 kc. crystal has harmonic outputs to 100 mc. with error of less than 0.01 per cent. Self-contained power level meter has three db ranges from -10 to -38. VTM checks gain per stage. Hickok Electric Instrument Co., 16314 Dupont Ave., Cleveland, Ohio.—Radio Today.

Atlas Mike Cable Hanger


Regal Tokforo

.Selective or group paging and inter-communication may be had between any or all of 10 stations simultaneously, 7-10 watt amplifier. Calls may come from remote stations if three conductor wiring is installed. Regal Amplifier Mfg. Corp., 14 W. 37th St., New York, N. Y.—Radio Today.

Hallicrafters Crystal Oscillator

.crystal oscillator with fundamental outputs of 10, 100, and 100 kc. uses a harmonic amplifier and multivibrator. 10 kc. harmonics are strong enough for check points to 15 mc. while the 100 and 1,000 kc. harmonics extend beyond 50 mc. Hallicrafters, Inc., 2411 S. Indiana St., Chicago.—Radio Today.

IRC Plug-in Shafts

.Line of special standard type CS metallized controls have plug-in shafts to facilitate replacement in tight places. Shafts are pressed in with the flat at any angle of rotation. International Resistance Corp., 401 N. Broad St., Philadelphia, Pa.—Radio Today.

RCA Tube Tester

 трубка тестер доступна в комплекте с радио или мобильными моделями, тест всех типов трубок, включая светильник и елку. Каждый комплект имеет две запасные трубки и карту данных для восьми трубок в будущем. Филаменты в трубках достигают 120 ампер. Модели 156-C и 156-B. Цены: $37.95 и $39.95 для радио и мобильных моделей соответственно. RCA Mfg. Co., Camden, N. J.—Radio Today.

Kodacap Tubular Condenser

.A special process cellulose derivative is the dielectric for a new 1,000-volt tubular capacitor which is slightly smaller than the ordinary 600-volt units of same capacity rating. The new condenser is not only superior in its ability to stand higher than rated voltages under ordinary conditions but also shows marked improvement under high humidity conditions. Tests show life of three times the ordinary paper-insulated condensers. Especially adapted for use in public-address equipment, television receivers, and other devices requiring a high-voltage capacitor with margin of safety. Micamol Radio Corp., 1087 Flushing Ave., Brooklyn, N. Y.—Radio Today.

Kenyon Transformers

.Two new products, a modulation transformer T-489 with tapped primary and secondary for matching impedances from 2,000 to 20,000 ohms has audio power rating of 15 watts. Filament transformer T-386, has 6.3 v. 3 amp. CT, and 5 v. 4 amp. CT windings. Catalog on request. Kenyon Transformer Co., 846 Barry St., New York, N. Y.—Radio Today.

Port-O-matic Portable

.Superhet operates on batteries-AC-DC. Tunes standard broadcast and 16 to 49 meters. Four tubes used in battery position while six and ballast are used in electrical operation. Has on-off indicator and pilot light. Model USW-17-C, cowhide cover, list $54. Also Model USW-17-C, aero-tweed, $45.50. Batteries extra at $3.50 for A and B kit, Port-O-matic Corp., 1013 Madison Ave., New York, N. Y.—Radio Today.

Stancor Hi-Fi Transformers

.Line of high fidelity audio transformers featuring reversible mounting, and electrostatic shield terminal has uniform frequency response from 30 to 15,000 cps. Standard Transformer Corp., 1500 N. Halsted St., Chicago.—Radio Today.
Here's a tube checker that will end your frequent replacement headaches. It furnishes complete tests on present commercial tubes; and, in addition, the circuits are designed with an eye to the future. Thus you won't be caught short...this year or the next...with a checker "totally out of date." That's the way WESTON designs and builds tube checkers, as well as all other radio instruments. You can prove this point by observing the thousands of older WESTON tube checkers still in active service...still up-to-date...despite the many changes during the past several years.

And to aid those thousands of servicemen whose checkers have loktal sockets, yet will not test the new high filament voltage tubes, WESTON offers the new, inexpensive FILATROL unit, described below. It may save you the cost of a new tube checker!

For full particulars on WESTON Model 773 and the new FILATROL unit, see your jobber or return the coupon today.

Weston Electrical Instrument Corporation
597 Frelinghuyzen Ave., Newark, N. J.
Send complete information on WESTON Tube Checkers and the new FILATROL unit.

Name

Address

City...State...
SAILED HAILED BY THE

APPROXIMATELY 25 LEADING MANUFACTURERS ARE DESIGNING PORTABLE SETS AROUND THIS REVOLUTIONARY NEW "EVEREADY" "MINI-MAX"

45-volt radio "B" battery

DOUBLE the listening hours of conventional batteries of equal size—(because of more active materials per unit of volume)—or, about the same service-life of a conventional battery TWICE the size!

WEIGHS ONLY 3 1/2 lb.
MEASURES ONLY 3 7/16" HIGH, 3 1/2" WIDE, 1 3/4" THICK
NEW BATTERY RADIO INDUSTRY!

AGAIN NATIONAL CARBON COMPANY MAKES BATTERY HISTORY!

In the startling new "Eveready" "Mini-Max" "B" battery, the leader of the battery industry again makes an outstanding contribution to radio. National Carbon Company, Inc. pioneered the change from antiquated round-cell to "Layer-Bilt" construction of "B" batteries. And now the ultimate has been achieved by the development of a sensational new principle in battery manufacture—too technical and involved to explain here. It took years of research and experiment by engineers of the world's leading battery manufacturer to perfect this principle. The result is the "Eveready" "Mini-Max" 45-volt Radio "B" Battery, destined to have far-reaching effect on the portable radio field.

WHAT "EVEREADY" "MINI-MAX" MEANS TO THE PORTABLE INDUSTRY...AND WHY!

As the name suggests, "Mini-Max" means minimum space and maximum power! With this battery, portable sets can be lighter, smaller, more compact, and just as efficient. For the new "Eveready" "Mini-Max" battery occupies only about half as much space as the best comparable "B" battery. Yet it delivers the same number of service hours—an average of 250 or more—at no additional cost!

NATIONAL CARBON COMPANY, Inc.
General Offices: New York, N. Y. Branches: Chicago, San Francisco Unit of Union Carbide Inc. and Carbon Corporation

The words "Eveready" and "Mini-Max" are registered trade-marks identifying products of National Carbon Company, Inc.

NOTE TO DEALERS
To make certain that these new batteries will be available for initial equipment of sets, it seems advisable for the time being to make our current output available to set manufacturers. However, the batteries will be available to the trade by the time the demand for replacements begins.
SENSATIONAL NEW BATTERY HAILED BY THE RADIO INDUSTRY!

APPROXIMATELY 25 LEADING MANUFACTURERS ARE DESIGNING PORTABLE SETS AROUND THIS REVOLUTIONARY NEW "EVEREADY" "MINI-MAX" 45-volt radio "B" battery

DOUBLE the listening hours of conventional batteries of equal size—(because of more active materials per unit of volume)—or, about the same service-life of a conventional battery TWICE the size!

AGAIN NATIONAL CARBON COMPANY MAKES BATTERY HISTORY!

In the starting new "Eveready" "Mini-Max" "B" battery, the leader of the battery industry again makes an outstanding contribution to radio. National Carbon Company, Inc. pioneered the change from antiquated round-cell to "Layer-Bilt" construction of "B" batteries. And now the "ultimate" has been achieved by the development of a sensational new principle in battery manufacture—too technical and involved to explain here. It took years of research and experiment by engineers of the world's leading battery manufacturer to perfect this principle. The result is the "Eveready" "Mini-Max" 45-volt Radio "B" Battery, destined to have far-reaching effect on the portable radio field.

WHAT "EVEREADY" "MINI-MAX" MEANS TO THE PORTABLE INDUSTRY...AND WHY!

As the name suggests, "Mini-Max" means minimum space and maximum power! With this battery, portable sets can be lighter, smaller, more compact, and just as efficient. For the new "Eveready" "Mini-Max" battery occupies only about half as much space as the best comparable "B" battery. Yet it delivers the same number of service hours—an average of 250 or more—at no additional cost!

NOTE TO DEALERS

To make certain that these new batteries will be available for initial shipments of radios, it is essential that the network and broadcast industry make up present orders for these batteries will to our manufacturers. However, the batteries will not be available to the trade in the trade by the time the demand for replacements

NATIONAL CARBON COMPANY, Inc.
General Offices: New York, N. Y. Branches: Chicago, San Francisco
Unit of Union Carbide & Carbon Corporation

The words "Eveready" and "Mini-Max" are registered trade-marks identifying products of National Carbon Company, Inc.
New Sound Products

Webster-Chicago PA System
★ 14 watt portable PA system contains 3-section full-size mike stand. Amplifier has two channel input, tone control, and output impedances of 4, 8, 250, 500 ohms. Size 11 1/4 x 17 x 18 inches. List price with 1 crystal mike, $135. Webster-Chicago, 5622 Bloomingdale Ave., Chicago.—Radio Today.

Stromberg Speakers
★ Speakers used in the 1940 Stromberg line are now available in variety of sizes, 5 1/2 to 12 inches including the earpinchoe leather edge suspension feature. Stromberg-Carlson Telephone Mfg. Co., Rochester, N. Y.—Radio Today.

Clarion Sound System
★ A 61-41 watt PA system for 6 volt DC or 110 volt AC includes a three channel electronic mixing amplifier, two 12 inch PM speakers and steel dome baffles, hand microphone, and speaker cable. Supplied with or without phone attachment. List, less phone, $205.67; with phone, $227.36. Model C-463. Transformer Corp. of America, 69 Wooster St., New York, N. Y.—Radio Today.

Garrard Record Changer
★ Automatic record changer plays eight 10" or 12" records in any assortment or combination. The unit is spring mounted and equipped with a tangent crystal pickup. Model RC-50 operates from 110 and 220 volts. Model RC-51 is the universal AC-DC unit with high impedance magnetic head. Garrard Sales Corp., 246 Broadway, New York, N. Y.—Radio Today.

Storytone Electric Piano
★ Spinet-size piano employing individual magnetic pickups for each string and high fidelity amplification gives unusual tone and volume range. Optional bench containing record changing victrola and RCA radio operating through hi-fi audio system lists at $150. Storytone piano, list $655. Story and Clark Piano Co., 64 E. Jackson Blvd., Chicago.—Radio Today.

Radio-Wire-Tele PA System
★ A 25 watt reverse feedback amplifier has four input channels, two with 115 db gain and two with 84 db gain. Output is through a universal transformer and direct connections to the plates of the 6L6G's enabling the unit to be used as a driver or modulator. Model 440T. Radio Wire Television Corp. (Wholesale Radio Co.), 100 6th Ave., New York, N. Y.—Radio Today.

Shure Microphone
★ Crystal microphone for amateur and commercial phone communication employs a built-in RF filter to protect against burn-outs. Output level is 26 db. below 1 volt for a 10 bar sound pressure. Comes equipped with 7 ft. shielded cable. Shure Brothers, 225 W. Huron St., Chicago.—Radio Today.

IRC Step Attenuator
★ Bridged "T" step attenuator comes in 50, 200, 250 and 500 ohm impedances. Attenuation is 1.5 db per step up to 36 db, tapering off to 65 db and to infinity on the last step. Noise level, -150 db. International Resistance Corp., 401 N. Broad St., Philadelphia, Pa.—Radio Today.

Operadio Reflex Speaker
★ Speaker baffle of the reflex type increases useful frequency range of a speaker by utilizing resonant air column in closed speaker housing. AR series covers range of cone speaker sizes. Ope- radio Mfg. Co., 12th and Indiana St., St. Charles, III.—Radio Today.
JOHN DOE is now running an established radio service business—turning over his tube stock at least three or four times annually—knows how to make use of attractive displays and other advertising material for increasing sales—and has the good judgment to maintain standard prices for his own protection.

If you resemble John Doe, and your location does not interfere with already established Tung-Sol agents, you’re wanted at headquarters—tube headquarters. There’s thousands of dollars reward because you qualify for the Tung-Sol plan which provides an adequate supply of tubes without buying them. Write us today.

TUNG-SOL LAMP WORKS, Inc.
Dept. C
Radio Tube Division

TUNG-SOL LAMP WORKS, Inc.
Dept. C
Radio Tube Division

SALES OFFICES: Atlanta · Chicago · Dallas · Denver
Detroit · Kansas City · Los Angeles · New York
General Offices: Newark, New Jersey
Pushes Service Sales—
"Time and Material"

Editor Radio Today:

We are bearing down heavier on ser-
viee and easing off on receiver sales, due to our inability to sell satisfactory
radio merchandise to sell.
Service has kept us going the last
two years. Haven't made a net nickel
from radio sales, due mostly to:
1. Warranty-period service expense
denting slim profits.
2. Too many models, too many model
changes.
3. Getting caught with models, value
of which has been depreciated to or
below our net cost by department-
store dumping.
4. Heavy trade-in pressure, inability
to move the trade-ins.
5. Prospects, on demonstration or
after home trial, telling us their old
sets are better than the ones we are
trying to sell, and being right about
it.

PASS UP DOUBTFUL CREDITS

Current policy, which has at least
kept us going, as follows:

Limiting advertising expense to
about five dollars a month, in classified
ads pushing service.

Passing up doubtful credits, close
deals, excessive trades, net price sell-
ing to friends and relatives. We won't
make a home demonstration any more,
but will lend a new set while old one
is pulled for repairs where customer is
believed able to trade.

Re Pocket Radios!

"That's funny—I had that little set
here in my pocket when I left home."

Letting new set stock run down,
carefully overhauling and polishing up
trades, emphasizing wonderful dollar
value in rebuilds.

Bearing down on washer sales, and
refrigerator service. Washer sales are our
"nicest" business. Would gladly
trade a thousand dollars in radio busi-
ness for $750 in washer business, and
make more money.

Declining service work offerings
where customer wants to set the price
or limit it. We take 'em time and ma-
terial, or three dollars flat plus ma-
terial (excepting automatic tuners, and
sets which have evidence of previous,
incompetent servicing which wastes
our time).

We charge fifty cents to open up one
of the new gadgets and test the tubes.
although we'll test the tubes free if
customer hands them to us. We charg
for our work, and consider opening up a set work!

In general, "sitting tight."

T. B. Scherzer,
Cape May Court House, N. J.

The Case for Annual Intro-
duction of New Models

Editor, Radio Today:

Under the caption, "Manufacturers' New Policies" (page 10, July issue),
you hail announcement by a promi-
minent radio maker of "No Annual Show-
ing of New Models" as a big step
ahead, and prophecy its general adop-
tion by the industry. In my opinion
these conclusions are as yet highly
debatable, as shown by the following
detail-by-detail analysis of the propo-
sition.

1. No manufacturer now advertises
to the public or to the trade an arbi-
trary dead-line for bringing out new
models and dropping old ones. Engi-
neering, production and sales promo-
tion are planned well in advance;
there is plenty of lee-way if things go
wrong. Even so, the industry must be
girded up to a certain amount of
tension if it is to continue to produce
new ideas and improvements compel-
ing consumer demand. Rocking-chair
tempo eventually leads to doldrums or
death in any industry.

2. Proper production control, based
upon up-to-the-minute sales reports,
will reduce price demoralization to a
minimum. Surely it is safer to uti-
lify two dull months for a little neces-
sary liquidation and have it over with,
than to liquidate model by model over
a period of twelve months.

IMPRESSIONING THE PUBLIC

3. The public has been educated to
expect lines of new models at custom-
ary intervals, and orderly introduction
of a new line at the usual time has no
bad effect on time-payment paper.

"CAP" SAYS—
Manufacturers, Attention!

In an adjoining column is a letter
to the Editor, from a despairing radio
man, who puts in words the feeling of
countless radio dealers.

It deserves sincere and serious
consideration because the loss of en-
thusiasm and morale of those on the
firing line is as disastrous to an in-
dustry, as to an army.

There is much truth in what this
dealer says, and the answer lies in
your hands. Dependent upon how this
feeling is corrected is the future of
radio distribution.

It may be a matter of opinion as to
whether you as manufacturers, prefer
to have your products distributed by
a large number of small dealers, or a
small number of large dealers. But it
is a fact that you cannot long merit,
or hope to keep, the support of deal-
ers who lose their money and their
shirts, because of conditions over
which they have no control, but
which you govern.

The question of price stabilization
becomes increasingly important as
credit sales go up. The relation of
production to demand, and the exclu-
sion of predatory price cutters from
your established retail distribution
organization are vital factors in price
stabilization.

The independent dealer has often
been accused of lack of loyalty to any
manufacturer, but as a matter of fact,
loyalty can long endure only when it
is merited.

If you, Mr. Manufacturer, want the
small dealer in your future plan of
distribution, you'd better start now,
to keep him in the picture, before the
present intolerable conditions
reach their inevitable conclusion, and
he gives up his business ghost.

Only ruthless price-cutting on models
already in consumers' hands and
widely advertised, can hurt the deal-
er's outstanding time sales, and proper
production control renders this abso-
lutely unnecessary.

4. Automobile, refrigerator, furni-
ture, and countless other industries,
scarcely older than radio, know
from experience that timely introduc-
tion of a sweeping new line turns
jaded lukewarm lookers into goggling,
marveling, buy-hungry prospects and
these are the same people who buy
radios. A year's contemplation of a
trickling stream will never register
like a minute's glimpse of Niagara
Falls.

5. Obsoleting fewer sets at one time
will never compensate for the evils of
continuous liquidation on a model-by-
model basis. The public easily learns
to differentiate between yearly models
in all lines of business, but can never
learn to distinguish between manu-
facturers' model numbers. Experience
guarantees that certain retail outlets

(Continued on page 44)
If you have seen all the “portables”, there’s still a real surprise for you when you look inside the brand new ANDREA UNIVERSAL!

— for ANDREA engineering, always directed to superlative performance, by applying more advanced design ideas, has put something entirely new inside the “portable” case.

CHECK THESE 12 ANDREA FEATURES AGAINST ANY “PORTABLE” RADIO

★ MORE VOLUME & TONE QUALITY: Before you look inside the ANDREA UNIVERSAL, you’ll hear the greater volume (ample for out-door) and the finer tone quality (high notes clear and bass notes strong).

★ BIG-SET FEATURES: The ANDREA UNIVERSAL chassis looks like the high-power set it really is. Not a skimpy, crowded affair, but a full-size chassis 11½ ins. long, permitting high efficiency, easy-access arrangement of the components.

★ BIG-SET CIRCUITS: 455 kc. super, 5 latest tubes, dual A.V.C., double-tuned litz transformers, rubber-mounted tuning condenser, big-set R.F., I.F., and power filtering to reduce interference, increase quality.

★ MORE SENSITIVITY: The ANDREA UNIVERSAL is not limited to nearby stations. In the country, where “portables” are silent, this set gives strong, clear reception.

★ AUTOMATIC AC-DC-BATTERY SWITCH: Foolproof switch changes circuits from AC-DC to self-contained batteries.

★ BATTERIES LAST LONGER: Chassis design keeps batteries cool during AC-DC operation. Special circuits cut B drain to 10 mils, yet maintain full output down to 105 volts. Newest, heavy-duty batteries supplied.

★ EXTRA-QUALITY SPEAKER: More volume supplied by dust-proof speaker, with extra-large Al-Ni-Co field magnet.

★ LOOP OR OUTSIDE ANTENNA: Larger loop increases pick-up. Connections for outside antenna, also.

★ EASIER TUNING: Extra high ratio tuning control, with larger, easy-reading dial.

★ “CLIMATE SEALED” CONSTRUCTION: Built to specifications of ANDREA overseas sets, “Climate Sealed” treatment protects all parts against moisture and high temperatures.

★ HIGHER OUTPUT: Undistorted output of 260 milliwatts (2 to 3 times ordinary portables) gives amazing volume.

★ MORE ATTRACTIVE APPEARANCE: Smart case with disappearing door. Lock and key prevents unauthorized use and conserves batteries. Finishes: airplane luggage cloth, alligator, or leather brown.

SEND FOR ILLUSTRATIONS, PRICES, DISCOUNTS

Andrea Radio
RADIO and TELEVISION ENGINEERS and MANUFACTURERS
Renowned throughout the world for engineering that delivers Peak Performance

ANDREA RADIO CORP. 4820-48th AVENUE, WOODSIDE, NEW YORK CITY Cable: RADIAANDREA, N. Y.

AUGUST, 1939
LET'S LOOK AT

The Record

With an expected gross of 50,000-000 discs to be sold in 1939, phonograph records no longer have to prove their worth in the eyes of the radio dealer. However like any other merchandise, they do not sell themselves. Dealers who have stuck a few standard recordings in a corner of the store have been greatly disappointed in resulting sales. Buyers want variety, latest releases, and a place to try them out.

Purdue Radio Company, Montclair, N. J., have found the record field so profitable that it has become a major part of the business. Bob Purdue in charge of the department gives credit for the success to three principles followed over a period of time; complete, varied stock, consistent advertising, and strongest of all, service.

LARGE STOCK

Since the classical division of the business is the most profitable it receives the most studied attention. The stock comprises every well-known selection in both the individual record and album sets. Even some more obscure records are carried and while these sales are infrequent prestige is gained by not sending the occasional customer somewhere else.

The ballad and smooth-swing dance records comprise the bulk of the popular business so attention is focused on them in preference to the few "killers" bought by jitterbugs.

Unusual pressings make a good profit while in demand. When interest subsides in an item it is discontinued. Children's records, after the "Snow White" shot in the arm are growing in popularity and Purdue keeps adequate stock on hand at all times.

CONSISTENT ADVERTISING

Direct mail proved to be the best medium for record advertising. A carefully selected list of record buyers receives a new listing each month and special letters during Christmas and other occasions. During the summer a list of dance and classical records is mailed to attract the young folks home from school and college.

Printed concert programs of outstanding musical events in the locality have been used with success for advertising purposes. To distribute the cost, ads of this kind usually feature a large radio-phono, with records mentioned as an additional item.

SERVICE

Purdue feels that many of the original customers have been held through what to many would seem a small factor. Promises made to customers are always kept, even at the expense of much extra trouble. Care is taken not to make commitments that are plainly impossible to fulfill. Customers are impressed with the salesmen's knowledge of artists and music. In order to be well informed the men play over all the new releases and study accompanying literature. Current musical films are bound to be discussed so all such pictures are attended.

Customers naturally appreciate the great regard shown for the records. They are demonstrated only with composition needles and their playing surfaces are kept free from dust and finger marks.

Victor Black Label Records Reduced

Now popularly priced at $1.00 are RCA Victor's 12-inch Black Label records of standard classics. Announcing the reduction in price, and an extensive recording program, W. E. Early, manager of recording and record sales, stated:

"This new program will include every type of music which falls within the broad confines of what may be called 'standard musical tastes.' "It is aimed directly at the national market which, though it is now increasing more rapidly than ever, consistently demands the old favorites."

Ralph C. Powell, sales manager of Presto Recording Corp., (extreme right), officiates at the recorder while S. J. Andrews and Carolyn Allen of ad agency Fuller, Smith, and Ross, aid in making a preliminary script recording for the Westinghouse radio series.

Wax worth watching

JUDE LOMBARDO and his Royal Canadians playing I'm Sorry for Myself, with vocal by, and I Pour My Heart Into a Song, with VC by Carmen Lombard—Decca 2550.

JIMMY DORSEY and his orchestra playing Romance and This Is No Dream, with VC by Bob Eberly—Decca 2536.

DUKE ELLINGTON and his orchestra playing No Papa No and Rockin' in Rhythm—Victor 25330.

MILDRED BAILEY, with her orchestra, singing Moon Love and It Seems Like Old Times—Vocalion 4930.

FATS WALLER and his Rhythm playing Honky Huth and You Meet the Nicest People in Your Dreams, both with VR by Mr. Waller—Bluebird B10346.

ELLA FITZGERALD and her Savoy Right playing If That's What You're Thinking You're Wrong and I Had to Live and Learn, both with VC by Miss Fitzgerald—Decca 2581.

EDDY DUCHIN and his orchestra playing Well All Right, with VC by Johnny Mackee and Still the Bluebird Dances with VC by Stanley Worth—Brunswick 8442.

JAN GABER and his orchestra playing You Meet the Nicest People in Your Dreams and Love With a Capital 'You,' both with VC by Fritz Helberg—Vocalion 4904.

FREDDY MARTIN and his orchestra playing Winter Blossoms and Let's Disappear, both with VR by Bill Stoker—Bluebird B10350.

HORACE HEIDT and his Musical Knights playing The Man with the Mandoline with VC by Larry Cotton and the Helftrites, and If I Were Sure of You with VC by Mr. Cotton—Brunswick 8430.

PAUL WHITEMAN and his orchestra playing Moon Love and Te You, both with VC by Joan Edwards—Decca 2578.

ABE LYMAN and his California playing You Don't Know How Much You Can Suffer with VR by Rose Blane and After I Say I'm Sorry with VB by Ed Holly—Bluebird B10325.
YOU NEED company dependability for secure and stable business relationships—product dependability to insure customer satisfaction—and profit dependability because, after all, your real reason for being in business is to make money.

So don't risk your present prosperity and future business welfare by stocking a tube line that fails on even one of these important requirements. Make Sylvania your feature tube line—for Sylvania wins on all three counts...gives you full measure on not only company and product dependability, but profit dependability as well!

HYGRADE SYLVANIA CORP., EMPORIUM, PA. ALSO MAKERS OF HYGRADE LAMP BULBS.

SELL SYLVANIA
SET-TESTED RADIO TUBES

DEPENDABLE ALL WAYS

AUGUST, 1939
The increased use of sound amplification for advertising and entertainment purposes has brought a host of new problems and new developments. More and more, the local service man and radio dealer is called upon to supply sound amplifiers and to service existing installations.

In so many installations, the results obtained from sound amplifying equipment are so poor that the user is dissatisfied, the equipment is, in some cases, unjustly accused, and the general public forms an opinion of sound systems which works against a more extensive use of PA equipment. With these facts in mind, we decided to do something about it by covering a few fundamentals of the art.

Fig. 1—Audio power requirements vary with initial noise level in the area. This graph is based on average conditions with a medium or low noise intensity.

AMPLIFIER POWER

The question of the power rating of an amplifier is very important. Too many present-day sound jobs have been installed with insufficient power either for economic reasons or overestimation of the amplifier capabilities. In order to maintain a satisfactory sound level, the under-sized system must be "pushed" with the result that reproduction is badly distorted. Amplifier distortion at levels above the normal rating is due to the non-linearity of the emf—ip curve near the "knee" or saturation point. The output wave is distorted with a second harmonic and to a lesser extent with the higher order harmonics. The use of a push-pull amplifier will eliminate the second harmonic distortion. Because the distortion of any amplifier increases rapidly beyond its normal power level, it is necessary to use an amplifier of sufficient capacity to secure the best quality reproduction. A maximum distortion of 5 per cent or less at full sound level is entirely satisfactory.

The problem of just how much power to use for a given room or area is quite difficult to answer. The initial noise level, the total sound absorption, and the efficiency of the speakers enter into the final answer. The curve in Fig. 1 gives the amount of power required for rooms of different cubical content. It is based jointly on observations and calculations. It is further based on speakers of the trumpet type; meaning transducer efficiency in the order of 25 per cent. Flat baffled or box baffled speakers will require approximately three times the power as given in Fig. 1. In skating rinks, and places of high initial sound level, proportionally more power will be required. A sound level of 35 DB above the existing noise level is about correct for general purposes. (Remember that the total level is not the sum of noise level in DB and the sound level in DB. Two sounds of 10 DB intensity each, when combined give a resultant level of 15 DB and not 20 DB.) For outdoor installations it is customary to allow approximately 1 watt of power for each 1,000 square feet. Here again, this figure must be tempered with judgement and slightly more power allowed to be on the safe side with respect to quality.

Fig. 2—Proper two-speaker lay out for best sound coverage and minimum of feedback. Note speakers mounted above and ahead of the microphone. Directional baffles put the sound where you need it.

SPEAKERS

The quality of reproduction is dependent upon the speakers as much as upon the amplifier. Distortion may result from overloading the speakers or from resonance of the speaker, its supports, or baffle. To overcome the first defect, be sure that the sum of the power ratings of the speakers is equal to or greater than the power rating of the amplifier. Be sure that each electro-dynamic speaker has its rated field power supplied. Mechanical resonance of the speaker system can best be located by using an audio oscillator connected to the input of the amplifier and while holding the volume level constant at about 50 per cent capacity, vary the frequency of the oscillator and observing the speaker system for vibration and distortion. Thin wooden or metal baffles cause the most trouble since their natural resonant frequency is within the audible range. The general cure for both types is dampening. Wooden baffles may be backed with celotex or similar material to lower the natural resonant frequency below the normal range of the amplifier. Metal baffles of the trumpet type are being successfully dampened with a strip of rubber hose which has been slit and slipped over the rim at the mouth of the trumpet. Resonance in the speaker itself, unless due to loose parts, can best be coped with by trying different makes of speakers.
BAFFLES

The speaker baffles are the final link in the sound system and their choice largely determines the final results. Flat baffles give the widest angle of sound projection, are easily transported, and are relatively inexpensive.

These facts account for their use in the general portable system where low to medium power is being used through one or two speakers. The flat baffle has been “folded” into the box type with an open back. In using the box type speaker baffle, be sure to have at least two inches of clearance between the back of the baffle and any mounting surface such as a wall. This clearance will prevent “cavity resonance” by the air trapped in back of the speaker cone.

Trumpet type horns or baffles are used in the higher powered installations where the sound must be directed over distinct areas. Their directional properties aid in reducing audio feedback by keeping the high intensity sound area away from the microphone.

SPEAKER PLACEMENT

Best results are obtained when the speakers are mounted above and forward from the microphone position.

The speaker baffles should be placed to direct the sound down into the audience and where two speakers are used, one on either side of a stage, they should focus on a point mid-way between and about three-fourths of the way back to the end of the room. See Fig. 2. Flat baffle speakers should be mounted further in front of the mike than trumpet speakers in order to minimize audio feedback.

(Continued on page 45)

Fig. 3—The most suitable reverberation period as based on observations in acoustically good rooms. Reverberation time is period during which a sound, having been produced, decreases 60 db. The addition of sound absorbing materials increases the reverberation time.

**Speaker Enclosure**

**Model A R**

You want to sell your customers good sound. You promise them that. You buy the best in microphones, amplifiers and speakers. But what really comes out of that speaker won’t be really good sound unless you enclose it with an OPERADIO A R SPEAKER ENCLOSURE. That means your equipment is properly matched for perfect performance.

The Operadio “Acousti-Reflex” principle is used which makes a perfect baffle, taking the sound that emanates from the back of the speaker and projecting it to and out of the front of the speaker cabinet. Thus volume is augmented, tones made richer, bass frequencies increased.

Use A R Enclosures for voice and music. Use V R for voice alone. Ask for complete details found in

**NEW P. A. CATALOG**
Address Dept. RT8

**OPERADIO**
MANUFACTURING COMPANY
Dept. RT 8 - - ST. CHARLES, ILLINOIS
Export Division: 145 W. 45th St., New York

All Operadio Amplifiers and Inter-communicating Systems are Licensed by Electrical Research Products, Inc., under U. S. patents of American Telephone and Telegraph Company and Western Electric Company, Incorporated.

**AUTOMATIC RECORD CHANGERS**

GARRARD FOR COMPLETE STORY AND FREE CATALOG

WRITE TO GARRARD SALES CORP.
296 BROADWAY, N. Y.
Further Detection Analysis

Operation of grid-leak and plate type detector circuits in radio receivers. How detection is accomplished and possible sources of distortion.

By VINCENT K. ULBICH,
Hytronic Laboratories,
Formerly Managing Editor,
Radio Today

The grid-leak detector, employed in many of the older receivers, works similarly to the diode detector discussed in Radio & Television Today on pages 46 to 49 of the June issue. The grid circuit of the grid-leak detector is identical, electrically, with the diode as shown in Fig. 1.

Part "B" of Fig. 1 shows the rectifying portion (detection) of the grid-leak circuit. "C" is for the diode type. The only difference between the two circuits is the position of the load resistor and the condenser. In "B" the grid-leak is connected between the grid and the hot side of the coil, while for "C" the resistor inserted between ground and the coil.

The condenser "C" across the load resistor effectively by-passes the r-f energy. Therefore, for r-f the circuit works as though there were no resistor in the circuit.

RECTIFICATION OF SIGNAL
As explained in the June issue, the purpose of the detector is to rectify the modulated signal—and this is done by the detector by passing only the positive peaks of the signal. These impulses form an audio frequency current in the circuit which follows the envelope of the modulated wave. As the current flows through the resistor (RI or Rf), an audio frequency voltage variation is created. It is this voltage that is the desired audio frequency signal.

In the case of the detector, the voltage appears between ground and the left side of the resistor RI in Fig. 1-C.

In the grid-leak detector, the grid coil has no appreciable resistance to audio frequencies and can be considered as a short circuit; therefore, the resistor RIG be thought of as being connected between the grid and ground. The rectified audio voltage is across the load resistance and applied to the grid of the grid-leak detector. These variations in the grid potential are amplified by the tube, which also functions as an audio amplifier.

In the usual diode detector circuit, the audio signal is fed into the grid of the first audio stage through a coupling condenser, which blocks the negative diode voltage from the grid of the audio tube. This blocking condenser is not always necessary and is omitted in some receivers. Then, the bias from the diode is also the negative grid bias for the audio stage. This circuit, shown in Fig. 1-D, is known as diode biasing of the audio amplifier.

DIODE BIASING
Since the rectified DC diode voltage varies with signal input, the bias on the audio amplifier will not be constant. Furthermore, with no signal input, there is no bias on the grid of the tube. While this circuit is somewhat more simple than the conventional ones, its operation is sometimes inferior because of the varying bias.

The grid-leak can be likened to the diode-biased circuit since the grid is connected directly to the load resistor. The only difference is that a single tube performs the two operations as a comparison of Figs. 1-A and 1-D shows.

In operation, the grid first performs the diode function and rectifies the applied signal. This grid current flowing through RIG the grid load resistor, causes a potential drop in the resistance that varies in accordance with the audio modulation of the applied r-f signal. Then the audio voltage is amplified by the tube since it is applied to the grid of the tube. The signal output of the tube is developed across resistor RIG in the plate circuit of the tube.

GRID LEAK DETECTION
How this rectification and subsequent amplification takes place is shown in Fig. 2. The dynamic diode rectification characteristic is shown in 2-A, and it was obtained in the same manner as that described in the June issue for the diode detector. Since there is no fundamental difference between the two types of detectors, what is true for the diode detector is also true for the grid-leak type. Distortion at high-level modulation due to the fact that the AC and DC impedances of the grid load are not equal, also takes place in grid detection. However, it is not usually so pronounced since there are no shunting resistances in the grid-leak detector circuit—the only shunting is the r-f bypass condenser "C".

A carrier having a value of 5 volts is applied to the detector as shown in Fig. 2-A. The signal modulated approximately 80 per cent and these variations are rectified by the grid circuit of the detector. The current variations above follow the input signal—but only approximately since the diode characteristic has a bend at the bottom.

The voltage amplifier characteristic of the tube is plotted in Fig. 2-B and is obtained in the usual manner. At

Fig. 1—The process of detection is carried out by rectification in both the grid leak and diode type detectors. The capacitor C acts as a low impedance path to the RF currents. Low frequency audio currents flowing through RI develop the audio voltage applied to the AF tube.
the right below the amplifier characteristic, the grid current variations are shown in terms of voltage variations. (Voltage equals product of current times resistance). The voltage variations are not sinusoidal since the signal was and none of the receivers process. The audio grid voltage is amplified by the tube and resultant output waveform is shown at the upper right corner, essentially the same as before amplification since no distortion takes place in this particular instance.

EFFECT OF BIAS ON DISTORTION

Had the DC grid bias been -7 volts instead of -5 for the same signal, the output wave would have had a different appearance than the input. Fortunately, the distortion would have been of such a value as to cancel that introduced by detection. This is shown in Fig. 3A.

An even higher bias would have resulted exceedingly high distortion as Fig. 3-B shows when the bias is -10 volts.

This varying bias is one of the chief drawbacks of the grid-leak detector. Every different value of signal input causes a different value of amplifier grid bias. And none of the receivers using this type of circuit have AVC. Furthermore, control of the signal level (volume) is accomplished in the antenna or r-f stages, which means that when the radio is run softly, the grid signal is small. At high volume levels, the grid signal is high.

EFFECT OF PLATE VOLTAGE

The applied plate voltage and the plate load resistance also come into importance in a circuit of this type. As was pointed out previously (pages 39 and 31, May 1938) the optimum bias for an amplifier is dependent upon the plate voltage and the plate load resistance. Conversely, if the bias is selected first, there is an optimum value of plate circuit constants.

The dotted curve in Fig. 3-B shows how the characteristic changes when the plate voltage is increased. Under the conditions where the grid develops a high negative bias, higher plate voltages are more desirable.

While the discussion so far has been specifically grid-leak detectors, it applies fully as well to the diode-biased audio amplifiers.

PLATE DETECTION

Plate-type detectors are being featured in many of the current T.R.F. receivers having 2 or 4 tubes. Also they are used in the older type receivers of several years ago, before AVC became popular. Typical circuit is shown in Fig. 4.

Plate detection is similar to amplifier operation since it is an amplifier biased to approximately cut-off. Consequently rectification is obtained since only the positive peaks of the carrier signal are amplified. On each positive portion of the cycle, the grid bias is instantaneously reduced due to the presence of the signal, and therefore, plate current flows during this period. During the negative portion of the cycle, the tube is at zero plate current.

Graphically, this is shown in Fig. 5 which is the dynamic characteristic for a plate detector. Since the graphical portrayal of this detector is so similar to the others, it means that fundamentally there is but little difference in the various types of detectors.

(Continued on page 42)
A New TROUBLE SHOOTER

The MEISSNER ANALYST KIT

SERVICES ANY TYPE RECEIVER... $60 NET

- The Meissner ANALYST will take the kinks out of your toughest servicing problems... step up your efficiency... save valuable time... increase your profits. It accurately measures both control and operating voltages without affecting the operation of the set. Channels can be tested individually or simultaneously. Reading is greatly simplified. There's an individual panel for each channel.

And best of all you buy the ANALYST in KIT FORM... Save nearly HALF the cost of a factory-wired unit of comparable quality and efficiency.

Get the facts on this revolutionary TIME and TROUBLE SAVER... See the Meissner ANALYST at your Parts Jobber's or write Dept. T-8 for FREE FOLDER explaining in detail the scores of testing operations this instrument performs both faster and better.

Meissner M.T. CARMEL ILLINOIS
A FAMOUS NAME FOR TWO DECADES

Cable Address "Meisncoil"

TRY THIS NEW IMPROVED MEISSNER I.F. TRANSFORMER

Most sensational development in the radio parts industry! A real MIDGET I.F. Transformer designed for superior performance in any type receiver. High dielectric winding form integral with the Trimmer base, provides a simplified construction that permits maximum space efficiency and a lower cost. Shield is only 13/16" square and 2½" long.

Manufacturing savings resulting from fewer parts and simplified construction are passed on to you in the form of lowest-possible prices. Available in complete range of operating frequencies and for input inter-stage or output operation. ONLY $1 LIST.

Mr. Serviceman: YOU'RE IN GOOD COMPANY WHEN YOU'RE IN THE RSA!

RSA is the only organization of Servicemen that has the sponsorship of the Radio Manufacturers' Association and the Sales Managers' Clubs, as well as the endorsement of the entire industry.

RSA is proud to announce that final details of plans for complete cooperation with the NAB, through local broadcasting stations, are rapidly being completed.

RSA chapters will receive, entirely free of charge, complete Television Course for instruction in television servicing and installation in the very near future.

MAIL THIS COUPON NOW!

RADIO SERVICEMEN OF AMERICA, Inc.
304 S. Dearborn St., Chicago, Ill.

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

I am interested in RSA membership. Tell me about it...........□
I am enclosing $4.00 for National dues and initiation...........□

(Does not include Local Chapter dues where Local Chapters are organized.)

RSA has helped thousands of its members solve their technical problems during the past year.

Membership quotas in some sections of the country have practically been completed.

We urge all interested servicemen to contact the RSA immediately for details of membership.

Let's Grow Together in 1939!

RADIO SERVICEMEN OF AMERICA, Inc.
Joe Marty, Jr., Executive Secretary
304 S. Dearborn Street, Chicago, U. S. A.
Sir: I would like to get some data on wireless phonograph players. Can you help me? A. S. Richmond, Va.

Phonograph records may be reproduced through any radio by either of two methods. The first applicable is that of direct connection of the pickup to the first AF amplifier. The second method is supplying a signal of a frequency within the tuning range of the receiver, usually 540 kc, modulated by the output of the pickup. The “wireless” record player uses the second method. A single tube is usually employed as both oscillator and modulator. Remote cut-off tubes, such as the 6K8, use suppressor grid modulation, while converter tubes, such as the 6SA7, have the pickup connected to the modulator grid. The modulated signal from the oscillator may be fed into the receiver by conductor, or by radiation, the same as any station. A certain amount of coupling exists between the oscillator and the receiver through the medium of the power line. The maximum effective range of the “wireless” oscillator is 20 to 50 feet depending upon the amount of power line coupling. Remember, these “wireless” phonographs are miniature broadcasting stations. Do not connect an antenna to these units! A typical wiring diagram for such an oscillator is given below.

Wireless phonograph oscillator with grid modulation.

The rapidly changing current in the line circuit upon the opening of the switch causes a voltage in the order of 175 volts (for the 115 volt lamp) to appear across the tube terminals. The voltage is developed because of the self-induction of coil L; see diagram. The heated mercury vapor is ionized by the voltage surge and normal operation takes place with the spiral filaments functioning as electrodes and L, limiting the voltage drop across the tube to about 65 volts.

Radio interference from fluorescent lamps may arise from several causes: the arc from the starting switch, static charges on the glass tube, loose and dirty contacts. The interference from the switch may be eliminated by connecting a 0.05 mfd. 400 volt bypass capacitor across terminals No. 3 and No. 4 of the auxiliary control unit used with each lamp. See diagram of Fig. 1. The starting and control units manufactured in the past six months or so have been equipped with the by-pass capacitor across the switch. Ground the metal case of the auxiliary and the metal mounting or reflector for the lamp to cure static discharge interference. As further precaution, keep the receiver at least 10 feet from a lamp and the antenna away from power line wiring. The regular type of power line noise filter may be successfully used in stubborn cases.

Sir: Please give me some information on the new fluorescent lamps and a few pointers on eliminating radio interference from these units. R. J. M., Bloomington, Ill.

The new fluorescent lighting sources consist of a mercury-discharge tube, and a pair of pre-heating filaments, all housed in a cylindrical glass tube, the inner surface of which is coated with a fluorescent material whose chemical properties determine the color of the light given off. In starting, the two filaments are connected in series across the supply voltage (115 v. or 220 v. depending upon the tube size). After a heating period of several seconds, the series connection between the filaments is opened with either a thermal switch or a magnetic relay, depending upon the type of control unit.

Wireless phonograph oscillator with grid modulation.

Fluorescent lamp circuit with capacitor filter across starting switch.

Sir: What steps can be taken to reduce or eliminate radio interference from “neon” signs. E. M. B., Staten Island, N. Y.

Neon sign interference is caused by static charge radiation from the tubing. Clean the tubing at the center of the sign and ground with a small piece of metal foil wrapped around the tube. Dirty tubing and insulators, and loose connections are sources of trouble. The solution for these cases is obvious. Since the field strength of the interference drops off rapidly with distance, ground the receiver, antenna, or antenna feeder at least 10 feet from the sign. Ground the transformer case and any metal frame for the sign.

Sir: A certain sound installation will require approximately 10 watts power for a gymnasium, 5 watts for an office, 2.5 watts for a small lecture room, and 20 watts for an auditorium. The 40 watt amplifier to be used has a 500 ohm output. How may the speakers be inter-connected to give the proper division of power? B. N. B., Springfield, Mo.

The diagram below gives the proper connections for dividing the audio power into the approximate quotas specified. Each speaker has its individual line to voice coil transformer. The equipment required will be one 10 watt speaker with 500 ohm transformer, one 5 watt speaker with 1,000 ohm transformer, one 2.5 speaker with 2,000 ohm transformer, and two 10 watt speakers each with a 500 ohm transformer. The total impedance to the amplifier is 536 ohms which will result in only a negligible power loss due to mismatching of impedances.

Speaker connections for power division.

Sir: How can I eliminate the hum in a 10,000 volt, public address amplifier? W. M., Jamaica, N. Y.

Assuming that the power supply filter circuit is adequate, check for hum pickup from filament leads near the high gain input tubes. Tubes should be shielded and also the grid leads. Decoupling and filtering resistors ranging from 10,000 to 50,000 ohms, depending upon the allowable voltage drop, may be inserted in the plate circuit of the first and second stages. Any power-supply ripple will appear across the bias resistors, thus introducing hum into the grids. Try increasing the size of cathode by-pass condensers if hum from power-supply ripple is suspected. Keep the AC power cord at a distance from input terminals. In transformer-coupled amplifiers, magnetic coupling may exist between the power transformer and inter-stage couplers. A double sheet-iron shield around the power section should cure this trouble. Non-ferrous metals, such as aluminum or copper, are worthless for shielding low frequencies. It pays to have the amplifier well grounded.
**Dynamic Testing (Continued from p. 39)**

![Graph](image)

**Fig 3B—Extreme distortion is introduced when bias is carried to cut-off. Increasing the plate voltage moves the cut-off point further out on the grid voltage scale thus reducing distortion.**

**NO GRID CURRENT IN PLATE DETECTION**

In the plate-type detector, the grid variations cause a direct variation in the plate current. No grid current flows since the grid is always negative. The absence of grid current makes this detector preferable for some applications, particularly small sets, since there is no loading off the previous stage.

**FREQUENCY RESPONSE**

The frequency response of the plate type detector is dependent upon the size of the plate bypass condenser Cc and the plate bypass C (Fig. 4). For full amplification at low frequencies, the condenser Cc must have a reactance (AC resistance) much less than the DC resistance R. In this respect, the behavior of the circuit is similar to an audio frequency amplifier.

Condenser C is in the circuit to bypass r-f energy in the plate circuit and permit the passage of only audio. Generally the value of C is such that it somewhat attenuates the higher audio frequencies.

![Diagram](image)

**Fig 4—Plate or grid bias detector in which tube is biased to near cut-off at zero signal thus giving rectification on positive half cycles.**

For small signals, the plate detector operates largely in the region of the curved part of the characteristic. Under such conditions the distortion is quite high because the curvature causes unequal amplification. This is shown in Fig. 5.

As the signal increases in size, more and more of the circuit operation takes place on the straight line part of the characteristic. Consequently less distortion occurs.

As in all circuits, the detector can handle only a certain amount of signal. An increase beyond this amount causes overloading and its attendant distortion. If fixed bias is used in the plate detector, the maximum signal that can be handled has a peak voltage approximately equal to the bias. In other words, the signal must never be so large that it causes the grid to go positive and draw grid current.

When self-bias is used the signal handling capability is greater because as the signal increases, the bias becomes greater due to the increase in plate current.
Plan for Fall Selling
(Continued from page 13)

In this removal of the necessity of meeting price competition, by giving more, and justifying your better price, profits begin to grow again, and your interest, and enthusiasm grows apace. In this new enthusiasm you see things in a different light, and so, too, do your customers, for enthusiasm, friendship, courtesy, are contagious, and they all beget business, too.

The day of expecting customers to form in line before your store for the privilege of buying a radio is gone, but business is good, and dealers are happy, when they keep everlastingly on the trail of the sale.

"Sell 'em, service 'em, satisfy 'em, and you will sell 'em again," is the practice of those real merchants who have made this plan effective, pulled their radio business out of the red, and are on their way again, to make the most out of the best potential year in the last decade.

Gift Merchandise added to
FREE EQUIPMENT

More reasons why it pays to handle NATIONAL UNION TUBES and CONDENSERS

NEW LOCAL TYPES

SERVICE DEALERS—
Do you want to increase your volume, get better satisfaction to your customers, protect yourself from cut price competition. . . . THEN WHY NOT WORK WITH N.U. . . . All our policies and promotions are aimed to build up the service dealer and his business.

National Union offers a complete line of all (329) types of tubes. Quality is the finest that research skill and engineering can produce; backed by the most liberal replacement policy in the industry. The choice of leading service engineers everywhere . . . it's got to be good.

CERAMITE CONDENSERS

The only midget electrolytic enclosed in ceramic insulation. Can't short when pulled in tight places. Competitively priced. Available in all popular capacities and voltages.

What National Union is doing for others it can do for you. Thousands upon thousands of custom premium agreements prove the fairness of our program. Equipment for premium is obtained immediately on a small deposit, no time payments to meet or exorbitant interest rates to pay. National Union can afford to do it because our selling costs are lower. Just try it for yourself and you'll see why it pays you to buy your tubes and condensers the National Union Way.

Both Tubes and Condensers Count on N.U. Premiums

National Union Radio Corporation
87 State St., Newark, New Jersey
RT-839

Please send me more information on your Gift Merchandise. I am interested in the following Free Test Equipment. . . .

Name

Address

City

State

August, 1939

43
Radio Parade
(Continued from p. 32)

will readily take advantage of this in advertising, and the inevitable result will be universal consumer distrust regarding all such claims. And what manufacturer is going to tell what dealer which set is due for obsolescence next month?

SHUN THE "ROCKING CHAIR"

6. All consumer enthusiasm is artificial in the sense that it must be aroused by some outside activity, usually called promotion. If we seek to reduce enthusiasm among the trade and consumers as an important merchandising element, we shall be throwing overboard one of our strongest driving forces that helped us through one of the toughest periods of American business. Again, let's shun the rocking-chair idea.

7. Seasonably right models can be introduced at any time without disrupting business, under the present setup. Last year's portables did a lot of good and didn't hurt anybody. And waiting until models are "seasonably right and can be sold best" is not exactly the best merchandising technique. Remember the farmer has to sow the seed and cultivate the crop before he reap's the harvest. He can't just sow one day and reap the next.

Harry B. Taylor
428 S. Main St., Pennington, N. J.

Protests Tax on Television Sets

Editor RADIO TODAY:

There is, undoubtedly, justification for the Federal excise tax on radio sound receivers. However, the application of this tax to television receivers is quite another matter.

I am certain that none of our legislators would propose a tax on the products of any entirely new industry. When a new product is first marketed, with limited production and demand, yet representing millions of dollars of development costs, it is essential to the development of the undertaking that the product be made available to the public at the lowest price possible. I am sure that this view is shared by our legislators.

CONSUMER PAYS DOUBLE

Unfortunately, however, although the manufacture and sale of television equipment was not contemplated when the Federal excise tax on radio equipment was established, inasmuch as the apparatus is operated by radio transmission, the law is being construed as applying to television receivers. I believe that if this condition were brought to the attention of Congress, relief would be granted from the tax on television sets.

Manufacturers of television sets are bending every effort to bring down the cost of the receivers so as to make them available to the greatest number of people, and to encourage the growth of this new industry. At this time, when prices are necessarily high, the excise tax puts a serious burden on the buying public.

Because of the setup of the excise tax on radio sets, the 5 per cent tax paid by the manufacturer costs the consumer, for example, $30 on a $600 receiver. In other words, the tax costs the consumer twice as much as the amount actually paid to the Federal Government. The reason is this: The manufacturer figures his selling price, including excise tax, is $300. On that basis he pays the government $15 or 5 per cent of his selling price. Since the jobber must have, ordinarily, a 50 per cent discount from the list price, on the basis of the jobber price of $300, the list price becomes $600.

But suppose the Federal tax were eliminated. The price to the jobber would then be $285 and, on the basis of a 50 per cent discount from the list price, that would make the list price $570.

From this you will see that the cost to the consumer is not merely the $15 tax received by the Government. The cost of this tax is actually $30. Experience in the merchandising problems of radio dealers and manufacturers will tell anyone, without any elaboration on my part, that there is a tremendous difference between a list price of $600 and a list price of $570.

SHOULD ENCOURAGE NEW INDUSTRY

Even on the lowest-price receiver which we manufacture, listing at $189.50, the elimination of the Federal tax would save the radio purchaser $10. One can see how much it would contribute toward reducing sales resistance if we could offer the same set at a price of $179.50.

M. E. Sleeper,
District Sales Manager,
Andrea Radio Corp.
Woodside, N. Y.

* * *

Frequency Modulation in GE Models

First frequency modulation radio receivers designed for sale to the public have been announced by the General Electric radio and television department, Bridgeport, Conn., and are now being shown in New York and New England, only sections of the country to date in which there are transmitters and broadcasting stations utilizing the new system developed by Major E. H. Armstrong. Three models are now available, two of them equipped to receive the frequency modulation broadcasts, and a third which also combines three-band radio reception of the conventional type.

Thordarson Honored

C. H. Thordarson, president of Thordarson Electric Mfg. Co., was recently awarded the Cross of the Icelandic Falcon Order, highest honor given by the Danish and Icelandic governments. It is given to those of Icelandic or Danish descent who have contributed some outstanding achievement.
Performance Sells Sound
(Continued from p. 57)

Sound reverberation is due to reflection from the walls, floor, and ceiling and is most noticeable in empty rooms where the reflecting surfaces are hard and smooth such as plaster, and hard wood. Sound reverberation, where in the listening constant sound, causes “hashing” of speech or other sound coming from the speakers. Reverberation time has been defined as the time required, after the sound has been produced, for that sound to decrease in intensity to one millionth of its initial intensity.

This corresponds to a 60 DB reduction in sound power. The reverberation time for a given room may be calculated from the formula,

\[ T = \frac{0.049 V}{A} \]

Where \( T \) is the time in seconds for a 60 DB reduction in sound level, \( V \) is volume of the room in cubic feet, and \( A \) is the total absorption of the room in Sabines. The table below gives the sound absorption coefficients for a few common materials.

<table>
<thead>
<tr>
<th>Material</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acoustic-foam—11/4</td>
<td>0.75</td>
</tr>
<tr>
<td>Audience coating—linoleum</td>
<td>3.9</td>
</tr>
<tr>
<td>Brick wall painted</td>
<td>0.017</td>
</tr>
<tr>
<td>Glass</td>
<td>0.027</td>
</tr>
<tr>
<td>Masonite—7/16</td>
<td>0.32</td>
</tr>
<tr>
<td>Masonite—4”</td>
<td>0.44</td>
</tr>
</tbody>
</table>

The total absorption, \( A \), is equal to (the area of the ceiling in square feet times the coefficient of absorption for the particular material) + (the area of the walls in square feet times the coefficient for the wall material) + \ldots\ldots, etc., until all areas have been taken into account. Be sure to consider windows where they constitute most of the wall area. A slight amount of reverberation is desirable because it lends power to the issuing sound. An acoustically “dead” room will require more audio power than one with a slight reverberation although the sounds produced will be clearer in this “dead” room. The optimum reverberation time has been found to vary with the size of the room. Observations in “acoustically good” auditoriums have given the average results of the optimum time which are plotted in Fig. 3. Because the majority of rooms have a higher reverberation time, it will be necessary to add a sound absorbing material in order to limit the time to the optimum value. The necessary amount of this material may be determined by solving the above equation for the total required absorption, using the optimum value of time as obtained from Fig. 3, and subtracting from this total, the actual sound absorption as determined by adding up the products of the areas and coefficients for the various materials. Dividing this difference by the coefficient of the material it is desired to use will give the necessary area in square feet.

It is, of course, not feasible to make reverberation time corrections in a PA installation of a temporary nature. The information is given here for consideration in permanent installation where the improved results will be a lasting advertisement of the technician’s capabilities.

SUMMARY

Sound distortion may result from amplifier overload, speaker overloading, mechanical resonance in the speaker system, reverberation, and audio feedback. Distortion is used in the broad sense of the word, meaning a change in the original sound quality by any means. Careful consideration in the selection of equipment, in the placement of speakers, and of the acoustical properties of the room will, in a majority of the cases, guarantee a satisfactory sound amplifying system.

Ford-Edison Museum Shows Tubes

A complete complement of Sylvania Radio Tubes from the old 199 and 201A types to the latest Loktals, “GT,” and Single-Ended tubes are on display in the Henry Ford-Edison Institute, Communications Section at Dearborn, Michigan. Visitors at the museum can follow the development of radio tube manufacture chronologically and see the emergence of the vacuum tube from a simple, few element unit to the complex multi-element structure of today.

GREAT NEW “PMs”

FOR HIGH POWER PUBLIC ADDRESS SYSTEMS
AT SURPRISINGLY LOW PRICES

Check these outstanding features:

1. Special Utah phenolic resin cement treatment provides an extra sturdy voice coil, assuring maximum safety under extreme overloads.
2. Completely dustproofed.
3. All cementing operations completely cured before final test, assuring perfect centering made possible by the modern method—use of THERMOPLASTIC cements throughout.
4. Rugged formed-steel cone housing for maximum strength and rigidity.
5. 1 1/4-inch voice coil—8 ohm impedance.

There is a Utah Speaker for Every Original Equipment or Replacement Requirement

SPEAKERS • TRANSFORMERS • UTAH-CARTER PARTS

UTAH RADIO PRODUCTS CO.
CHICAGO, ILLINOIS
CABLE ADDRESS: UTAHADIO—CHICAGO

AUGUST, 1939
Preserved for posterity on the pedestals of popularity are these four genial gents who represent the millions of Quality parts in use throughout the world.

As a foursome... or individually... they stand for sterling honesty in performance... integrity in service... and all the other glowing virtues that a radio-part should possess.

So, if you are a ham... a serviceman... an experimenter... fall not... on sunny and all occasions... to SPECIFY CENTRALB.

- **RADIOHM** In standard or midget... low noise level... long life
- **FIXED RESISTOR** Insulating and conducting area baked together into one... copper sprayed end connection.
- **CERAMIC CAPACITOR** Where permanence or temperature compensation is important.
- **WAVE BAND SWITCHES** In Isolanite or Bakelite... available in various combination.

**Centralab**

Division of
Globe-Union, Inc.
MILWAUKEE, WIS.

---

**Trade Flashes**

**Radio Wire Television Corp.**

Formation of a new company to be known as Radio Wire Television Corporation of America with offices at 160 East 56th Street, New York City, embracing the former holdings of Wire Broadcasting, Inc., Wholesale Radio Service Co., Inc., and the various subsidiaries of these enterprises, was announced recently.

Heading the new company as president is John E. Otterson, formerly president of Winchester Repeating Arms Corp., Electrical Research Products, Inc., and Paramount Pictures. J. B. West, president of Wire Broadcasting and A. W. Pietman, president of Wholesale Radio, have been elected vice-presidents.

Under the new corporate structure, the various retail outlets of Wholesale Radio, which engage in the merchandising of radio equipment, phonographs, and photographic supplies, will take the name of the parent company and will be further identified by the states in which they are located. Thus Wholesale Radio, Inc., of New York becomes Radio Wire Television, Inc., of New York, etc.

Wire Broadcasting and it's principal subsidiaries will continue under the present titles. The enterprises operate wire networks, supplying musical entertainment to hotels, restaurants, night clubs, industrial plants and homes.

In addition to these operating subsidiaries, the new company acquires full interest in the Transformer Corporation of America, manufacturers of radio and electrical products; Tele-Capital Corporation, a financing unit; and the Syndak Corporation, holder of a large group of patents relating to motion picture projection, sound, and lighting.

In addition to the patents acquired by the new company, the organization is licensed by Electrical Research Products, Inc., under the patents on Western Electric Company, Bell Telephone and Telegraph Company.

**Brown Supply Shows Stromberg Line**

Television demonstrations featured a presentation of the 1940 Stromberg-Carlson line to dealers of the Brown Supply Co., St. Louis, held July 16-18 at the Coronado Hotel. Kenneth Gillespie, sales manager of Stromberg-Carlson and Kansas City branch, made the presentation, which according to Captain Norman S. Brown, president of Brown Supply, drew the largest attendance they have had at any showing during the past five years.

More than 1,000 people saw the array of new Stromberg-Carlson radios and radio-phonographs. Popular were the No. 450-2L automatic combination and the No. 450-M Labyrinth radio with Carpinchoo Speaker, both models priced for popular appeal.

A television program, with talent from the Baldwin Piano Co. and Station WEW of St. Louis University, highlighted the presentation. The television transmitter was supplied by First National Television, Inc., of Kansas City who own and operate high-fidelity station KITE and also are the owners of one of the first television experimental licenses granted in this country. Their television transmitter will be on the air in the early fall. Call letters will be W9XAL.

**St. Louis Radio Dealers See Television**

Kenneth Gillespie, sales mgr., Stromberg-Carlson's Kansas City branch, and Capt. N. S. Brown, pres. of Brown Supply Co., St. Louis, with Stromber-Carlson labyrinth radio television receiver at dealers' demonstration.
Stromberg Jobbers

Appliances, Inc., Cincinnati, Ohio, headed by H. F. Burekhardt, will distribute Stromberg-Carlson radios in southern half of Ohio and several counties of northern Kentucky. Northwestern Radio Co., Seattle, Wash., headed by Frank Wedel, will serve most of the state of Washington, including all of the western part. Home Appliances, Butte, Mont., under the direction of George Steele, will distribute the line throughout the entire western portion of Montana.

New "Little Nipper" Line

A line of ten radios introduced by RCA are creating much interest with unusual cabinet design and several new features. Picturesque scenes of the two world's fairs and a Mexican landscape are each themes for three models. Improved sound reproduction in two of the series is obtained by using a resonant sound chamber. All of the sets have a built-in antenna. All are designed for A.C.-D.C. operation, and have fire underwriter's approval.

Permoflux Corp. Starts Making Speakers

The Permoflux Corporation, 4916-22 West Grand Avenue, Chicago, Ill., has purchased the radio speaker division of the Continental Motors Corp. of Detroit, and is now completely set up at its Chicago factory where it has been manufacturing speakers since July 24, with double the former capacity at Detroit.

Permoflux facilities include metal stampings for the production of special speakers as well as standard interchangeable units. Permanent-magnet speakers include 4, 5, 5½, 6, 8 and 10-inch speakers, with magnets weighing from 1½ oz. to 16 oz.

L. M. Heineman heads the organization as president. Each of the various departments has personnel equipped with long practical experience in radio and speaker manufacture.

L. M. Heineman, president Permoflux Corp., Chicago.

AUGUST, 1939
Service Notes

Stewart-Warner
Model 01-6B9

Excessive needle scratch during phonograph operation may be traced to the filter resistor and capacitor connected to the Phono-Radio switch. First sets of this type had a 220M resistor across pickup. Remove this resistor and replace with 68M and parallel it with a 0.003 mfd. capacitor. A few sets have the 65M resistor and no .003 mfd. capacitor; install condenser to eliminate scratch. Some sets have a 470M ohm resistor paralleled with a 0.001 mfd. The pickup in these sets is slightly different. A larger bypass capacitor will eliminate any scratch for these sets but at the expense of high frequency response.

Ballast Tube Selection

Several manufacturers of ballast tubes list their products by both type number and voltage drop for a specific current. Add up the rated filament voltages of the tubes connected in series with the unknown ballast and subtract this figure from the normal line voltage. The remainder is the voltage drop across the ballast tube.

Tubes used in series have the same current rating, therefore, ballast rating can be determined from the filament rating of any tube in the "string." The proper ballast may then be selected from manufacturers' lists. In some cases it may be necessary to use a different socket due to non-standarization in ballast tubes.

Unwanted Waves Help Test Television

Radio engineers have continually aimed to reproduce the waves created by music or the human voice free from distortion and in their natural form. The development of good amplifiers in radio receivers, or public address and sound motion picture apparatus, has all been directed towards distortion-free operation.

But in seeking apparatus for testing television circuits, RCA engineers found that waves having the maximum possible distortion were frequently the most valuable. So-called "pure" wave forms or "sine" waves, of even, smooth slope would provide little or no indication of the time delay which improper circuits imposed. This delay was important since it might put white edges on dark objects in the television picture or cause other difficulties.

But if the circuits were tested with "square" waves, having the maximum distortion from the pure form, it was relatively easy to tell whether the time delay was satisfactory. Hence a special square wave generator capable of producing wave forms with straight sides.

Try These Low-Cost Record-Changers in Your Installations!

Model M, above, plays and changes eight 10-inch or seven 12-inch records. Choice of other models.

YOU'LL sell more radio-phonograph combinations—with smaller investment—using America's leading low-priced record-changer units. These General Industries changer units have self-starting, induction-type motor with turn-table; high fidelity, tangent-tracking pickup; simple, dependable record changer. Compactly assembled on mounting plate. Efficient and trouble-free.

Order a selection to test in your cabinets. State voltage and frequency of current you use.

The General Industries Co.
3938 Taylor Street
Elyria, Ohio

QUALITY at LOW PRICE

CONSOLIDATED
Volume and Tone Controls

Ask your jobber today about these quality controls at exceptionally low prices. He will be glad to show you how a small stock of Consolidated Volume and Tone Controls will cover 90% of your replacement calls.

Five types of controls are available with resistances ranging from 1,000 to 2,000,000 ohms.

See Them at Your Jobber's Today!

CONSOLIDATED
Wire and Allied
Corporations

516 S. Peoria St. Chicago, Ill.
Mr. Farnsworth believes the important changes in the present system of television taking place in the near future will be in transmitting rather than in receiver equipment.

He anticipates that before the end of this year there will be 10 to 15 television broadcasting stations across the country and that next year will see at least 36 additional stations.

**Does Parts Gambling Pay?**

**Mucher Sounds Warning**

Saying money is perfectly sound practice. If one price is lower than another, everything else being equal, it's just good business to buy at the lower price. But, points out Vic Mucher, Clarostat radio manager, one wants to be pretty sure that low price is not going to mean higher cost in the final analysis.

Our parts industry is threatened as never before with price slashing. Hardly a month goes by but another volume control or resistor pops up with lower price than in a short time ago sales appeal. The fact that such devices are part of specialized engineering over a long period is usually overlooked by newcomers on the condition of something which seems to be a brisk market already established. The electrical end may be pretty much neglected.

Now the truth remains that established parts normally have spent years attaining their present quality. They have long specialized. They have spent fortunes in research and engineering. Consequently, when they sell a given part, a certain percentage of the cost is necessarily reflected in research and engineering. The price-slasher will save that percentage.

For that slight percentage which usually matches the difference between established parts and undescrribed parts, you are getting a definite insurance covering satisfactory performance. You are assured that the established parts will perform satisfactorily. Plenty of case histories attest to the dependability of such parts. Can you afford to pass up such insurance for the sake of a few pennies?

Many jobbers today are being coaxed to cheaper parts either to make a few extra cents on each sale, or more likely to secure price leaders. Either way, these salesmen customers may be getting parts of little known reputation and that means taking long chances—gambling with results—in the absence of that insurance which backs long-established parts.

Because servicing is a main field of work, with materials as a secondary portion of the costs, it seems that the very small percentage in price between established parts and others should hardly prove much of a sales inducement. In these days when more and more service jobs must be guaranteed for a certain period following the installation of replacement parts, the service space can ill afford to take any chances. He needs all the insurance he can get.
AIEE Fights
Radio Static

At the Pacific Coast Convention of the American Institute of Electrical Engineers in San Francisco, C. V. Aggers, Westinghouse engineer, told the group that war is now being waged on man-made static resulting from unbridled electrical equipment.

"The solution of the problem of man-made static lies in the mutual cooperation of interested parties: the broadcasters, in providing adequate field strength, the radio set manufacturer, in supplying equipment and means for installations with minimum practicable susceptibility to unwanted signals; the radio listener, in the proper installation and operation of the set; and the manufacturer and user of electrical equipment, in seeing that it is made and operated so as to produce the minimum of unwanted stray fields," said Mr. Aggers.

It was explained that many persons believe that radio disturbances are introduced into the receiver chiefly by conduction along the 115-volt cord used for the power supply. While it is true that a small amount of noise enters the set by this route, the major portion reaches the receiver circuits because of the proximity of the antenna and antenna lead-in to the building wiring and noise field. Improved reception from the standpoint of noise produced by electrical devices, can be obtained by increasing the distance between the antenna lead-in and other wiring in the building.

P. G. Horton, credit mgr. for the Edmond Co., White Plains, N. Y., and J. W. Jennings of the sales department, watch H. T. Kinner, president of the company, demonstrate the new portable radio to his secretary, Helen Couzens. Geo. Kinner, Edmond v.p., and Harry Eikan, Emerson's field man are at right.

Membership Requirements, NRPGA

Any jobber who meets the following requirements is eligible for membership in the NRPGA, points out Arthur Moss, executive secretary, who quotes:

"Article III of the Constitution: "Membership in the Association shall be limited to radio parts distributors or resellers, who are hereby defined as persons or corporations, actively engaged in the distributing of radio parts; who shall generally speaking, maintain and warehouse a stock of such products, sufficient to adequately supply the requirements of the trade; who shall maintain a minimum investment in radio parts; in their principal warehouse, not on consignment, amounting to $8,500; who do a gross annual dollar volume of business of at least $25,000 per year; and who do not deal in any retail radio repair service for hire.

Regardling dues, Article VIII of the By-Laws provides: "No initiation fee shall be charged. "The annual dues of each member shall be based on his gross radio business (excluding radio sets) for the previous fiscal year, according to the following schedules:

Gross amount of sales—$25,000 to $50,000, Dues $25.
Gross amount of sales—$50,000 to $100,000, Dues $50.
Gross amount of sales—$100,000 to $200,000, Dues $75.
Gross amount of sales—$200,000 and over, Dues $100.
If determining the dues the gross annual sales shall include the sales of branch stores."

Solar Mfg. Sales Up

Sales of the Solar Manufacturing Corp. increased about 65 per cent in June to $183,595 from $93,205 in the same month last year, according to Otto Paschkes, president. An increase of approximately 38 per cent was registered in sales in the half year.

MANUFACTURERS OF
A COMPLETE LINE OF PERMANENT MAGNET SPEAKERS
Sizes include 4", 5", 5 1/4", 6", 8" and 10". These speakers are available with magnets weighing from 1 1/2 oz. to 16 oz.
* * * *
Equipped with genuine G.E. Alnico Magnets having a full ratio of Cobalt.
* * * *

PERM-O-FLUX CORPORATION

TRADE MARK REGISTERED

PERM-O-FLUX
4916 GRAND AVE.
CHICAGO, ILL.
Trade Flashes

Station WFAA, owned by the Dallas Morning News, has purchased RCA radio facsimile equipment for experimental transmission of printed text and pictures through its ultra high-frequency station, W5XD. The News will publish a special facsimile edition as soon as the equipment is installed. Programs will be transmitted on 25-250 kc. with power of 1,000 watts.

An informal sales conference was held recently at the Chicago offices of the Utah Radio Products Company. Activities for the first six months and the resulting sales figures were discussed. Every one of the company's divisions has shown substantial improvement during the first half reports G. Hamilton Beasley, president.

M. P. Fitzpatrick, associated with Stromberg-Carlson Telephone Mfg. Co. for many years, was recently appointed sales representative for that company in the Los Angeles area, according to an announcement by Radio Sales Manager, Lee McCane.

Much enthusiasm was shown for the 1940 line throughout the South, according to Stromberg-Carlson distributor manager Fred N. Anbal. Stromberg-Carlson distributors appointed were: Byron Music Co., 25 S. Main Street, Greenville, S. C.; Wimberly & Thomas Hardware Co., Inc., 201 1st Avenue, N., Birmingham, Ala.; Raybro Electric Supplies, Inc., 812-814 Sliggs St., Tampa, Fla.

J. S. Patterson of the Tung-Sol Radio Tube Co. was the featured speaker at the Stamford, Connecticut, chapter of the RSA. The subject of his address "New Developments in Radio Tubes and How They Affect the Radio Serviceman."

Roy Harten, president, The Harten-Knodel Distributing Co., Cincinnati, O., new Farnsworth distributors.

Harry Knodel, vice president, have been in radio since 1924, formerly being associated with the Cooper Corporation.

American Television Corporation announces the election of Dewey Bullock as vice-president. He will continue as member of the board of directors. Mr. Bullock is president of Roger Versepout and Co., investment brokers of Grand Rapids, Mich. In recent announcements the American Television Corporation introduced "tele-sales," a system that televises merchandise from a central studio in department stores so that customers can look on at remote points in the store; and Viodar, popular priced television sets for the home. Recently named on the board of the television company are Adolph W. Tahaney, of Holland, Mich.; Raymond Starr, former Attorney-General of Michigan and Maxwell Landaman, theatrical producer.

As the result of a recent reorganization of the Stewart-Warner accessory sales division, Maurice G. McCall has been appointed to direct the newly-formed technical department, according to George Zahn, Stewart-Warner accessory sales manager. McCall was formerly in the service department.

Captain Leonard F. Plagg who plans installation of home receivers and printers in both France and England made a survey of facsimile progress in America during his recent visit here. One hundred receivers and printers went abroad.

Crosley's recently introduced ban- tambam auto has created much public interest, states Powell Crosley, Jr., president, Crosley Corp. When shown in New York City many thousands viewed the car and sales were reported as exceeding expectations.

Hugh R. McKeen, since 1933, assistant supervisor of cost for the General Electric Company, has been appointed operating manager for the Pittsfield Division of the Plastics Department, as announced by G. H. Shill, manager of that department. Mr. McKeen will be in direct charge of engineering and manufacturing for the Pittsfield Division, reporting to Mr. Shill. He assumed his new duties Aug. 1.

Of interest to servicemen's groups and radio dealers' organizations is the opportunity presented by a new program series on WIRE Indianapolis, which will offer professional, retail and service organizations the opportunity to discuss their problems before the radio public, explain the work of the groups and correct any mistaken impressions. Titled "At Your Service," the broadcasts will be a public service feature offered without cost or obligation to every local, county and state organization registered with the Indianapolis Chamber of Commerce. Programs begin in July on Thursdays, weekly. Each association is scheduled for a date which complements other promotional activity.

A New Low-priced SOUND RECORDER with 5 EXCLUSIVE SELLING POINTS

1. Dual speed operation 78 and 331/3 r.p.m. The only two-speed machine in its price class.
2. Sensitive microphone and full size adjustable floor stand.
3. Rubber-rimmed turntable driven directly by motor pulley. Uses no idle wheels or rubber pulleys. Nothing to wear out.
4. Operates as public address system. You can hear your program before you record.
5. Safety cover lever lowers cutting head gently. Prevents breaking costly sapphire cutting needles.

MODEL 12J RECORDER
Price Complete $184.50*
*194.50 Denver and West

Write for Literature

HOW DEALERS SELL THE PRESTO RECORDER
—This new booklet tells you who your prospects are, how to reach them, why they buy recording equipment. Illustrates form letters, direct mail pieces, newspaper mats, window and counter display material. Describes numerous promotional stunts that dealers have used successfully to sell recorders and personal recordings. A complete merchandising manual that will boost recorder sales for you.

Your Copy is Waiting • Write for Booklet Today

PRESTO RECORDING CORPORATION
242 West 55th Street, New York, N. Y.
Parts Jobbers Discuss Tubes

On Tuesday, July 30, at the Hotel Britannia, New York City, was held the first meeting of the tube committee of the National Radio Parts Distributors Association, under the chairmanship of Maurice Despres, Arthur Moss, executive secretary, and the following members were in attendance:


The whole tube situation was reviewed and certain problems affecting the replacement-tube market were thoroughly analyzed. Definite recommendations will be made shortly after the completion of a national survey.

It is the intention of the tube committee to submit their findings to tube manufacturers for the latters' consideration.

Radio Men Play Golf at Harrison, N. Y.


Program for the day started with a meeting of the Sales Managers' Club, Luncheon followed and then the golf tournament with a kickers handicap which made competition interesting for even inexpert players. Climax of the affair was a steak dinner where prizes were awarded.

Harry L. Sommerer, recently appointed assistant to the executive vice-president of RCA Mfg. Co.

The FCC has granted Finch Tele-communications Labs., Inc., a license to operate W2XWF on 42.18 mc. with a daily schedule of facsimile transmission.

Roscoe Kent has been appointed sales manager of all Finch facsimile apparatus announced W. G. H. Finch, president of the company. Mr. Kent comes to the organization with more than twenty years experience in the radio and wire communication fields.

Shapiro Sporting Goods Co., Hudson Valley distributors, have announced the acquisition of the ABC washer and ironer line. The firm is wholesaler distributor for RCA Victor products, Leonard electric refrigerators, Quality gas and electric ranges and Sunbeam products.

Tung-Sol Lamp Works, Inc., Newark, N. J., announce the appointment of Rissi Brothers, 5031 Hamilton Avenue, Detroit, as distributors of Tung-Sol products in that territory.

Precision Apparatus Corp., has again expanded its facilities. Both the executive offices and factory are now located at 547 Kent Ave., Brooklyn, N. Y.
Sales Helps

Package Deal

Admiral package includes ten table radios and the dealer’s choice of any console model. Included gratis is a floor stand, a counter-display, an electric flasher sign, two window banners, and a supply of 24 page booklets describing the complete line.

Tele Counter Card

Counter or window card for Stromberg-Carlson television sets is a gold foil easel card with a message silk-screened in black: “In television, too, ‘There is nothing finer than a Stromberg-Carlson for only the patented labyrinth gives natural sound accompaniment.”

Tube Displays

Four Arcturus displays tie up with the widespread interest in current events. The main unit, 18 x 28 inches in size, shows a news reporter against a background of illustrations showing news events where radio has distinguished itself. Same display comes in smaller size, 9½ x 14 inches. Two other smaller pieces use the theme “Around the World on All the Waves,” are designed for counter, wall or window displays. Metal, glass and G type Arcturus tubes are featured.

College Posters

Posters featuring the difficulties encountered in college or school dormitories when electric razors cause static are being issued by Aerovox Corp., New Bedford, Mass. The posters are supplied direct to dormitories or to local jobbers who may insert the name on the “On Sale At ——” line.

Why AEROVOX CONDENSERS?

- Because those familiar yellow-and-black cartons dominate the condenser stock of most progressive jobbers, may be convincing enough. But if you want more reasons to make you “go” AEROVOX, just consider:

INDIVIDUALLY TESTED

- AEROVOX originated the practice of individually-tested condensers. Despite the greatest jobbing business in its history, taxing the new giant plant’s production capacity, AEROVOX continues to test each and every condenser, regardless whether it carries a ten-dollar or ten-cent list.

FULLY GUARANTEED

- A guarantee slip packed with every condenser positively protects you against the remote possibility of a defective AEROVOX condenser. Prompt replacements are made on any unwarranted condenser failure.

ALWAYS ACCEPTED

- When you install AEROVOX condensers in that new assembly or in servicing, there is that safe feeling of a job well done. General acceptance, always.

* Ask for CATALOG...

Your jobber has a new catalog for you. Ask for it—or write us direct.

$75.00 RETAIL...Quick Sales...

Volume Profits

Here is your opportunity to get started in the lucrative health appliance field. Everybody is interested in health. Nearly every home a possible buyer.

DIATHERMY is not a fad, but a medically proved method. Used and recommended by thousands of physicians. The MERIT is practical—proven in actual service. Hundreds of satisfied customers.

Full profit is yours. No trade-ins to cut your margin. Rentals very profitable—many result in sales.

Health equipment provides a great field for profit. Build up your “off” season with this new item. Write at once for Special Introductory Offer. You will find the MERIT sells readily at this low price. Hundreds of buyers waiting. Proven Selling Plan Furnished. Costs nothing to investigate. Address...

MERIT HEALTH APPLIANCE CO.
Manufacturers and Distributors
1303 S. Lorena Street, Los Angeles, Calif.
Features of New Farnsworth Radio Receivers

The new Farnsworth radio models, numbering 28 in all, were shown at the national distributors’ meeting at Fort Wayne, Ind., Aug. 7 and 8, as reported on page 10 of this issue. Local distributors’ meetings with their dealers will follow the Fort Wayne session. (The New York City meeting being scheduled for the Park Central Hotel, New York, Aug. 14, 15 and 16, under the auspices of the Warren-Norge Company, Inc., C. B. Warren, president.)

Representative of the new Farnsworth line as displayed at Fort Wayne are three table models, three consoles and two combinations.

The cabinet of one of the typical table models (AT-16) is made of molded plastic, finished in ivory, with one end gracefully curved. Parallel louvers form the speaker grille pattern. The chassis has five tubes, standard broadcast band, push-button tuning for four stations, Blilt-in-Tenna, automatic volume control, and 5-inch dynamic speaker.

The Adams model, one of the attractive Panamoue phonograph-models, is a combination radio-phonograph just introduced by Farnsworth’s Capehart division.

A larger table model (AT-22) has a cabinet of sliced walnut, with decorative bands of pecan veneer and teakwood. Grille bars are horizontal. The cabinet is 8 inches high, 14 inches wide and 8% inches deep. Chassis features include AC-DC operation, six tubes, two wave bands, push-button tuning for 20 stations, 5-inch electrodynamic speaker, and beam power output.

A third table model (AT-50) has a wooden cabinet 12 inches high, 15 inches wide and 10 inches deep. The chassis has seven tubes, two wave bands, “slide-rule” dial, treble and bass tone control, Blilt-in-Tenna with connections for outside antenna and ground, push buttons for five stations, 5-inch electrodynamic speaker, beam power output and phonograph and television-sound connection.

One of the Farnsworth console radios (AC-56) is 58 inches high, 28% inches wide at the base and 15% inches deep. It houses a 7-tube chassis.

Another walnut console (AC-70) is 40 inches high, 27 inches wide and 12 1/2 inches deep. It has an 8-tube superheterodyne circuit.

A still larger console (AC-91) contains a 10-tube chassis. Like the others it has 12-inch electrodynamic speaker, and phonograph and television-sound connection.

One of the radio-phonograph combination instruments (AK-76) is 56 inches high, 28% inches wide and 15 1/4 inches deep. Its chassis has eight tubes, three wave bands, automatic volume control, continuously-variable tone control, shielded loop antenna, push buttons for five stations, 5-inch electrodynamic speaker, beam power output, Capehart record changer, and television-sound connection.

Another combination (AK-96) is slightly larger, being 36% inches high, 38% inches wide and 18 inches deep. This chassis has 10 tubes.

The Farnsworth line also includes two portable receivers, one battery-operated and the other universal. Among the table models is a 4-tube battery receiver for rural homes without electric current.

Universal's New Products

In line with the policy of bringing the high-speed candid camera within the range of the average buyer, Universal Camera Corp., 28 W. 23rd St., New York City, has announced large scale production on a 75 mm. 3.5 telephoto lens. The lens is quickly interchangeable with standard 3.5 lens and comes in a precision micrometer focusing mount. Objects at large distances are brought sharply into focus and a magnification factor of more than 2 to 1 brings distant objects close to the camera. The magnification factor is not so great, however, that a slight movement of the camera in the hand would spoil the picture. Deliveries on the new lens are promised for September at a list price of $19.95.

Also announced is an enlarger specifically designed for the candid. Called the Micrographe, the new enlarger features an automatic film pressure release permitting sliding of the film without scratching. A double lens system provides uniform flat-field illumination and the enlarger is equipped with both double and single frame masks. While using a standard Mercury 3 1/2 mm. lens, adapters are available for Leica, Contax, and other makes of lenses. Included is an adjustable ruby filter and holder. List is $275.00, deliveries are announced for October.

Record Attendance at Music Show

Manufacturers and dealers reported the annual Convention of the National Association of Music Merchants and Trade Show held in New York City August 1, 2, and 3, as a most successful event. Attendance figures this year jumped to 4,100, against last year's attendance figures of 3,000. Outlook, on the whole, was for excellent fall sales in all branches of the $2,000,000 worth of merchandise shown.

New president of the National Association of Music Merchants is Howard Beasley, president of Whittle Music Co., Dallas, Tex.
NEW

"SEALDTITE" Wax-molded TUBULAR PAPER CAPACITORS

Of standard size and price, but TOTALLY sealed against moisture. An engineer's dream come true!

The new SEALDTITE assembly is not stuck into tubes—previous standard practice, with doubtful results as shown in Figures 1 and 2. It is centered in molds; an exclusive SEALDTITE wax compound is molded around it. Astounding test results! SEALDTITE for safety! Leading jobbers feature SEALDTITE in factory-sealed cartons of 10.

2 to 5 times average life expectancy

the only major advance in tubulars in the last decade

SOLAR MFG. CORP.
Bayonne, New Jersey

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

AUGUST, 1939
New Booklets

Full and winter edition No. 409 listing line of transformers for serviceman, amateur, and PA engineer. Also included are television components, and automatic voltage control units. Available from distributor or Thordarson Electric Mfg. Co., 500 W. Huron St., Chicago.

Line of power transformers, chokes, audio, microphone, and modulation transformers including television oscillation transformers are listed in catalog 391-R. Also a 32 page transformer replacement guide listing all power, audio, output transformers and filter chokes for receivers manufactured during the last decade. Available from Jefferson Electric Co., Bellwood, Ill.

A 16 page booklet describing and illustrating the Garrard line of automatic record changers, motors, pick-ups, and turntables. Available from Garrard Sales Corp., 295 Broadway, New York, N.Y.

Catalog of radio and television service equipment featuring panel adaptability is available from the Hickok Electrical Instrument Co., Cleveland, Ohio. Catalog No. 12.

Complete line of resistors, fixed and variable, T and L attenuators, plug-in shaft controls, and midget controls featured in catalog available from International Resistance Co., 401 N. Broad St., Philadelphia, Pa.

Complete listing of grill cloths, hardware, cabinets, paint finishes, and service accessories is in catalog 30A available from Nash Radio Products Co., 5437 Lisette Ave., St. Louis, Mo.


Descriptive literature on: "B" power supply equipment showing capacities and performance characteristics; AC-DC gas-electric plants; rotary converters, and centrifugal pumps. Pioneer Gen-E-Motor Corp., 145 W. Superior St., Chicago.

Catalog 205 listing and illustrating hardware, metal cabinets, parts, etc., with illustrations; available from Imuline Corp., 3030 Northern Blvd., Long Island City, N. Y.


Catalog 162A describes electrolytic motor starting capacitors and 162B shows DyKanol motor starting capacitors. Cornell-Dubilier Electric Corp., South Plainfield, N. J.

Up-to-date vibrator guide covering all makes of auto and battery operated receivers. F. R. Mallory & Co., 3029 E. Washington St., Indianapolis, Ind.

Catalog lists transformers for all amateur and replacement purposes plus special units. Includes charts for determining correct transformer to use. Standard Transformer Corp., 1500 N. Halsted St., Chicago.

Details and prices on line of electric plants for supplying AC and powering radio transmitters. D. W. Onan & Sons, 689 Royleton Ave., Minneapolis, Minn.

Line of inter-communicators and paging systems are described and illustrated in pamphlet available from Regal Amplifier Mfg. Corp., 14 W. 17th St., New York, N. Y.

Illustrated catalog of the crystal, dynamic and carbon microphone line including special information on un-directional mikes is No. 162 available from Shure Bros., 225 W. Huron St., Chicago.

Catalog of magnetic, and electro-dynamic speakers and output transformers are illustrated in bulletin No. 931. Included chart shows power loss due to mis-matched impedences. Oxford-Tartak Radio Corp., 918 W. Van Buren St., Chicago.

Supplement to regular tube databook brings 73 recently announced types to servicemen, etc. Available only with data book from distributor or Raytheon Production Corp., 55 Chapel St., Newton, Mass.

A small spiral bound booklet with tube base diagrams of every tube manufactured to present time. Price, ten cents. Tung-Sol Lamp Works, Inc., 95 9th Ave., Newark, N.J.


Catalog and handbook illustrating and describing motor and other maintenance equipment and electrical specialties. Includes 413 hints on commutator care, operation of D.C. generators, definitions of electrical terms and engineering tables. Ideal Commutator Dresser Co., Sycamore, Ill.
The Radio of Tomorrow—Today

"The Profit-making LINE for 1940"

Presents

COLOR... NEW 1940
BEAUTY in FADALETTE
and STYLE MODELS...

that
SELL on SIGHT
SELL on PERFORMANCE
SELL on PRICE

A Galaxy of Colors in Gem-Like, Translucent Cabinets
That Resemble Such Stones as Alabaster, Marble, Onyx,
Jade, Lapis Lazuli and other Gems.

Write for descriptions of all FADALETTE MODELS

NEW 1940 FADA
AC - DC - BATTERY
PORTABLES

The Portables You Will Sell
All the Year Round.

WITH Exclusive
FADA FEATURES

• 50% LESS HEAT
  uses low drain tubes
• FOOL-PROOF
  battery to electric
  switching system
• UP-DRAFT CABINET VENTILATION
• EASILY OPERATED — Battery to
electric switch
• SUPER POWERED
  ELECTRIC SET
• OVERSIZE SPEAKER
  (P.M. Dynamic)

Prepare for a record-breaking season!
SELL FADA Radio - Phonograph COMBINATIONS

in TABLE and CONSOLE MODELS that
are outstanding VALUES in the radio
industry; and, most important of all,

PROFITABLE for YOU!

Write for full details and sales brochure to
FADA RADIO & ELECTRIC CO. 30-20 THOMSON AVE., LONG ISLAND CITY, NEW YORK
Radio equipment has reduced crime in major cities as much as 58%. The new Two-Way installations are cutting it in half again!

And it is thanks to a RAYTHEON development that the new portable transmitters go on the air instantly with no time lag for heating.

Police receivers and transmitters in New York, Chicago and the more efficient police departments all over the country depend on RAYTHEONS for dependable operation!

You may not have the time to exhaustively test tubes the way the police do, but you can give your customers the same RAYTHEON tubes and the same steady performance at no extra cost. It makes satisfied customers and that is what builds a profitable service business for you.
Broadcasters Plan New Thrills to Help You Sell More Radios
Important Notice. The 3rd Edition MYE is published wholly for the use of technicians engaged in radio servicing. Its contents are valuable to them alone.

Mallory Supplemental MYE Monthly Technical Service is designed for anyone interested in Radio.

If you are a radio service engineer and do not own a copy of the 3rd Edition MYE, see your Mallory-Yaxley distributor. He may still be able to supply you with a copy.

**You Can’t Afford to Do Without**

**MALLORY Supplemental MYE**

**Monthly Technical Service**

At a cost of less than ½ a cent a day… less than 15¢ a month—It’s the Biggest Bargain You Ever Bought! Look at the monthly releases scheduled—starting with October and through to January of 1940.

**SUPPLEMENT No. 1**

OCTOBER 1st

Every new tube that’s been released this year is included—and that’s quite a bunch. It’s information you’ll need to use daily. The only compilation of its kind.

**SUPPLEMENT No. 2**

NOVEMBER 1st

Vital facts you should know to use the new types of condensers. Greater progress has been made in the condenser art in the past 18 months than ever before. A 44-page booklet—not only a valuable reference, but a volume you simply cannot do without.

**SUPPLEMENT No. 3**

DECEMBER 1st

Data you’ll need and use frequently. We know because service engineers have told us what they wanted. This supplement is exactly that!

**SUPPLEMENT No. 4**

JANUARY 1st

A service no progressive radio service engineer can do without. Considerably over 1500 sets analyzed. Information on current sets when you need it… not a year later.

Plus 8 (eight) other equally valuable issues… one a month… right through to September of 1940. Twelve big reasons why you can’t afford to miss the service… at a cost small in comparison with its real worth.

Mallory research work is carried on every single day of the year. Mallory Supplemental MYE Monthly Technical Service is your only means of keeping up to date.

Whether student, “ham,” or radio amateur, you won’t want to miss a single issue. Use the coupon and mail your order today.

---

**Use Mallory Replacement Condensers & Vibrators**

**Use Yaxley Replacement Volume Controls**

P. R. MALLORY & CO., Inc., Indianapolis, Indiana

Enclosed is $1.50. I do not send cash or stamps—use personal checks, cashier's check, Postal or Exp. M. O. which entitles me to receive 12 issues of the Mallory Supplemental MYE Monthly Technical Service.

PLEASE PRINT

Name

Address

City State
MAJESTIC'S NATIONAL ADVERTISING AND 8 MILLION ENTHUSIASTIC OWNERS MAKE HOT NUMBERS HOTTER

★ Here's one line that has every one of the four profit-making fundamentals for dealers! Already, in this complete 1940 line, Majestic has proved its ability to turn out red-hot "scoops." These hot numbers are backed up by a solid national advertising campaign . . . Life . . . Liberty . . . Collier's . . . Saturday Evening Post—with more to come! Majestic's production methods allow larger margins than you've expected. And, finally, Majestic's policy is "No quotas." We know some numbers are hotter than others, in various territories—and we realize that you know how to sell your trade better than anyone else! Majestic gives you every feature, every talking point that sells radio today—and gives you a free hand to use these points to your most profitable advantage! You can't ask for more than that! Write today for details!

MAJESTIC RADIO AND TELEVISION CORP.
2602 W. 50th St., Chicago, Illinois
Cable Address, "Majestic, Chicago"

8 MILLION SATISFIED OWNERS OF OLD MajesticS ARE RED-HOT PROSPECTS FOR NEW MAJESTICS
THE LINE IS HOT!

PRACTICALLY EVERY DEALER who has seen the Farnsworth Line for 1940 has over estimated list prices from 10 to 20 dollars per set. Model for model, feature for feature, Farnsworth is simply more radio for the money — every model in the line is "HOT".

Everyone Was Amazed For example, at the sensationally low price of the impressive console model illustrated, (AC-70), tall and stately, of richly figured rare woods, it brings a note of distinction to any home. 8-tube superheterodyne circuit; Flo-Lite dial; three wave bands, 540 to 1600 KC; 1.6 to 5.5 MC; and 5.5 to 18.1 MC; six station push-button tuning; statically Bilt-In-Tenna; automatic volume control; continuously-variable tone control; 12-inch electro-dynamic speaker; phonograph and television-sound connection (Television Bridge). Dimensions: Height 40"; Width 27"; Depth 12½". It isn't matched in any line!

ORDERS ARE PILING IN

ENTHUSIASM shown by distributors when Farnsworth's 1940 Line was introduced in August has spread like wildfire among dealers from coast to coast... Orders are piling in... Production lines are in high gear at Farnsworth factories in Marion and Fort Wayne... The outstanding VALUE of Farnsworth Radios is today's BIG NEWS in the Radio Industry.
FACTORIES are going strong

PRODUCTION BOOKED SOLID THROUGH OCTOBER
The facilities of the Farnsworth factory at Marion are already going at top speed to keep up with orders that are pouring in as a result of universal enthusiasm on the part of dealers who have seen this startling new line.

TERRITORIES BEING CLOSED RAPIDLY
The fast pace set by Farnsworth in closing distributor territories is being duplicated by distributors closing dealer franchises throughout the nation. This flood of orders continues to keep the Fort Wayne office open long after normal hours — YES, Farnsworth is going strong! and there is no lessening of the pace that has aroused the interest of the entire industry.

LOW LISTS—WITH WIDE MARGIN FOR DEALER
Another big reason why dealers are so enthusiastic about the new Farnsworth Line is that their tremendous high values at low lists are matched by margins that enable a dealer to make a real profit on every sale — there are no “duds” in the line — every model stands out as a real profit maker. If you haven’t investigated this new profit opportunity DO SO TODAY — see your distributor or write

FARNSWORTH TELEVISION & RADIO CORPORATION
FORT WAYNE and MARION, INDIANA

READ THIS
From a TYPICAL DISTRIBUTOR REPORT

"30 Dealer’s bought (substantial orders —in many cases) purely on strength of PICTURES and DESCRIPTIONS"

Quotation above is from an actual letter (name on request)...Conclusive proof of the outstanding salability of Farnsworth.

Thanks to You MR. DEALER FOR YOUR VOTE OF Confidence

SEPTEMBER, 1939
ANOTHER GROUP OF SALES-BUILDERS—Just off the Production line

WESTINGHOUSE RADIOS
20th Anniversary Series 1940

You can celebrate this year with unprecedented sales by stepping out with the celebration radio line... the Westinghouse 20th Anniversary Series!

Here is an entirely new line of radios specially designed, constructed and priced to celebrate the 20th Anniversary of the first radio broadcast from Westinghouse Station KDKA. Every model in this 1940 group was developed to be particularly worthy of this important radio event! In appearance, performance, and value they are truly distinguished radios... offering you a most attractive profit opportunity!

The style of each model was created by the foremost designers of radios in America today. Cabinets were constructed of exquisitely grained, carefully matched woods. Their distinctive beauty attracts instant attention and admiration.

Then too, these 20th Anniversary radios have been engineered and constructed for superior, dependable performance. Simplified chassis design, improved assembly, and high quality, precision-built parts give each model results well above its price class. Here is demonstrable performance that helps build sales, satisfied customers and repeat business.

It will pay you to investigate these Westinghouse 20th Anniversary Series radios. Celebration prices enable you to offer "more-for-your-dollar" values, yet make a substantial profit for yourself. Get complete details and de luxe Sales Book from your distributor today!

Westinghouse Precision RADIO
Blasting their way through the back hills of the Southwest, modern geologists hunt oil deposits with charges of dynamite and delicate amplifiers to measure the sound waves returned from underground rock formations.

Firms like the Geophysical Supply Company of Houston, Texas, supply RAYTHEONS to the major oil companies for this equipment. Because RAYTHEONS are the one tube they have found that can take the terrific jarring and pounding of trucks driven cross-country, yet function in the circuit with laboratory efficiency! RAYTHEONS are almost always used in the "tough spots."

Where it is difficult for a tube to stand the work, RAYTHEONS are expected to come through—and they do. Yet the trade prices of RAYTHEONS are no more than tubes that will merely "get by" in easy home set conditions.

That is why you will find RAYTHEON tubes on the shelves of the serious servicemen and dealers—those who are making a successful business of servicing and replacement. They know they must give their customers the best.
THRILLING on the gridiron . . .

TRAGIC in your business

If you as a radio tube dealer are losing sales to cut-price competition—you need the Tung-Sol plan which provides interference FOR you—not AGAINST you! You qualify under this protected profit setup and secure an adequate supply of Tung-Sol tubes without buying them—

IF, you now operate a growing radio service business free from interference with already established Tung-Sol dealers . . . can turn over a profit-protected tube stock three or four times a year . . . will make use of attractive displays and other advertising material for increasing sales . . . and have a reputation for maintaining standard prices.

TUNG-SOL

Vibration-Tested

RADIO TUBES

IF YOU HAVE "WHAT IT TAKES"—WRITE US TODAY

TUNG-SOL LAMP WORKS INC.

Dept. C

Radio Tube Division

SALES OFFICES: Atlanta • Chicago • Dallas • Denver
Detroit • Kansas City • Los Angeles • New York
General Offices: Newark, New Jersey

RADIO TODAY
In 1938 when industry sales fell back, Stromberg-Carlson unit sales jumped above those for 1937—and they were big profit sales for distributors and dealers, averaging $109. This year, 1939, the remarkable value built into Stromberg-Carlsons is forging Stromberg-Carlson unit sales even farther ahead; has sent them up 20%, compared with the first 7 months of 1938.

You gain, in profits, when you pick the Stromberg-Carlson team, a powerful line of values backed up by an unfailing quartet — Exclusive essentials for natural tone like the Labyrinth and Carpinchoe Speaker; authentic designs in varied woods; Bigger units that carry worthwhile profit; and aggressive merchandising.

THE WAVE WIZARD
Provides Plug-in operation, without ground or aerial wires, of any radio. The Wave Wizard is non-directional and is not affected by metal objects. $2.50*
1. Can Sylvania give my business the big, dependable profits it needs?
Absolutely. Sylvania prices assure you of maximum profit on every sale. One of the world's most popular tube lines, Sylvania's quality makes satisfied users...repeat customers.

2. What about the product?
Sylvania Tubes are kept up-to-the-minute by Sylvania's fine research and development laboratories. Only the finest materials and workmanship are used in their manufacture. And every tube carries a 6-month written factory guarantee—effective from date you sell it.

3. I want company dependability back of the tube line I feature. Will Sylvania give it to me?
Yes...for years Hygrade Sylvania has backed its retailers with full technical and sales assistance...plus sound business policies, designed for your welfare as well as Sylvania's.

Why feature tube lines that can't give you what Sylvania does? Sell Sylvanias and you get full measure on both company and product dependability.

What's even more important—Sylvania gives you profit dependability, too!
Let common sense be your guide—
Feature Sylvania Radio Tubes!

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

SELL SYLVANIA
SET-TESTED RADIO TUBES

"DEPENDABLE ALL WAYS"

RADIO TODAY
IT'S THE YEAR'S...

Sales Sensation

NEW 1940 G-E MODEL H-87
SETS THE PACE FOR ENTIRE INDUSTRY

MODEL H-87 Compare these great features and specifications: 8 Tubes • 3 Bands • 9 Feather-touch Tuning Keys • 10 Watts Output • New 14-inch Dynapower Speaker • New Television Audio and Phonograph Key • New Super Beam-a-Scope • New Visualux Dial • New Drift-Proof Station Setting and many other new improvements.

Not in years has any radio model equalled the sensational success of this new 1940 G-E Model. It leads in features—in performance—in styling—in value. It absolutely dominates every radio showing in which it appears. It's priced for fast and furious sales action—and gets it.

This spectacular leader is typical of the entire line of new 1940 G-E Radio values. The 1940 G-E Radio line includes 34 brilliant plus-value models including a strong array of table models—radio-phonograph combinations—and record players.

See and hear these new G-E instruments. Get in touch with your G-E Radio distributor NOW.

AN AUTOMATIC SALES-CLINCHER
—THE G-E X-RAY SALES MAKER!
This unique and exclusive silent salesman dramatizes the selling features of the new 1940 G-E Radio. The entire chassis is brilliantly illuminated. The entire sales story is told at a glance. Underslung turntable permits quick and easy demonstration of sales features—front and back of cabinet. Ask your G-E Radio Distributor to show you the G-E X-Ray Sales Maker.
IN 1939 RADIO WOULD FIND LIVINGSTONE
and save Stanley 8 months of hardships in Darkest Africa

Calling Dr. Livingstone... Calling Dr. Livingstone

Ujiji in the interior of Africa, where Stanley met Dr. Livingstone in 1871 after eight months of desperate and difficult searching, is now but a fraction of a second via radio from the great cities of the world. Only about seven years elapsed between Stanley’s famous “Dr. Livingstone, I presume?” and the beginning of the experiments of Heinrich Hertz which first unlocked the secret of wireless waves. Since then, within the life span of the average man, radio has become one of the most vital forces controlled by man.

And in that remarkable development the Radio Corporation of America has played a major role.

Motivating factor in all that RCA does is research in RCA Laboratories. From here come the developments which the various members of the family of RCA utilize in making radio serve the world.

R.C.A. Communications provides communication to and from 43 countries and among leading cities of the United States. The National Broadcasting Company offers entertainment, information, news, and enlightenment to millions. The RCA Manufacturing Company makes RCA Victor Radios, RCA Victrolas, Victor and Bluebird Records, and every kind of radio equipment for broadcasters, laboratories, airplanes, police departments, and for virtually every other known application of radio.

RCA activities are portrayed in RCA exhibits at the New York World’s Fair and the San Francisco Exposition. You are cordially invited to visit these exhibits for a more intimate understanding of the ways you can cash in upon the services of RCA.

A Great New Season Starts!

We stand on the verge of the season of the greatest radio sales potentials we have ever known.

Sales, the like of which we have only hoped for, are this year possible and may provide a rising tide of golden profits if sold properly.

But, if, the more we sell the more we lose—because thousands of dealers across the land will let profits slip through their fingers, through rampant price cutting—this may be the beginning-of-the-end of retail radio distribution as we now know it!

If dealers will be honest with themselves, and their fellow dealers, this may well be the most profitable season we've known since the lush days of the "roaring twenties." But if dealers spend more time minding the other fellow's business than they do their own, and send up the alibi shout "It's that so-and-so down the street who starts the price cutting, but I'll show him!"—we may all lose our shirts.

* * *

It's all so foolish, and elementary.

You are the "fellow down the street" to some other dealer. He is saying the same thing about you.

Most dealers outsmart themselves by trying to outsmart the other fellow. Most dealers think they must have a price advantage over their competition. They want price maintenance to apply to the other fellow.

And all sink deeper in the morass of their own making.

In this web of screwy thinking we are caught—and are getting nowhere, fast.

We are all dependent upon others; whatever we do affects others, and must of necessity bounce back and affect us, too.

The whole problem would quickly be solved if dealers were loyal to those manufacturers and distributors who refused to sell unethical dealers and predatory price cutters, and refused to support those who put volume above all else.

And thereby furnished the basis whereby sincere manufacturers could forego this questionable volume and reputation with the assurance of loyal dealer support when they did so.

On the threshold of the season which may well be the "daddy of them all" dealers hold the answer to their own profits in their own hands.

Let's change the squealing and squawking of bygone days into positive, forward looking ACTION.

Let's really CASH IN on the golden profit opportunity that lies just ahead.
Radio dealers report to Radio Today a sudden upturn in radio sales, already high, as people rushed to their stores to buy new radios—large, small, and portables—to follow the war’s events as they happened.

Service men, too, were suddenly besieged by those who wanted repairs made in a hurry. Owners of all-wave sets demanded that these be tuned up to the peak of performance to get their news direct. Broadcast listeners needed new tubes and parts to restore disabled sets to operation.

One Chicago radio store reports more business in two weeks than in the previous two months. A fine suburban store in New Jersey reports a 50 per cent increase in radio sales. Service men find that demands for immediate repair service have come so fast they have been kept on the job 10 and 18 hours a day.

**PRICES TAKE UPTURN**

One manufacturer reports that orders on hand now, will keep his plant going full-blast for the next 30 days, and the back orders continue to increase. Another prominent set manufacturer states that at the present rate of orders coming in, production won’t catch up for several months. A leading parts manufacturer has been swamped with orders for replacement parts, and his normal production facilities cannot keep pace with the rising tide of demand.

Such has been the immediate effect of the war on the radio business. But there are other important echoes of the booming guns, too.

Prices have begun to rise on raw materials, particularly non-ferrous metals, cotton, etc. Suppliers in many cases have withdrawn quotations on coils, wire, transformers, etc., working now on a day-to-day basis. Whether such price increases are speculative, and reflect the anticipation of future demand, or rise, it is probable that radio manufacturers’ costs will go up, and may soon have to be reflected in higher retail prices for radio sets.

**EMPLOYMENT AND BUYING POWER**

Some leading radio manufacturers have already announced price increases on certain models, though most express the intention of absorbing present increased costs as far as they can, in the expectation that added volume will reduce other costs and so pick up some of the advances in raw materials.

Increases in employment have taken place in radio and in other industries, beyond the normal seasonal increase, which in large part reflects the anticipation of broader demands resulting from the war.

**ADVICE TO RADIO MEN**

Increased buying power has set loose should sustain a more rapid increase in demand for consumers’ goods, including radio, than has already been experienced during the first months of fateful 1939.

“Stocks should be kept well in hand, increased turnover should be encouraged, and established retail prices should be more nearly maintained,” is the counsel offered to radio dealers and service men at this critical period.

The rebooom of the radio business which Radio Today saw, and predicted, three months ago, has now arrived.

The greatest radio season of them all is now reported from all sections of the country to be under way. It is significant, however, that the greatest increases in business are reported by dealers who had never relaxed their sales promotional efforts, and have now even increased them.

War Crisis Brings Sudden Upturn in Listening

In the crisis immediately preceding the outbreak of World War II, with nerves taut, and tension high, the public turned to radio as never before. And radio measured up!

With trained reporters in all the foreign capitals, and calm, calculating analysts in home studios, listeners were kept advised of developments hour by hour. Actions and reactions were analyzed and interpreted in a manner which gave the public a clearer understanding of what was going on, with a clarity never before possible.

News was granted the right-of-way over all programs. Operating people stuck to their posts, and some stations went on a 24-hour schedule.

And the public responded, too. Countless thousands hugged their radios, in homes, offices, and automobiles en-route, for the latest news flashes.

Radio has measured up so well, thus far, that the war offers new and greater business opportunities than ever for radio sales, and service work. Alert radio men are cashing in.

At Farnsworth’s Marion, Ind., plant, E. A. Nicholas, president, holds an image dissector tube. At left is Ernest H. Vogel, vp. & gm; at right, J. P. Rogers, vp & treas. and supervisor at Marion.
Honors for Dr. deForest

Sept. 22 will be Lee deForest Day at the New York World’s Fair. Dr. deForest will come East from his present home in Los Angeles, to be present at the events of the day which include a luncheon in his honor, and an evening dinner in the Merrie England restaurant. Later, on Sept. 27, at 8 p.m., a reception will be tendered Dr. and Mrs. deForest in the Jansen suite at the Waldorf-Astoria, New York City.

Broadcasters Plan Thrills for New Season

Aside from the intense public interest in the news broadcasts in connection with the war abroad, the broadcast stations of the U. S. have also arranged unparalleled schedules of programs and talent for the coming season.

The broadcasters’ “Curtain Raiser” programs start Sept. 24 (date of time changes in many communities) and will provide means for dealers and service men to tie in with their nearest radio stations, as outlined on a following page.

Radio men should contact nearest broadcast-station manager for full information.

Our Orson Welles Cover

As the second in Radio Today’s series of “Programs that Help You Sell Radios,” Orson Welles is particularly well qualified. Although only twenty-four years old, Welles has been in radio since 1934. Some of his programs in the last five years include: “The March of Time,” “The Shadow,” which he played for two years; “First Person Singular”; and radio features and personalities is the best sales inducement the dealer has. By keeping in touch with programs that are on the air, learning about new ones and those scheduled to return to the air, the dealer can insure his customer continuous satisfaction from both the beauty and performance of the radio and the hours of enjoyment it can offer.

N. Y. Edison Offers Combinations at "60 Off"

With the slogan “The Greatest Show for Your Money,” a sales campaign featuring a specially priced table model radio-phonograph combination, was announced this month to cooperating New York dealers and department stores by E. F. Jeffe, vice-president of Consolidated Edison Company.

The sets are entered under the Feld-Crawford Act at $23 cash price for the AC model, with a total of $24.50 for deferred payments of $2.45 a month for ten months; $26.50 cash price for the DC model, with a total of $28 for deferred payments of $2.80 a month for ten months. At the end of the sale—September 1 to December 15—this model will be placed in the maker’s regular line at $59.95 cash for the AC model and $64.95 for the DC model.

Consolidated Edison System has underwritten the manufacture of 50,000 sets to start off the campaign, which will be participated in by approximately 800 cooperating dealers and department stores in Manhattan, the Bronx, Brooklyn, Queens and Westchester County. The radio-phonograph combination to be promoted is housed in a streamlined case of rosewood and imported Sapeli, approximately 16 in. wide, 9 in. high and 11 in. deep.
Terminal Radio Corp., 68 W. 45th St., N. Y. C., starts selling "on the street" with displays of wanted merchandise plainly price-tagged.

An attractive, clean, well-lighted store with merchandise ready for demonstration pays large dividends.

**Starting the New**

_With business good, the little things mean a lot._

**REMEMBER YOUR CUSTOMER LIKES**

- A good assortment of wanted merchandise
- Truthfulness about the merchandise
- The same price to everyone
- Quick, courteous, accurate attention
- Attractive, clean, well-lighted store
- Chairs when witnessing a demonstration
- Courtesy and friendliness
- Honesty and promises always kept
- Neat, orderly displays
- Prices plainly marked in windows
- Interested salespeople
- Comfortable store
- Broad aisles—space to move
- Merchandise ready for demonstration
- Same service regardless of clothes or appearance
- To be remembered AFTER the sale too

*Remember that your treatment of your employer.*
ame service regardless of appearance of customers is important in keeping good will. Remember too that youngsters make a sizeable market.

Peak-Profile Season

Things to Remember

...because more people are affected

But your customer does not like

Limited selection—little choice
Evasiveness or "selling talk"
Price haggling
Inattentive—haughty salespeople
Disorderly, dirty, dark store
Too much pressure to buy now
Curt or uninterested salespeople
Mistakes or misrepresentation
Disordered or dirty displays
Long waits for attention
Being told they are hard to please
Overheated, poorly ventilated store
Crammed, crowded store
Long waiting, or fussing by salespeople
Discrimination among customers
To be SOLD and FORGOTTEN

be reflected by them to your customers.

**SEPTEMBER, 1939**
Starting the New Peak-Profit Season

A Check List of Things to Remember

With business good, the little things mean more, because more people are affected

REMEMBER YOUR CUSTOMER LIKES
A good assortment of wanted merchandise
Truthfulness about the merchandise
The same price to everyone
Quick, courteous, accurate attention
Attractive, clean, well-lighted store
Chains when witnessing a demonstration
Courtesy and friendliness
Honesty and promises always kept
Neat, orderly displays
Prices plainly marked in windows
Interested salespeople
Comfortable store
Broad aisles—space to move
Merchandise ready for demonstration
Same service regardless of clothes or appearance
To be remembered AFTER the sale too

BUT YOUR CUSTOMER DOES NOT LIKE
Limited selection—little choice
Evasiveness or “selling talk”
Price haggling
Inattentive—haughty salespeople
Disorderly, dirty, dark store
Too much pressure to buy now
Curt or uninterested salespeople
Mistakes or misrepresentation
Disordered or dirty displays
Long waits for attention
Being told they are hard to please
Overheated, poorly ventilated store
Cramped, crowded store
Long waiting, or fussing by salespeople
Discrimination among customers
To be SOLD and FORGOTTEN

Remember that your treatment of your employees will be reflected by them to your customers.
Department Store Menace

An analysis of some facts and figures which show how department-stores' policies keep their radio departments in the red, and menace independent dealers' profits.

The merchandising policies of price-conscious department stores in the operation of their radio departments have long been a thorn in the sides of independent radio dealers. Confident that these great retail distributors of merchandise, long looked upon as the acme of merchandising skill, would not operate their radio departments at a loss, dealers were certain they bought at better prices, and sold more economically, than the independents could, and so could undervalue the dealer and still make a profit.

AUTHENTIC FIGURES

Radio Today has carefully studied the "1938 Departmental Merchandising and Operating Results," as published by the Controller's Congress of the National Retail Dry Goods Association, in conjunction with a survey of several department stores' methods and policies.

The figures are typical, rather than from any one store. They portray a representative cross-section of department store radio department operation.

They shatter many misconceptions of the smartness of department store merchandising, the skill of their operation, and the soundness of their policies.

They expose glaring faults to view.

VAUNTED SKILL DEFLECTED

Buying skill appears to have taken wing and flown away. Profits have been sacrificed on the altar of store-wide policies.

Selling has been mechanized to a high degree and dissatisfies customers with a startling high frequency.

Management has lost its old-time flexibility, and fails to correct conditions which are obvious, and basically unsound.

Good will, prestige, customer satisfaction, profits, all have been sacrificed in the radio department at the shrine of volume.

Truly department stores should ask themselves the single question "What price volume," and put their house in order. Long sustained operating losses add nothing to the department stores' reputation, may in fact build up a small-dealer antagonism which may one day become an important, if not vital, factor in their future.

FACTS AND FIGURES

Let's look at the figures, and study them.

The tabulation on page 17 shows the vital statistics of radio department operation in stores of five br groups, according to their annual sales volume.

While the figures vary a little from group to group, and in general, margin increases and expense decrease as total store sales go up, we will analyze the figures of the typical store, the composite of all the stores, large and small.

PLENTY OF VOLUME

In this typical department store, total sales are $2,632,000 per year, and 7.7% per cent of this, or $184,240 is the radio sales volume.

A mark-on of 40.3% per cent is good, compares favorably with that of independent dealers, and is better than the store average of 39 per cent.

Gross Margin of 30.5% per cent shows an unusually high shrinkage of mark-on—due of course to the markdown and service costs being high. These factors, however, being present; must either be removed by more skillful buying and merchandising, or compensated for by a correspondingly higher mark-on, even if it does conflict with the store policy of "price consciousness."

Markdowns of 9.3 per cent are an index of buying judgment, and point plainly enough to a stock badly depreciated by obsolescence, bought above the market, or to too many special sales events based upon price.

STOCK TOO HIGH

A stock turn of 4.3 times per year is less than half of what it should be, and is an indictment of the store-wide policy of having everything the customer asks for.

This turnover indicates an average stock of $25,700 at cost, of which 6 per cent is more than one year old. Plainly enough this indicates a lack of buying skill, and the result of the price-conscious store-wide policy of special sales. From every special sale there is a residue of unsold and returned merchandise, which slowly ac-
BAD BUYING AND SELLING

Merchandise Returns of 19.8 per cent, which means that 1 in every 5 customers was dissatisfied, is a sad commentary on buying judgment and selling methods.

Not only does it strike at store good will, but it simultaneously increases the cost of doing business. It is a condition which is economically unsound, reflects poor merchandising, and poor merchandising. This condition should be corrected by bet-

'rong Policies

Store-wide policies not appropriate or radio, beyond any question, are responsible for this pathetic merchandising showing.

That these conditions are getting worse is indicated by the increasing net loss, 3.9 per cent in 1936, 5.9 per cent in 1937 and 7.5 per cent in 1938.

The fallacy of the "volume" policy is shown in the simple fact that with a decline of only 3 per cent in sales, the loss increased 1.6 per cent but in 1937 with a substantial gain in sales volume, the loss increased 2 per cent.

Profits, of course, cannot result until the merchandise is sold, but when policies and methods are such that the bulk of sales are obtained at short margins, then volume is not the controlling factor in producing profits.

WHAT PRICE "POLICY"

More skillful buying could easily save 3 to 5 per cent of margin, operate on a stock half the size, and save at least 2.5 per cent in insurance and occupancy expense.

Better training of sales personnel, less sub-quality off-brand radio, and less overemphasis of price, should cut returns to not more than 5 per cent, and thus save at least 2 per cent in Bureau of Adjustment, Delivery, Bookkeeping, and Selling expense.

A reduction of 1.5 per cent in expense, and an increase of 4 per cent in store, would change a 7.5 per cent loss into a 1 per cent net profit. Such then, is the answer to the question "What price policy?"

BROADLY speaking, misguided or un-

POLICIES MENACE THE INDUSTRY

Their correction is indicated, and that right quickly, for there are other methods of low cost distribution raising their heads to challenge the price, and volume policies of department stores.

Department stores and independent dealers have the same ultimate interests, the same basic problems, and may soon have the same competitive fee.

From the foregoing, dealers may learn the results of some common practices, may take to themselves and profit by the misguided efforts of others.

By permitting such conditions to continue to demoralize the radio trade, department stores will forfeit the respect with which most in the retail craft look upon them, may in fact augment a growing antagonism and disrespect which will one day be a real factor to reckon with.

In the conduct of a department store, as in any other business, there is no substitute for clear thinking, sound policies, and a fast acting management, in keeping a step in advance of the current tempo, and making the solution of each problem yield a profit.

"It's the man who installed the radio. No one can find how to get him out!"
Automobile Radio for 1940

The radio engineers have left Detroit for home. Some are even on vacation. The automobile purchasing agents wiped the blood off their chisels and wrapped them in oiled rags until next year. But there is activity—lots of it—in radio plants whose salesman came home with the auto radio contracts. For the 1940 auto radio season is in full swing productionwise. Sets are beginning to arrive in Detroit, and preproduction samples are already in new automobiles on their way to dealer showrooms.

Let us have a preview of these sets and see what the engineers have been doing.

There is a striking keynote to the 1940 theme—struck for the first time and proclaiming that the automobile engineers and stylists have at last welcomed radio and made a place for it in their cars. Every 1940 automobile but one will appear in the showrooms this fall with a neatly styled speaker grille and push button equipment in the center of its instrument panel. And should a new car buyer insist that radio be omitted, a dummy section of instrument panel will be supplied to cover the omission.

LARGER SPEAKERS, BETTER TONE

This universal feature is interesting. It makes one suppose that perhaps there is a better way, and all are doing the job that best way. If it falls short of being best, it is at least very good, for tone quality has never been so satisfactory. The exaggerated woomp of some of the 1938 and 1939 bass notes may be missing from the instrument panel sets, but their place is taken by a melodic and natural bass response. Larger speakers are partly responsible, eight inches being the rule and six inches the exception.

Tuning controls have received a lot of attention and they, too, reveal a similarity that indicates the finding of the Best Way. Five or six buttons in a horizontal or vertical row beside the speaker grille accomplish the tuning, and in several sets the end button operates a three or four position tone control.

EASIER TUNING AND SET-UP

It seems just a little bit surprising that the “single-button” tuning system failed to take a stronger hold. The number of users has not increased for 1940. However, the single-button tone control was borrowed from this system and placed at the end of the row of tuning buttons as above mentioned.

The trend in controls is toward safety and simplicity, particularly that phase of simplicity that permits even the most inexperienced car owner to set up a selection of stations on his push buttons without having to use a screwdriver or its substitute in the shape of a dime.

Some of the higher priced sets tune by a solenoid, relieving the user of all but a feather-touch of pushing effort on the buttons. The others have improved mechanical systems, so that rarely is as much as a pound and a half needed to depress the stiffest button.

Dial faces are becoming rudimentary but still legible and illuminated to harmonize with the rest of the panel instruments. The most accepted form is a narrow straight calibration strip parallel with the row of buttons.

Antenna systems display a pretty definite trend. Insulated running boards have departed and taken tire static with them. Antennas have demonstrated their right to be seen and not heard, with the result that a neat chromium whip will be seen on the well-dressed 1940 car. Many will be worn primly over the windshield dividing strip, others more jauntily from the left door hinge. The real Beau Brummells will conceal their rod antenna in a cylinder inside the cowl, and send it skyward at the touch of a valve on the manifold vacuum line. Some very clever spring devices have been put to work at foiling the driver who insists upon entering his low garage door at the cost of his antenna.

SETS EASIER TO INSTALL

If the automobile engineers have made it easier for their own dealers to install their own sets, they surely have not made it any harder to install the set made by the earnest independent manufacturer. Generally speaking, all sets will be a lot easier to install in the 1940 cars than they have been in previous cars. This fol-

(Continued on page 53)
This modern and attractive store of the Royal Home Equipment Co. in Glen Cove, N. Y., is a fast growing, well diversified business.

Owner Ed Hauschild is a friendly fellow, with some mighty sound ideas. Here he discusses credit terms with a customer, informally, in the privacy of his office. Customers like his friendly, natural, sincere manner, and send their friends in to "get acquainted" and to buy.

**Dealer in Action**

Whether it's portable radio, compact, console or combination, Royal has a good assortment, and suggests that prospects feel, handle, and operate them, because all people want to, and many may not ask to.

Washers and lighting are sold all the year round, to those who have bought radio, records, or refrigerators, and furnish their full share of prospects for the other products too.

The Service Department is on the job to see that radio and appliances "do their stuff" as the customer expects. It brings in a lot of new customers, too, who eventually buy radio.

Records, too, are featured and prove to be real traffic builders, as well as a constant "bread and butter" profit maker. Used in window display they attract new customers. Everyone should know you carry traffic items like records.

People that buy radio in the Fall are fine prospects for refrigerators in the Spring and Summer, and Royal's customers are invited to see the new models regularly. Note that the price is plainly marked on the "box," too.

SEPTEMBER, 1939
Building Sales Through Window Display

What your windows mean, and how to use them to their full advantage. Some timely display ideas

Your windows are seen by customers and your hoped-to-be-customers alike. They are your ambassadors. To many they give the first impression of your store. And their cumulative effect on the minds of passersby is an important factor in bringing new people into your store.

The first function of any window display is to attract attention, of course. But to bring new customers into your store it must do much more than merely attract the eye with line, mass, color, motion, light, or novelty.

The broad function of a window display is to create the urge to “see closer,” to touch, to own the article, all so irresistibly that the observer comes into the store—and buys.

MAKE DISPLAY BASIS CLEAR

To accomplish this broader function, a window must have a basic idea, so obvious and so perfectly clear, that it leaves a lasting impression on all who see it. Everything in the window, merchandise, price signs, decorative trim, must all play their part, and add to the clarity of the basic idea—never confuse, or distract. The story of the window must be entirely obvious, must never leave observers to “figure it out.” They won’t try.

Window display themes are varied, and may carry any of the following ideas:

1. Introduction of new merchandise.
2. The assortment of merchandise you carry.
3. The price range of any product or line of products.
4. Association of your merchandise or store to local events.
5. Seasonal appropriate merchandise suggestion.
6. Suggest variety of use of articles displayed.
7. Tie in with national magazine advertising.
8. Time to replace old merchandise.
9. Quality of the article displayed.
10. Pride of possession, human interest, educational.

With the introduction of new merchandise, the use of a large “blow-up” of a very young baby, in its mother’s arms, as the background, in color, for a simple display of the new product, and a streamer sign, “It’s our new baby,” will never fail to attract attention, and leave a lasting impression.

DRAMATIZE LOCAL EVENTS, NEW MERCHANDISE

The size of your assortment can well be related to “every color in the rainbow” with the rainbow in colors, as the background, and the particular article you are pushing as the “pot of gold at the rainbow’s end.”

The association of your store with local events, holidays, etc., is more institutional than direct sales promotional. An American Legion convention, for example, might well be the occasion for a display of the flags of the allies, around the medals of valor of local recipients, and a blowup of marching troops as the background.

Corn in the shock and pumpkins, against a background of a full moon suggest the harvest season. A turkey suggests Thanksgiving, as does the Mayflower, Plymouth Rock and the Pilgrim Fathers.

Vacation accessories will create much more interest when shown in windows which depict their use, than when a sign simply states “vacation needs.”

MUST SHOW ’EM—TO SELL ’EM

In all window displays, light is an important factor. Colors must not clash, lines must lead the eye to the focal point of the idea, and masses must be in balance. Motion will attract the eye, and give more life to a display.

Prices should always be plainly marked, for their absence conveys the impression they are too high, and frequently will deflate a growing urge to possess the article displayed.

Thought, time, and planning, are essential to the building of good window displays, the best of which are seldom the most elaborate.
Displays should be changed frequently, probably every week, because the same people pass your store almost daily, and they will talk about the new things they see, when they are interesting enough.

Windows of course, should be kept spotlessly clean, and the display clean and in order.

The eye makes an appeal more than ten times as important and lasting, as does the ear which is the next most effective sense.

Windows are really entrances to your store, for, while the body may go through the door, the eye enters through your window display and leaves an impression on the observer.

**Broadcasters Promote New Radio Season**

Under the leadership of the National Association of Broadcasters with headquarters at Washington, D.C., the broadcasting stations of the United States will launch a “Curtain-Raiser” promotion campaign Sept. 24, with the return of standard-time schedules.

Special broadcasts, speeches, civic club meetings and local radio-industry drives are planned, the purpose of which is to (1) increase the hours of listening, (2) increase the number of listeners, and (3) restore to operating condition the hundreds of thousands of radios now out of commission.

Accordingly it is planned to have the broadcasters co-operate locally with radio dealers, radio service men, and electric-light officials, who will be interested in selling more radios and putting existing sets into operation.

**WINDOW DISPLAYS FOR RADIO STORES**

Broadcasters are being supplied with window-display layouts to be installed in the show-windows of radio and electrical dealers, department stores, utility companies, and banks, and are urged to make their own staffs of employees and artists available to local radio merchants for store and window demonstrations.

NBC, CBS and Mutual will have special “Curtain-Raiser” programs during the week of Sept. 24, to launch the new Fall radio season, and to get public interest in radio off to a flying start. Local programs, newspaper ads, lobby displays, and show-window demonstrations will all concentrate on the message: “Get a new radio, or get your old one repaired.”

**Census to Include Radio Statistics**

Reflecting the relation which radio bears to American standards of living and the influence which it carries as a major U.S. industry, the 1940 census will include statistics on radio ownership. The RMA and NAB and other industry organizations will cooperate in acquiring the information. While the decennial and general population census of 1940 will be limited, the RMA has been advised that radio data may be secured under a new national census of housing, authorized by the last Congress with an appropriation of $5,000,000. The federal housing census will include “utilities and equipment” and will be a national, not a sampling, census. Complete coverage will be effected on all items included. Arrangements are being made by RMA and NAB to secure as complete radio-ownership statistics as possible in the new census.

Copies of this display have been sent to all broadcasting stations by NAB, with the suggestion that local radio dealers be enlisted to use their windows for similar exhibits promoting the opening of the Fall listening season, Sept. 24, when the change from summer time takes place. Radio dealers should consult their local broadcasters.
Record-Players
Mean Record Profits

With a public more music conscious than ever before, records are re-boom-
ing at an accelerating pace, and so set the stage for a profitable opportu-
Index in record player and combina-
tion sales.

With music preferences so sharply divided between the modern swing add-
icts, the sweet music lovers, and those who prefer the reproduction of
the "music of the masters," it is ob-
vious that radio alone cannot satisfy
the divergent musical desires of a
family at all times.

Here, then, is the very basic reason
why records are so fast increasing in
popular demand, and your strongest
"urge to buy" combinations and rec-
ord players.

Alert dealers are proving that a
very large percentage of their radio
customers can be sold some form of
record player from the automatic com-
bination to the simple pick-up and
turntable. Every such sale is a step-
up—plus business and plus profits, be-
sides bringing the customer back to
your store frequently for record pur-
chases.

Some dealers make the mistake of
trying to sell only the big combina-
tions and so miss a large part of their
potential sales.

If record players are displayed with
the compacts, portable and table
model combinations with the larger
table models, straight-combinations
with the smaller consoles, and the au-
tomatic combinations with the large

consoles, every radio buyer will have
to see a record player in the general
size and price class in which she is
interested. Then if no customer is
sold a radio without being told about
the record player and its advantages,
the combination to plain radio sales
ratio jumps up so fast as to startle
you. Such is the experience of many
dealers who find substantial improve-
ment in their average unit sale, and
a higher profit ratio results from their
efforts to sell the combinations.

ENTHUSIASM SELLS 'EM

When the results begin to surprise
you, and your enthusiasm grows,
you'll be surprised again to find that
the increased results more than keep
pace with your rising enthusiasm and
your selling efforts.

Records and record players are a
natural for the radio dealer who will
sell them right, though they mean
little to those who don't like to work
very hard for their business.

You've got to sell combinations, but
they can be sold. In fact, they are
easier to sell than ever before, now
that they are available in every price
range.

Radios for the Blind

"See that every blind person has a
radio" is a motto which local welfare
workers are following out. While
many blind and invalid persons are
financially able to buy adequate sets,
there are many more who would not
get radios unless such sets are do-

ated. Junior League and other
workers are, therefore, approaching
their well-to-do friends with this propo-
sition:

"That old radio of yours is out-of
date and should be replaced with a
modern set. The radio man who sells
you the new set has agreed with us
that he will overhaul the old radio and
put it in the best possible condition.
Then we will send it to poor, old
blind Mrs. Jones—as a gift from
you! In this way you will have the
double satisfaction of having a fine
new 1940 radio for yourself, and giv-
ing a helpless blind person uncounted
hours of pleasure." The offer usually
works, and a fine new radio is sold.

"CAP" SAYS—
A Blow to Legitimate
Profits

When a great utility and hundreds
of small dealers, and many large ones,
combine to sell a radio-phonograph com-
bination at "60 off" in the country's
largest market, it's going to make the
industry and the deal er should make legitimate
profits.

Nothing could offer more con-
vincing evidence to the buying pub-
lic that "Only pays pay retail
prices." No stronger blow could be
struck at the whole principle of our
Fair Trade Laws.

Or am I wrong?

* * *

If so, then the industry may look
forward to a rapid increase in "dis-
count buying," and accelerated pen-
etration into the radio market of the
great chains and mail order houses,
and dealers will take a much shorter
discount to compete, and like it, or
else.

You can't fool the public all the
time, and it looks at this time as
though some smart interests had out-
smarted themselves.

I'll stand on that statement, and let
TIME prove it.

*H. L. M. Capron was for many years
assistant controller of R. H. Macy, New
York, manager of radio departments of
Macy's and Bamberger's, and previously
executive with John Wanamaker. "Cap"
has been in contact with radio since
1929 and has pioneered many merchan-
dise innovations. Before joining RADIO
TODAY he was engaged as business
consultant to dealer groups.

H. L. M. Capron,
Merchandising
Editor*

Miss Helen Keller at her GE radio. Miss Keller—herself blind, deaf and dumb—
has been an indefatigable worker for the cause of radios for the blind.
The Sensational RCA Victor
K-80  K-60  K-50

Are Bringing the Console Business Back
with a Terrific Bang!

Get your share of this Big Set,
Big Volume, Big Profit Business by
pushing these sales naturals!

Just when a good many folks were reading
the console out of the radio picture,
RCA Victor comes up with three consoles
that are selling like hot cakes. No longer
need you mourn the loss of the big set busi-
ness... just get behind K-80, K-60 and K-50
and you'll think you're back in the heyday
of the console.

Yes... America still buys value whether
it's in big packages or little. Just rub your
eyes... look at the features... look at the
values from cabinet to speaker! Then go out
after the profits!

For finer radio performance
—RCA Victor Radio Tubes.

Trademarks “RCA Victor” and “Magic Eye”

SEPTEMBER, 1939  23
Know Your Dry Batteries

Tips on stocking, displaying, and selling replacements for the popular new portable radios

It's been a long time since the radio dealer has handled dry batteries in quantities now demanded by portables, so alert dealers, these days, are brushing up on their dry-cell knowledge and checking their stocks in preparation for a profitable replacement business.

KEEP 'EM COOL

The time-tried and tested advice of keeping the batteries in a cool, dry place still goes. As everyone knows, the dry battery is not dry at all; instead, its very life depends upon the moisture contained in the electrolyte. Excessive temperature has several bad effects upon the life of the battery. It hastens the drying-out of the electrolyte; it speeds up the chemical action between the zinc case and the electrolyte (thus perforating the case and drying out the active elements); and it expands the paste solution of ammonium chloride and zinc chloride. In the latter case the salts deposited on the side-walls and top seal finally bridge across, from zinc cup to carbon pole, and short-circuit the cell. Such are the detrimental actions of excessive heat. A basement storage place is good if it is not damp, for moisture will speed up corrosion of the zinc shell.

A supplement to the cool-and-dry rule is "keep them clean." With the portable batteries all using plug-in connections, dust and foreign matter such as metal particles, are factors that lead to shortened battery life and consequent consumer dissatisfaction.

ROTATE YOUR STOCK

Batteries, like many foods, are perishable. Because of the drying of the active materials of the cells and the slow but certain chemical action, a battery may destroy itself without ever being put into service. As a mutual protection, some manufacturers have dated their dry batteries to indicate the limiting date when the units can be put into service and still deliver their rated ampere-hours. This date usually follows the time of manufacture by an interval of six to thirty months depending upon the particular type of service for which the cell has been designed. The usual time period for radio batteries is eight months, during which time the cell loses a small percentage of its original life but will still deliver its rated capacity if put to use on or before the date specified. By some, this date stamped on the cell has been associated with the end of the life of the battery, which is certainly not the case. To prevent getting caught with batteries after their date mark, keep a record of your stock and see that the older units are moved first. It isn't practical to stock all types and sizes of batteries because of their definite shelf life, unless the demand is sufficient to give the necessary turn-over.

USE DUMMIES FOR DISPLAYS

People who use portables seem to have the peculiar faculty of deferring replacement of batteries until the last spark of life has flickered out at some crucial moment. The average user must therefore be reminded by attractive displays, posters and advertisements that now is the time to replace those jaded batteries. The accompanying graph of voltage vs. hours-life quickly shows the sudden "death" of the cell after a gradual depreciation of power and also demonstrates why replacement before the "dropping-off point" insures continuous service.

Attractive window displays should be made up using dummy batteries, and lithographed display cards, obtainable from manufacturers, in lieu of actual batteries. If real cells were used, a considerable investment would be necessary, and the sun and heat in the usual display window would fade the labels, crack the sealing compound, and ruin the merchandise. Batteries are also heavy and therefore complicate display racks, etc.

REPLACE BEFORE CELLS GO DEAD

The compact compartments in some of the new portables do not offer much choice in the make of battery to be used, but standardization on sizes and plug connections will come out of the present chaos, as soon as the futility of "cinching" the replacement market with queer batteries becomes more apparent.

The tight squeezes found in some models make it absolutely necessary to replace batteries at the end of their useful life in order to avoid leaking, swelling, and the corrosion that will certainly play havoc with the metal parts of the receiver. Point out this fact to every owner of a portable radio, using as an analogy experiences with flashlights that every one, at one time or another, has left lying around until the dead cells ruined the case.

The life of radio batteries is based on intermittent service and is considerably longer than the life that would be obtained on a continuous drain. The usual hour-life statements are made on the basis of three to four hour use per day and of course are dependent upon the current drain of the set. The average five-tube portable radio

(Continued on page 27)
CROSLEY RADIO

“has what it takes for 1940”

NEW INNOVATIONS, TELEVISION OUTLETS, BUILT-IN AERIALS, IMPROVED PUSH-BUTTON TUNING.

ENTIRELY NEW AND AMAZING CURVEFLECTOR TONE DISTRIBUTOR

YOU’RE THERE WITH A CROSLEY

Measured by tube performance you’ll give a customer more radio for his money with the Crosley line.

Measured by prestige you’re presenting one of the oldest names in radio.

Measured by quality there’s no finer radio construction. Check the highest price sets for specifications like these... cadmium plated all metal spot welded chassis compensated for all temperature changes... switches with silver plated contact points... ball bearings in tuning mechanisms... etched dials... individually balanced speakers.

The startling effect of the CURVEFLECTOR tone distributor is that radio has no directional sound. Tone floods the room. One is conscious of greatly increased fidelity. It recalls the finest radio you ever heard,—which was probably the most expensive you ever saw. We feel safe in saying that Crosley CURVEFLECTOR Radios sound the equal of those twice their price. This definite contribution to radio art is at NO PREMIUM—The Crosley Radios that incorporate it are as ALWAYS the most radio for everybody’s dollar.

PRICES PLUS PROFITS

The Crosley line begins at $7.99, a low priced standard quality set to meet ANY competition—$20 low priced, high profit table models for easy step-up from price leaders. 3 consoles from $39.95 to $69.95, 3 radio-phonograph combinations from $49.95 to $114.50, 2 portables beginning at $18.50 including batteries, 3 auto radios beginning at $14.99—8 long-life battery sets.

Prices slightly higher in South and West

THE CROSLEY CORPORATION
POWEL CROSLEY Jr., President
CINCINNATI

WLW—Home of “the Nation’s Station”

78 on your dial.

See the Crosley Building at New York World’s Fair

SEPTEMBER, 1939
The approach to prospects such as advertising managers, sales managers, actors, school executives, public speakers, etc., is necessarily one of social contact. To reach men in the market for recorders get their friendship. Golf outings, local clubs, and organizations are all places where prospects may be contacted. Recorders themselves are easily sold once the prospect is convinced your store is the place to purchase it. So make friends and contact people such as those listed on this page.

No small-price item, a recorder usually retails for well above $150 assuring an adequate profit-return for time spent in contacting special prospects.

**RECODER PROSPECTS ARE CREAM OF CROP**

When the recorder market is opened up the customers must be continually reminded that they need more records, that you are able to service the machine, and also that you carry radios and other merchandise. Customers for recorders are excellent prospects for your other lines since they are almost all in the higher-income brackets.

Another method of contacting possible customers is to set up a part of the store as a recording studio. Many department stores and other large advertisers use recordings to give sales messages to their prospects. Get them to make the recordings at your store and a profit can be realized on the records and the service rendered. All the people on the list of prospects are first in the market for recordings. Then if they come in often sell them the recorder itself.

Since advertising must be directed to a selected group, direct mail is the obvious answer. One letter, or even one group of letters, is never enough to base any estimate of the market reached by direct mail. Continued (Continued on page 57)

---

Hotels are using recorders to make souvenir discs for guests. Shown here is Presto portable unit.

---

**THERE'S MONEY IN RECORDERS**

Opportunities and profits for radio men

---

**PROSPECTS FOR RECORDERS AND USES TO SUGGEST**

<table>
<thead>
<tr>
<th>Broadcasting Stations</th>
<th>Recording special programs and all broadcasts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising Agencies</td>
<td>Recording auditions. Sending advertising messages to prospects, etc.</td>
</tr>
<tr>
<td>Ministers</td>
<td>Send sermons to small population areas in far removed districts. Self-instruction.</td>
</tr>
<tr>
<td>Teachers and students of voice, music, drama</td>
<td>Teachers may point out strong points or defects in students' work.</td>
</tr>
<tr>
<td>Musicians, vocalists, instrumentalists</td>
<td>Applications for auditions. For self-criticism.</td>
</tr>
<tr>
<td>Music Lovers</td>
<td>To make recordings from radio or other source of favorite selections.</td>
</tr>
<tr>
<td>Sales Managers</td>
<td>Meetings all over the country may be addressed simultaneously.</td>
</tr>
<tr>
<td>Conference Committees</td>
<td>Recording important business conferences.</td>
</tr>
<tr>
<td>Theatres</td>
<td>Sound effects, etc.</td>
</tr>
<tr>
<td>Actors</td>
<td>Recordings to send friends; to apply for parts in distant plays.</td>
</tr>
<tr>
<td>Vaudeville, cabaret and concert artists</td>
<td>Auditions, souvenirs, practice.</td>
</tr>
<tr>
<td>Detectives</td>
<td>Recording descriptions of lost persons, witnesses, etc.</td>
</tr>
<tr>
<td>Doctors</td>
<td>Experimental work (as recording heart phenomena), etc.</td>
</tr>
<tr>
<td>Lawyers</td>
<td>Recording depositions. Preparing and practicing for cases.</td>
</tr>
<tr>
<td>Night Club Managers</td>
<td>Fill in records when orchestra absent. Souvenirs for guests.</td>
</tr>
<tr>
<td>Police Departments</td>
<td>Recording witnesses' stories, etc.</td>
</tr>
<tr>
<td>Schools</td>
<td>Correcting defects in speech, etc. Making records of important speakers.</td>
</tr>
<tr>
<td>Large Stores</td>
<td>Advertising sales with &quot;personal&quot; recordings.</td>
</tr>
<tr>
<td>Hotels</td>
<td>Recordings to guests as souvenirs.</td>
</tr>
<tr>
<td>Homes</td>
<td>Children's voices, parties, amateur theatricals, musical programs.</td>
</tr>
</tbody>
</table>
Successful servicemen stick to test equipment which measures in fundamental quantities. The reasons are obvious:

Fundamental test equipment never grows obsolete ... eliminates those frequent, costly equipment replacements due to circuit changes. The pointer on a good instrument tells, exactly, the true condition in the circuit under test ... leaving nothing to chance or guesswork. In addition, it's simple for any serviceman to check a fundamental instrument for accuracy.

Remember, when buying your next equipment, that all Weston test units measure in radio fundamentals. That's why Weston radio instruments remain serviceable for years ... never discarded, never idle, because of changes in receiver circuits. Remember, too, that Weston instruments are used by practically all leading manufacturers because of their greater dependability ... greater economy. This name also is your best assurance of dependability and satisfaction in radio test instruments. The coupon will bring you complete data.

Weston Model 772 Super-Sensitive Analyzer (sensitivity 20,000 ohms-per-volt). Big, dependable 50 microampere Weston meter. Broad ranges meet every test requirement for receivers, transmitters, auto testing, television, sensitive relay circuits, etc.

Weston Model 669 Vacuum Tube Voltmeter. Direct reading, measures gain per stage—r.f. amplitude in oscillator circuit of superhets—all test on AVC circuits, PA systems, and all measurements where high frequency is a factor.

Weston 773 "quick-test" Tube Seller

Like Weston fundamental instruments, this attractive counter tube checker has been designed for speed, simple ty and dependability. Minimum number of proved switches assures long, trouble-free operation. Rotator tube chart simplifies test procedure. Makes all tests on all tubes. Impressive looking, in polished wood case. Also available in portable carrying case.
For twenty years we here at Wholesale Radio Service Company have blazed new trails in Public Service. Scarce a phase of the communications field has been left untouched during the years of our growth. Today thousands of discriminating buyers in every land are listed among our satisfied customers. For into every shipment we have always put more than just top-flight merchandise.

It has been this spirit of extra service that has enabled us to grow from a modest shop into a worldwide organization. We operate seven retail branches today, with three giant central distributing points from which flow thousands of shipments daily.

As we have grown however, so too have grown the demands of the people we serve, Industry, for new and better materials; individuals, for finer instruments and forms of reception. We have lived to see many new developments replace the old, many of our former services, once essential, no longer required. In fact, our very name for so many years perfectly adapted to our business now belongs to yesterday. It does not fit with our plans for tomorrow.

Naturally, we were attached to our old name, but sentiment has no place in progress. And so from now on we shall be known as

Radio Wire Television Inc.

A name selected because it accurately pictures the very business we are engaged in.

What do we mean? Let's look at that name more closely.

RADIO: Up through the years we have grown and expanded with Radio—very backbone of our business. Yet even in the face of today's magic, life-like reception, much remains to be done. So naturally Radio Broadcasting will continue to engage our interest.

WIRE: A new service gaining momentum with each day is WIRE BROADCASTING. Already many of today's entertainment forms are available by means of wire with great fidelity, reliability, and economy. We believe that soon the art of broadcasting by wire will encompass the transmission of both sight and sound. Every current technological development points to this end.

TELEVISION: Third and newest term in our name. Breath-taking is television's power to reproduce for man's entertainment and knowledge, the life and happenings of storied lands afar, the news events that will make tomorrow's headlines. With television a vast new field of human relationship is magically thrown open. Whichever way you choose to receive your television programs, by wire or radio, we will offer the finest services available anywhere.

The new name, thus embodies all of those features which from now on are to comprise the principal part of our business. Radio Wire Television Inc., proposes to extend its activities into every phase of the electronic art. Several associate enterprises which control important patents relating to the entire communications field have already been merged with our company. With these patents, we hope to throw open a vast number of new services to the general public. Of special interest are plans to expand the number of retail outlets for Radio Wire Television Inc. in order that local branches may be placed at the disposal of all who are interested in finer entertainment services, better products and lower costs.

Radio Wire Television Inc., is licensed by arrangement with Electrical Research Products Inc. under patents of Western Electric Company, Bell Telephone Laboratories, Inc., and American Telephone & Telegraph Company.

Radio Wire Television Inc.

formerly Wholesale Radio Service Co., Inc.

NEW YORK • CHICAGO • ATLANTA • BOSTON • NEWARK • BRONX, N. Y. • JAMAICA, L. I.
LETS LOOK AT

The Record
Current record boom sets the stage for large sales of combinations and record players. Experience chart of sales, turnover and profit.

When so many things seemed to be "going to the dogs" back in 1932, the sale of records declined to a mere 10,000,000 from their prosperity peak of something like over 100,000,000 discs sold in a single year.

Many who knew the record business well, thought the signs indicated the departing of the ghost of a once glorious business, and the obituary was written.

Radio had done its work.

But the very things which so many thought had killed the record business, were actually the things which have brought it back with a bang, full of life and raring to go.

Improved quality of recording, vastly improved electronic reproduction, and a fast growing nationwide appreciation of music, all directly traceable to radio, have combined to start records down the "comeback" road at an ever accelerating pace.

Radio men are passing up the butter for their bread if they longer overlook the growing merchandising and profit possibilities of records.

Records will substantially increase your store traffic, and a large percentage of profit on invested capital. A record department needs only the salary of one person to your "out of pocket" expense now carried entirely by your radio or other merchandise.

As your record business grows, your stock can be expanded as sales indicate, and your fixture units added as needed. If you keep your stock carefully in line with sales, you can maintain a broad assortment of classical records and album sets. Experience indicates that you can produce the following results, indicated by careful merchandising:

<table>
<thead>
<tr>
<th>Stock Cost</th>
<th>Sales Annual</th>
<th>Turn over</th>
<th>Gross profit per turn</th>
<th>Gross profit per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 261.00</td>
<td>$ 5,000</td>
<td>13.3</td>
<td>$315.00</td>
<td>$1,034.00</td>
</tr>
<tr>
<td>217.00</td>
<td>11,000</td>
<td>15.8</td>
<td>120.00</td>
<td>3,240.00</td>
</tr>
<tr>
<td>776.00</td>
<td>17,000</td>
<td>16.3</td>
<td>224.00</td>
<td>4,140.00</td>
</tr>
<tr>
<td>1,025.00</td>
<td>25,000</td>
<td>18.8</td>
<td>341.00</td>
<td>6,416.00</td>
</tr>
</tbody>
</table>

Columbia—An old name and a new factor in records

Long before radio began, Columbia was an important factor in the record business, and long challenged the old Victor company for supremacy.

Buffeted by corporate difficulties in the late 20's, bought by Grigsby-Grunow in 1932, salvaged from the wreckage by the American Record Corp., and combined with Brunswick, the whole combine all but died from sheer inertia.

Bought by dynamic, fast-moving Columbia Broadcasting Corp. less than a year ago, thought and action has fanned the spark of life into a real flame.

WALLERSTEIN PRESIDENT

Headed by Ed Wallerstein, of long and successful record experience, ColumbiaRecording Corp. is now ready to make its bid for its rightful place in this rebooming industry.

With CBS talent to draw from, and with an extensive catalog of serious music, the basis exists for a rapid and sound expansion of catalog, through modern methods of big names and fine orchestras.

Columbia will cover the whole field of recorded music in the modern tempo.

The Vocalion 35-cent record will be released weekly, merchandised keenly. With a reputation for timelessness of release, Vocalion will cover the popular dance, vocal and race record market.

(Continued on page 63)
TODAY the new Columbia Blue Label Records are the talk of lovers of fine music. Produced in the world's largest, most modern home-record factory, these new records have a perfection of tone fidelity and of playing quality that is swiftly winning the endorsement of master musicians and music-lovers alike.

This new, finer quality, coupled with Columbia's roster of world-renowned artists, is bringing to Columbia Blue Label Record dealers more and more thousands of those who love—and buy—fine music, as each new month's releases are announced.
HALLENGES

the Popular Record Field...

with a QUALITY RECORD at only 50¢

COLUMBIA SOLVES PROBLEM OF VOLUME AT A PROFIT!

NOW AT LAST comes a popular record so good that its amazing value price wins customers at once. Yet this price builds volume faster, and profit, too—a profit that will pile up at the end of the month, at the end of the year, into really important money for you.

The Quality Record People Have Wanted!

Here is a new quality popular record—true, realistic recordings of the newest music by favorite artists—recordings that will stay true and realistic through countless playings. That means satisfied customers—customers who will return to the dealer's regularly for more Columbia Popular Records.

Complete Record Service for Your Customers!

Thus the Columbia Recording Corporation, a subsidiary of the Columbia Broadcasting System, rounds out the most complete record line a dealer can offer his customers: Vocalion—the best 35c record available today—Monthly releases of Brunswick Records of standard favorites—Columbia Blue Label Records of the world's greatest music at 75c and up—and now Columbia Popular Records at 50c.

A Tremendous Record-Advertising Drive!

Big newspaper advertising is already breaking this sensational record news in a list of the country's leading newspapers. Powerful radio promotion of the new records will build sales, too. Posters, display material and listing-folders are directing fans to the Columbia dealers' stores. Strong advertising induces people to hear the new Columbia Popular Records, and hearing induces them to buy!

Biggest Record News in Ten Years!

The music people want, recorded as they'd like to have it recorded, priced at a real value—Columbia Popular Records are the biggest record news in ten years. They mean bigger and better record business for every dealer alert enough to cash in with Columbia!
Challenges
the Popular Record Field...
with a quality record at only 50c

COLUMBIA SOLVES PROBLEM OF VOLUME AT A PROFIT!

NOW AT LAST comes a popular record so good that its amazing value price wins customers at once. Yet this price builds volume faster, and profit, too—a profit that will pile up at the end of the month, at the end of the year, into really important money for you.

The Quality Record People Have Wanted!
Here is a new quality popular record—true, realistic recordings of the newest music by favorite artists—recordings that will stay true and realistic through countless playings. That means satisfied customers—customers who will return to the dealer's regularly for more Columbia Popular Records.

Complete Record Service for Your Customers!
Thus the Columbia Recording Corporation, a subsidiary of the Columbia Broadcasting System, rounds out the most complete record line a dealer can offer him customers: Vocalion—the best 35c record available today—Monthly releases of Brunswick Records of standard favorites—Columbia Blue Label Records of the world's greatest music at 75c and up—and now Columbia Popular Records at 50c.

A Tremendous Record-Advertising Drive!
Big newspaper advertising is already breaking this sensational record news in a list of the country's leading newspapers. Powerful radio promotion of the new records will build sales, too. Posters, display material and listing-folders are directing fans to the Columbia dealers' stores. Strong advertising induces people to hear the new Columbia Popular Records, and hearing induces them to buy!

Biggest Record News in Ten Years!
The music people want, recorded as they'd like to have it recorded, priced at a real value—Columbia Popular Records are the biggest record news in ten years. They mean bigger and better record business for every dealer alert enough to cash in with Columbia!
New Radio Models

Latest Additions to the 1940 Lines

Stewart-Warner Console
* Wired for television sound, this 6 tube AC super has built-in antenna, automatic bass compensation, 6-station push-button tuning, 10-inch speaker, police band and European short-wave coverage. Six new models including consoles, portables, and compacts have just been announced. 01 - 6E7 illustrated. Stewart-Warner Corporation, 1828 Diversey Parkway, Chicago, Ill.—Radio Today.

Belmont Table Model
* Six tube, two band AC/DC superhet features built-in antenna, 6-station automatic tuning, and RF stage. Stump walnut veneer finish. Band coverage, 1.5 to 4.0 mc and 540 to 1,550 kc. Electro-dynamic speaker. Belmont Radio Corp., 1557 Fullerton Ave., Chicago, Ill.—Radio Today.

Emerson Table Model

GE Universal Portable
* An AC-DC, or battery powered portable receiver, model HB-504, is a 5-tube superhet tuning 540 to 1,600 kc. Tuning condenser operates through reduction drive. Power cord compartment door operates the change-over switch. General Electric Co., Bridgeport, Conn.—Radio Today.

RCA Table Combination
* Featuring a viscaloid damped pickup, mercury off-on switch for automatic starting of the turntable, this 7 tube two band superhet is one of three new models. U-12 plays 10 and 12-inch records with the lid closed. Model T-62 is horizontal.

Stromberg-Carlson Period Console
* Three new additions to the current line are two table models and the early American Hutch console, model 420-F illustrated. The 7-tube superhet chassis features elec-

Admiral Phono Combination
* Automatic record changer, 7-tube AC superhet chassis, crystal pickup, and provision for television audio are a few of the features of model 380C. The record player handles 10 or 12-inch records. Tuing range includes broadcast band and 5,650 to 18,100 kc. List price, $89.95. Continental Radio & Television Corp., 2900 Corland St., Chicago, Ill.—Radio Today.
More New Things

Ward Leonard Resistors

A new enamal structure that is crazless withstands humidity, immersion and other tests, is being used on wire wound resistors. Ward Leonard Electric Co., Mount Vernon, N. Y.—Radio Today.

Solar Replacement Capacitors


Mallory Metal Tubulars

Complete line of single-section tubular capacitors with fabricated plate construction are sealed in aluminum cans covered with insulated cardboard cover. P. R. Mallory & Co., 3029 E. Washington St., Indianapolis, Ind.—Radio Today.

Stromberg Antenna

Built-in antenna unit that may be installed on any make radio uses the RF picked up on the power line wiring. Receiver power-cord plugs into unit and leads are attached to set antenna and ground posts. Cord from unit plugs into power outlet receptacle. Stromberg-Carlson, 100 Carlson Rd., Rochester, N. Y.—Radio Today.

IRC Control Resistor

Type FL resistor designed for operation of fluorescent lamps. Insulated wire wound and tested at 1,250 volts. Sufficiently small to mount in any fixture channel. International Resistance Co., 401 N. Broad St., Philadelphia, Penn.—Radio Today.

Consol. Wire Booster-coil

Booster-coil for auto antennas is contained in shielded tube for connection in series with antenna lead. Increases efficiency of auto radio aerials. Consolidated Wire & Assoc. Corps., 516 S. Peoria St., Chicago, Ill.—Radio Today.

Brush Headphones

Lightweight crystal headphones with yokeless cord design features hermetically sealed aluminum cartridge construction mounted in soft rubber jacket for comfort and shock protection. Model BJ. Brush Development Co., 3311 Perkins Ave., Cleveland, Ohio.—Radio Today.

Allied Relays

Six and 12-volt DC and 6 and 110-volt AC relays are available in SPST, SPDT, DPST and DPDT, rated at 10amps, 125 volts AC. Equal contact pressure distribution. Allied Control Co., 227 Fulton St., New York, N. Y.—Radio Today.

Monarch Flash Light

A battery-less flash light employs a small lever operated generator to supply power for standard miniature flash lamp. Finger tip driving arm. Monarch Mfg. Co., 711 W. Lake St., Chicago, Ill.—Radio Today.

J. F. D. Tele Antenna

DEALERS PREFER TO SELL PHILCO!

Reasons given by dealers in a national survey

*1. Greatest Public Acceptance
2. Most Widely Advertised
3. Greatest Improvements
4. Lowest Service
5. Most Complete Line
6. Easiest to Sell
7. Greatest Market
8. Finest Performance
9. More Satisfied Customers
10. Fastest Selling Line
11. Better Parts Service
12. Greater Sales Appeal
13. Sound Factory Policies
14. Most for the Money

For bigger volume and profit, decide now to push the line that most people ask for and the one that most people prefer.

Dealers everywhere have been stirred to action by Philco's 1940 improvements, beauty and new low prices.

Philco leads with the trade as it leads with the public. An impartial survey recently made in all parts of the country shows again that radio dealers look to Philco as their No. 1 opportunity for profit.

With big dealers, medium size dealers and small dealers in every type of market, it's the same story—Philco leads in every factor you need to give you the most salable, most profitable radio proposition over the long pull and over the short pull!

Check over the list of dealer comments made in the national survey. Read the excerpts from letters written by men who say what they mean. Match those statements against your own knowledge of what takes to make money in radio.

Every one of those 14 points has made Philco the overwhelming radio leader for 10 straight years. And now, for 1940, Philco offers the greatest line in its history... exclusive features, unmatched performance, sensational cabinet designs, bigger values at lower prices. And from every corner of the country, comes the emphatic conclusion:

It's Philco again for 1940... the one line to concentrate on for volume and for profit.

Philco All Year... the Most Profitable
PTANCE makes PHILCO it Opportunity in Radio!

Only PHILCO gives you ALL 3

Philco Anniversary Specials

Brand new models, just announced...price leaders—traffic builders—sales makers! And they're the feature of the biggest nation-wide fall radio promotion ever staged. If you're not sharing the profits of this great Philco Anniversary Celebration Sale, get in touch with your Philco distributor—quick!

PHILCO 158F A new value leader! Has costly F. Stage, never before offered in a console priced so low. 6 Loktal Tubes — all working! Unexcelled power and purity of tone. For use with Philco Utility or attached wire aerial. Handsome cabinet.

PHILCO 165K Just out! Has built-in Super Aerial System that eliminates messy aerial and ground wires. Twin-Loop Aerial and triple-power Television Tube give clear, powerful American and foreign reception, even in noisy locations. Electric Push-Button Tuning. Walnut cabinet.


*10 STRAIGHT YEARS OF LEADERSHIP*

Celebrating

Every 1940 Philco Is Built to Receive TELEVISION SOUND... the Wireless Way!... for Profits All Year 'Round

Franchise in the Radio and Appliance Field!
DEALERS PREFER TO SELL PHILCO!

Reasons given by dealers in a national survey

*1. Greatest Public Acceptance
2. Most Widely Advertised
3. Greatest Improvements
4. Lowest Service
5. Most Complete Line
6. Easiest to Sell
7. Greatest Market
8. Finest Performance
9. More Satisfied Customers
10. Fastest Selling Line
11. Better Parts Service
12. Greater Sales Appeal
13. Sound Factory Policies
14. Most for the Money

For bigger volume and profit, decide now to push the line that most people ask for—and the one that most people prefer.

Dealers everywhere have been stirred to action by Philco's 1940 improvements, beauty and new low prices.

Philco leads with the trade as it leads with the public! An impartial survey recently made in all parts of the country shows a gain that radio dealers look to Philco as their No. 1 opportunity for profit.

With big dealers, medium size dealers and small dealers in every type of market, it's the same story. Philco leads in every factor you need to give you the most salable, most profitable radio proposition...over the long pull and over the short pull!

Check over the list of dealer comments made in the national survey. Read the excerpts from letters written by men who say what they mean. Match those statements against your own knowledge of what it takes to make money in radio.

Every one of those 14 points has made Philco the overwhelming radio leader for 10 straight years. And now, for 1940, Philco offers the greatest line in its history...exclusive features, unmatched performance, sensational cabinet designs, bigger values at lower prices. And from every corner of the country comes the emphatic conclusion:

*It's Philco again for 1940...the one line to concentrate on for volume and for profit!*

Only PHILCO gives you ALL 3

**GREATTEST PUBLIC ACCEPTANCE** makes PHILCO the No.1 Profit Opportunity in Radio!

Philco Anniversary Specials

Brand new models, just announced...price leaders—traffic builders—sales makers! And they're the feature of the biggest nation-wide fall radio promotion ever staged. If you're not sharing the profits of this great Philco Anniversary Celebration Sale, get in touch with your Philco distributor—quick!

**Philco All Year 'Round for Profits All Year 'Round**

...the Most Profitable Franchise in the Radio and Appliance Field!
GE Oscilloscope

A nine inch cathode ray tube is used in this new oscilloscope designed for television servicing. Wide band deflection amplifiers will handle any frequency from 5 cps. to 5 megacycles. Sweep oscillator operates over range of 10 cps. to 100 kc. General Electric Co., Bridgeport, Conn.—Radio Today.

Hickok Tester

New appliance tester measures volts, amps, watts. Four ranges of power up to 2 kw. and current to 26 amps. Voltage scales 0-130 and 0-250. Low 20 watt range checks clock motors, etc. Hickok Electric Instrument Co., 10514 Du Pont Ave., Cleveland, Ohio—Radio Today.

Drake Soldering Iron

A light weight soldering iron 8-inches long is rated at 60 watts and is fitted with ⅜-inch tip. Handy in close quarters. Drake Electric Works, Inc., 3654 Lincoln Ave., Chicago, Ill.—Radio Today.

Walco Touch-up Kit

Complete kit of necessary materials for touching up wood, plastic or metal cabinets. Comes with instruction booklet and case for materials. Walter L. Schott Co., 524½ W. Pico Blvd., Los Angeles, Calif.—Radio Today.

Dayco Auto Tube Tester

Automatic tube tester checks $89 receiving tubes now in use by means of 185 perforated index cards which permit the correct circuit set-ups for short, emission, and leakage tests when side lever is moved. Model 491. Dayco Radio Corp., 915 Valley St., Dayton, Ohio—Radio Today.

Aerovox Capacitor Selector

Two types of capacitor blocks for selection of capacitor-motor starting condensers by substitution method. 17½ to 152½ mfd. by switching in one unit and by plug-in leads in the other. Sections are paralleled until motor starts in proper time interval. Aerovox Corp., New Bedford, Mass.—Radio Today.

NEW SERVICE PRODUCTS

Manufacturers' Equipment to Make the Serviceman's Job Easier

Aerovox L-C Checker

A new instrument for checking the performance of condensers and coils at their designed frequency. A built-in oscillator covers the range from 60 kc. to 26 mc. Capacitor range covers .0001 to 1 mfd. Resonant frequency of coil-condenser combinations may be determined and "Q" of circuit measured with use of vtm. Aerovox Corp., New Bedford, Mass.—Radio Today.

Browning Oscillator Coil

A 100-1,000 kc. oscillator coil designed for use in standard heterodyne frequency meter. Fixed silver cap condensers and permeability tuning hold close frequency tolerances. Type BL-2FS. Browning Labs., Inc., 750 Main St., Winchester, Mass.—Radio Today.

Simpson Tube Tester

Nine-inch scale indicating meter provides the attraction for new tube customers in the new model 325. Checks all types of tubes with filament voltages from 1.5 to 120 volts. Headphone jack supplies for noise test. Simpson Electric Co., 5216 Kinzie St., Chicago, Ill.—Radio Today.

Rimco "Dynalyzer"

Radio servicing instrument checks all circuits in the set with the aid of single dial tuned RF circuits and vacuum tube voltmeter. Built-in dynamic speaker gives audible check on signals. Measures resistance to 10 mgs; AC and DC voltages from 0.2 to 560 volts. Radio Instruments Mfg. Co., 625 W. Monument St., Jackson, Miss.—Radio Today.

RCA Test Equipment

Three pieces of test equipment for television servicing consist of a crystal calibrator, 5-inch oscillograph with wide-range deflection amplifiers, and an alignment oscillator furnishing television test signal. Coaxial cables for RF and IF circuits to oscillator. RCA Mfg. Co., Camden, N. J.—Radio Today.
draws about 0.30 amperes filament power and 10 or 12 milliamperes plate current.

BEWARE "RE-CHARGING"

Dry batteries should not be "floated" across any other source of power as an excuse of "recharging" or "filtering." Such a system does not recharge the batteries and actually shortens their life.

All the cells in an assembly of batteries in a portable will usually "give up the ghost" at the same time, and should be replaced at the same time. A fresh "A" battery alongside a near-defunct "B" set will bring the plate current drain up and thus finish off the "B"'s in a very short time, usually when the set owner is far from replacements.

A new source of dealer profit is the sale of these small batteries for "radio where and when you want it." The new portables, definitely here to stay, are climbing to a new high in popularity, and are building up the replacement-battery market with them.

NEW DEVELOPMENTS

A new portable radio battery that is 47 per cent smaller and 1 pound lighter than the conventional 200 to 300-hour units of similar voltage rating has been accepted by twenty-eight manufacturers as a basis of design for their new models.

The same life rating is possible with this 45 volt "B" battery, because of more efficient use of space with a "wafer type" cell construction in which the zinc electrode is not used as a housing for the elements. This battery, the Eveready Mini-Max, is built up of carbon and zinc plate electrodes and "mix cakes" of electrolyte and depolarizer in a "sandwich" fashion. The individual 1/2 volt cells of the battery make their own series connection when stacked and the only soldered connections are at the tap points. Reduction in weight without loss in service capacity is possible through the elimination of pitch sealing compound. With the majority of the new portables being designed for this battery, a definite step toward standardization has been made.

Motorola Names Cox Sales Rep.

Tom Cox, has been appointed the Motorola sales representative for western New York, western Pennsylvania, Ohio, and West Virginia. He will be responsible for both Motorola car and home radio sales in this territory. Mr. Cox has a fine record of accomplishment in radio sales as the gainful business experience in the field with three well-known manufacturers before joining the Galvin Mfg. Corporation.

THIS NEW "PROFESSIONAL MODEL" 4-WAY FEDERAL RECORDER HAS EVERYTHING

This is the new Professional model, 16-inch Federal Recorder, incorporating many new and exclusive features found only in this instrument; other features up until now, included only with very high priced commercial recorders, and retaining all of the superlative characteristics of the original Federal machine.

Demonstration under all conditions of work plus the many advantageous features of this new Federal triumph unquestionably distinguish it as the finest, all-purpose recorder ever produced. But the best news of all is that its retail selling price remains at a low level, within easy access to every professional band, school, amateur recording laboratory, etc.

OVERHEAD, FULLY ADJUSTABLE, CUTTING HEAD

Note the overhead cutting mechanism. This assembly has an overhead feed screw of the type used invariably on the most expensive recording instruments. This entire feed assembly is readily removable from the recorder for easy and safe handling when the unit is in transport. This applies also to the turntable.

A double-height cutting-head adjustment permits changing the depth of cut while recording. Two buttons on either side of the assembly release it from the feed screw, allowing it to slide back and forth to any point desired.

SPEED-GOVERNOR TURNTABLE

A 35-pound steel turntable on this 16-inch Federal Recorder acts as a governor or balance wheel, which maintains an even, solid motion and assures a smoothly cut record without vibration or speed waves.

SOUND MIXING FEATURE

Two inputs for microphone reception having individual volume controls, permit sound mixing under complete control of the operator. Thus, for example, music and the voice of the announcer may be recorded simultaneously, or sound effects from different locations may be recorded simultaneously. Has a 20 watt amplifier. A high-grade dynamic microphone is included with the 16-inch Professional Model Federal Recorder.

FOR BIG VOLUME RECORDER BUSINESS

4-WAY FEDERAL IS TOPS

The unmatched advantages of this 4-Way Professional Model Federal Recorder—a wonderfully faithful recorder, a fine radio, a public address system, an electric phonograph—combine with an attractive selling price of $350 to make this unit the greatest recorder buy ever offered. Its new airplane-baggage styling gives it a final sales appeal to place the Federal dealer in an extreme favored position for fall business.

Write today for complete details of this new Recorder achievement, as well as other 16-inch and 12-inch Federal Recorders, selling at popular prices. The Federal dealership is an enviable one. Write at once for complete details.

FEDERAL RECORDER CO., INC.

SEPTEMBER, 1939
Typical Sound Installations

I - Public Auditoriums

Equipment needed. Practical layouts in large interiors that have produced real results.

While every sound reinforcement installation has certain distinctive features that call for special consideration, there are types of layouts that have similar problems and therefore may be grouped together. For this reason, a series of typical sound installations will be presented to show how the problems inherent in the type of job have been solved.

A most common type of installation is the general public auditorium found in town halls, civic centers, schools, clubs, recreation halls, etc. Ranging in seating capacity from a few hundred to several thousand persons, the common problems of the auditorium are non-uniform sound distribution, poor quality in rooms of certain types of construction, hum pickup in mike and speaker cables, and difficult layout of equipment on stages.

MANY USES FOR PA EQUIPMENT

The wide variety of uses to which auditorium sound equipment may be put, makes this type of installation an ideal prospect for the sound man. If the auditorium has stage facilities, as most of them do, the amplifying equipment should include the following features if it is to be a complete system:

1. The amplifier should have a minimum of three input channels. There should be two high-gain channels for microphones, and a low-gain channel for a phonograph or radio tuner. The power rating of the amplifier necessary for good results was discussed in the August issue of Radio Today.

2. The mixing panel should provide separate control of each of the four channels. A remote volume control that can be operated from a position in the audience lends flexibility to the system and provides smoother operation.

3. If remote amplification control is not desired, a visual level indicator is a necessity. Monitor speakers give a check on the quality but do not accurately indicate the audio level in the auditorium.

4. Call-speakers should be placed in dressing rooms, and scenery storage rooms.

5. Phonograph equipment is a necessity. Sound-effect records are being used a great deal for stage plays, etc.

6. Small pre-amplifiers with their individual power supplies make the special long-run microphone set-ups easy, and more efficient.

BALCONIES OFFER PROBLEMS

The auditorium usually has a balcony which offers quite a problem to the PA man, for the area under the balcony becomes "dead" so far as sound is concerned. Attempts at using "brute-force" power in one or two speakers will make that part of the audience not under the balcony, so uncomfortable that the system will probably be condemned.

The answer to the problem is uni-
form sound distribution. The output of the amplifier should be divided among a number of speakers which have been placed in acoustically "dead" areas, or directional baffles should be used to deliver the sound where it is needed.

Examples of sound distribution in auditoriums are shown in the block diagrams and photographs of the Music Hall, one of the units of the Kansas City Auditorium group, and the entertainment center in a city institution on Welfare Island, New York.

The Music Hall auditorium seats 3,600 persons and has a volume of approximately 700,000 cubic feet. It is served by a centralized sound system that supplies power to a large main area, with a seating capacity of 13,600 and an exhibition area all located under the same roof.

The sound reinforcement in this auditorium is delivered through a "projector" or group of high and low frequency speakers driven by the central amplifying system. The equipment used is that of the Western Electric Company and is shown in the accompanying photograph. The PA equipment consists of a four channel input control unit, a 31 DB gain preamplifier, a 47 DB gain driver amplifier, and a 50-300 watt output amplifier. A tap at the output of the driver amplifier feeds into the control mixer, 1.3-watt amplifier, and output network to the headsets of the hearing-aid equipment. The monitor speaker for a continuous check on the quality is operated from the driver amplifier as are the call-speakers mounted in dressing rooms, and back-stage. These call-speakers are especially useful where any stage production is put on, since actors and pages can be kept off the stage during their idle time, and yet be in constant touch with the director.

LARGE SPEAKERS RUN AT LOW POWER
The power rating of the combined speakers is in excess of the normal amplifier power rating, in order to give the maximum quality of reproduction. The characteristic of reproduction for a speaker has certain critical points, one at the low power limit, and the other at the high power limit. By operating a speaker at some level just above the lower "knee" of its characteristic, the best reproduction will result since the unit cannot cause distortion on high-level signals as would occur with a speaker operated near its peak rating. The speakers shown in the "projector" operate at a level of approximately 6 watts each, which is far below their rating of 30 watts for the low frequency units.

USE HIGH FREQUENCY SPEAKERS
The use of high-frequency speakers is necessary where the installation calls for high power units. High power cone-type dynamic speakers are quite large and have moving elements (cone and voice coil) of high mechanical resistance. The low frequency notes are reproduced more easily on these speakers than are the high frequency notes. To give a true sound picture of the input signal, high frequency speakers should be used to build up the response. The dividing network shown in the block diagram is an electrical

(Continued on page 46)
Cash in on Quick Sales and Profits with the NEW Model 22X TURNER CRYSTAL Microphone

The Only Mike at this Low Price With Tilting Head and Changeable Cable Set

A Real Sales Builder for Only . . . $16.50 List

Make quick profits, selling a microphone with decided sales appeal. Beautifully streamlined, satin-chrome finish all over, so professional and smart looking it gets instant attention. Smooth for voice or music, it will not blast from close speaking; amazingly free from feedback. Fully protected and shielded for the home rig; rugged enough for the toughest P.A. job. 90 degree head range permits semi or non-directional pick-up.

Order Turner Model 22X NOW
See What a Money-Maker it is!

The TURNER CO.
913 Seventeenth St., N.E.
CEDAR RAPIDS, IOWA

GARRARD AUTOMATIC RECORD PLAYING EQUIPMENT

Built by old world craftsmen

For free catalog and new profit plan write to
DEPT. 63/9

GARRARD SALES CORP.
296 BROADWAY, N. Y.

New Sound Lines

Brush High-level Mike
★ Ultra sensitive mike with good quality is model US designed for mobile communication work. Output level is —44 db or approximately 1/4 volt. Moulded plastic case. Brush Development Co., 3211 Perkins Ave., Cleveland, Ohio.—Radio Today.

Operadio Mobile PA System
★ For operation on either AC or 6 volt DC, this 25-watt amplifier is equipped with a 12-inch turntable and crystal pickup. Change over from battery to AC operation is accomplished with adapter plug. Economizer control cuts-off the phonograph motor and generator during idle periods. Operadio Mfg. Co., St. Charles, Ill.—Radio Today.

University PM Driver Unit

Turner Styled-Mike
★ Finished in satin-chrome plate, model 22X is a new styled-mike with tilting head, output level of —52 db and frequency range of 30 to 7,000 cycles. Adjustable over 90 degree range for semi and non-directional pick-up. Complete with 7-foot connecting cable. Turner Co., Cedar Rapids, Iowa.—Radio Today.

Speak-O-Phone Recorder
★ A basic unit for sound recording is the model 9M designed for public address men building their own equipment. Rim driven turntable is machined from aluminum. Cutting arm permits use of acetate, aluminum, or pre-grooved discs. Four to five watts audio in 15-ohm output recommended. Speak-O-Phone Recording and Equipment Co., 23 W. 69th St., New York, N. Y.—Radio Today.

Bell Mobile PA System
★ Portable public address system using 15-watt amplifier that may be operated on either 6 volts DC or 110 volts AC, two 10-inch PM speakers, and hand type mike. Separate power switches for turntable and plate power economize on battery drain. Bell Sound Systems, Inc., 1783 Essex Ave., Columbus, Ohio.—Radio Today.

For quick sales and profits with a microphone, see the Turner Model 22X. It is the only Mike at this low price with tilting head and changeable cable set.

Brush High-level Mike
★ Ultra sensitive mike with good quality is model US designed for mobile communication work. Output level is —44 db or approximately 1/4 volt. Moulded plastic case. Brush Development Co., 3211 Perkins Ave., Cleveland, Ohio.—Radio Today.

Operadio Mobile PA System
★ For operation on either AC or 6 volt DC, this 25-watt amplifier is equipped with a 12-inch turntable and crystal pickup. Change over from battery to AC operation is accomplished with adapter plug. Economizer control cuts-off the phonograph motor and generator during idle periods. Operadio Mfg. Co., St. Charles, Ill.—Radio Today.

University PM Driver Unit

Turner Styled-Mike
★ Finished in satin-chrome plate, model 22X is a new styled-mike with tilting head, output level of —52 db and frequency range of 30 to 7,000 cycles. Adjustable over 90 degree range for semi and non-directional pick-up. Complete with 7-foot connecting cable. Turner Co., Cedar Rapids, Iowa.—Radio Today.
Clarion Sound System

A portable amplifying system for orchestras, etc., employs a five channel $1-40$ watt amplifier, two 12-inch speakers, velocity microphone, and aero-luggage carrying cases. List price, complete, $226.45. Transformer Corp. of America, 69 Wooster St., New York, N. Y.—Radio Today.

American Crystal Mike

High output of —66 db is possible from Model C6 through new crystal driving lever. Improved bass response and higher voltage output make unit ideal for PA work. American Microphone Co., 1915 S. Western Ave., Los Angeles, Calif.—Radio Today.

Electro-Voice Velocity Mike


RCA Recording Blanks

Six sizes of aluminum-cored recording blanks ranging from 6 to 16 inches in diameter are sold in packages of 25 each. List prices: 6-inch, 40c; 8-inch, 55c; 10-inch, 80c; 12-inch, $1; 14-inch, $1.80. RCA Mfg. Co., Camden, N. J.—Radio Today.

Lafayette Portable Amplifier

Ten tube 30 watt portable PA has six volt motor driven turntable, pushpull output, and 130 db gain in high gain channel, 90 db gain in phone channel. Power requirements are 125 watts at 115 V. AC or 15-25 amps at 6 V. DC. Lafayette Radio Corp., 100 Sixth Ave., New York, N. Y.—Radio Today.

In Cinaudagraph Speakers

It's what you DON'T see that counts most!

If you're any judge of materials and workmanship, you can recognize quality in the Cinaudagraph speaker. But there's more to Cinaudagraph's success than what you see on the surface. Actually, it's what stands behind this complete line of permanent magnet and electrodynamic speakers that counts most. It's the years of research and experiment, of design and assembly and rigid laboratory testing—all performed under one roof by trained engineers expertly supervised every step of the way. That's why today, Cinaudagraph is the world's outstanding speaker line.

Profits come biggest where volume sales come quickest. The turnover is rapid on Cinaudagraph speakers because every sale means a 100% satisfied customer. And you know what they say about satisfied customers—"your best advertisement".

There is a Cinaudagraph speaker for every indoor and outdoor job, in both electro-dynamics and permanent magnets from 5" to 27". Send for new catalog today.

CINAUDAGRAPH CORPORATION

STAMFORD  •  CONNECTICUT

SEPTEMBER, 1939
The chief drawback of the superheterodyne circuit is its susceptibility to receiving unwanted signals, commonly called “images.” Image signals are those who lie as far on one side of the frequency of the local oscillator in the super as does the desired station, the frequency difference being of course, that of the intermediate stages. Another common type of interference is caused by stations on or near to the frequency of the intermediate stages. These stations of IF frequency “ride through” the first detector and enter directly into the IF stages.

**IMAGE INTERFERENCE**

Consider a desired signal of 700 kc. and an intermediate frequency of 450 kc. The oscillator will be operated on a frequency above that of the signal in most receivers in order to avoid tuning difficulties. The circuit would necessarily have to cover the range from approximately 100 kc. to 1,100 kc. (in the case of the broadcast band) if the oscillator were operated at IF frequency below the carrier. In the case of our assumed conditions, the oscillator will be operating on 700 kc. + 450 kc. or 1,150 kc. Now if another station on 1,600 kc. is supplying a signal to the receiver antenna, it will combine with the oscillator signal and produce a beat note of 1,600 kc.-1,150 kc. or 450 kc. which is just as acceptable to the IF stage as the beat note produced by the 700 kc. station. The frequency of “image” stations is always twice the IF frequency higher than the desired station. Image interference may be reduced by using high frequency IF stages and selective input circuits.

**CHOICE OF IF FREQUENCY**

Early supers were built with 175 kc. IF’s to give good selectivity from adjacent channels and the image interference problem was overcome by adding one or more stages of tuned RF. With the advent of lower priced receivers, IF stages were eliminated and the image interference problem was reduced by increasing the IF frequency to the neighborhood of 480 kc. This higher IF frequency prevented interference from stations in the broadcast band because a station at 550 kc. would be interfered with by a signal on 550 kc. + 2 x 480 kc. or 1,150 kc. which is above the band. The sensitivity of the super however, still allows the images from police, airplane, and amateur services to cause serious interference.

**REDUCING INTERFERENCE**

Several systems are available for the attenuation of not elimination of image interference on the broadcast band.

Where only one or two specific signals are causing disturbance, wave traps, or absorption circuits may be used to remove the unwanted signals. The wave trap is most frequently used to cut out interference from a station near the IF frequency of the receiver. Examples of receivers using a parallel and a series resonant circuit for this purpose are shown in Fig. 1 A and B. Combinations of parallel traps in series may be used but are rather complicated physically for more than two or three frequencies. More complete rejection of all interfering frequencies is accomplished by band pass circuits tuned in conjunction with the regular receiver circuits. They offer improved selectivity and image rejection at all frequencies.

Wave traps are the more common correction applied by the serviceman because of their simplicity and low cost. Band pass circuits require a separate section of the gang condenser thus complicating installation.

**WAVE TRAPS**

Interference from a particular station in the locality of the receiver may be eliminated or at least greatly attenuated with a tuned wave trap in the antenna circuit.

A typical circuit for a wave trap is shown in Fig. 2A. The voltage induced in the antenna is inductively coupled to the series resonant circuit which is tuned to the frequency of the signal causing interference. This circuit has a coil and condenser in series, but it is a short-circuited series connection with respect to the current flowing in it. The voltage induced in the coil L by transformer action sends a current through the series coil and condenser, the limiting resistance being that of the coil and condenser in a resonant circuit. The effect of the tuned circuit is to reflect a very high impedance, or opposition to the flow of current at the unwanted frequency, in the antenna circuit. A typical curve of frequency vs. current and impedance is shown in the wave trap circuit in Fig. 2B. It will be noticed that at frequencies other than the resonant frequency, the impedance introduced in the antenna circuit is small and therefore does not affect reception of desired

---

**Fig. 1—Examples of parallel and series wave traps with the current and impedance characteristics are shown in A, B, and C respectively. The parallel trap offers a high impedance to the undesired frequency, thereby keeping it out of the input circuit of the receiver. The series trap acts as a low-impedance short to the unwanted signal.**

---

**RADIO TODAY**
Fig. 2—Section A is an inductively coupled resonant circuit which is tuned to the frequency of the interfering station. Curves of B show the characteristic current and impedance relations with frequency.

signals. The greater the coefficient of coupling between \( L_1 \) and \( L_2 \), the greater will be the impedance reflected into the antenna circuit at the frequency to which \( L_1-C_1 \) is resonant. The usual practice is to keep the coefficient of coupling rather low by making \( L_2 \) only 2 or 3 turns, thus keeping the trap as “sharp” as possible. To prevent pickup of unwanted signals, the lead from \( L_1 \) to the primary coil should be shielded. Wire with a heavy insulation is best for this purpose since it reduces the shunt capacity to ground when a braid shield is put on.

**PARALLEL CONNECTIONS**

A different connection of the parallel wave trap is shown in Fig. 1A. Although the connection of the component parts have not changed, the trap is now a parallel resonant circuit because the voltage is applied across both the coil and condenser where in the previous circuit, the induced voltage might have been replaced by an AC generator in series with the coil and condenser.

Here, as in Fig. 2A, a filter circuit is used even though the receiver has a tuned RF stage but in this case, it is for the purpose of eliminating signals at the IF frequencies. The waveform of the current in the antenna circuit at the resonant frequency of the trap is high and has a characteristic curve similar to Fig. 2B. A low resistance coil gives a “sharp” tuned circuit. While the circuit shown employs a parallel resonant voltage chip tuning is somewhat more common.

Fig. 1C presents a pair of curves for the series wave trap. The opposite characteristics of the series and parallel traps are noted in comparing the two graphs. The limiting value of the impedance at resonance in the series trap is the ohmic resistance of the coil and condenser which is quite low in all common circuits.

**Fig. 3—Typical band-pass filter circuit and characteristic voltage-frequency curve.**

Good results may be obtained in eliminating interfering signals by any of the three wave traps. Images may be attenuated by tuning the traps to the frequency of the interfering station, while if the difficulty lies with signals near the IF frequency, the traps are, of course, tuned to give maximum rejection at this point. If the frequency of the interfering signal is definitely known, the traps may be adjusted with a signal generator tuned to the unwanted frequency. Use a dummy antenna of 200 mmfd and adjust the trap for minimum receiver output while using a strong generator signal. In the majority of cases, it will be necessary to make adjustments of the wave trap when the interfering station is on the air and it is usually best to do the job in the customer's home under the exact conditions of interference that exist.

It is best to use a shielded wave trap to prevent pick-up of AC hum. If the un-shielded variety is used, keep it away from other parts in the chassis. Shielding the lead from the trap to the tube circuit will prevent the old trouble being picked up again. Inconspicuous installations help thwart the mania of some people to "tighten down the loose screws" on the trimmers.

**BAND PASS SYSTEMS**

A more versatile system for rejecting unwanted signals is the band pass filter circuit, a theoretical example of which is given in Fig. 3A. Here the principle of image rejection is the key. The frequencies, \( L_1-C_1 \) and \( L_2-C_2 \) are tuned to resonance at frequencies just on either side of the desired signal in order to give the necessary bandwidth, usually 15 to 20 kc. Signals further than 20 kc away from the desired carrier will fall a relatively low impedance path in the non-resonant parallel circuit \( L_1-C_1 \) as may be seen from the curve in Fig. 2B. The low impedance path acts as a short circuit to the unwanted signals. The output circuit \( L_2-C_2 \) is also non-resonant at the undesired signal frequency, thus permitting current to flow through \( C_2 \) and further drop the input voltage due to the reactance or impedance of \( C_2 \). The ratio of the output voltage \( e_2 \) to the input voltage \( e_1 \) approaches unity at the frequency to which the filter is tuned. The response curve for such a band pass filter is shown in Fig. 3B. The similarity between the IF transformer response curve and that of the band pass circuit will be noted since the IF transformer is a band pass filter system.

A band pass circuit as commonly seen in the midget supertunes shown in Fig. 4. The floating coil \( L \) is a few turns of wire on the same form with \( L_1 \) and \( L_2 \) and furnishes the necessary capacity coupling to give good sensitivity at high frequencies. (Continued on page 49)
Selling Service

Both your knowledge and labor are worth compensation. What it costs to make the average service call and what it pays. New types of service to sell.

With 44,000,000 radios in this country in—or out of—operation, radio servicing is bordering on "big business." Considering that there are, on the average, six tubes, fifteen condensers, ten resistors, a speaker, and numerous other parts, in each of the forty-four million sets, the potential field of repair work is practically unlimited. However, in analyzing the returns from thousands of questionnaires sent by Radio Today to servicemen all over the country, it becomes more apparent that many of the brotherhood are failing to take full advantage of the possibilities.

SERVICING IS A PROFESSION

In so many of the questionnaires examined, the fact was brought out that the serviceman who owns his business is paying himself a salary for the actual labor done, but is not considering the professional aspect of his knowledge and ability. The doctor, the lawyer, and the engineer get paid for knowing what to do, as well as how, where and when to do it, in addition to compensation for physical labor. The skilled radio serviceman falls into the same category and should consider that his knowledge is a salable commodity just as is his physical labor. Of course the cry of "what about the cut-rate service guys," and "the customer won't pay for it," will be heard. But remember, a customer will pay an additional fee when in assured of competent, efficient, and courteous treatment from a reliable serviceman. It is worth the difference to be assured that an expensive radio, and even the cheaper ones, will not be damaged by some "screwdriver mechanic." Consider yourself as a technician and prove to the general public that you have more to offer than the mere ability to handle a soldering iron.

Such little things as, always appearing on the job in neat clothes, adopting a friendly and courteous manner, cleaning the inside of the set, polishing the cabinet in the customer's home, and calling back two or three weeks after the job is done to see that everything is OK, are mighty powerful factors in proving to the customer that your work is worth its cost.

Radio servicing, as every other business, has certain fixed expenses or overhead, and certain variable expenses such as cost of labor and cost of material. The fixed expenses of the business include rent, heat, light, depreciation of equipment, and the other expenses necessary to operate the business, but not directly dependent upon the volume of business. The variable expenses cover the cost of the tubes, parts, and material used, the labor and professional service cost, and the cost of transporting the set to and from the repair shop. Some servicemen forget the expense of going out to get a set and then taking it back after the job is done. If the serviceman does this work himself, the time consumed could have been sold to some other customer and therefore is entitled to consideration in the bill. If the shop helper takes care of the pick-up jobs, his pay for the time consumed is certainly a charge against the job.

MORE PROFIT NEEDED

The exact amounts spent for each item of expense vary widely as might be expected. Even in the same general income classification, rent varies from $60 to $560 per year for the serviceman whose figures were analyzed in the survey. From these figures, an average was made to represent the typical serviceman. These average figures will not offer direct comparison to every service business, but the ratios between the various items of expense and income will offer a check to those "high" and "low" men.

The average serviceman, as developed from the survey, has the following breakdown of cost for each service job: 65 cents for tubes; 70 cents for parts; 25 cents for rent; 7 cents for taxes; 21 cents for heat, light, and telephone; 23 cents for depreciation of servicing equipment, and car or truck; 10 cents for advertising; 26 cents for delivery charges, bad debts, etc.; 23 cents for operation of the service car or truck; and $2.66 for professional service, which, in the case of the average serviceman, constitutes his salary. The total overhead or cost of doing business totals $1.55 per service job, or 28 per cent of the total cost of each job.

REDUCE OPERATING COSTS

More profit from each call can be realized if the indirect overhead expense can be reduced. The first step toward reducing the cost of doing business is a detailed record of the items of expense. Lump figures that include several important items are next to worthless when it becomes necessary to "pin down" the excessive cost.

Good service equipment is an absolute necessity to the up-to-date service-

<table>
<thead>
<tr>
<th>COST PER JOB</th>
<th>INCOME PER JOB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TECHNICAL WAGES &amp; OWNER'S SALARY</strong> $2.66</td>
<td><strong>PARTS</strong> $1.12</td>
</tr>
<tr>
<td><strong>OVERHEAD EXPENSES</strong> $1.55</td>
<td><strong>TUBES</strong> $1.36</td>
</tr>
<tr>
<td><strong>PARTS</strong> $0.70</td>
<td><strong>TECHNICAL SERVICES &amp; LABOR</strong> $2.66</td>
</tr>
<tr>
<td><strong>TUBES</strong> $0.65</td>
<td><strong>20% OF SERVICE CHARGE</strong> $0.53</td>
</tr>
</tbody>
</table>

Average "service job" cost and income figures for the typical business.
man, but the high obsolescence figures brought out in the survey, indicate that obsolescence and duplication may be demanding too great a share in the expenses. When selecting service equipment, carefully weigh its future use with its present novelty. A piece of new equipment with one new feature may duplicate so many operations of instruments already owned that its purchase would be an unwise burden. Of course, equipment wears out and must be replaced, but a careful selection of instruments designed for future needs will allow the depreciation to be spread over a longer period.

"Bad debt" losses are always a candidate for reduction. The best answer here is a continuous check on the account, either by mail or by phone. The ounce of protection being worth a pound of cure, ask the customer if he wishes to have an estimate on the job before you go ahead. To mean anything, your estimate must be fairly accurate. Know your overhead expense; judge your time and material. For the time-payment jobs, collect your material and overhead bills in the down payment.

**Two Main Sources of Income**

The income from a service job is made up of the sale of tubes and parts and the sale of professional services. In order to pay for the cost of doing business, a fixed percentage of the labor charge for the job should be added to the bill. The accompanying chart shows the figures for the average service job of the average serviceman. The amount added to the income per job is 20 per cent of the charge for labor. This covers the expense and shows a profit for the business. Tubes and parts are being sold at list prices by the average serviceman which is as it should be.

In making your bill to the customer, you should charge for:

a. Tubes at list price.

b. Parts at list price.

c. Labor at $1.00 per hour for time spent on the job including traveling time.

d. Service, which is to be 20 per cent of the labor charge.

On the percentage basis, tubes constitute 24 per cent of the income, parts make up 20 per cent and professional charges, 47 per cent. Of this income, 11.5 per cent pays for tubes, 12.4 per cent for parts, 27.4 per cent for cost of doing business, and 47 per cent goes to the owner’s salary. The profit in this case is only 1.95 per cent. Don’t misinterpret the low profit percentage. Service is a profitable business when it is guided as a business and the owner-serviceman demands more than his salary from it. The business should stand on its own feet and pay the owner a dividend for risking his money in the enterprise.

**Increase Service Income**

There are two recognized ways of making more money in the service business. First, by selling your present customers new kinds of valuable service for which they will gladly pay a fair price. Second, by obtaining new customers for all of the various services which you offer. New services are almost unlimited.

(Continued on page 50)
filter circuit which separates the amplifier output into high and low frequency sections and feeds the proper components to the related speakers. The adequate coverage of this large auditorium is possible with speakers grouped as shown, since the sound being emitted comes from a large combined area of reproducers. A further advantage of the grouped speakers is the "unity of sound" effect. Located above the stage, sound and sight attention are focused on the same general area.

**PROGRAM DISTRIBUTION SYSTEM**

A smaller example of the general auditorium is the one located on Welfare Island, New York. This auditorium seats approximately 750 persons. The equipment complement consists of a 30-watt four channel base amplifier, 100-watt booster amplifier, radio tuner, phonograph turntable, and power supply, all mounted in the rack shown. An accompanying photograph. This equipment was supplied by Lafayette Radio Corporation. The sound is distributed through four 12-inch dynamic speakers rated at 12 watts each and two magnetic speakers with trumpet type baffles. The microphones are of the velocity type.

Here again, good sound coverage is realized with power distribution among several speakers. Mounting the units high on the walls and directing the sound down with baffles makes it possible to put the sound into the back corners.

The output of the 100-watt booster amplifier is used to drive approximately 80 small PM speakers connected in a program distribution system throughout the buildings on the grounds.

In buildings of steel construction, such as this one, the speakers should be mounted toward the rear of the room to minimize acoustical feedback. More sound reflection and reverberation is experienced in hard-surfaced rooms and careful speaker layout is necessary to avoid feedback.

Mounting the speakers on the side-walls and directing the sound out into the audience with baffles is good practice, since the sound is sent across the listeners from two directions. To prevent too much distraction from the scene of action by the sound issuing from speakers on the side walls, keep the audio level as low as possible. Public address equipment should reenforce and not replace the source of the sound.

**PROTECT EQUIPMENT AND WIRING**

There are several points to keep in mind when installing PA systems in auditoriums. If the equipment, amplifiers, etc., are to be mounted on the stage, do not locate the units against the back wall or against the side walls near the back of the stage, as stage scenery is invariably stacked there. The best position is along the side wall near the front of the stage. Do not place the unit too close to the fly-loft ropes and main curtain ropes or controls. A guard rail around the equipment is advisable in order to prevent damage from stage scenery, etc.

Speaker, microphone, and power wiring have their problems, too. For best results, the speaker wiring should be in conduit. While 60-cycle hum pickup is not prominent on low-impedance speaker lines, it can happen and the additional mechanical protection offered by conduit is worth the expense involved. If microphone wiring is to be permanent, conduit should be used to shield the input leads. Present-day microphones are generally high-impedance units, and therefore the cables are quite susceptible to hum pickup. While practically all AC wiring is run in conduit, the additional shielding of the mike leads will insulate a "quiet" system. Mike receptacles in the floor should have a dust-tight cap to be kept in place during periods. Do not. Noise-free connectors are important in high-gain amplifiers. Where rubber-covered cables connect mikes and speakers to the systems, the cable connectors should of the locking type to prevent disconnection during the rough handling they are bound to receive on a stage.

**RUN SEPARATE POWER LINE**

The power line for the amplifier should be taken off the supply side of the auditorium and stage switchboard. Regular plug-receptacle outlets on stages are usually connected in groups.

---

(Continued from page 39)
to dimmers on the control board, and indiscriminate use of the outlets may result in low voltage operation of the PA system when the electrician "dims" a circuit. The varying load on the board through switching and dimming is another reason for connecting the amplifier directly to the supply side. Board fuse failure through short-circuits will not put the PA system out of operation if it is connected ahead of the main switch. In this way one can offer announcement facilities during a failure of the lights.

TIPS ON INSTALLING EQUIPMENT
For quick reference, the important points of consideration for PA installations in auditoriums are listed here.
1. Divide the amplifier output among several speakers to get the desired sound coverage.
2. Use speakers with a power rating of several times the normal power to be dissipated by the unit in order to insure highest quality of reproduction.
3. Use high-frequency speakers to build up the HF response lacking in the large size cone speakers.
4. For the completely built-in job, run speaker wiring and microphone wiring in separate conduits.
5. For exposed wiring, keep microphone and speaker cables separated and away from power wiring.
6. Protect equipment with a guardrail when the installation is in an exposed position.

Join the BIG money makers

Three University speakers supply sound to crowds at "Death Dodgers" show in N.Y. World's Fair.

Bassett Radio Corp.
Formed
Formation of the Bassett Radio Mfg. Corp., which has recently taken over all of the activities in the radio field of the Chamberlin Bassett Research Corporation, was recently announced.
Byron E. Hargrove, formerly sales and advertising manager of the E. F. Johnson Company, becomes general manager. Hargrove is an active radio amateur.

SEPTEMBER, 1939
Service Notes

Emerson Model DF-302 Portable

The Emerson DF-302 and DF-306 models are six-tube superhet sets with separate audio output tubes, one for use on AC/DC, and the other for use on battery power. The 70L7GT is the combination rectifier-output amplifier for AC/DC use and its filament is operated across the line with a series dropping resistor. The six tubes for battery operation of the set have their filaments connected in series for operation on a 9-volt battery. Change-over from AC/DC operation to battery power is done quickly with the power cord plug. The terminal of the plug marked X in the schematic makes the series connection between the 9-volt A battery and the 90-volt B batteries and also connects the negative side of the B battery to ground through the line control switch. Another interesting feature of the circuit is the resistance coupled IF stage. The IF frequency is 455 kc. To align the IF stages, set variable condenser to minimum capacity position, and feed a 455 kc signal to the grid of the 1A7GT through a 0.01 mfd, capacitor, and adjust the four trimmers for maximum response.

To align the RF end, set the dial pointer to 140 and feed a 1,400 kc. signal through a 0.0001 mfd, capacitor connected to the antenna connection and adjust the oscillator trimmer on the rear section first, then the antenna trimmer on the loop frame. Adjust for maximum response. If the loop antenna has been replaced it may be necessary to adjust the loop inductance. Align at 1,400 kc. and move a portion of the outside turn of the loop for maximum response at 600 kc.

New Tubes

Here are a few more new ones to add to your list. These tubes will be in the new circuits, ranging from battery portables to television receivers.

17S-GT—Beam Power Amplifier*
Filament voltage ............... 1.4 v.
Filament current ............. 0.050 amp.

90 volt, max.
90 volt, max.
-60 v.
60 v.
5 ma.
1.4 ma.
1,450 ohms
1,450 ohms
7-pin base

6PS-6—Detector-amplifier triode*
Heater voltage ............... 6.3 v.
Heater current ............. 0.3 amp.

250 v. max.
5 ma.
-13.5 v.
13.5
9,500 ohms
1,450 ohms
6-pin base

7AP4—Kinescope*
This 7-inch television picture tube has No. 4 phosphor white luminous screen. Picture size is 6 inches by 4½ inches.

Heater voltage .................. 2.5 v.
Heater current ............ 2.1 amp.
Amode No. 2 voltage ......... 3,500 v.
Amode No. 1 voltage .......... 675 v.
Focus electrode voltage ..... 1,000 v. max.
Grid swing voltage .......... 15 v.
Medium ..................... 5-pin base

1998—Monoscope*
A cathode ray device for generating a video signal to demonstrate television. The picture of a girl's head is on the pattern electrode which is scanned by the electron beam to produce a signal voltage.

Rider Manual X Issued

Volume X of the “Perpetual Trouble Shooter's Manual” just published by John P. Rider, 494 Fourth Ave., New York, N. Y., appears with a record listing of 2,600 models. The new manual is easier to use in spite of its greater servicing capacity because the data has been condensed by elimination of duplication in alignment notes, etc. Included with the new Rider manual is a complete index of all ten volumes and a sixty-page section of “How It Works,” the popular department devoted to explanation of the new developments in the radio field. Television, and frequency modulation are but two of the subjects covered in the separate index volume.
The capacitor C is the common coupling unit just as Ce in the theoretical band pass circuit in Fig. 2a. The signal energy is coupled inductively to L₂ by the primary L₁ at low and medium frequencies while the capacity effect of L₂ supplements at the high frequencies. The output voltage e₂ of the theoretical circuit appears across C in this arrangement and is therefore introduced into the grid circuit exactly the same as it would be in an inductively coupled circuit. The capacitor C is approximately 0.01 md. Poor sensitivity in this type of circuit at the high frequencies may be improved by increasing the number of turns in L₂.

The great improvement of results in the midget supers by adding a simple wave trap gives customer satisfaction that is vital to the serviceman and dealer. Complaints that a "set is no good" arising from poor selectivity are easily quashed with a minimum of labor and material by using one of the types of resonant circuits.

Philco Starts Huge Campaign

Philco's full nationwide promotional campaign was launched by Larry F. Gubb, president, at meetings in Philadelphia August 23 and Chicago, August 25.

Among the Philco executives addressing both meetings were: President Gubb; S. M. Ramsdell, vice-president; T. A.Kennally, general sales manager; E. B. Loveman, advertising manager; J. H. Carmine, assistant general sales manager; Harry Boyd Brown, national merchandising manager; Larry E. Hardy, manager of compact radio sales, and C. E. Carpenter, manager of tubes, auto radio and battery sales.

Large-scale national promotions and specialised local merchandising activities will open the September campaign linked to the anniversary celebration of "Philco's Tenth Year of Leadership." Special new radio models will be introduced in conjunction with the promotion, and a heavy, pointed advertising campaign will be carried on in the big national weekly magazines. Large newspaper advertising throughout the country will be used to focus the local activities of Philco distributors and dealers in their communities.

Stromberg Ups Maple Model Price

An increase from the former price of $39.95 to $42.50 of Stromberg-Carlson's model 410-J was announced by Lee McAnne, radio sales manager, as effective September 9th. The 410-J is an authentic Early American design in solid maple with two wave band, 5 1/2 inch speaker, phone and television jack and five tubes, including rectifier. Higher costs of lumber and other materials were reasons for the price change, said McAnne.
### SELLING SERVICE (Continued from page 45)

#### The Service Job Cost and Income Figures

<table>
<thead>
<tr>
<th>Yearly Income</th>
<th>Tubes</th>
<th>Parts</th>
<th>Services</th>
<th>Tubes</th>
<th>Parts</th>
<th>Overhead</th>
<th>Owner's salary</th>
<th>Profit, including jobber's salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $1,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$1,001 to $1,500</td>
<td>.80</td>
<td>1.65</td>
<td>.65</td>
<td>.70</td>
<td>1.46</td>
<td>.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$1,501 to $2,000</td>
<td>.98</td>
<td>2.22</td>
<td>.61</td>
<td>.54</td>
<td>1.57</td>
<td>1.61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$2,001 to $3,000</td>
<td>1.01</td>
<td>2.58</td>
<td>.48</td>
<td>.66</td>
<td>1.49</td>
<td>1.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$3,001 to $5,000</td>
<td>1.70</td>
<td>3.28</td>
<td>.68</td>
<td>.98</td>
<td>1.18</td>
<td>3.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$5,001 to $10,000</td>
<td>3.34</td>
<td>5.82</td>
<td>.82</td>
<td>1.00</td>
<td>2.36</td>
<td>3.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Kansas City Group Promotes Radio Service

An entirely new promotional plan has been worked out for 16 member firms of the Electric Association of Kansas City, who do radio service work. One-half of the plan comprises a salmon-colored card, half the size of a letterhead, carrying on one side a brief message to the public on the importance of keeping radios in good operating condition; the other side lists the 16 firms. These cards are being placed in many homes by K. C. Power & Lighting and other firms of their customer-contact work. Cards are also being placed in all member radio dealers' stores, who do not service radios, for (1) answering service inquiries, and (2) delivering a card with each new radio sold.

The second half of the plan comprises a radio repair tag that is hung on every set repaired. This carries a little friendly customer message from the radio service firm. It is expected that this plan will not only cement inoperative sets being restored to good condition; and other sets being placed in better condition; increased radio listening; in better radio public relations; and in better service to the public through an enhanced interest in their work by the radio service firms.

SERVICE NOTES

Third Edition of Mallory Encyclopedia

The third edition of the popular "Radio Service Encyclopedia" has just been published by P. R. Mallory & Co., 3029 E. Washington St., Indianapolis, Ind. The enlarged section devoted to data on all makes of radios includes tube complement, IF frequency, vibrator type, condenser replacements, control replacements, and the typical circuits for control resistors and filter condensers. The Rider manual volume and page reference is also given in the tabulated data. Section A of the encyclopedia covers the applications of various types of variable control resistors. Typical circuits are explained, and the question of proper taper is carefully discussed. Section B is devoted to condensers and power supply problems. Filtering action, voltage doublers, and by-pass condenser uses are well covered. The third section of the book explains the action of the types of vibrators used in power supplies for auto radios, etc. Causes and cures for the trouble encountered with vibrators are listed for easy reference. Some very good information on auto-radio installation and interference elimination is included that will prove valuable to the service man. An additional feature of the MYE is the monthly technical supplement service available to all for $1.60 per year and to owners of the third edition for $1. Important information on new tubes, new receivers, and engineering data for condensers and resistors will be published each month. The third edition and the supplements are punched for binding in a standard folder.

RSA Members Hear Frequency Modulation Talk

Major Edwin H. Armstrong spoke before 100 members of the RSA at their August meeting. Major Armstrong outlined the history of development of the frequency modulation system and predicted its widespread use in the future. A demonstration of the receiving equipment employing the Armstrong system, impressed the assembled members with the realistic reproduction of sound effects and phonograph records played from the Alpine, N. J., station. The complete absence of noise further demonstrated the advantages of frequency modulation.

John Rider to Lecture on Test Equipment

Lectures and demonstrations of various types of radio service equipment will be made in thirty-five cities on a nation-wide tour by John F. Rider, authority on service problems. The meetings are being jointly sponsored by the RCA Manufacturing Co. and the RCA parts distributors in the various cities.

California Group Promotes Service

Nearly forty of the Long Beach, California radio dealers are members of the Radio Technicians' Association, a group formed to better the radio service industry. Bi-weekly meetings with a dinner and discussion period keep the organization alive. As a further benefit to the service man, tube exchanges are held at every meeting where overstocks may be reduced. By cooperating with the local broadcast station, spot announcements are traded for the boosting of the station by the RTA. The service shops set one button of touch tuning receivers for the local station.

HERE IT IS! YOUR COMPLETE VISUAL AND SONT SIGNAL TRACING

Now possible with HICKOK OSCILLOGRAPH

Model RFO-4

With these 16 Outstanding Features giving full use of Cathode Ray Tube.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Amplifiers</td>
<td>Vacuum Tube Voltmeter</td>
</tr>
<tr>
<td>Demodulator</td>
<td>Signal Tracer</td>
</tr>
<tr>
<td>Frequency Modulated Oscillator</td>
<td>Variable Width Sweep</td>
</tr>
<tr>
<td>Dual Frequency Sweep</td>
<td>Calibrated Sweep Frequency</td>
</tr>
<tr>
<td>Return Eliminator</td>
<td>Complete Horizontal Sweep Selection</td>
</tr>
<tr>
<td>External Oscillator Circuit</td>
<td>Dynamic Audio Output</td>
</tr>
<tr>
<td>Universal Locking</td>
<td>High Gain Vertical Amplifier</td>
</tr>
<tr>
<td>Calibrated Screen</td>
<td>Pilot Light</td>
</tr>
</tbody>
</table>

HICKOK CRYSTAL CONTROLLED SIGNAL GENERATOR

Model 180X

Consider the wide coverage of this instrument:

Nine Output selections, four of them crystal controlled with accuracy of .01%.
Self-contained power level meter with three ranges from -10 to +38 db.
Eight continuously variable R.F. ranges to 150 megacycles with accuracy better than 1/2%.
Two negative resistance audio frequency outputs—10 to 10,000 cycle variable—400 cycle fixed.

OTHER HICKOK INSTRUMENTS

Crystal Controlled Microvolters, Zero Current Analyzers, Test Speakers, Vacuum Tube Voltmeters, Set Testers, Tube Testers, Appliance Testers, Crystal Controlled Multivibrators.

MAIL THIS COUPON

THE HICKOK ELECTRICAL INSTRUMENT CO.
10514 DUPONT AVE., CLEVELAND, OHIO, U.S.A.

ADDRESS ALL INQUIRIES TO

Gentlemen: Please send information about:

☐ RFO-4  ☐ 180X  ☐ New Catalog

NAME

ADDRESS

CITY

STATE

SEPTEMBER, 1939
Cash in-on Cameras

Display Boosts Camera Profits

Only eighteen months ago Sam Goldberg, owner of the Tioga Electric & Radio Co., Philadelphia, sensed a possibility of a profitable department to specialize in all equipment for the taking of pictures. True, there were small stores in the neighborhood that handled a limited stock of cameras. Drug stores handled film, and novelty stores had their motley array of cheaper supplies. But there was no one store or department where the photo-fan could find a complete assortment of those things which he might need. Starting with a few better grade cameras and film to match, this store gradually added better quality, better variety, and even branched into movie and night photography fields.

Describing the situation, Goldberg said, “Our popularity and prestige were built through sales of Frigidaire lines, Bendix washers, Philco, RCA and Stromberg radio, Sunbeam appliances, lamps and lighting fixtures. Through the entire area for miles around people knew this house and the quality of merchandise for which it stood.” Grasping this favorable reputation Goldberg launched his campaign for camera sales.

LARGE ADVERTISING CAMPAIGN

Direct mail—tens of thousands of pieces were used; tabloid papers were distributed from door to door—75 to 100 thousand per month. Neighborhood papers carried his advertising, and on ton of it all salesmen carried camera literature, talked cameras, and sold cameras. Today the camera and supplies department has a whole section counter, in a place of prominence, just inside the door, and the neighborhood turns to Tioga for its needs.

From the small initial stock this department has grown until now it carries such leading lines as Eastman (Regular, Candid, and Kodak), Agfa, Foliflex, Bell and Howell movie and projection equipment, Eastman movie and projection equipment, Hargis, Detroa and Falcon candid cameras and all makes, sizes and types of film. At regular intervals an entire window is devoted to display of pictur-making materials. Timely subjects are suggested to arouse interest in taking pictures, and contests for best and most unusual results are used to stimulate activity. A mid-summer window suggested out-door children, and travel photography. Prominently displayed is equipment for interior and night photography, with complete textbooks to tell how to secure best results.

PHOTO SUPPLIES NEED VANTAGE SPOT

Regarding the profitable operations of this department Goldberg calls attention to the fact that his camera department occupies the most valuable space in his front store, and his camera window-display has the space of greatest vantage on a busy thoroughfare.

Camera business is paying him well, but this success is due not to the fact that Tioga Electric carries a better stock, not that it carries quality merchandise, not that it advertises in those ways that experience have proven most effective, not that this department is being talked up by salesmen in the homes, not that the merchandise is attractively displayed and carefully demonstrated, but to a perfect combination of all five. These same results are within the grasp of any dealer who will make an equally intelligent effort to establish himself as the logical place to go for cameras and all photographic supplies.

Henry O'Neil, Warner Bros. star, makes Univex enlargements in movie “Everybody's Hobby,” which offers dealers grand promotion tie-in.

Dumont Issues Television Programs

Allen B. Dumont Labs are issuing illustrated television programs, called “Televents,” each week to Dumont dealers as part of a plan to increase public interest in tele-receivers by popularizing programs now available. Printed in green and black on heavy card stock, the programs may be used in the dealer’s window or on the walls.
1940 Auto Radios
(Continued from page 18)

Flows quite naturally as a result of the better cooperation between radio and automobile designers.

Battery drain is not such a serious concern as it has been. Generator outputs have reached a new high, and there are plenty of amperes to use on radios as well as the new and powerful headlamps, heater and defroster motors, and all the other electrical accessories in which the car owner is invited to indulge. Radio current consumption has therefore changed little since last year, remaining in the neighborhood of seven amperes, or roughly, as many amperes as the set has tubes. Permanent-magnet speakers are used in some of the sets to reduce current drain, but their use has not increased greatly over last season. They are virtually identical in performance with the energized field speakers, but they cost a little more and their use is consequently restricted.

COMPACT TUBES AND CONDENSERS

Placing the receivers in the instrument panels has restricted the space available for components, so that bantam-type tubes have become very popular. Another component which is helping reduce space requirements is the fabric plate electrolytic condenser. By its use, all necessary filter and audio by-pass condensers can be put into a round case smaller than a bantam tube. These fabric plate condensers will be used in the majority of 1940 sets. Circuit changes have been few. Sensitivity and signal-to-noise ratio reached some very high levels in the past year or two, and some of the sets have made no circuit changes at all. Sets of 1938 and 1939 tended toward circuit tricks to obtain novelty. Those were "feature" years, and the public was being experimented on just a little to find out what they liked best. Now the circuits have been simplified and "features" have yielded to just plain good performance.

Summing up the broad view of automobile radio for 1940, one is strongly impressed by all the evidence pointing to success for the industry. Automobile radio has found its stride and is going places.

Erwood Sound Equipment Co. Organized

John Erwood and Joe Erwood are president and vice president respectively of Erwood Sound Equipment Co., 224 W. Huron St., Chicago, Ill., newly formed company specializing in sound equipment manufacturing. The new line will cover the field of portable and fixed installations, institutional and school systems, industrial systems, inter-office communicating and mobile systems. Joe Erwood who holds several outstanding patents and designs on the field will be in charge of engineering.

TRIUMPH'S Master TUBE Merchandiser!

Thyratron controlled relay operates the GOOD, SHORTED, and REPLACE lights on this first truly automatic tube tester. Here is the convincing way to test and sell tubes. Checks every radio, television, and rectifier tube on the market; and hundreds of pilot lights and ballast tubes.

Triumph test equipment includes signal generators, oscillographs, multirange meters, battery testers, and audio oscillators.

TRIUMPH MFG. CO.
4017 W. Lake Street Chicago, Illinois

THIS FALL'S PROFIT OPPORTUNITY!

GTC + B PORTA-POWER

converts the portable radio into modern home "plug-in" set for Fall and Winter months. Fits all battery compartments. Universal sockets to fit all battery plugs.

LIST $7.50 EACH Write for Complete Information

GENERAL TRANSFORMER CORP. 1252 W. VAN BUREN ST. CHICAGO, ILLINOIS
PUT THIS LIGHT CX MOTOR
In Low Cost COMBINATIONS

Right for
- Combinations
- Portables
- Table Models

- The instruments illustrated range from the Giant Tube and Set Testers with their full scales down to the Model 235 "baby of them all." There is a size and type for every need in the big Simpson line—but just ONE quality—the SIMPSON quality.

NEWLY developed to meet the demand for a light-weight, sturdy, constant-speed motor at low cost. Keeps your investment down. Keeps retail prices at quick-turnover level.

Order a CX motor to test. Self-starting, attains speed quickly, runs silently and at constant speed. Will not overheat in small, enclosed cases. Helical cut gears with large bearings run in oil in sealed chamber. Turntable has patented drive that provides double insulation. Furnished with mounting plate, ready to install when you get it. State voltage and frequency of current you use. Also size turntable wanted.

Send for New Catalog

The General Industries Co.
3938 Taylor St., Elyria, Ohio

"A harem of dusky beauties"

THE description is Rudyard Kipling's—but somehow it seems to just fit this great line of Simpson Testing Equipment. Simpson equipment is not only the most beautiful to behold: it is also the most beautiful in design, workmanship, and on-the-job utility.

Ask for the new catalog which details the tube and set testers illustrated here. See them at your Jobber's.

SIMPSON ELECTRIC CO., 5203 Kinzie St., Chicago

SIMPSON INSTRUMENTS THAT STAY ACCURATE

It's Absolutely Free!

If you want the very latest and most complete dope on volume control replacements for all standard sets, ask your local jobber for the new CLAROSTAT SERVICE MANUAL. Simplified listings. Explicit data. And backed by largest line of exact-duplicate and standard controls. Or write us direct for your copy.

CLAROSTAT MANUFACTURING CO., INCORPORATED
285 North Sixth St.
Brooklyn, N. Y.

RADIO TODAY
John Meck Industries Formed

New company in the sound field is John Meck Industries, 439 W. Erie St., Chicago, headed by John Meck, formerly president of Electronic Design Corp., and former salesman of Clough-Bringle. The new Meck organization is manufacturing quality sound equipment for specialized applications such as automatic record-changer portable sound systems for funeral directors, single-unit speech re-enforcing equipment for hotels, etc. Each model has definitely planned markets and is specifically designed and merchandised with these markets in view.

Stated Meck, “Sale of the equipment is to be made through the regular jobber-dealer channels at an entirely new discount set-up, which makes possible selling in highly competitive markets.”

Stromberg Plans Third “Labyrinth Week”

Stromberg-Carlson has chosen September 25-30 this year to hold its annual “Labyrinth Radio Tone Week,” so successful in the last two years, it was made known by radio sales manager Lee McCanne, who is directing the event. Special advertising and merchandising promotions to tie in with the event are planned by dealers. The Stromberg-Carlson carpinchoe leather speaker will also be demonstrated, said McCanne.
G.E. to Construct Freq. Modulation Station

Equipment is now being built for the construction of a new broadcast station in Schenectady that will operate on the recently announced frequency modulation system developed by Major Edwin H. Armstrong, according to an announcement by C. H. Lang, manager of broadcasting of the General Electric Company.

The transmitter for the new station will be located in the building now housing General Electric's television transmitter atop the Helderberg Mountain, 12 miles from Schenectady. It is expected that the new station will go on the air this fall.

General Electric has been conducting frequency modulation tests for some time on its 150-watt ultra short-wave station W2X0Y, located atop the State Office Building in Albany. Federal Communications Commission officials spent two days in Schenectady and Albany this spring to witness a demonstration of the new system of radio broadcasting.

University Uses Ghirardi Book as Text

A new course in its Supervised Correspondence Study Series has just been published by the University of Nebraska, covering the field of radio servicing. The course has been designed to be used in conjunction with the text book Modern Radio Servicing, by Alfred A. Ghirardi which has been made the official text for the course.

Herb Young to U. S. Record Post

The United States Record Corp. has announced the appointment of Herbert E. Young as its national sales manager. Young who is well known in the record and radio fields will personally contact the company's distributors. Through the Scranton, Pa., plant, the company is manufacturing two new labels: the "Varsity," a 35 cent record, and the Royale, to retail at 75 cents, $1.00 and $1.25. A catalogue of over 700 selections has been made available and regular releases are promised at an early date.

Soon after his appointment Young announced that formerly New England record sales manager for Columbia Phonograph Co., has been named regional sales manager for U. S. Record Corp. in New York State and New England. Ed Denham, formerly with RCA Victor, has taken over the southern territory as regional sales manager.

Records Proxy for Kelsey in Jobber-Dealer Meetings

Repeating his previous accomplishment of addressing simultaneously 75 distributor - dealer meetings held throughout the country, L. L. Kelsey, radio sales manager for Stewart-Warner, explained the details of the forthcoming school-college merchandising campaign featuring the Senior Varsity and College Campus radios.

At previous meetings distributors and dealers were under the impression that Kelsey will speak to them in person. This time, however, the men knew he would address the meetings by means of a recorded transcription. Kelsey outlined the complete program which will be directed at the scholastic radio market, including plans whereby the Stewart-Warner Senior Varsity and College Campus radios will be on display in every community that contains a high-school or college.

Scheel Now S. M. for Televiso

Harry J. Scheel has been appointed export sales manager for Televiso Co., 341 N. Pulaski Rd., Chicago, to manage and direct the export activities of the firm's line of laboratory radio instruments. Scheel has been in the export business for 20 years and has traveled around the world making contacts with leading importers. He spent five years with the former Grigsby-Grunow Co., where as export manager he formed the sole export division for that organization.

Money in Recorders
(Continued from page 26)

mailings over a long period of time will give excellent results and more than justify the expense and effort.

Unique plan used by some dealers is to take carefully selected returns from mailings and send a recording of an advertising message to each prospect personally. Even a very nominal number of sales more than pays for a promotion of this sort.

USE SPECIFIC APPLICATIONS IN SALES STORY

An outstanding recording and recorder business has been built by the Center Music Shop, 1242 6th Ave. New York City. Prospects are approached with a special use for recorders in mind. For instance detectives are reminded of the advantage of recording confessions, the statements of witnesses, etc. Lawyers are shown how recorders can help them in preparing their briefs, in recording depositions. Actors and vaudeville artists are contacted and urged to make recordings as an aid in acquiring auditions from busy agencies.

“Center” displays the recorders prominently and makes a concerted effort to sell them. The policy has made the item a well paying extra line and such sales have often been the first contact with valued customers for combinations, classical albums, large consoles and other merchantize.

Radio-men have long known the necessity of energetic merchandising and the same enthusiasm and ingenuity are needed to sell recorders.

* * *

Cramer to Wire Broadcasting

Harold West, president of Wire Broadcasting Corp. of America, has announced the appointment of L. F. Cramer as general sales manager.

Cramer, who will immediately embark upon an active campaign to open up additional outlets for Wire Broadcasting, said: “I see an unusually close tie-up between the alert radio dealer and the distribution problems of Wire Broadcasting.”

Cramer was formerly with the Allen B. DuMont Laboratories, Inc., as general sales manager.

Lajoie Heads Dumont Sales

Appointment of Mark B. Lajoie as general sales manager has been announced by Allen B. DuMont Labs. He succeeds Leonard F. Cramer, resigned. For some time Lajoie has headed Dumont television sales in New Jersey. His experience includes several years with Philco and ten years occupied with National Carbon Company’s radio activities.

NEW MIKE is a KILLER

...it puts feedback on the spot!

With the Western Electric Cardioid, you can handle Public Address installations you never thought possible

Western Electric’s 639A microphone gives you clarity, fidelity and control you never dreamed of before. It’s tops for P.A. work as well as broadcasting. The Cardioid combines a ribbon mike and a dynamic mike. A 3-way switch gives you a choice of either or both—matched to produce the best qualities of each through a 120° pick-up zone. Its large dead area cuts feedback, makes it ideal for use under the toughest acoustic conditions.

Distributed by Graybar
William Norins, general sales manager, Majestic Radio & Television Co., reports that fifteen units of the Graybar Electric Co., Inc., are now handling the Majestic line. Included in the list of units were those in Syracuse, Rochester, Albany, Cleveland, Toledo, Akron, Pittsburgh, Youngstown, Detroit, Flint, Milwaukee, Kansas City, Omaha, Oklahoma City, Wichita.

New distributors to handle the Stromberg-Carlson line recently announced by Fred N. Anibal, distributor manager. Jobber for parts of South Dakota and Wyoming is Black Hills Radio Dealer, 602 W. Main St., Lead, S. D.; in Washington, Inland Radio, 922 West First St., Spokane; and in Iowa, McGregor Co., Marshalltown, with branch in Oskaloosa. Northwest Mississippi and nearby counties in other states will be covered by Arthur Fulmer Co., 216 Monroe Ave., Memphis, Tenn.

Packard Radio Co., Fort Smith, Ark., has discontinued all retail service and will maintain a wholesale radio supply house handling radios, replacement parts, tubes, accessories, P.A. and allied merchandise. The company has increased its stock in line with the new policy.

Twenty-one radio and television technicians were graduated in the first class of the Television Training School, located in the Grand Central Palace Building, New York City, according to an announcement made today by L. F. Noile, vice-president of the school. The class now forming will begin its studies in September.

Now representing The Magnavox Company is Joseph Sprung, 254 W. 31st St., New York City. He will cover speakers and capacitors in the Metropolitan New York territory. Sprung has been known to the radio trade for many years and has acted as the representative for such companies as the General Instrument Corp., and the Stackpole Carbon Co. Magnavox has recently completed tools for a new series of speakers intended to fill most requirements.


Carl J. Hollatz, vice president and general manager of Ken-Rad Tube and Lamp Corp., announces that Russell W. Metzner will now supervise sales of the renewal tube division in addition to his duties as sales manager of the lamp division of the company.

Sid Shure and Gene Berman of Shure Bros. have spent several weeks in California traveling the territory with their representative, Bert Knight of W. Bert Knight, Inc., calling on all distributors in the area.

Canfield Supply Co., 16-18 Strand St., Kingston, N. Y., is new distributor for Stewart-Warner refrigerators and electric ranges.

Among those present at golf tournament and dinner held by Sales Managers’ Club at Harrison, N. Y., left to right, Arthur Moss, secretary of NRPDA, Paul Ellison of Sylvania, Arthur Beard of Ward-Leonard, and George Silver of Reco-Kut.
Philco Displays Make Hit

The enthusiastic reception of the 1940 Philco line by radio dealers is clearly indicated by the widest use of Philco display advertising material in the company's history, according to a report from Ernest B. Loveman, Philco advertising manager.

"More Philco displays have gone to dealers since the introduction of the 1940 line than have ever been ordered before," declared Loveman. "Philco displays this year have been tailored more to suit the dealer's actual needs more than ever before. Each display is the result of reports from every section of the country on what the dealer feels he needs most as an effective selling aid.

"Probably the most successful display ever produced by Philco is the new line's permanent floor display. Very simple and graceful in line it is the first display in the radio industry to use a natural wood grain finish. Though very attractive in appearance, its tremendously wide usage proves that its design served a very important purpose—to effectively show off merchandise and not outshine it," concluded Loveman.

Sees Television Uprosh Coming for U. S.

Surprise that television is not more enthusiastically welcomed, was expressed by a British caller, W. J. Brown, formerly Gramophone Co. chief design engineer and British Philco director of engineering, who has been visiting America the last two months.

Though British television receiver sales are only around 15,000, Mr. Brown feels that once the immense advertising possibilities are realized in the U. S., television will move with characteristic American rapidity. Receivers here, he thinks, are still complicated and expensive compared with the British product, which has two years' more commercial development behind it, resulting in many cost-saving cuts in engineering design, reducing numbers of tubes and components.

W. J. Brown is now consulting engineer with offices at 45 London Wall, London E. C. 2, and welcomes correspondence from this side of the Atlantic.

U. S. Record Elects Officers

At a meeting held August 15th the following men were elected to office of the United States Record Corporation, 1775 Broadway, New York City: Charles M. Hemenway, president; Eli E. Oberstein, vice-president; Lowell A. Mayberry, treasurer; Mortimer S. Gordon, secretary. Production and deliveries from the factory at Scranton are being made at once on "Varsity," a 35 cent record and "Royale," a classical record at 75 cents to, $1.25. The initial catalog includes over 700 standards and classical selections.

Amperite "Self-selling Package"

Customer appeal is boosted with the bold design and color scheme of the new carton for the "kontak" microphone of the Amperite Co., 561 Broadway, New York, N. Y. Descriptions of the various uses of the mike are printed on the box to attract buyers through the versatility of the product.

Allen B. DuMont Labs have recently announced the manufacture of a master generator of synchronizing blanking and scanning pulses for use in television transmitting stations. The unit uses a frequency divider circuit permitting synchronization with the 60-cycle supply line at any phase relation.

WHAT IS IT?

THIS is, we believe, the largest selling replacement transformer in America! It is the famous THORDARSON T13S38 Universal Output. It is one of 6 THORDARSON tube-to-voice-coil universals that will do the job in 4,000 receiver models! And it has the dependable THORDARSON quality construction. Three-quarters of a pound of iron and copper, carefully engineered, painstakingly built, and solid as a battleship. No wonder "service engineers" depend on THORDARSON to build their reputations.

THORDARSON
Thordarson Elec. Mfg. Co. Chicago
"Transformer Specialists Since 1895"
The combination of high tensile strength that assures a lasting bond, and faster, cleaner work made possible by quick acting flux of pure water white rosin, has given Gardiner Rosin-Core Solders an outstanding reputation for efficiency and economy on radio work by expert or amateur. Yet, due to modern production methods and big sales, Gardiner Solders cost less than even ordinary kinds. Made in various alloys and core sizes... and in gauges as small as 1/32 of an inch... in 1, 5 and 20-lb. spools.

Eastern Sales Office and Warehouses:
DAVID M. KASSON & CO.,
401 Broadway New York, N. Y.

Frank Troiano and sales director Howard Jones of Emerson, talk it over with general manager Leo Levy of Rochester-Norge Corp.

**Banks Help Jobbers**

"The Wealthermometer, a small bank obtained from Automatic Recording Sales Co., 35 E. Wacker Drive, Chicago, has been used to great effect by Radio Supply Co., Norfolk, Va. and by other jobbers. We believe Radio Supply initiated the idea in the jobbing field," reports Morris F. Taylor, Silver Spring, Md.

Object of the plan is the convenient handling of time sales on larger equipment, such as test instruments, recorders, and amplifiers. The dealers are much enthused about the idea.

Working the plan is very simple. The equipment is sold on a regular conditional time payment basis, the note is discounted at the bank. Then the jobber lends the Wealthermometer to the dealer, retaining the key. The dealer adds a quarter to at least one service job per day and puts this extra 25c in the Wealthermometer. At the end of the month the jobber's salesman opens the Wealthermometer and removes the money to make a payment at the bank.

"There are many possible variations," says Taylor. "Suppose you sell the dealer the idea of adding 25c to each job and depositing it. Then, when emptied, the bank should contain enough money beyond the payment to enable you to give the dealer a National Union condenser cabinet, transformers, volume controls, resistors, or a manual. As a result, the dealer not only gradually gets a complete instrument setup, but also can become a better businessman with a higher, more profitable service charge and a stock of popular tubes and parts."

Or, the dealer might each day deposit the cost of parts and tubes sold so that he can pay his bill when due. Remember—Keep the key!

**General Equipment Takes Farnsworth Line**

After an absence of 10 years from the radio distributing business, the General Equipment Corp., Boston, Mass., is now back in the field announced J. G. Waddell, president, at the first showing in Boston of the new Farnsworth radio line. Speakers at the event were J. G. Waddell, John S. Garceau, advertising manager of Farnsworth and Edward H. McCarthy, Farnsworth eastern sales manager. The meeting took place in advance of the open-house held August 22 when dealers from all sections of New England inspected the new line.
New Personnel for Columbia Recording

James H. Hunter has been named vice president in charge of production of the Columbia Recording Corp. It has been announced by Edward Wallerstein, president. Mr. Hunter will supervise all manufacturing operations entering into the production of Columbia, Brunswick, and Vocalion records. He is well known in the field of plastics and electro-chemistry.

Mr. Wallerstein also announced the appointment of Moses Smith as director of the classical division of the artists and repertoire department of the Columbia Recording Corp. Mr. Smith’s headquarters are located at the recording division offices of the company, 799 Seventh Ave., New York City. New duties will comprise the acquisition of new artists, selection of repertory and complete supervision of recordings in the classical department.

Stewart-Warner Shows Six New Models

Stewart-Warner radio distributors and key dealers throughout the United States met at four sectional gatherings in September to view the six new radio models added to the 1940 Stewart-Warner radio line. The new sets were introduced at Chicago, September 7; New York City, September 9; Dallas, September 11; and San Francisco, September 13.

The new sets, augmenting the 1940 Stewart-Warner radio line of 25 models introduced last June, include two new consoles of six and eight tubes; a six tube laydown type radio similar in performance and construction to the consoles; a streamlined battery console; and two new battery portables, one of which also operates on AC-DC current. The addition of these six new models brings the 1940 Stewart-Warner radio line to a total of 31 different models.

L. L. Kelsey, radio manager for the Stewart-Warner Corporation, who presented the new Stewart-Warner radios, outlined in detail at each sectional meeting plans for the intensive school-college men and dising campaign which gets under way early in September, featuring the Stewart-Warner "Varsity" and "College Campus" radios.

G.E. Holds Annual Camp

G.E. radio and television engineers and research men were guests at Bridgeport, Conn., August 17, 18, 19, at the first annual radio and television engineering "camp." Business sessions during the three days were devoted to the technical aspects of radio and television engineering "camp." Business sessions during the three days were devoted to the technical aspects of radio and television engineering. Current manufacturing problems and present research were also covered. Guests at the camp included Dr. E. P. W. Anderson, inventor of the alternator. Heading the various committees which planned the camp were I. J. Kaar, head of design, and C. A. Priest, in charge of transmitter design.

1 It takes a reliable company—established, foresighted, experienced.
2 It takes a reliable product—tried, tested, proved.
3 And it takes rapid turnover—consistent, guaranteed.

Cornell-Dubilier has specialized in the manufacture of capacitors for 29 years. Today there are more Consistently Dependable Cornell-Dubilier capacitors in use than any other make.

Profit now—by standardizing on the complete line of C-D Capacitors, Capacitor Test Equipment and Quietone Interference Filters. Available at all leading distributors. Catalog No. 175A on request.

Product of the World’s Oldest and Largest Manufacturer of Capacitors
Brown to Address Boston Conference

Joining a group of more than thirty-five authorities on science, sales, advertising, business and finance, who will address the Eleventh Annual Boston Conference on Distribution to be held October 2, 3, at the Hotel Statler in Boston, is Harry Boyd Brown, national merchandising manager, Philco Radio & Television Corporation.

Recognized as one of the outstanding men in the country in the merchandising field, Brown has chosen television as his subject. He will address executives from more than 21 states and 12 foreign countries on "Television Makes It Possible."

RSA Television Course

Through the efforts of RSA President George Duvall, RSA has been able to secure for the use of the various chapters, a complete course in the servicing and installation of television receivers.

The plan is to send separate lessons in the course to each chapter approximately once a month. The chapter will hold a round table discussion and study of the material of the lesson, and each member of the chapter will answer a prepared questionnaire to test the understanding of the subject studies.

Through this plan, a trained group of television servicemen will be ready when television arrives in each community.

Gene Turney, sales manager of Kenyon Transformer Co., New York, N. Y., is making an extended business trip during which he will see leading jobbers of the country. The entire trip will take six weeks and over 11,000 miles will be covered. His early reports indicate a decided upswing in business.


Ward Leonard Electric Co. has appointed H. W. Groetzinger, 1508 Cooper Avenue, Pittsburgh, Pa., as their representative for the sale of Ward Leonard radio products in the state of Pennsylvania west of a line drawn north and south through Harrisburg, Pa., including the city of Harrisburg and all the state of West Virginia.

Jerome D. Kennedy, general sales manager of Western Electric Co., retired from the company recently after more than forty years of service. The last twelve years he spent as head of the nation-wide distributing organization for the Bell Telephone System. Mr. Kennedy is succeeded by Fred W. Bierwirth.

The Television Training School of New York City has just acquired 1,200 additional square feet of laboratory space in preparation for its fall classes, according to an announcement made by L. P. Noide, vice president.

Trygve Sundin, representative in Sweden for the Hygrade Sylvania Corp. and director of Moon Radio A.B., Stockholm, Sweden, arrived in New York recently to discuss tube problems and visit Hygrade factory. He was welcomed by W. A. Coogan, Sylvania foreign sales manager.

"PINCOR" Rotary Converters

Provide the most dependable means for converting direct current to alternating current. Particularly well adapted for operating radio receivers, public address systems, power amplifiers, signs, A.C. motors, etc. Available in two standard classifications "DA" and "TR"—both with or without filter—engineered for converting 6, 12, 32, 110 or 220 volts D.C. to 110 or 220 volts A.C., 40 to 2,000 watts. There is a "Pincor" converter for every requirement. Write for complete descriptions and data.

PIONEER GEN-MOTOR CORP.

Dept. R-21
466 W. Superior Street
Chicago, Ill.
Wax Worth Watching

TOMMY DORSEY and his orchestra playing Are You Having Any Fun from “George White’s Scandals,” with vocal refrain by Edythe Wright—Victor 26355.

KAY KYSER and his orchestra playing Oh! You Crazy Moon with vocal refrain by Ginny Simms—Brunswick 8446.

DOROTHY LAMOUR singing Comes Love from “Tokyo Rose”—Bluebird B10855.

CONNY ROSEVELT with Harry Rescion and his orchestra, singing Oh! You Crazy Moon—Decca 2613.

EDDIE DELANGE and his orchestra playing WPA Polka—Bluebird B16356.

BOB CROSBY’S BOB CATS playing Oh, Mistress Mine with vocal refrain by Marion Muir—Decca 26082.

FRANKIE MASTERS and his orchestra playing If I Only Had a Brain, from “The Wizard of Oz” with vocal trio—Vocalion 5054.

MILDRED BAILEY and her orchestra playing Moon Love with vocal by Mildred Bailey—Vocalion 4939.

BLUE BARRON and his orchestra playing Out of Port, with vocal refrain by Allan Hulme—Bluebird B10699.

TOMMY DORSEY and his orchestra playing Blue Orchid, with vocal refrain by Jack Leonard—Victor 26399.

CHARLIE BARTE and his orchestra playing Love Grows on the White Oak Tree, with vocal refrain by Judy Ellington—Bluebird B10699.

CLASSICAL

WAGNER—Die Walkure (Act II)—Lotte Lehman, Lauritz Melchior, Bruno Walter and Vienna Philharmonic Orchestra.

BEETHOVEN—Consecration of the House—Felix Weingartner and London Philharmonic Orchestra—Columbia Set X-140.

MACOWEY—Suite No. 2 (Indian)—Howard Barlow and Columbia Broadcasting Symphony. Set M (AM) 373.

BEETHOVEN—Symphony No. 2 in D Major—Felix Weingartner and London Symphony Orchestra.


STANDARD INSTRUMENTAL


Alec Templeton, brilliant young pianist and master of the musical sketch type of composition, has been signed by Victor to record some of his successful musical lampoons. First on the list is a coupling of two of his own compositions, “Man With New Radio” and “Hazy and Blue,” Victor Black Label 26348.

Let's Look at the Record

(Continued from page 29)

The Brunswick 75-cent record will concentrate on the broad market, which lies between the popular and the classical. This market of standard music appeals to young and old, is the most consistent and, perhaps, the largest classification. It certainly is a market that has been the most neglected in the modern record revival, and will respond to the improved recording now possible.

BLUE AND RED LABELS

The Columbia “Blue Label” record at 75 cents to 82 will feature the serious music of the ages played by the current great artists to supplement an already fine catalog of Columbia Masterworks.

Columbia has just dropped a miniature bomb in the trade by announcing a new “Red Label” record at 50 cents, with top-flight exponents of “Sway” and “Sweet” music to record exclusively for Columbia.

Backed with ample CBS working capital, with a superior product, produced in a thoroughly modernized plant at Bridgeport, guided by skilled men, Columbia has set sail and is gaining momentum. In any event, Columbia has taken its place in the industry as a new, dynamic factor, with an old and respected name. The industry will hear a lot about Columbia in the future.

Wacky!

Latest of the wacky tunes to follow the trend of “Hold Tight,” “Three Little Fishies” and “Jumpin’ Jive,” is “The Little Man Who Wasn’t There,” dished for Victor by Larry Clinton. Double-talk nursery rhyme experts will never forget the nutty lyrics which go:

Yesterday upon the stair
I saw a man who wasn’t there
He wasn’t there tonight
Good gosh, I wish he’d go away.

Bitter

Brings You a Bigger NET from Record Sales

MERCHANDISER No. 26
For display or storage. Sets on counter or hangs from wall. Sheet steel, sprayed Duco finish walnut color. Holds 140 10" records. 23" long, 37" high, 9" deep. Price $5.25 Boxed F.O.B. Factory. CABINET No. 100
May be used independently or as a unit of a large record department. Outside facings of birch finished in walnut. Reeded banded maple base. Distributed construction. Holds 500 10" and 500 12" records. 75 album sets, 2 10½" long, 7 2" high, 4½ deep. Price $44. Un- creted F.O.B. Factory.

RECORD Booth B-1
Standard Construction. Built of completely standardized sectional units which can be readily rearranged or added to as the need arises. Made of kiln dried birch, finished in walnut, mahogany or a painted finish. Can be readily converted into dark room for use in demonstrating television sets. Price on request.

A. BITTER CONG. CO., 2701 Bridge Plaza North, Long Island City, N. Y.
DuMont Television Sets Use New Tube

All of the current models of DuMont television receivers are equipped with the intensifier type picture tube. This new cathode ray tube uses an annular anode mounted on the glass near the fluorescent screen. A high positive potential on this ring speeds the electrons after deflection so that picture definition sensitivity is lost. The higher velocity electrons produce a more brightly illuminated screen, and the sets may be operated in well-lighted rooms. Three models are being sold at present, 180X, a table model; 183X, console model; and 181X, the large console model with broadcast and short-wave receiver in conjunction with television.

RCA Victor Perfects New Recording Discs

Six aluminum-cored recording blanks ranging from six to sixteen inches in diameter have been announced by RCA Victor. The new discs are in addition to a series of regular recording blanks announced several months ago, and which have recently been further improved. Discs sizes and suggested list prices are as follows: 6-inch, 49¢; 8-inch, 55¢; 10-inch, 90¢; 12-inch, $1; 16-inch (overall thickness .051 inch), $1.50; 16-inch (overall thickness .071 inch), $2.00.

The blanks are sold in packages of 25, the two smaller sizes in corrugated cardboard cartons and the larger sizes in sealed tin containers. Each record has label with space for information to be supplied at the time recordings are made.

Recoton Appoints Canadian Jobber

Recoton Corp., 178 Prince St. New York City, has appointed the Canadian Music Sales Co., Toronto, as their sole distributor in Canada. Recoton makes both cutting and playback needles for high quality phonograph operation. New literature which will be issued frequently to advertise the high fidelity and long life of its products.

Concert Amuses Patient While Surgeon Cuts

Musical operating rooms are being built into the clinical wards of the University Hospital at Heidelberg, Germany, as an experiment in anesthetics, reports Dr. E. E. Free, New York City.

With what the doctors call general anesthetics such as ether or chloroform, the patient is unconscious and would not know whether there was music in the room or not. But nowadays these powerful drugs are becoming more and more unpopular. Instead, surgeons are using so-called local anesthetics which deaden pain from the tissues being cut or handled, like the novocaine used by dentists. So far as actual pain is concerned this is quite all right, but nervous patients sometimes are almost as much distressed by watching or hearing the operation as they would be by the pain. One way to prevent this is to use some sleep-producing drug, but this is just another partial poison for the already damaged body. Surgeons would prefer to use nothing but the local anesthetic. Preliminary experiments having been promising, music in the operating room now is to be tried. Electric phonographs and loudspeakers will keep up throughout the operation a program of selections chosen by the surgeon to suit the patient's tastes or goals. It is hoped that the sufferer's mind may be kept from thinking about what is going on. It is claimed that the nervous tension of surgery must during long operations will be lessened. What will happen if jitterbug patients suddenly try to dance is not disclosed, comments Dr. Free.

Selling Sound

Semi-annual Section of RADIO TODAY

FEATURING THE LATEST PRODUCTS AND METHODS IN THE SALE OF SOUND

will be published in the

OCTOBER ISSUE

Twice each year, the best opportunities and methods in selling sound equipment are brought forcibly to the attention of the trade by SELLING SOUND.

SELLING SOUND supplements and amplifies the sound promotion that you see in every issue of Radio Today. It equips the sound specialist for a better job of selling. It helps the manufacturer to establish new outlets.

This special feature comes at a time when the big indoor season is getting under way—when political campaigns are fought with sound systems as well as radio—when the field is expanding to new uses and new types of equipment.

Besides the thousands of sound specialists, there are servicemen, radio-sound dealers and distributors—all alert to the selling advantages of new products and improvements. Hence the advertising pages of SELLING SOUND put the manufacturer in touch with every channel of sound distribution.

Special positions available to advertisers who make reservations early.

Caldwell-Clements, Inc.
480 Lexington Ave. New York
**New Booklets**

Folder of the sound on film instantaneous recorder-reproducers lists types of equipment and accessories. Miles Reproducer Co., Inc., 812 Broadway, New York, N. Y.

The 1940 Shure catalog lists complete line of crystal mikes and pickups, dynamic mikes, and stand equipment. Shure Bros., 225 W. Huron St., Chicago, Ill.

A complete listing of cable connectors, wall mounting plugs, junction shells, and receptacles is in bulletin K of the Cannon Electric Development Co., 420 West Avenue, 35, Los Angeles, Calif.

Descriptive literature on new type of oil-filled capacitors for transmitting use is available from Solar Mfg. Co., Bayonne, N. J.

Catalog 57J illustrates complete line of tube sockets, cable connectors, low-loss coil forms and insulators, and coaxial transmission cable. American Phenolic Corp., 1250 W. Van Buren St., Chicago, Ill.—Radio Today.

Circular No. 507 on radio resistors, rheostats, and line voltage reducers ready for distribution by Ward Leonard Electric Co., Mt. Vernon, N. Y.

Catalog of complete line of coils and receiver kits listed as No. 40 is available from J. W. Miller Co., 5917 S. Main St., Los Angeles, Calif.

Modern streamlined store equipment is displayed in catalog No. 40 of W. C. Heller & Co., 1939 Jefferson St., Montpelier, Ohio.

“Essential Characteristics of Metal and Glass Radio Tubes” is the title of the new bulletin issued by Ken-Rad Tube & Lamp Corp., Owensboro, Ky.

Capacitors, resistors, vibrators, etc., are illustrated and described in the new 1940 catalog of P. R. Mallory & Co., Indianapolis, Indiana.

The complete 1940 line of the Masonic Radio & Television Corporation, 2600 W. 50th St., Chicago, is illustrated in their fifty-six page catalog.


Descriptive material on multi-unit crystal microphones. Astatic Microphone Lab., Inc., Youngstown, Ohio.


Catalog lists transformers for all amateur and replacement purposes, plus special units. Charts for determining correct transformer to use. Standard Transformer Corp., 1500 N. Halsted St., Chicago, Ill.

Folders on farm and auto radios with pictures and complete descriptions. Somora Radio & Television Corp., 2626 W. Washington Blvd., Chicago.


Stromberg-Carlson’s folder illustrating the 38 models of the 1940 line includes a specifications chart showing features of each type chassis. One page is devoted to television and the Labyrinth and Carpinchoe leather speaker are described.

Six-page folder giving characteristics of transmitting, diathermy, and high frequency bantams with price list is available from Hytronic Labs., 76 Lafayette St., Salem, Mass.

**DYNAMIC MICROPHONE**

**D8**

AMERICAN built quality into the D8. List Price: .......... $22.50

Also, adjustable yoke permits nondirectional or semidirectional pick-up.

Plug at microphone for quick cable attachment.

D8T, 200 Ohm, 500 Ohm, or High Impedance, $25.00.


AMERICAN MICROPHONE CO., Inc.
Los Angeles, Calif.

**MUSICAL TOWERS**

**BELFRY CHIMES • CARILLON**

Sales possibilities are endless when you sell and service Sunst American Systems for tower and belley chime installations. It’s the preferred custom built profit line to sell because high quality and performance is backed by real technical assistance and a sales help.

Broadcast chimes, organ recordings. Powered for 6 and 12 mile diameter coverage. Used as P.A. unit indoors. Automatic record changer. Plays 10" and 12" records mixed, either 78 or 33 R.P.M. Special low-cost record for church service on acetate discs. We furnish everything—speakers, accessories, installation directions. Sales help. PROTECTED TERRITORY. Be first in this big profit field. Write today.

SUNDT ENGINEERING COMPANY
4260 Lincoln Ave.
Chicago, Ill.

**Sell & Use LITTLE FUSES**

Write for Catalog

For radio instruments, meters, transmitters, rectifiers, etc. “Quicker than a short circuit,” FUSE MOUNTING . . . ALL KINDS. See your jobber or write today for catalog and prices.

**OXFORD**

**SPEAKERS THAT VITALIZE SOUND**

Public Address * Replacement Speakers

Permog Dynamic—Electric Dynamic—from 2" to 14"

Improved in construction—new more sensitive and more profitable than ever before. Available—from the astonishing 2" Permog up to the 14" Permog or Electric Dynamic Unit. Order Oxford Today!

MAIL THIS COUPON NOW

Please send Catalog Price List at once

Name

Address

City

Dist. No.

OXFORD-TARTAK RADIO CORPORATION
425 W. Van Buren St. • Chicago 7, Ill.
Despite the wide publicity given the aims and aspirations of the NRPDA, many Dealers and Servicemen have asked "How is this going to affect me?"

Primarily the aim of the Association is to return to the Distributor, the Dealer and the Serviceman the profits which are legitimately HIS! This only can be accomplished by raising the standards of ethics of merchandising within the Industry.

It is the pledge of your Association Jobber to interest himself in Industry problems as they affect your pocketbook. He desires to eliminate conditions which take away profits which are legitimately yours. He desires to sell you only recognized, advertised brands of radio parts at a price which will give him a normal profit and you the opportunity to make a decent livelihood. He intends to fight shoulder to shoulder with you in removing destructive price competition.

The only way to accomplish these aims is to deal with Jobbers who display the NRPDA Emblem—"the mark of an Ethical merchandiser of advertised brands." Do it for your own protection! Names of Member Jobbers in your territory will be supplied if you will address the Executive Secretary of the Association.

 TEMPORARY OFFICE OF THE EXECUTIVE SECRETARY
5 WEST 86th STREET       NEW YORK, N. Y.
Catalog No. 139 lists and illustrates the complete line of amplifier systems, mikes, speaker baffles, and inter-communicating systems. Available from Webster Co., 5622 Bloomingdale Ave., Chicago, Ill.

Price schedule, schematics and specifications of television tubes. National Union Radio Corp., 57 State St., New-ark, N. J.

No. 140-A lists complete line of power, audio, driver, modulation, vibrator and mike transformers, chokes, and dc power packs. Copies from Standard Transformer Corp., 1500 N. Halsted St., Chicago.

Catalog in magazine form giving descriptions, uses and illustrations of electronic measuring apparatus and test instruments. Radio Engineering, 2815 W. 19th St., Chicago.


Price list of insulated radio wire with discount notice on extra sheet. Acorn Insulated Wire Co., 225 King St., Brooklyn, N. Y.

Philo Issues Sales Engineering Bulletins

Advantages, conveniences and features of all Philco products will be described in a series of sales engineering bulletins issued as an aid to distributors in obtaining a background of useful information. Announcing the new service, Robert S. Herr, manager of Philco's parts and service division, said: "There is no question that one can do a better job if he knows his product well, and this new engineering service provides a wealth of background material on the outstanding and also some of the lesser-known features built into all Philco products."

The sales engineering bulletin, made suitable for loose-leaf filing, will be issued at regular intervals and will be extended to dealers and their salesmen.

In the August issue of Radio Today the new address of Precision Apparatus Company was given at 547 Rent Ave., Brooklyn, N. Y. Correct address is 647 Rent Ave.

The picture on page 23 of the August issue illustrating the Burlington Labs is loop antenna shows the antenna of Consolidated Wire and Assoc. Corps. For Illustration and description of the Consolidated loop see page 26 of the July Radio Today.

Ken-Rad Tube and Lamp Corp. was recently described as making the only American tubes to be purchased by the French Ministry of Post and Telegraph for the coming year. Other tubes purchased by this French ministry include those of Hygrade-Sylvania Corp.
Now... 5 VITAL FEATURES COMBINED AND UNIFIED IN THE AMPERITE VELOCITY WITH ACOUSTIC COMPENSATOR

it's a VELOCITY
it's a DYNAMIC
it's UNI-DIRECTIONAL
it's NON-DIRECTIONAL
gives HIGH OR LOW PITCH

By moving up the Acoustic Compensator, you change the Amperite's Velocity Microphone to dynamic operation—without peaks. At the same time you reduce the back pickup, making the microphone practically uni-directional.

With the Acoustic Compensator down, the microphone is bi-directional...120 degrees front and back, without frequency discrimination. Rotating the microphone until it parallels the ceiling makes the microphone non-directional.

THE ACOUSTIC COMPENSATOR is a regular feature of these models: BSHk (hi-imp): RSHk (200 ohms) LIST $42.00. BSHk (hi-imp): RBSk (200 ohms): $32.00 LIST

FOR TOP-NOTCH QUALITY, AND AMAZING RUGGEDNESS, AT LOW COST specify Model RAH (or RAL).

Here's why this popular Amperite Velocity Microphone leads the low-price field: (1) it is excellent for both speech and music; (2) has flat response without undesirable peaks; (3) reduces feedback; (4) stands up under rain, wind, heat, and rough handling...

Frequency range 60 to 7500 CPS. Output...68 db.

MODEL RAH (hi-imp), with 12' of cable: MODEL RAL (200 ohms), with 5' of cable... $22.00 LIST.

SELL "CONTACT MIKES" to Professional and Amateur Musicians.

New high output model can be used in the home. Professional musicians are buying Amperite "Contact Mikes" because "it makes an ordinary violin sound like a Strad." Now amateurs too, can benefit by the "Contact Mike." The new HIGH OUTPUT MODEL SKH can be used in the home. It operates on most radio sets made since 1935. It is connected to the phono-input, or to grid ground of detector tube, or across the volume control. Note new clamp, making the mike easy to attach to guitars, ukulele, etc.

MODEL SKH (hi-imp); SKL (200 ohms): $12.00 LIST. Any number up to 5 SKH's can be put in parallel and fed into one input. NEW FOOT PEDAL, $12.00 LIST. CLAMP for Contact Mike, $1.00 LIST.

Sales Aids for the P. A. Man

(1) FREE Window Decal advertising your Sound Service. Size: 9 x 11", finished in 4 colors. (2) FREE Window Display, 11 x 17. (3) Special Sound Equipment Letterheads. Samples and prices on request. (4) FREE use of cut for printing business cards, etc.

Dept P A
AMPERITE C O. 561 BROADWAY, N. Y. U. S. A.  CABLE ADDRESS AMPERITE NEW YORK
You’ll be “SITTIN' on TOP of the WORLD” with the Arcturus Equipment Deal!

MODERNIZE NOW FOR YOUR BUSY SEASON... The EASY ARCTURUS WAY!

One sure way to make a good season even better is to equip your store and shop with all the modern facilities to handle business speedily and efficiently. The Arcturus Equipment Deal enables you to obtain this equipment practically Free—it's an easy common-sense Plan to help you do more business at a greater profit!

ARCTURUS MEANS BUSINESS... for YOU!
Never has any tube manufacturer put such a fair, profitable Deal within easy reach of every serviceman and dealer! No other Equipment Deal has enabled you to get Immediate Delivery of the units you select, with such Low Down Payments! Seldom has there been available such a wide variety of high-quality equipment—including all the newest models of famous makes! Tube requirements, too, are lower.

NO "EQUIPMENT TAX" ON TUBES!
With the ARCTURUS DEAL, you'll pay only Standard Prices—less standard discounts—for Arcturus Tubes. Arcturus dealers are not forced to pay a premium to participate in Radio's fairest Equipment Deal.

SELL QUALITY—Earn Extra Profits
The Arcturus line is complete—you can supply any needed replacement. High-standard Arcturus engineering is your guarantee that every Arcturus Tube you sell will deliver long, dependable, trouble-free performance. Thus, Arcturus quality helps you build a firm foundation of customer confidence—at the same time the Arcturus Equipment Deal earns your regular profit, Plus a substantial EXTRA PROFIT in the form of valuable store and shop equipment! Get the complete facts about this liberal Deal—then “Go Arcturus” for Extra Profits! Mail the coupon today!

ARCTURUS
THE Extra Profit TUBE LINE

Arcturus Radio Tube Co., Newark, New Jersey.

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

☐ I am a Dealer.
☐ I am a Serviceman.

Mail the coupon today!
For a Limited Time Only

THIS BEAUTIFUL EYE-CATCHING

"SALES-MAKER" DISPLAY

WORTH $750

FREE

WITH YOUR ORDER FOR 10 MOTOROLA ROOM RADIOS

It's Timely

War News Is Creating A Big Demand for Radio
DON'T LOSE ANY SALES

- ATTRACTS RADIO BUYERS
- BRINGS EASY DEMONSTRATIONS

DON'T MISS OUT ON THIS BIG VALUE!
See Your Distributor NOW

GALVIN MANUFACTURING CORPORATION • CHICAGO
Replacement Condensers
Have Captured the Country...

Thousands of service men from coast to coast have already found for themselves the time saving... profit building possibilities of these new Mallory Condensers.

Once again Mallory's policy of unstinting investment in development work has been justified. Every condenser replacement need is adequately covered because the line has been built around an exhaustive study of millions of condensers now in use as original equipment.

No Condenser Line gives you wider replacement possibilities

For example—With over 50 ratings to choose from...with common anode, common cathode and separate sections too...Mallory Tubular Condensers fill your every need and give the first satisfactory answer to the problem of replacement for inexpensive compact receivers. Recognizing the universality of multiple separate section units...they have been included in the line wherever size permits. Each condenser is attractive, neat, permanently marked and definitely sealed against humidity and moisture. Flexible six inch leads and exclusive mounting features make installation simple. Your Mallory-Yaxley distributor will give you immediate service. Put yourself in line for bigger profits. Order NOW!

A—Units of larger diameter supplied with self-contained feature for universal mounting...either vertical or horizontal. All leads at one end.

B—Supplied with simple adjustable strap for horizontal mounting. Insulated leads at both ends.

C—These are provided with bare wire leads at both ends. Because of their small size, no mounting feature is required.

Use MALLORY REPLACEMENT CONDENSERS...VIBRATORS

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

Use YAXLEY REPLACEMENT VOLUME CONTROLS
In the QUALITY Tradition... as IDEAL GIFTS...

Emerson... presents Two New Groups of Sensational Sets

To enrich a line that is already supreme in Style, Tone, Engineering, Performance and Value... to give an extra Holiday Merchandising impetus to the dealer business... EMERSON has just produced TWO new groups of ultra-QUALITY sets—a selection of Table Models in Ingraham cabinets and an entirely NEW series of "3-WAY" receivers with EXCLUSIVE innovations in design, color, performance and price. Ask for large color broadside describing these new models.

MODEL CS-320—With "MIRACLE TONE CHAMBER" Designed for Television—6 Tubes and Ballast. AC-DC Superheterodyne. American, Foreign and Police—Short Wave Band, 15 to 54 Meters (26 to 18, inc.); Standard Broadcast & Police, 173 to 555 Meters ($40 to 1,730 kc.); 6-5" Electro-Dynamic Speaker. Exquisite cabinetry of selected butted and striped walnut in "Staybent" Construction. Hand-rubbed finish... $29.95

Another Emerson Innovation... the "Re-Flex Miracle Tone Chamber"

Acoustically perfect—an entirely new style!


An Entirely New Design in "3-WAY" RADIO

Choice of Colors... Complete $24.95...


Ask your Emerson distributor for details of the Emerson 1940 Line—63 Great Models from $7.95 to $99.95

EMERSON RADIO AND PHONOGRAPH CORPORATION • NEW YORK, N.Y.

World's Largest Maker of Small Radios

RADIO & TELEVISION TODAY, Oct., 1939, Vol. V, No. 10 published monthly by Caldwell-Clements, Inc., 480 Lexington Ave., New York, N. Y. Subscription price U. S. and Latin American countries, $1.00 for 2 years; Canada: $1.25 for 2 years. All other countries, $2.00 for 2 years; single copy, 15c. Reentered as second class matter April 29, 1939, at the post office at New York, N. Y., under the act of March 3, 1879. Originally entered as second class July 24, 1936. Printed in U.S.A. Member of A. B. C. Copyright 1939 by Caldwell-Clements, Inc.
THE "BIG EIGHT"

- Wired for television sound
- High-efficiency built-in antenna
- Magic Keyboard automatic tuning
- Full 12-inch concert speaker
- 3-Gang tuning condenser
- 8 Watts output
- 3 Wave bands
- 8 Working tubes—9-tube performance
- Manual selectivity control
- Automatic bass compensation
- Automatic volume control
- 3-Position tone control
- Connection for record player
- Massive cabinet of fine wood hand-rubbed to mirror finish
- Priced . . . at a profit for you!

THE "BATTERY STREAMLINER"

- Powered by long-life batteries
- 7-Tube performance superhet
- Latest type low-drain tubes
- Dust-proof 8-inch permanent-magnet dynamic speaker
- High finish streamline cabinet of hand-rubbed walnut
- Requires only one 1L "A" and two 45-volt batteries
- Priced . . . at a profit for you!

STEWART-WARNER CORPORATION • CHICAGO, ILLINOIS
RIGHT off the griddle—and red hot news! Five more Stewart-WARNERS with the year's biggest radio features—
a real profit for the dealer who sells them! They have all the Stewart-WARNER features that make sets move—the super-value that wins sales in any competition—the styling and power and selectivity and tone that distinguish Stewart-WARNER design from the field. AND—they're priced to move... without taking the difference out of your pocket! Priced to move... and pay you a better profit for moving them! That's why thousands of dealers this year are making Stewart-WARNER their bread-and-butter line, and putting extra dollars in the bank. That's why they'll welcome these five additional Stewart-WARNERS in the 1940 Silver Dollar line. Get the facts from your Stewart-WARNER Distributor—and you'll get a new slant on what the radio business offers you too.

AC-DC-BATTERY PORTABLE
- Covers 540-1600 kilocycles
- Permanent-magnet dynamic speaker
- Weatherproof luggage-fabric case
Priced... at a profit for you!

COMPANION, Jr.
- magic Keyboard automatic tuning
- 6 Working tubes—8-tube performance
- Big 10-inch concert speaker
- Gets broadcasts, police calls and foreign short wave
- Automatic bass compensation
Priced... at a profit for you!

SUPER-SIX CONSOLE
- Wired for television sound
- High-efficiency built-in antenna
- Automatic volume control
- 3-Position tone control
- Connection for record player
- Hand-rubbed cabinet with figured walnut wrap-over control panel
Priced... at a profit for you!

Get full details from your Stewart-WARNER distributor now!

OCTOBER, 1939
RED HOT!

5 MORE STEWART-WARNER VALUES WITH ALL REAL PROFIT FOR YOU!

YEAR AFTER YEAR, Stewart-Warner gives you the first "first" that makes Stewart-Warner dealers the center of radio town. Stewart-Warner gives you the FIRST long and short wave channel in a single unit—the FIRST Magic Dial calibrating a single control for long and short waves— the FIRST Magic Keyboard for automatic tuning, the FIRST real wheat—the FIRST nifty-styled metal panels—the FIRST plants with natural wood-grain finish—the FIRST radios with分级性 filters—the FIRST units with automatic volume controls for normal operation outside and inside! Cash in with Stewart-Warner "Firsts!"

THE "BIG EIGHT!"
- Packed for black and sound
- More unitary build of endearing
- Magic Keyboard at your finger tip
- 12-inch column speaker
- 3 Gang tuning condenser

THE "BATTERY STREAMLINE!"
- Powered by 3 tubes
- 7-Tube performance
- Built-in loop antenna
- Built-in condenser
- Priced at a profit for you

AC-DC- BATTERY PORTABLE
- Magic keyboard at your finger tip
- 7-Tube performance
- Built-in loop antenna

COMPANION, Jr.
- Priced at a profit for you
- Built-in loop antenna

SIMPLE-SIX CONSOLE
- High-efficiency built-in antenna
- Full 12-inch column speaker
- Gong tuning condenser

STEWART-WARNER CORPORATION - CHICAGO, ILLINOIS

OCTOBER, 1939
The national announcement of the Farnsworth line is the biggest news in radio for many years. Plan now to tie-up with this public announcement by making the week of October 23rd "Farnsworth Week" in your store!

"THE GREATEST NAME IN TELEVISION IS THE NEWEST NAME IN RADIO"

Millions of families will be reading this message in The Saturday Evening Post... the thrilling story of America's television genius, Philo T. Farnsworth. They will see sales-arousing pictures of beautiful Farnsworth consoles, combinations, table models, portables... created by Farnsworth television engineers... every model a really competitive value.

FARNSWORTH PUTS REAL PROFIT INTO THE RADIO BUSINESS

Thousands of orders are pouring in to the Farnsworth factories, because progressive dealers know a good deal and a good buy when they see one.

Low list prices meet all competition... yet are carefully figured to give YOU a longer margin of profit.

It is a complete non-conflicting line... every type of set for every type of customer. And every model has a "buy me" price tag on it.

HOW TO CASH IN—Here's the way to get every dollar of profit out of that sensational public announcement in the October 28th issue of The Saturday Evening Post.

1 See your Farnsworth distributor, get proofs of The Saturday Evening Post ad to put up in your windows on Monday morning, October 23rd—break the news in your neighborhood before the magazine reaches the stands. Let people know your store is headquarters for the great new Farnsworth Radio.

2 Display several proofs of the ad—they will help you sell.

3 Be sure your salesmen have plenty of Farnsworth literature to help them close more sales.

4 A representative line of Farnsworth Radios in your window will be a real traffic stopper. And a special Farnsworth section on your floor will attract crowds to your radio department.

5 Increase the effectiveness of your own newspaper advertisements by featuring the Farnsworth Radio during this week of peak interest.

6 See your Farnsworth distributor now. Let your "Farnsworth Week" make more money for you.

FARNSWORTH TELEVISION & RADIO CORPORATION, FORT WAYNE AND MARION, INDIANA
Here's the knock-out, big-demand item of the season—radio-phonograph combination (AK-59). Note the richly grained woods in the beautifully proportioned cabinet. 7 tubes, 2 wave bands, automatic volume control, Bilt-In-Tenna, 5-station push-button tuning, 12-inch electro-dynamic speaker. Phonograph with Capehart automatic record changer. Television-sound connection. Your customers will sell themselves when they hear it and learn its unbelievably low price.

Just look at this super-value console (AC-70) illustrated here. Note the superbly figured, classically designed cabinet. 8 tubes, 3 wave bands, Flo-Lite dial, 6-station push-button tuning, built-in, rotatable loop antenna, automatic volume control, 12-inch electro-dynamic speaker, phonograph and television-sound connection. An outstanding Farnsworth value at a list price that will "go to town" for you, and with a profit margin that really rings the cash register.
The national announcement of the Farnsworth line is the biggest news in radio for many years. Plan now to tie-up with this public announcement by making the week of October 23rd "Farnsworth Week" in your store.

"THE GREATEST NAME IN TELEVISION IS THE NEWEST NAME IN RADIO"

Millions of families will be reading this message in The Saturday Evening Post... the thrilling story of America's television genius, Philo T. Farnsworth. They will see sales arousing pictures of beautiful Farnsworth consoles, combinations, table models, portables created by Farnsworth television engineers... every model a really competitive value.

FARNSWORTH PUTS REAL PROFIT INTO THE RADIO BUSINESS

Thousands of orders are pouring in to the Farnsworth factories, because progressive dealers know a good deal and a good buy when they see one.

Low list prices meet all competition... yet are carefully figured to give YOU a longer margin of profit.

It is a complete non-conflicting line... every type of set for every type of customer. And every model has a "buy me" price tag on it.

HOW TO CASH IN—Here's the way to get every dollar of profit out of that sensational public announcement in the October 28th issue of The Saturday Evening Post.

1. See your Farnsworth distributor, get proofs of The Saturday Evening Post ad to put up in your windows on Monday morning, October 23rd—break the news in your neighborhood before the magazine reaches the stands. Let people know your store is headquarters for the great new Farnsworth Radio.

2. Display several proofs of the ad—they will help you sell.

3. Be sure your salesmen have plenty of Farnsworth literature to help them close more sales.

4. A representative line of Farnsworth Radios in your windows will be a real traffic stopper. And a special Farnsworth section in your floor will attract crowds to your radio department.

5. Increase the effectiveness of your own newspaper advertising by featuring the Farnsworth Radio during this week of peak point interest.

6. See your Farnsworth distributor now. Let your "Farnsworth Week" make more money for you.

FARNSWORTH TELEVISION & RADIO CORPORATION, FORT WAYNE AND MARION, INDIANA

OCTOBER, 1939
Another Majestic Scoop!

As advertised in Saturday Evening Post, Oct. 28, 1939
Collier's, Nov. 11, 1939

LOW PRICE OF NEW 1940 Majestic Radio AMAZED ME!

Another Low Price of New 1940 Majestic Radio

AMERICAN and FOREIGN RECEPTION!...
With All These Features

- TWO Wave-bands—gets all standard U.S., foreign, ships and amateur broadcasts!
- Plays on AC or DC.
- Smart new styling; walnut or ivory plastic cabinet.
- Automatic Volume Control and Tone Control.
- A price that's lower than many sets that get American broadcasts only!

The Hottest 2-Wave-Band Set In The Industry...
Backed By Smashing National Advertising!

Here's just another example of why the experienced, shrewd merchandisers are saying: "Majestic's the line to ride hard!" Here's a set with flawless plastic design—exceptional tone—two wave bands covering standard U.S., foreign, ships, amateur—a price that astounds customers! There's a real profit in it for you—and Majestic is selling this set for you and selling it hard! Week after week Majestic ads in the Post, Life, Collier's and others are featuring hot numbers you can move, at a profit! Order 2-wave-band item (model 2D60) and other hot numbers now!

More Proven Hot Sellers

PLASTIC BEAUTY WINNER—A little beauty; in walnut or ivory, available with or without push-button tuning; 6-tube (including ballast) superheterodyne. No aerial; no ground; 538-1720 kc. Models 250L, 250W, 250MI and 250MW.

Miniature Broadcasting Station—Plays records through radio or own 4-tube phonograph oscillator amplifier; 4-inch electro-dynamic speaker, constant speed synchronous motor. No wires. Model 4PWO.

Automatic Record-Changing 6-Tube Combination—Plays 10-inch and 12-inch records inter-mixed; automatic start and stop. 2 bands: 538-1720 kc. and 6.8, 18.6 mc. No aerial, no ground; many other Majestic advancements. Model 2C60P.

Majestic Radio & Television Corp., 2602 W. 50th St., Chicago, Illinois. Cable Address: "Majestico, Chicago."

8 MILLION SATISFIED OWNERS OF OLD Majestics ARE RED-HOT PROSPECTS FOR NEW MAJESTICS
Receivers and Transmitters, Equipped with Raytheon Tubes, Play an Important Part in the Work of the MacGregor Arctic Expedition.

When Commander Peary returned from his unsuccessful dash to the North Pole in 1906, he reported the existence of an island that has since been indicated on all Arctic maps as Crocker Land.

But, when Capt. MacGregor led his scientific expedition into the Arctic, he flew over 100,000 square miles of Arctic territory without finding a sign of the so-called Crocker Land.

Thus the map of the world is changed—with the efficient assistance of RAYTHEON tubes. For Capt. MacGregor’s Transmitters and Receivers, through which he maintained daily contact between airplane and base camp and with the U. S. Weather Bureau in Washington, D. C., were all equipped with dependable RAYTHEONS!

Where lives are at stake and cost is no factor you will invariably find RAYTHEONS!

And yet, you can give this same dependable service to your customers—without a penny more cost than the second best tube?

The new RAYTHEON price policy takes the sales resistance out of the tube replacement business and greatly increases, your turnover without sacrificing the profits to which you are entitled.

Ask your RAYTHEON Jobber TODAY!

RAYTHEON

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

“WORLD’S LARGEST EXCLUSIVE RADIO TUBE MANUFACTURERS”

OCTOBER, 1939
MEET THE DEMAND
Crosley presents smart developments of built-in aerials — television outlets — simplified push button tuning — features that the public is promised this season!

OFFER MORE INNOVATIONS
with exclusive Crosley Curveflector Tone Diffuser in consoles . . . advanced Crosley automatic switch from batteries to AC-DC current in portable radio . . . Capehart record changer in combination 639M.

GIVE MOST FOR THE MONEY
Every practical radio improvement plus many clever Crosley developments — some solely Crosley — some great advancements on existing features — all backed by 18 years of radio experience and discovery. This is pioneer radio — still out in front with all the advantages that accrue to those who MAKE history.

Prices slightly higher in South and West.
RCA VICTOR SALES are WAY AHEAD IN 1939!

* 

56.2% Increase in Distributors' Sales to Dealers for First 8 Months

93.3% Increase in Distributors' Sales to Dealers in First Two Weeks Sept.

STRONG PROOF OF

1. The High Standards of Quality of RCA Victor Products
2. Tremendous Consumer Acceptance and Demand
3. Strong Dealer Cooperation
4. The Success of RCA Victor's New Merchandising Policy

IT PAYS TO GO

"RCA ALL THE WAY"

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

FOR FINER RADIO PERFORMANCE – RCA VICTOR RADIO TUBES!

OCTOBER, 1939
You Need PROFIT DEPENDABILITY

You get it with Sylvania Radio Tubes because Sylvania prices assure you maximum profit on every sale. Check around the trade. See for yourself how profit-minded retailers have stepped up their businesses by featuring these world-famous tubes.

Plus Product Dependability

A complete staff of Sylvania engineers keep Sylvania Tubes at the top of the list—in quality, in proved up-to-the-minute developments, in styling, in dependability! And Sylvania backs you up by guaranteeing every tube you sell—in writing!

Plus Company Dependability

Sylvania's 37 years' experience, its modern plants capable of producing 120,000 tubes a day and its sales in 124 countries of the world prove Sylvania's dependability. (Pictured is the Sylvania radio tube plant at Salem, Mass. Other plants are at Emporium and St. Marys, Pa.)

Thousands of successful dealers all over the country are featuring Sylvanias because the Hygrade Sylvania Corporation gives them "all three"—company dependability, product dependability, profit dependability. Sylvania's proposition is worth looking into.

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

SELL SYLVANIA
SET-TESTED RADIO TUBES

"DEPENDABLE ALL WAYS"
ARVIN Radios

FAST MOVERS

FINE PERFORMERS

LOW PRICES

BIG VALUES

MODEL 802 $24.95 LIST
Battery-Electric Portable complete with built-in loop antenna and 5 working tubes. A sturdy, dependable portable for outdoor or indoor use. Operates on self-contained batteries or 110 volt AC or DC current. One set of batteries furnished, provides 250 to 350 operating hours. Plenty of sales appeal in this set.

MODEL 402A $6.95 LIST

MODEL 602A $18.95 LIST
Six-Tube AC-DC Portable Superhet with built-in loop antenna and convenient carrying handle. Plastic cabinet in ivory or walnut finish, 602A. At $18.95. Variable tone control. A powerful, fine performing set.

MODEL 702 $24.95 LIST

MODEL 502 $9.95 LIST

NEW 1940 MODELS—DEPENDABLE, BIG-VALUE SETS—FROM A REPUTABLE MAKER

Two other 1940 Arvin Car Radios give you the added sales appeal of matching panel controls and push button remote control tuning. Model 710, 5-tube chassis and 8" speaker with universal remote control, $24.95 . . . with matching panel control, $28.80. Model 810, deluxe with universal remote control, $46.10 . . . with matching panel control, $49.95.

NOBLITT-SPARKS INDUSTRIES, Columbus, Indiana

MODEL 610 with push button and disc-type dial tuning and 3 tubes. A single unit "double-value" radio.

$17.95 LIST
The New Wilcox-Gay Recordio... Sensational Leader of a Great Radio Line for 1940

"Best Line This Year!"

...with the RECORDIO that---

- Has everything in radio and phonograph plus automatic recording.
- Gives breath-taking demonstrations—makes buyers out of lookers.
- Makes prospects out of every home regardless of their present radio.
- Creates interest in your store—advertises itself and brings in customers.
- Raises unit sale price and makes steady repeat business in records.

Recordio sales create demand for the other 20 Wilcox-Gay models

Wilcox-Gay Corporation
Charlotte, Michigan
Export Dept., 100 Varick Street, New York City, U.S.A.
Busy Days Are Here Again!

From all across the country come reports of radio sales curves, already pointing upward, reaching for still higher levels.

Console sales are better.
Combination sales are rising.
Compact sales are growing.
And the average unit sale is increasing, too.

And what are the factors responsible for this broad advance, which RADIO TODAY predicted many months ago?

1. The war, and the way radio measured up to new opportunities for rendering a public service has again captured the public's interest, and fancy.

2. Better business has brought a new found enthusiasm to dealers, and that is being conveyed to more prospects, creating a stronger urge to buy.

3. Television has come, been seen, and not bought, and this has released a long pent up buying desire on the part of thousands of listeners who were "waiting for television."

4. The 1940 radios have by far greater dollar value, stronger buying appeal, than radio has ever presented before.

5. The built-in antenna, makes it easy to demonstrate in the home, that these 1940 sets are far and away, better than the ones prospects are now listening to.

Conditions radio men have long hoped for are here.

Dealers who are enthusiastically telling more prospects about the new sets—and the new programs—and asking them to buy more often—are getting the biggest sales gains.

People aren't rushing to stores to take sets away from you—but they can be sold.

Sales gains aren't just happening—but they are being made by consistent effort.

Manufacturers have done their part.
Broadcasters are doing theirs.

Dealers who are selling—enthusiastically and consistently—are reaping their harvest.

The opportunity for new found sales and profit levels is with us—but it must be recognized—and welcomed.

Busy days are here again.
War Stimulates Short-wave Interest

Hearing London, Paris, Berlin, Moscow
direct, again intrigues American listener

With European war news being so frequently interjected into our regular broadcasts, a new interest in the source of the news has grown in many peoples' minds.

Short-wave reception, which had lost much of its fascination after the first flush of its novelty thrill wore off, has now taken a new lease on life. With American news analysts or commentators ordered to keep drama out of their broadcasts, more and more people are turning to short-wave sets to get their news and propaganda direct from the belligerent capitals.

This means business for the radio trade. New short-wave receiver sales are boosting sales figures. And tuning up the short-wave bands on the old consoles is keeping the serviceman stepping too.

Short wave reception has again come forward as a real selling tool—and may this time do a job that will be long remembered.

Records of European Broadcasts

Our front-cover shows three outstanding broadcasts by European leaders, as recorded on the Esterline curve-drawing meters in the main NBC studios in Radio City, New York.

All programs going out over the NBC Red and Blue networks are continuously recorded day and night on these instruments in order to afford testimony that the telephone company's volume-level restrictions have not been exceeded at any time. The charts shown are made from photographs of these volume-level records, and reveal the difference in pace, phrasing and emphasis of the three European leaders.

Tube Situation Clearing.
New List Prices and Discounts

At last it seems that the receiving-tube situation is clearing up. Manufacturers have announced reductions in list prices—meanwhile increasing prices to the jobbers in some cases, but with weighted average costs remaining about the same.

The new price changes will greatly reduce the margins that the jobber, dealer, and serviceman now get. This means that servicemen will have to charge more for their labor, instead of obtaining wide margins from tube sales. Standard discount will be about 50 per cent, instead of the previous 60 per cent to 80 per cent.

Naturally these price changes will prevent large dealers from offering 40 per cent discount to the public, which has been so troublesome to small dealers and servicemen.

The new list prices (weighted) average about 95 cents—in contrast with the previous average which was over $1.25.

Result of the new schedules will give consumers a break. "It will no longer cost as much for five tubes as to buy a new set," commented one tube man.

Here are some of the new prices, which are typical of the changes:

<table>
<thead>
<tr>
<th>Type</th>
<th>New list</th>
<th>Old list</th>
<th>New dealer net cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>24A</td>
<td>.80</td>
<td>$1.25</td>
<td>.40</td>
</tr>
<tr>
<td>60</td>
<td>.65</td>
<td>.80</td>
<td>.30</td>
</tr>
<tr>
<td>6K7G</td>
<td>.89</td>
<td>1.25</td>
<td>.40</td>
</tr>
</tbody>
</table>

From the dealer's angle, the new schedule should facilitate selling complete sets of tubes for the older sets. No longer will eight tubes cost $10 list, but approximately $6.50.

Teeth in Fair Trade Laws

That the Fair Trade laws do have teeth, and can be made effective when there is the desire and the will to do so, is the opinion of the San Francisco Superior Court.

Judge F. H. Griffin decreed, in a sweeping judgment, that the resale prices of Zenith radio must be maintained, and thus brought to a conclusion more than 5 months of court proceedings, instituted by the H. R. Basford Company, San Francisco, northern California Zenith distributors.

Thus in the opinion of students of trade legislation, the failure of the fair trade laws to provide relief to the dealers from predatory price cutting was more the result of lack of dealer, distributor, manufacturer will to maintain price, than any debilitating weakness in the laws themselves.

Major Armstrong explains frequency modulation to Editor and Mrs. Caldwell of Radio Today, while in the foreground Dr. W. R. G. Baker, big boss of GE radio, demonstrates a new GE FM set to Prof. Doolittle of WDRC, Hartford, which is putting in a FM transmitter. Photo snapped during FM showing at Lederer's, Bridgeport, Conn.
"MAGIC WAVES"


Weekly Broadcasts by
Dr. O. H. Caldwell
Editor of Radio Today

NBC Red Network, Friday Evenings
7:45 p.m. E.S.T.       6:45 p.m. C.S.T.

"The mysterious origin and fascinating behavior of electrons, those infinitesimal particles which make radio and television possible, will be discussed and dramatized in an exciting new series entitled Magic Waves to be presented weekly over the NBC-Red Network Friday evenings at 7:45 p.m., EST," announces the National Broadcasting Company.

"Orestes H. Caldwell, editor of Radio Today, will cooperate with Gerald Holland, new and talented member of the NBC writing staff, and with the technicals of the NBC family, in making these programs an authentic adventure for lay listeners who want to know more about the magic of radio and of modern communication.

"In each broadcast the editor, who is well known as an interpreter of scientific wonders for the lay mind, will take up some fascinating phenomenon of radio, using the term in its widest sense. His comments will be illustrated and amplified by a dramatic scene written by Holland," concludes the NBC official communiqué.

Philco Day at the N. Y. World's Fair brought 7,500 employees and execs to celebrate. Officials shown at the Ford Exposition building include, l. to r.: James T. Buckley, John Ballantyne, Nelson Miller (Ford), Harold Butler, E. S. Peyton and Geo. E. Deming.

Dozen Broadcasters to Have Frequency Modulation

By the first of the year it is expected that a dozen broadcasting stations in the East and Middle West will be transmitting frequency-modulated programs, using the Armstrong method. Schenectady, Boston, Hartford, Alpine, N. J., WQXR (New York City), Pittsburgh, Milwaukee, Duluth, are among the cities which will have FM.

Official approval by the Federal Communications Commission has given Station WOR a full go-ahead in its plans to construct a new frequency-modulated broadcasting station to service the metropolitan area, according to an announcement made September 29 by J. R. Poppele, chief engineer of WOR.

The new station will operate with a power of 1,000 watts on an ultrahigh frequency channel of 493 megacycles under the call letters W2XW1.

Employing the Armstrong system of frequency modulation the new station's site is to be selected by WOR engineers within the next few weeks at the conclusion of extensive field tests.

STROMBERG TOO

Also interested in frequency modulation is Stromberg-Carlson Co., and plans are under way for construction of a transmitting station according to E. A. Hanover, v.p. A license has been granted by the FCC to operate experimentally on 1 kw. of power. Upon completion, programs originating from the Stromberg-Carlson owned station, WHAM, will be broadcast on the frequency modulation band.

IRE Rochester Fall Meeting

The Rochester Fall Meeting of the Institute of Radio Engineers and the RMA Engineering department, will be held November 13, 14 and 15 at the Sagamore Hotel, Rochester, N. Y. The fall meeting is the annual convention for receiver and tube design engineers. Technical sessions will include papers on television, frequency modulation, new circuit developments and other subjects of importance to the radio engineer.

Powel Crosley, Jr., who suffered three broken vertebrae in fall from his horse, during the same week his Cincinnati Reds won the National League Pennant, and he was subject of feature article in Satevopost.
"A radio for every room" is the slogan to move small sets without hurting console sales. United Artist film "Intermezzo" shows this little girl entertained by her own radio.

To increase their sales in radio's best selling season. Here are their methods—

1. Start a direct mail campaign giving specific reasons for buying a new model.
2. Advertise in newspapers with series of characteristic ads.
3. Distribute circulars showing variety of accessory suggestions.
4. Telephone all last year's customers; their sets need service now.
5. Send personal Christmas greeting cards to customers—without advertising.
6. Put the spirit of Christmas into your window display; offer gift suggestions from children's albums—to the automatic combination.

Sell 'em, Service 'em.

More new features this year. Convenience of built-in antennas, as in the new Philco above, is a big talking point for the "better-half."

Whose sets are out of date? Does John Customer need service on that set he bought seven months ago? Keep a record, then call 'em up regularly.
Radio Today questioned hundreds of dealers to find out what is actually being done.

7. Colorful, neat, gift-suggesting floor displays.
8. Talk good service, trade-ins, new features of 1940 models.
9. Sell up to the larger units of sale.
10. Push short-wave in new sets to capitalize on war-news interest.
11. Tie in records with combinations. Suggest a "package" selection of records tagged "To the jitterbug," "For the music lover," etc.
12. Sell sound for church gatherings, store sales promotions, etc.
13. Arrange stock to give traffic space.
14. Show a complete line of wanted merchandise.

Satisfy 'em, Sell 'em again!

Neat, colorful displays in the window and in the store, will do much to scatter Christmas spirit. Tags reading "To Dad," "To Sister," etc., will personalize the appeal.

It's a grand chance to leave literature and talk about your new consoles when returning the serviced set—which can be used for an extra radio.

Combinations and records help each other. The Crane Twins of Hellzapoppin—a good pair too—are quite happy over their Emerson radio-phono.
To increase their sales in radio's best selling season. Here are their methods:

1. Start a direct mail campaign giving specific reasons for buying a new model.
2. Advertise in newspapers with series of characteristic ads.
3. Distribute circulars showing variety of gift suggestions.
4. Telephone all last year's customers, this year's service now.
5. Send personal Christmas greeting cards to customers—without advertising.
6. Put the spirit of Christmas into your window display: offer gift suggestions from children's albums—to the automatic combination.

Sell 'em, Service 'em, Satisfy 'em, Sell 'em again!

7. Colorful, neat, gift-suggesting floor displays.
8. Talk good service, trade-ins, new features of 1940 models.
9. Sell up to the larger units of sale.
10. Push short-wave in new sets to capitalize on war-news interest.
11. Tie in records with combinations. Suggest a "package" selection of records tagged "To the jitterbug," "For the music lover," etc.
12. Sell music for church gatherings, store sales promotions, etc.
13. Arrange stock to give traffic space.
14. Show a complete line of wanted merchandise.

Next, colorful displays in the window and in the store, will do much to scatter Christmas spirit. Tags reading "To Dad," "To Sister," etc., will personalize the appeal.

"A radio for every room" is the slogan to move small sets without hurting console sales. United Artist film "Intermezzo" shows this little girl entertained by her own radio.
No business which is going anywhere, except out, can afford not to advertise.

Just what is this thing that is so vital to business, that we cover so lightly by the word “advertising”?

Advertising is telling your customers, and those you wish to be customers, that you have what they need, and want, when they want it, at the price they can afford to pay, sold in the way they like to be served, and asking them to “come and get it.”

There are many media of advertising any one, or all, of which will carry your message to a certain number of people.

**WHAT ADVERTISING MUST DO**

All advertising must do at least two of the following three things, and preferably all three.

1. Bring customers in to your store.
2. Move merchandise out of your store.
3. Increase your good will.

Do not expect any single advertising effort to produce an avalanche of business; it doesn’t work that way, unless you are selling something at a ridiculous price.

Repetition still builds reputation. And so, too—consistent, continuous, honest, advertising builds good will and sales month by month and year by year—slowly, yet surely.

When general business is bad, advertise to make yours better. And when business is good, advertise to make yours best. Continuity of effort is very important in telling your prospective customers about your store, your merchandise, and your friendly service. It’s the long haul that really counts.

No business is too small to advertise, and none so large that it can stop advertising, profitably.

Advertising should be planned, its message sound and consistent, and aimed directly at the people you want to serve. It’s confusing to emphasize “high quality” and “fine service” one day, and feature “lowest prices” the next. High quality and low prices are like oil and water, they just don’t mix.

**WHAT ADVERTISING COSTS**

A radio dealer should spend 5 to 7 per cent of his sales’ dollar for advertising; less will not provide advertising in keeping with his business, more will not produce results commensurate with the expenditure.

In starting a long-time advertising campaign, you may find it desirable to spend 20 per cent the first six months—15 per cent the first year—10 per cent the second year—and then as sales increase, settle down to 5 per cent a year, so that over a period of 5 years the total will be around 7 per cent. It may be a little faster that way—but a straight 5-to-7 per cent budget is safer.

Newspaper space in very small towns, where rates are low, and direct mail for suburban and neighborhood dealers have been found to be the most effective and economical advertising media for radio dealers.

A tie-in with mfr’s billboards builds prestige, makes dealer known. Jobbers will help with these.
Six Ways to Advertise

1. DIRECT MAIL—

2. NEWSPAPERS—
   Display — institutional — classified.

3. RADIO—
   Local stations — transcriptions — spot announcements.

4. OUTDOOR—
   Billboards — store signs — truck signs — bus cards.

5. PROGRAMS—
   Church — club — musicales — amateur drama — etc.

6. STORE FRONT—
   Window displays — interior display.

PERSONALIZE YOUR ADVERTISING

Since both frequency and continuity are important, over any extended period of time a daily, or semi-weekly small ad will produce better results than the same amount of space used in half page or page units.

It is desirable to establish some characteristic border, layout, or typography which will quickly identify your ad, and keep your copy alive, informative, interesting.

The ad below appeals to pride of ownership checks results and plugs radio sales — without mentioning price.

In general, these simple rules are fine guides.
1. Take only one big idea for each ad.
2. Use only one thought in each sentence.
3. Never use a large word when a small word will do.
4. Say what you mean — and mean what you say.
5. Be brief — logical — enthusiastic — sincere.
6. Avoid superlatives — they lead to exaggeration.
7. Use pictures and illustrations freely.
8. Support your advertising 100 per cent.
9. Make every ad sell your store, or sell your merchandise.
10. Be yourself.

The same principles apply of course to direct mail. In addition, in direct mail you must also select the specific people who are to receive your advertising. Your mailing list is a vital factor in the effectiveness of direct mail advertising.

It is not hard to build a good mailing list, though it is a work which is never done. New names are constantly added, addresses are changed, those who move to other cities, or die, are removed.

To build a mailing list, the finest starting point is a list of your own customers.

To this you can add the names of telephone subscribers, automobile registrations, voters, tax payers, lodge members, industrial employees, public utility customers, names from the city directory, names appearing in the newspapers, engagements, weddings, births, contest entrants, etc.

All new names must be carefully checked to avoid duplication, initials must be correct, the prefix Miss, Mr., Mrs., Dr., etc., indicated, and the address kept accurate.

ADVERTISING IDEAS

Ideas for your advertising copy can be found by studying the ads of national advertisers in magazines, on billboards, in your papers, as well as the great mail order catalogs, though you should never copy another. Remember that your ads are your ambassador, and must represent you.

(Continued on page 33)
Combinations-
Ideal gift-items, they boost record sales too

No television bugaboo this Christmas, so sell up with models such as this Continental with automatic record changer. Contact Father to sell these.

Dealers report increasing sales in $100 class. Stress pride of ownership and more features for little extra money. Console combination is Emerson's $99.95 model.

Record deals start customers on way to music libraries; make profit in two lines. Here's RCA table Victrola — list includes $2.25 worth of records.

Displayed in same section radio-phonos and records help each other. Keep customers coming to YOUR store by good stock of both. This Stewart-Warner uses built-in line antenna.

There's one eye-filling combination in every 1940 line. Better pick-ups and larger speakers are featured. Westinghouse model has 2 wave bands.
As insurance against decay, every business needs new customers, but the "old customers" are a mighty important factor in business success, too.

Keeping old customers has an important bearing on retail profits.

First, because it costs much less to sell an old customer than it does to locate a new one, and take the new one away from her habitual retailer.

Second, because the old customer who is satisfied, will give you word-of-mouth recommendation which would be hard for you to duplicate at any price, and—

Third, because old customers are your friends, are glad to do business with you, and overlook many of those errors which can be guarded against but never entirely eliminated.

STUDY THE FIGURES

To provide factual information as to why customers are lost, a survey of many thousands of consumers was made, and the results are presented in the tabulation on this page.

Study those figures. They show a costly condition almost entirely within the control of each dealer, and remember that they represent the opinions of all classes of customers of many different kinds of retailers. Check your own policies and see how they stack up.

Note that the first 7 reasons are personal failures. Of all customers who were lost to some retailer, 15 per cent were lost because some person failed to treat the customer as they would like to be treated themselves. No magic, no special skill or experience, nothing unusual is involved. Just that age-old, ever-present matter of human relations.

Common sense, honesty, and courtesy were the factors that were lacking. Things which cost nothing, yet mean so much.

The last four reasons, accounting for 37 per cent of lost customers, pertain directly to the store and the owner's policy.

BECAUSE OF POOR SERVICE!

Only 10 per cent of the customers were lost because prices were high, but 15 per cent were lost because service in the store and after the sale was made, was poor. Service is a matter of owner policy, but bear in mind that you are paying for the service, in dollars or in old customers, whether you give it or not.

Only 8 per cent of customers were lost because of poor assortment of merchandise, but 11 per cent were lost by unfriendly store policies or methods, and 7 per cent because promises were broken. Such indeed are inexcusable faults which probably no store owner would condone, yet which go right under his nose.

Unfriendly, uninterested and discourteous salespeople send 25 per cent of lost customers to a more friendly competitor, and these probably are the same salespeople who are grumbling because they do not earn more. As a matter of simple fact, such salespeople are a liability at any price, and do not belong in any selling organization.

THE HUMAN SIDE

Personnel, and human relations, play a vital factor in the life of any business, because they daily involve the good will, the greatest asset, of your business.

Too little importance is given by most dealers, as this survey shows, to the selection, and the training, of people to please customers.

No better guide to what customers expect can be found than what you expect from others. We all react very much alike to similar treatment, though some a little quicker, or a little more violently, than others.

But we can be sure that we buy from a person or a store we do not like only until we can find one we do like.

And therein lies the story of the quick success of one store, and the slow death of another.

It's just another example of the vital importance of man-power in the safe conduct of our business.

Reasons Why Customers Are Lost

1. Poor Service - - - - - - - - - 15%
2. Unfriendly Store Policy - - - - - - - - - 11%
3. Unreliable—Promises Broken - - - - - - 7%
4. Unfriendly Salespeople - - - - - - - - 6%
5. Uninterested Salespeople - - - - - - - - 10%
6. Ignorant or Discourteous Salespeople - - - - - - - - 9%
7. High Pressure Salespeople - - - - - - - - 5%
8. Prices Too High - - - - - - - - - - - - - - - 10%
9. Poor Assortment - - - - - - - - - - 8%
10. Poor Quality of Merchandise - - - - - - - - - 9%
11. Unpleasant Store or Methods - - - - - - - - - 10%

Common sense, honesty, courtesy, cost little, mean much
Profits in Furniture Radio!

Sell style, color, finish, and quality of radio. Price of secondary importance.

By H. L. M. Capron

Former manager of radio departments of Macy's and Bamberger's, and pioneer in the development and sale of "furniture radio" models.

Brunswick's authentic Adam design Panatrope with auto-record changer tunes three bands.

The women of our country, God bless 'em, are directly associated with nearly 90 per cent of all consumers' purchases.

The great women's magazines over a period of years, have been a tremendously important factor in moulding women's opinions, influencing their thoughts, and their buying habits. One of the direct results has been to make all of us more style conscious than ever before, more receptive to products styled in good taste.

Cabinet styling has now become at least as important a factor in influencing a radio sale as performance, and in many cases, more important.

No one will ever know how many radio console sales have been lost because console styling was not in harmony with the homemaker's desires—but tens of thousands are conservative, and millions may be much closer to the truth. The lesser conspicuousness of the compact has been responsible in no small degree for its continued preference by so many people.

Current console styling is closer to the desires of the majority of people, but still falls far short of satisfying those of discriminating taste.

SELL STYLE, LINES, COLOR, WOODS

Many manufacturers now produce radios contained in cabinets true to the style traditions which have come down through the ages, as well as cabinets which faithfully reproduce pieces of furniture, traditional and contemporary.

No line of customers will form in front of your door to take these furniture radios away from you, but they can be sold, and at a nice profit, too.

The technique of selling furniture radios must naturally be somewhat different than selling conventional radio consoles. The methods, however, are simple, the results ample.

First, everyone selling furniture radios must be thoroughly informed on style, line, wood; color and construction of their furniture models, and on the characteristics of the traditional "periods" as well. Must be at least as well informed as their customers and preferably much better informed. It is the furniture you sell, and it must be in harmony with the room in which it is to be used, as to style, color, and finish.

Care must be used that you do not try to sell a maple hutch to be used in an 18th century mahogany living room, or a mahogany Hepplewhite piece to go in an Early American walnut or maple room.

PROMOTION SHOULD REACH WOMEN

An important factor in formulating the women's decision to buy is the fact that though the radio is listened to only some four hours a day, the cabinet is looked at for 16 hours.

The furniture-radio must rather precisely "fit" the customer's decorative scheme, and when it does, price becomes entirely secondary in importance to "pride of ownership."

Because this is so, you cannot successfully sell furniture-radios if your assortment consists of only one or two styles. You must have large pieces and small, in maple, mahogany and walnut, Colonial, Federal, 18th Century, English and French, and modern.

Furniture stores can perhaps best display furniture radios in appropriate "rooms." But an equally effective display is to arrange furniture-radios to alternate with conventional consoles, with chairs, and tables of the same period, and with appropriate accessories, such as pictures, wallpaper background, vases, lamps, etc.

In this manner all customers must see the furniture-radio, and they should always be demonstrated too.

CONTINUED ADVERTISING BRINGS RESULTS

Furniture-radio requires sales promotion. Window displays, direct mail, newspapers, and model homes, are the mediums for consistent promotions. Tie in such consistent publicity with the interior decorating articles of the women's magazines, even to reproducing their illustrations in your direct mail, windows and newspapers. Thus you can reflect the authority and long-time prestige of such publications as McCall's, Red Book, House and Garden, House Beautiful, Good Housekeeping, Ladies Home Journal, and Women's Home Companion, to your store, your merchandise, and your sales promotion. Copies of these magazines, too, can well be used in your window, as back-ground blow-ups, or accessories, and should certainly be on tables in your store for customer reference and direct-selling tools.

(Continued on page 24)
Already Stromberg-Carlson boasts half again as many more dealers as last year! When a line attracts the trade to that extent, you can be sure it offers sensational profit possibilities. The answer is values! Values that create volume sales—in big units—at a real profit!

Just look at three of them: The full-featured No. 430-M Labyrinth radio with the patented Carpinchoe Leather Speaker for only $99.95*! The gorgeous Stromberg-Carlson No. 420-PL automatic radio-phonograph for only $139.50*! The big No. 420-L console with a chassis that's tops in performance for only $75.00*—the lowest priced console ever to bear the Stromberg-Carlson name!

If you haven't already switched to radio's hottest line, send for full information today!

*All prices f.o.b. Rochester, N. Y. Subject to change without notice.

Stromberg-Carlson Telephone Mfg. Co.,
250 Carlson Road, Rochester, N. Y.
Furniture radios appeal to the woman's pride of ownership. Note how the little lady flaunts her Zenith radio and record player tables.

Stromberg-Carlson's Model 410-T is a reproduction of an original Duncan Phyfe sewing table. Cabinet is mahogany.

No one ad, or direct-mail piece, can be expected to produce an immediate avalanche of business, but consistently carried out, supported by attractive windows, the effects are cumulative, and soon reach mighty gratifying proportions.

**OBSOLESCENCE AND CUT-PRICE MINIMIZED**

Competition is far less keen in this type of merchandise, and in the long run profits are much better than with conventional cabinetry. Obsolescence is a much less important factor, with furniture-radios, because styles which have been good enough to come down through the ages cannot pass out of popular approval by the calendar.

All of which means that your consistent sales promotional efforts and expense is amply justified by the profits, that the business you build on this basis will not flit away to some price-thirsty competitor, and that your investment in stock is much safer from the ravages of obsolescence.

Reputation, too, thrives with such merchandise as is not hawked by every store in town, and this, too, pays dividends.

Almost every furniture radio you sell becomes the vehicle for moving others, and your whole radio operation takes on a dignity, a reputation, far more in keeping with the great business it should be, than the racket so many try to make it.

The Magnavox Belvedere sports two 12 inch double cone speakers; comes in mahogany or American walnut.

While not period in style, RCA's Little Nipper bookcase is indicative of the trend of buying for radio plus usefulness.
Record Buyers . . .
Record Dealers

HAIL COLUMBIA!

Tremendous response to New QUALITY Popular Record at 50¢

Day after day, the praise pours in! Day after day, dealers report ever-increasing demands! Because Columbia’s new Popular Records fill a long-felt need—a quality record at a popular price.

**Instant Success with Customers!**
People tried these records eagerly—bought them enthusiastically—and spread the good news around. For here was the latest music—played by their favorite artists—recorded smoothly, delightfully, realistically—at a price they were more than willing to pay! And when people find that these recordings stay clear and true through countless playings, they order again and again!

**Dealers’ Profits Soar!**
As sales volume piles up, profits pile up, too. And dealers everywhere announce that sales volumes are even exceeding expectations. It’s natural! People are quick to recognize such amazing value, and satisfied customers make for faster and greater turnover. Shrewd, progressive dealers are stocking more and more Columbia Popular Records. Join them—push these records—cash in with Columbia!

---

**Acclaim from lovers of the finest in music!**
The new COLUMBIA BLUE LABEL RECORDS, heartily endorsed by master musicians, are winning swift and wide recognition by the most critical music lovers. World renowned artists, plus the most modern recording methods, bring ever-increasing pleasure to buyers—and ever-mounting sales to dealers!

COLUMBIA RECORDING CORPORATION
Manufacturers of Columbia, Brunswick and Vocalion Records
Bridgeport, Connecticut—Hollywood, California

---

COLUMBIA RECORDS
THE LATEST . . . AT ITS BEST THROUGH COUNTLESS PLAYINGS
OCTOBER, 1939
Starting Right in Records

Model stocks and fixtures necessary for the radio dealer to start or expand his record department.

As the popular demand for records continues to grow, more and more radio dealers are giving serious thought to "taking on records." The model stocks and fixtures here presented, are a sound, practical starting point for any dealer going into the business, and offers, too, the means of natural expansion at a minimum of expense.

Since expansion is much easier than contraction, and safer, it is suggested that dealers start with plan No. 1 or No. 2, and expand as business indicates.

MASTER ENVELOPES AID STOCK CONTROL

To control stock and assortment the following simple plan has been found to work excellently:
1. Stock records in stock bins in numerical order.
2. Use a master index envelope in which to put the last record of that number, and to serve as the filing guide in the stock fixture.
3. When the record comes into stock, record the date—and the quantity received on these master envelopes.
4. When the last record has been sold—enter the date on the envelope, place it in the "to order" bin—and order from your distributor.

Soon the information on each envelope will tell you how many of this record you sell each week, and how long you are out of stock. From this information you will know how many to order, how many to hold in reserve so your re-order will be in stock before your last one is sold, if it is moving fast.

5. Take an order for any record you do not have in stock, and make an envelope. Enter the special order date on it, and place it in your stock bin, empty. If you get another order for this record in less than 2 months, order 2—one for the customer, one for stock.

6. As you go over your stock envelopes in the "to order" bin, look at the record of sales shown thereon. Try to keep about 2 weeks' stock on hand.

STOCK ONLY FAST MOVERS

Order every week. On fast moving popular records you may have to fill in during the week. That's fine. When a master envelope comes up for order and shows sales of less than 1 in 2 months, don't order, place it on the "special order" basis, and then go ahead as stated in No. 5.

In this way you will keep stock well balanced, turnover under control, and will have a minimum of slow moving records.

This, or a similar method is necessary to reach the profit, turnover, and annual sales figures above, and your worthwhile profits lie in the high return on your invested capital which you can obtain, if you do follow such a method.

H. C. Block, Indianapolis, put his favorite hobby to work, in devising this display of Victor Records. Autographed platters of band leaders and vocalists tie-in with their pictures and new releases.

The equipment illustrated on these pages is planned, as are the suggested record stocks, for a minimum expenditure with which to start or grow as the business increases. Many radio men will find themselves able to invest a great deal more money in record equipment than is here suggested. The general ideas remain the same, however, and it may be readily seen that more racks, more counters and chairs, and extra listening booths are easily fitted in when space and money are available.

Average Cost and Profit for Model Stocks

<table>
<thead>
<tr>
<th>Sales, Cost, Tums, Profit</th>
<th>Plan 1</th>
<th>Plan 2</th>
<th>Plan 3</th>
<th>Plan 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible Annual Sales</td>
<td>$5000</td>
<td>$11,000</td>
<td>$17,000</td>
<td>$25,000</td>
</tr>
<tr>
<td>Stock Cost (approximate)</td>
<td>$261</td>
<td>$517</td>
<td>$775</td>
<td>$1025</td>
</tr>
<tr>
<td>Retail Price</td>
<td>$390</td>
<td>$750</td>
<td>$1080</td>
<td>$1425</td>
</tr>
<tr>
<td>Gross Profit per turn</td>
<td>$129</td>
<td>$233</td>
<td>$305</td>
<td>$400</td>
</tr>
<tr>
<td>Annual Stock turns</td>
<td>13</td>
<td>15</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>Annual Gross Profit</td>
<td>$1677</td>
<td>$3495</td>
<td>$4880</td>
<td>$6800</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stock Assortment</th>
<th>Plan 1</th>
<th>Plan 2</th>
<th>Plan 3</th>
<th>Plan 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>10&quot; 35c Popular</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>10&quot; 50c Popular</td>
<td>30</td>
<td>45</td>
<td>60</td>
<td>75</td>
</tr>
<tr>
<td>10&quot; 75c Popular</td>
<td>30</td>
<td>45</td>
<td>60</td>
<td>75</td>
</tr>
<tr>
<td>10&quot; 75c Standard</td>
<td>30</td>
<td>45</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>10&quot; 1.00 Classical</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>12&quot; 1.25 Standard</td>
<td>5</td>
<td>15</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>10&quot; 1.50 Classical</td>
<td>10</td>
<td>20</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>12&quot; 1.50 Classical</td>
<td>5</td>
<td>10</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>12&quot; 20.00 Classical</td>
<td>15</td>
<td>40</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>10&quot; Album sets</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10&quot; Album sets</td>
<td>30</td>
<td>60</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>10&quot; Children's sets</td>
<td>2</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
</tbody>
</table>
**Inexpensive Ear-Phone Listening Stations**

Diagram above shows rear view of counter-mounted listening stations. Use these for jitterbugs after booths are installed. Further details on page 60.

**Suggested Equipment**

Shown at right are fixtures for stock cost plans: 1, at upper left; 2, lower left; 3, upper right; and 4, lower right. Each record rack costs $44; holds 10 and 12-inch records and album sets. Display rack for new releases costs $8.25. Needle manufacturers will supply merchandisers for needles and accessories at little or no cost. Counters run from $58 to $85 or your own can be used when starting.

Two ear-phone listening stations for Plan 1 will cost $48 at most. Another pair should be added for the other plans to bring the total cost of these handy stations to under $90. Listening booths are added as stocks and classical record sales increase. Cost of each booth is about $200.

Equipment prices are figured on cabinet work with good wood.

**OCTOBER, 1939**

The three basic units for building a record department: a record-rack, counter and a listening booth. Each fixture measures six feet long so they are easily rearranged as department grows or if store is remodeled. Equipment here is made by A. Bitter Equipment Construction Co.

**Multi Record-Sellers**

To offer the newcomer in records every possible facility for selling, a solution to the listening-booth problem has been worked out by Radio Today.

In the adjacent drawing, the rear elevation view of a typical counter is shown fitted with four phonograph turntables, individual amplifiers, and a common power supply. The amplified recording is reproduced in a high quality crystal headphone, thus permitting four people at one time to listen to their favorite records.

**STANDARD EQUIPMENT USED**

The equipment used in the amplifiers, power supply, the turntables, and headphones are all standard. The list cost of good quality parts for 4 complete units, power supply and wiring will be approximately $90. Since the dealers will have most of the parts on hand for the amplifiers and power supply, the cost will be a great deal less than $90. The turntables are of good quality and run at 78 RPM only. The pickup and headphones are of the crystal type for the best quality and service. Good parts should be used throughout to give the maximum in quality and service life.

For technical details on the amplifiers and power supply, see complete description on page 60.
Garod phono-combination
* Type P-43 is available in either 9 or 12-tube chassis for either AC-DC or AC operation. Available for 2-band operation, 13 to 550 meters and 4-band 13 to 2150 meters. All models equipped with built-in antenna, crystal pick-up, and 12-inch electro dynamic speaker. Automatic record changer on request. Garod Radio Corp., 115 4th Ave., New York, N. Y.—Radio Today.

Kenyon cathode transformers
* New line of modulation transformers for use in cathode circuit of rf stage, permit modulation of 1 kw with approximately 30 watts audio. Transformers list from $2.40 to $3.60 and secondary current capacity runs from 200 ma to 450 ma. Kenyon Transformer Co., Inc., 840 Barry St., New York, N. Y.—Radio Today.

ABC auto radio converter

Philco table model

Sentinel portable
* A new 4-tube ultra-thin portable weighs only 121/2 lbs. Tunes 540 to 1600 kc and gives 300 hours service from set of batteries. 4-inch PM speaker and loop aerial with external antenna and ground connection. Model 205-BL. Sentinel Radio Corp., Evanston, Ill.—Radio Today.

Hytronic filament-tetrode
* An instant on-beam power tetrode for use in audio amplifiers and transmitters is tagged HY89. Will deliver 7.5 watts audio with 350 plate-volts. Hytronic Labs., 76 Lafayette St., Salem, Mass.—Radio Today.

Lullaby bed lamp radio
* Five tube AC-DC superhet is combined with tubular bed lamp in new product listing at $19.95. The radio has electro-dynamic speaker, beam-power output, and built-in antenna. The tubular lamp provides glareless light in reading plane. Lamp and radio may be operated together or separately. Ivory or walnut finish. Mitchell Mfg. Co., 1550 Dayton St., Chicago.—Radio Today.

RCA toy phonograph
Pictured on the left is the new unit in the RCA line of practical toys for children. Constructed of sturdy plastic, this little electrically driven phono offers instruction and entertainment through the many children's records now available. List price of the complete unit is $4.95.
From zero to 44 million in 20 years!

in two decades research in RCA Laboratories has played a big part in making radio set ownership exceed the figures for any other electrical device

People want radio sets more than they want anything else in the line of electrical equipment. This is proved by the fact that there are in the United States more radio sets than electric irons, or toasters, or washing machines, or vacuum cleaners, or any other electrical device. Even the 44 million radios in this country are not enough. Millions of homes want more radios, and want to replace old models with new.

RCA takes pride in the fact that the intense public interest in radio, and the ever-growing market for radio sets, both rest in no small degree on research in RCA Laboratories. From these studies there have come many of the important advances constantly made in set design and performance.

But RCA does more. Through the National Broadcasting Company it renders a fundamental service that contributes to the life-blood of the radio business...broadcasting. For interest in buying radio sets depends on a continuous offering of good programs, and constant advance in the art of broadcasting. NBC discovered or developed many of the basic principles of radio entertainment, and is responsible for a large proportion of the advances that have been made in the technical aspects of broadcasting.

This month RCA celebrates its twentieth anniversary, confident that it has rendered in two decades a pioneering service of the utmost importance to a great American industry as well as to the American public.
New Radio Models

Latest Additions to the 1940 Lines

Westinghouse 3-power portable

* This 5-tube AC-DC, battery power portable has AVC, 5-inch PM speaker, and battery economizer switch. 6-to-1 ratio vernier dial. Third knob is power selector switch. Hinged door in bottom gives access to cord and aerial terminals. Model WR-676. Westinghouse Electric Supply Co., 150 Varick St., New York, N. Y.—Radio Today.

Ansley period console

* Combination 8-tube radio tuning two bands and phonograph (Model D-29 and Model D-30) features an automatic record changer. No aerial or ground are required, and a television sound jack is provided. Dover Dynaphone Model D-29 lists at $99.50 and model D-30 lists at $129.50, Ansley Radio Corp., 4977 Bronx Blvd., New York, N. Y.—Radio Today.

Motorola console

* "Prize Package" model 72C is a 7-tube AC superhet with a 10-inch speaker, 6 push buttons, tuning 540 to 18,000 kc. The built-in loop antenna gives reception on short-wave and broadcast stations. List, $29.95. Other models include 51B, a 5-tube AC/DC table model, 71A is a 7-tube super in walnut console, and model 52D is a 3-power portable finished in simulated Levant grain leather. Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago.—Radio Today.

Majestic table model

* No. 1A50A is a new 5-tube set in the 1940 line. The superhet circuit operates on the 540 to 1720 kc band. Designed for 60 cycle AC operation. Walnut cabinet trimmed in maple. Majestic Radio & Television Corp., 2690 W. 50th St., Chicago.—Radio Today.

Arvin portable

* AC/DC, battery powered portable receiver uses 5 tubes in superhet circuit. Tuning range is 540 to 1,750 kc. Airplane cloth covering on three-ply case. Model 802 lists at $24.95. Noblitt-Sparks Industries, Columbus, Ind.—Radio Today.

Lafayette console


Stromberg frequency mod receiver

* Model 425-H is an 8-tube set housed in walnut cabinet designed to receive programs on the frequency modulation band. The high fidelity of the frequency modulation may be further realized by connecting the output of 425-H to the phonograph jack of any Labyrinth console. Stromberg-Carlson Mfg. Co., 100 Carlson Rd., Rochester, N. Y.—Radio Today.

Emerson 3-power portable

* Model DJ-310 is a 6-tube portable designed to operate on AC/DC or battery power. Using a PM speaker, the set is designed for use with mini-max batteries. Available in pigskin fabricoid, blue and ivory trim, and in ivory and brown trim. List price, $24.95. Emerson Radio Corp., 111 8th Ave., New York, N. Y.—Radio Today.
Every dealer wants to run a profitable tube business FREE from cut price competition and merchandising schemes which push him around.

**YOU CAN IF:**

- You have a record as an established dealer maintaining standard prices for your own welfare.
- You can move an adequate tube stock three or four times a year.
- You know how to use sales helps and attractive displays to "step-up" sales.
- You are in a neighborhood free from interference with already established Tung-Sol Dealers.

*If you fill the bill you qualify for the Tung-Sol plan of protected profit—the plan which puts you in the driver's seat. AND ... you secure an adequate supply of Tung-Sol Tubes without investment. Write today.*
New Service Products
Manufacturers' Equipment to Make the Serviceman's Job Easier

Sprague interference locator
★ A noise locator consisting of a battery operated super-sensitive rf amplifier and audio amplifier with a combination loop and fishpole antenna tracks down interference. A built-in loud speaker or headphones may be used while tracing noise. Battery life of 150 hours. Average sensitivity is 40 micro-volts. Tunes be band. List $69.50. Sprague Products Co., North Adams, Mass.—Radio Today.

Philco capacitor tester

Million vacuum tube v.m.
★ Wide range vacuum tube volt meter has ranges from 3 volts to 2,000 volts in 9 scales. Push button selection. Measures AF, RF, and IF voltages without disturbing circuit. For operation on 115 volts 60 cycles. Million Radio and Television, 685 W. Ohio St., Chicago.—Radio Today.

Hickok tube tester
★ Dynamic mutual conductance tube tester with three ranges of microammeters, 0-3,000-6,000-15,000. No. 830 tests all tubes, octal, loktal, ballast up to 117-volt filament, and gas tubes such as O24. Available in both counter and portable type. Hickok Electrical Instrument Co., 10514 Dupont Ave., Cleveland, Ohio.—Radio Today.

GE battery tester
★ Voltmeter and resistance test prod are combined to test storage batteries at normal starting load. Prod will fit any battery cell. Two per cent accuracy on voltage readings. General Electric Co., Schenectady, N. Y.—Radio Today.

Radio City sig generator
★ Model 702 provides fundamental frequencies from 95 to 25 mc and harmonic range to 100 mc. Attenuator and rf circuits double shielded. Sine-wave, 400-cycle modulation provided with built-in oscillator. RF attenuator graduated in microvolts over range of 1 microvolt to ½-volt. Radio City Products Co., 55 Park Place, New York, N. Y.—Radio Today.

Weston tube-battery tester
★ Model 777 tester applies the correct load to 1.5, 6, 45, and 90-volt batteries used in portable receivers, and checks the batteries under actual load conditions. Ballast tubes, gas rectifiers, loktal tubes of all types, as well as conventional types are tested, with filament voltages to 117 volts. Available in portable and counter types. Weston Electrical Instrument Corp., Newark, N. J.—Radio Today.

No-Ald grid cap
★ New grid cap for metal tubes has insulated fibre insert to prevent shorting of grid lead. Bushing action prevents the cap from cutting out grid lead if accidently turned against wire. Alden Products Co., 715 Center St., Brockton, Mass.

Consolidated volume control
★ Smaller diameter and thinner controls for use in midget sets—have 3-inch shafts grooved at ¼-inch intervals for cutting to length. Resistance ranges from 1,000 to 2 megs. Consolidated Wire & Assoc. Corps., 516 S. Peoria St., Chicago.
MAIL REGULARLY

With a mailing list which is accurate, merchandise which is wanted, and selling ideas which are sound, it only remains to take your message home.

Mailings should be made at least once a month, every two weeks is better, but weekly is probably too frequent to be sustained for any long period.

At least one mailing every two months to your entire list should be about your store, your policies.

Many dealers have been very successful in post-card direct mail, in promoting a new model, by putting just one selling point on a weekly post-card, until the whole selling story has been told.

Calling attention to outstanding broadcasts and relating them to new radios, or servicing the old also is productive of business.

A series of connected mailings is usually more productive than a similar number of unrelated mailings.

Your own postcards or letters, typewritten, mimeographed, multigraphed, printed, or made on a card-verifier, will be far better than the booklets, folders, or leaflets prepared by the manufacturer, in most cases, because on the latter your name and your store has to be subordinated to a product which too often is described in superlative terms or is too blatant.

ADVERTISING THE TOOL TO BUILD SALES

When using both newspapers and direct mail, it is always psychologically good to let your own customers in on your sales or new product announcements a few days before your window or newspaper ads break, and tell them of this preview preference.

With policies that are sound, merchandising that is good, and consistent advertising which is always honest, good will and sales must become bigger and better year by year—though don't think that any amount of advertising can make up for policies, methods, or merchandise which does not satisfy your customers.

Advertising is the tool for telling people why your customers are satisfied and like to buy from you. You must provide the material for this tool to work with.

**TELL 'EM TO SELL 'EM**
(Continued from page 19)

Your store is different. You will have lots of thoughts of your own.

If you will cultivate the habit of writing them down when they occur to you, and filing them in one place, you will always have some ready when you need them.

**SPRAGUE KOOLOHM RESISTORS**

The Biggest Improvement in Wire Wounds in 20 Years

Note the above exclusive features of Sprague Koolohm Resistors—and they're not all! The 9 points of outstanding Koolohm superiority also include:

- Larger wire size for every value.
- Every bit of wire insulated BEFORE winding with a new resistance coating—further protected by a dark brown ceramic outer shell. The only truly insulated wire wounds on the market.
- Non-inductive resistors—zero inductance at 50 mc. and distributed capacity of only 2 mfd.
- Resistance value remains constant whether exposed to moisture or heat. No "swimming" of turns—no shorted resistance values.

No cements or brittle enamels on Koolohms! Koolohm wire insulation allows units to be layer wound with larger wire. Values are guaranteed accurate to 5% or better, and remain constant. Now available in 5-watt fixed types; 10-watt fixed; 16-watt non-inductive and 10-watt adjustable. Sold at ordinary resistor prices. The greatest resistor buys on the market. Your Jobber has them!

**CASH IN ON INTERFERENCE ELIMINATION**

Now—it is made easy for you to build new business in a growing, non-competitive field! For years, Sprague engineers have been developing practical methods for eliminating man-made radio noise from every type of electrical appliance. The Sprague Manual of Radio Interference just off the press is the result. Tells you what to do and exactly how to do it. Easy to understand—indispensable in your work. 24 pages—fully illustrated—more than 50 diagrams. Only 25c net from Sprague Jobbers or direct from us.

Shown here are the new Sprague Master Radio Interference Analyzer (above) and the new Sprague Interference Locator (below). Low in price—easy to use—fully practical. Write for details on the complete Sprague Interference Elimination Plan.

**SAVE TIME, MONEY AND SPACE . . . .**

It's not only Scotch money-saving instinct—it's good business that leads more servicemen to use more Sprague Atoms than any other kind of dry electrolytics on the market today. Atoms are smaller—more dependable—made in more single and dual capacities—have lower leakage—withstanding higher surges—are absolutely protected against blow-ups. Use 'em anywhere. Atoms stand the gaff!

SPRAGUE PRODUCTS COMPANY
DEALERS PREFER TO SELL PHILCO!

Reasons given by dealers in a national survey

1. Greatest Public Acceptance
2. Most Widely Advertised
3. Greatest Improvements
4. Lowest Service
5. Most Complete Line
6. Easiest to Sell
7. Greatest Market
8. Finest Performance
9. More Satisfied Customers
10. Fastest Selling Line
11. Better Parts Service
12. Greater Sales Appeal
13. Sound Factory Policies
14. Most for the Money

Dealers everywhere, in every type of market, list Philco’s powerful, year-round advertising as one of the 14 reasons for Philco sales leadership. In an impartial nationwide survey, one after another speaks of Philco’s commanding advertising support of the industry, as one of the most powerful of the factors that make Philco the most salable, most profitabale line in the radio field.

Yes, throughout its 10 years of leadership Philco has recognized its obligation to promote business for Philco dealers. The job has never been left to you alone ... Philco has always done its part in national advertising, local advertising, and hard-hitting promotions to sell radio as a complete, profitable business for you. The present, highly successful “Philco Anniversary Specials” promotion is an example of Philco’s continuous promotional activity in behalf of Philco dealers.

And so in every other factor that goes to make up a complete, profitable merchandise and sales picture. Read the list made up from the comments of America’s radio dealers, large and small. If you want the answer to Philco leadership, there it is ... broken down into its 14 basic points!

For 1940, again, your No. 1 profit opportunity lies with Philco. The hottest line in history ... new, exclusive inventions ... key to public demand in design, performance, and price. And a complete line, from table models to radio-phonographs that gives you the sell-up opportunity you need to make money in radio.

For turnover, for volume, for profit ... concentrate on Philco.
Dealers Look to Philco for Radio's Biggest Profits

Sell Up! Today, more than ever, Philco Sell-Up models give you your best opportunity to Boost Your Profits

ONLY PHILCO gives you ALL 3

1. "PLUG IN AND PLAY" CONVENIENCE
   No aerial or ground wires to install. Plug in anywhere and play.

2. NEW PURITY OF TONE
   Greater freedom from power line noises and man-made static. More enjoyable reception, even in noisy locations.

3. SUPER-POWER
   Even gets foreign reception without an outside aerial. Amazing performance!

PHILCO 195XX
One of a great variety of lovely console models styled to suit every purse and preference. 10 tubes, Built-in Super Aerial System, American and Foreign reception, Electric Push-Button Tuning. Every feature the quality buyer wants!

PHILCO 215RX with Wireless Remote Control
The perfect "sell-up" model in the higher price brackets. 12 tubes, American and Foreign reception, Built-in Super Aerial System—plus Wireless Remote Control of favorite stations... all at a new low price!

PHILCO 508 Radio-Phonograph

Every 1940 Philco Is Built to Receive TELEVISION SOUND... the Wireless Way!
DEALERS PREFER TO SELL PHILCO!
Reasons given by dealers in a national survey
1. Greatest Public Acceptance
2. Most Widely Advertised
3. Greatest Improvements
4. Lowest Service
5. Most Complete Line
6. Easiest to Sell
7. Greatest Market
8. Finest Performance
9. More Satisfied Customers
10. Fastest Selling Line
11. Better Parts Service
12. Greater Sales Appeal
13. Sound Factory Policies
14. Most for the Money

Dealers everywhere, in every type of market, list Philco's powerful, year-round advertising as one of the 14 reasons for Philco's sales leadership. In an impartial nationwide survey, one after another speaks of Philco's commanding advertising support, the greatest in the industry, as one of the most powerful of the factors that make Philco the most salable, most profitable line in the radio field.

The survey, throughout its 10 years of leadership, Philco has recognized its obligation to promote business for Philco dealers. The job has never been left to you alone... Philco has always done its part in national advertising, local advertising and hard-hitting promotions to sell radio and to drive customers into the dealer's store. The current, highly successful "Philco Anniversary Specials" promotion is an example of Philco's continuous promotional activity in behalf of Philco dealers.

And so in every other factor that goes to make up a complete, profitable merchandise and sales picture. Read the list made up from the comments of America's radio dealers, large and small. If you want the answer to Philco leadership, there it is... broken down into its 14 basic points!

For 1940, again, your No. 1 profit opportunity lies with Philco. The hottest line in its history... new, exclusive inventions... keyed to public demand in design, performance and price. And a complete line from table models to radio-phonographs that gives you the sell-up opportunity you need to make money in radio.

For turnover, for volume, for profit... concentrate on Philco!

Philco All Year 'Round for Profits All Year 'Round

"Most Widely Advertised"
One of 14 Reasons Why Dealers Look to Philco for Radio's Biggest Profits

The biggest selling and advertising support in the industry," say dealers everywhere. Impartial survey shows Year-Round Advertising a leading factor in overwhelming dealer preference for Philco.

Sell Up! Today, more than ever, Philco Sell-Up models give you your best opportunity to Boost Your Profits

PHILCO 195XX One of a great variety of lovely console models styled to sell every price and preference. 12 tubes, built-in Super Aerial System, American and Foreign reception, Electric Push-Button Tuning. Every feature the quality buyer wants!

PHILCO 215RX with Wireless Remote Control The perfect "sell-up" model in the higher price brackets. 12 tubes, American and Foreign reception, Built-in Super Aerial System—Push Wireless Remote Control of favorite stations... all at a new low-price!


Every 1940 Philco Is Built to Receive TELEVISION SOUND... the Wireless Way!

ONLY PHILCO gives you ALL 3

1. "PLUG IN AND PLAY" CONVENIENCE No aerial or ground wires to install. Plug in anywhere and play.

2. NEW PURITY OF TONE Greater freedom from power line noises and man-made static. More enjoyable reception, even in noisy locations.

3. SUPER-POWER Even gets foreign reception without an outside aerial. Amazing performance!

PHILCO 195XX

215RX with Wireless Remote Control

500 Radio-Photograph

ONLY PHILCO gives you ALL 3

1. "PLUG IN AND PLAY" CONVENIENCE No aerial or ground wires to install. Plug in anywhere and play.

2. NEW PURITY OF TONE Greater freedom from power line noises and man-made static. More enjoyable reception, even in noisy locations.

3. SUPER-POWER Even gets foreign reception without an outside aerial. Amazing performance!

PHILCO 195XX

215RX with Wireless Remote Control

500 Radio-Photograph

ONLY PHILCO gives you ALL 3

1. "PLUG IN AND PLAY" CONVENIENCE No aerial or ground wires to install. Plug in anywhere and play.

2. NEW PURITY OF TONE Greater freedom from power line noises and man-made static. More enjoyable reception, even in noisy locations.

3. SUPER-POWER Even gets foreign reception without an outside aerial. Amazing performance!

PHILCO 195XX

215RX with Wireless Remote Control

500 Radio-Photograph

ONLY PHILCO gives you ALL 3

1. "PLUG IN AND PLAY" CONVENIENCE No aerial or ground wires to install. Plug in anywhere and play.

2. NEW PURITY OF TONE Greater freedom from power line noises and man-made static. More enjoyable reception, even in noisy locations.

3. SUPER-POWER Even gets foreign reception without an outside aerial. Amazing performance!
Presto presents

A New Low-priced
SOUND RECORDER
with 5 EXCLUSIVE
SELLING POINTS

1. Dual speed operation 78 and 33½ r.p.m.
The only two-speed machine in its price class.
2. Sensitive microphone and full size adjustable floor stand.
3. Rubber-rimmed turntable driven directly by motor pulley. Uses no idler wheels or rubber pulleys. Nothing to wear out.
4. Operates as public address system. You can hear your program before you record.
5. Safety cam lever lowers cutting head gently. Prevents breaking costly sapphire cutting needles.

MODEL 12J RECORDER
Price Complete
$184.50*  
*$194.50 Denver and West

Write for Literature

HOW DEALERS SELL THE PRESTO RECORDER
— This new booklet tells you who your prospects are, how to reach them, why they buy recording equipment. Illustrates form letters, direct mail pieces, newspaper ads, window and counter display material. Describes numerous promotional stunts that dealers have used successfully to sell recorders and personal recordings. A complete merchandising manual that will boost recorder sales for you.

Your Copy is Waiting — Write for Booklet Today

Presto Recording Corporation
242 West 55th Street, New York, N.Y.

New Things

Pioneer motor generator

* Five kw power plant is completely enclosed in a sheet metal housing. 60-cycle, 1800 RPM generator runs in grease-sealed ball bearings. Rheostat, voltmeter and switchbox are standard equipment. Filter and shielding available. Pioneer Gen-E-Motor Corp., 466 W. Superior St., Chicago, Ill.—Radio Today.

Andrea "universal" portable


Solar set checker


Eicor motor-generator

* 450-watt AC alternator driven by an air-cooled gasoline engine delivers current at 110 volts and 60 cycles. Electric push-button starting is built-in and remote control is available for the AC units. Measures 17 x 15 x 17 inches. Weight, 90 lbs. Eicor, Inc., 616 S. Laflin St., Chicago, Ill.—Radio Today.

Sprague interference analyzer


Cornell-Dubilier capacitors

* Small tubular by-pass and filter condensers with mounting strap are convenient to mount. Capacitors come in dual units with common negative lead in voltage ratings of 25 to 450 volts, and capacity ratings from 8-8 to 20-20 mfd. Cornell-Dubilier Electric Corp., S. Plainfield, N.J.—Radio Today.

General power pack

* Replacing batteries in the 2-volt farm radios, Model L power supply delivers 2 volts A, up to 135 volts B, and variable C voltage to 22½ volts. Easily installed by serviceman. Unit operates from 115-volt, 60-cycle power. List price $9.95. General Transformer Corp., 1550 W. Van Buren St., Chicago, Ill.—Radio Today.

Na-Ald power socket

* Sub panel mounted AC outlet for use in radio chassis to permit quick connection of power equipment. motors, dial lights, etc. Bakelite body, metal mounting plate, and lug terminals. Alden Products Co., 715 Center St., Brockton, Mass.—Radio Today.
Universal carbon mike


ATA oscillator

* Wide range signal generator covering 100 kc. to 66 mc. with error of less than 1/2 of 1% on the broadcast and IF bands and 2% on short-wave bands. Pure sine wave modulated RF is attenuated with non-inductive pads. Separate jacks make audio and RF available. Model 500 for 115 volts AC/DC and 90A for 220 volts AC/DC. Price $17.95. Approved Technical Apparatus Co., 57½ Dey St., New York, N. Y.—Radio Today.

Simpson set tester

* Model 320 features a 9-inch meter with fifty ranges. Nine voltage ranges from 0 to 5,000 volts both AC and DC at 1,000 ohms per volt. Six current scales from 0 to 750 ma and 0 to 15 amps. Meter is illuminated by two 6-volt bulbs. Resistance may be measured to 50 megs and four ranges of capacity and seven ranges for decibels are included. Simpson Electric Co., 5216 Kinzie St., Chicago.—Radio Today.

Arvin midget model

* Tiny model 402 uses three tubes and comes in either ivory or walnut finished unbreakable cabinet. Four-inch dynamic speaker delivers 2 watts. No filament dropping resistor used; Underwriters' approved. List, $6.95. Noblett-Sparks Industries, Columbus, Ind.—Radio Today.

Save Time and Money

with the MEISSNER ANALYST

In kit form at about half the price

SERVICES
ANY TYPE OF RECEIVER

$60 NET

The Meissner ANALYST is not only highly efficient—covering every conceivable phase of signal testing—but it is surprisingly easy to read and operate. This up-to-the-minute instrument will work wonders in raising the standard of service in your shop. It will take the kinks out of your toughest servicing problems...step up your efficiency...save valuable time...increase your profits.

It accurately measures both control and operating voltages without affecting the operation of the set. Channels can be tested individually or simultaneously. Reading is greatly simplified. There's an individual panel for each channel.

And best of all, you buy the ANALYST in KIT FORM...Save nearly HALF the cost of a factory-wired set of comparable quality and efficiency. And at the same time acquire a fundamental knowledge of this instrument and what it will do for you that could not otherwise be obtained by weeks of study and experiment.

Get the facts on this revolutionary TIME and TROUBLE SAVER...See the Meissner ANALYST at your Parts Jobber's—or mail coupon below for FREE FOLDER...It tells the whole story!
RCA Record-Radio "Package"

A combination "package" including a group of records, a rack and a table radio-phonograph has been announced by Irving Sarnoff, of the Bruno-New York Co., RCA Victor distributors in New York City. The Victrola plays both 10 and 12 inch records with the top cover down.

"Sponsored by the world's largest manufacturer of radio and phonograph instruments, the combination plan presents a total of $45.70 worth of merchandise including, in addition to the Victrola, a quantity of records, a record storage rack, and a subscription to a famous music magazine, all at the special price of $29.95," Sarnoff said. "The arrangement places the enjoyment of recorded music within the reach of every purse."

The Victrola is equipped with a streamlined tone arm and crystal pickup. The radio tunes domestic broadcast and police bands. List price of the instrument separately is given as $39.95.

The records included in the "package" have been selected as among those which should be in every American home. Together with the record storage rack, they have a value of $5.25. In addition, the combination includes a three-months' subscription to the Victor Record Review.

Farnsworth Steps Up Production

Production of radio receivers and combination of radio-phonographs in the Marion, Ind., plant of Farnsworth Television & Radio Corporation, which had been moving along at an average rate of 900 sets a day, has been stepped up to more than 1,000 with the addition of a fourth assembly line, which is turning out 10-tube chassis. Of the three other lines, one is making 7-tube sets and two are producing 10-tube receivers.

Addition of the new assembly line raised the number of office and factory workers at the Marion plant approximately to 700 persons and greatly accelerated the flow of Farnsworth radios from the factory to distributors and dealers throughout the country. At the same time, the number of persons on the company's payroll at the Fort Wayne plant was 181.

Dealer showings held during the last half of September included those by Farrar-Brown Company, Inc., Fortland, Me.; Crest, Inc., St. Louis; R. D. K. Distribution Company, Louisville; Straus-Bodenheimer Company, Houston, and Smith and Hirschmann, Rochester, N. Y.

Among the recently appointed Farnsworth distributors are Texas Norge Sales, Dallas; South Texas Appliance Corp., San Antonio; Jena-Byrd Co., Spokane, and Valier Sales Co., Lacrosse, Wis.

Appointments of distributors are pending at New Orleans, Memphis, Omaha, Minneapolis, Salt Lake City, Los Angeles, Seattle and Atlanta.

Philco Models Adopt Furniture Style

A new type of radio furniture, designed to meet the demands of those who favor flowing lines, has been adopted for many of the new Philco radio models, according to Sayre M. Ramsdell, vice-president of Philco.

"This innovation in radio styling," said Ramsdell, "has been appropriately named the Cascade type, because the rounded undulating lines continue their graceful flow and are not interrupted by sharp angles.

"In addition to the great service the radio performs," said Mr. Ramsdell, "it probably is the most universal piece of furniture in the American home today. Because of this, it has become a responsibility of the radio industry to see that radio design takes this fact into consideration."

"The final result of continuous sur-

rawhide for Radio Cabinets

Beauty, distinction and craftsmanship rarely are combined so interestingly as they are in this radio cabinet covered with "Genuine Rawhide by Gutmann." This rawhide is made from the hides of carefully selected cattle, specially processed to make it practical for covering radio cabinets. To the radio setmaker who wishes to offer his trade something really individual, eye catching and handsome beyond the usual, rawhide in the "natural" or in colors offers interesting opportunities. The cabinet is a product of the Churchill Cabinet Company, Chicago... and the rawhide was supplied by Gutmann & Company, Inc., Chicago.

Write either or both for details.

Leon Adelman on "grand tour" for Cornell-Dubilier

No press agent for Ringling ever took to the road with a busier schedule than Leon L. Adelman this Fall. The genial Leon, who heads up sales and advertising for Cornell-Dubilier, was off in September on a whirlwind tour that will take him, before January 2, into practically every state east of the Rockies, with important stopovers in each. There is even a provision in this streamlined sales promotion for a Christmas holiday in Miami, Fla.

"We like to think of Mr. Adelman setting out on this tour de force of his, weighted down somewhat more than usual with skis and swimming tube, a good warm overcoat and a couple of summer 'tropicals,'" writes B. M. Relass. "We like to think of him back at his desk, day after New Year's, brown as a berry, except for those two telltale patches of white around the lobes where his ear-muffs were. We don't envy Leon his travels. We prefer working here at home where you suffocate and freeze pretty much on schedule. But then, we haven't the energy, aggressiveness and zest for sales promotion of Cornell-Dubilier's No. 1 Salesman. Few men have."
Thordarson Leads

Forty-four years building the finest transformers in the world, has given Thordarson the technical background necessary for the production of quality Sound Equipment. These Thordarson Amplifiers are truly Sound Leaders of Today.

8 Watt Amplifier
* Incorporates selection of output impedances; field supply independent of filter circuit; individual control of microphone and phone for complete mixing; high gain for high impedance crystal, dynamic and velocity mikes. $39.50 list—Thordarson.

14 Watt Amplifier
* Low frequency booster circuit which accentuates tones in the vicinity of 40 to 50 c.p.s. Reproduces with true fidelity. Except for the base boost the frequency response varies less than ± 1 db from 30 to 15,000 c.p.s. $57.50 list—Thordarson.

20 Watt Amplifier
* Powerful. Compact. Four-stage circuit incorporates inverse feedback. Mixing of microphone and phono channels is free from cross-talk or interaction. Separate bass and treble tone controls. Available in 2-speaker carrying case. $75.00 list—Thordarson.

28 Watt Mobile
* Compact “Universal” portable operates from 115v AC or 6v storage battery. Standby switch leaves filaments connected—eliminates warm up period. Three input circuits with separate gain controls. Built in phono-motor and pickup. $180.00 list—Thordarson.

30 Watt Amplifier
* In handsome walnut cabinet. Four-stage circuit with inverse feedback insures “distortionless” operation at full output. Output impedances match almost any speaker combination. $110.00 list—Thordarson.

45 Watt Amplifier
* Three high-impedance, high-gain microphone channels are separately controlled—may be mixed together or with the high-impedance phono channels. Two phono inputs. Two separate channels incorporate compressor and expander circuits. $180.00 list—Thordarson.

75 Watt Amplifier
* Deluxe equipment. Four-stage amplifier circuit featuring a unique mixer circuit and doubly effective inverse feedback. Independent mike and phono controls mix without interacting. Booster circuit emphasizes frequencies below 100 cycles. $79.50 list—Thordarson.

For complete technical description of these amplifiers, ask your distributor for Catalog 600-D published by Thordarson Electric Mfg. Co
Selling Sound

Many uses for sound systems offer opportunity to serviceman and dealer. How to get started in this profit-field.

Sound installations and the renting of equipment have become important parts of the radio-man’s business.

Modern sound reinforcing equipment so improves the ability to hear, understand, and enjoy group entertainment that it has become a very necessary part of public gatherings.

Any good radio-service man with a knowledge of acoustics can step into the lucrative sound field. Hundreds of applications present themselves, and even in small towns the radio-service man has opportunities offered in few other occupations.

PROFIT WITH SMALL JOBS

On other pages of Radio Today are typical installations that provide the profit gravy, but the bread and butter money is to be found in the everyday applications which the sound man can promote with a little effort.

Pictured on this page are three of the many different uses for sound equipment.

The method to use in tackling a school job is to analyze the requirements of the installation, draw up a set of plans for the type and amount of equipment necessary, and present a concrete layout for the job. Here approach with the idea that “the school could use a sound system” is doomed to failure.

DOUBLE-DUTY EQUIPMENT

The serviceman or dealer can select one of the many good sound systems on the market and develop the public-address possibilities in his area.

Several manufacturers are offering systems that operate from 6-volt DC sources and 110-volt AC current. Such an amplifier will serve double-duty as a mobile and fixed system.

In larger centers, several P.A. systems can be rented to churches, schools, lodge-clubs, and many other organizations. For smaller towns, one system may be sufficient for the requirements.

Outdoor concerts are better with a good sound system. Here, Rubino’s uses Kontak mikes to entertain crowd at Moline, I11.

Renting of P.A. equipment can be as profitable as sound installations. Where several systems are being rented, a group of young men can be trained as operators. By using trained men, the system will perform better, and bring in new business.

Survey the prospects for “better sound,” select a good P.A. system that is applicable to your needs, and thus develop your profits.

MANY OUTDOOR JOBS

The outdoor jobs for sound equipment are manifold. Fall festivals, political meetings, musical concerts, and auctions are but a few of the possibilities.

The picture of Rubino’s playing his violin for the Mississippi Valley Music Festival is typical of this popular field for sound equipment. Protected from the rain by an umbrella, Rubino used an Amperite Kontak mike through a sound system installed by E. H. Gordon of Moline, Ill.

(Continued on page 50)

School functions require sound reinforcement for ample coverage. Chandelier type speakers cover this gym.

Schools and colleges are perfect prospects for sound equipment from both the renting and buying standpoint.

With the football season here and basketball a few months away, school athletic fields, and gymnasiums need amplifying equipment. The gym pictured here is sound-covered by chandelier-type Atlas speakers. School dramas are greatly aided with a P.A. system that can offer realism to amateur plays with sound-effects. Class rooms, lecture halls, and cafeterias are more efficient with a radio-sound system.

Mobile sound systems are money makers in elections, advertising campaigns, and safety drives.
Beebe to Thordarson Post

Thordarson Electric Mfg. Co., has announced the appointment of J. R. Beebe as assistant sales manager. Beebe has been representing Thordarson in the middle western states since 1934.

Wilcox-Gay Jobbers

Distributor appointments for exclusive territories announced by Wilcox-Gay Corp. this month include: York Supply Co., 517 W. Third St., Cincinnati, O.; Appliance, Inc., 233 N. Third St., Columbus, O.; Ohio Valley Sound Service Co., 2024 Pennsylvania St., Evansville, Ind.; National Mill Supply Co., Fort Wayne, Ind.; and the Geo. D. Barby Co., 454 Walnut St., Reading, Pa.

Ulrich Heads Hytron Renewal-Tube Sales

Vinton K. Ulrich, sales manager of the Hytron Laboratories Division, has been appointed renewal-tube sales manager of the Hytron Corporation, Salem, Mass.

As sales manager, Mr. Ulrich will work with Hytron jobbers in setting up a more stabilized condition in the replacement tube field. As of October 2, the Hytron Corporation announced a schedule of new low list prices set up to make the sale of tubes profitable to everyone concerned, thus giving the public more value for their money.

Furthermore, the Hytron Corporation is advocating that service charges and labor be charged for as such. To further help the serviceman, the Hytron Bantam "GT" series tubes are now coming equipped with metal shields so as to make these tubes interchangeable with metal types as well as the regular "G" series tubes. In this way it is possible to use one tube to replace what formerly required three tubes.

"The reduction in inventory, made possible by using the Hytron Bantam tubes," Mr. Ulrich points out, "results in additional profit for the distributors, dealers and servicemen alike, since by reducing the stock, turnover is greatly speeded up."

If you're any judge of materials and workmanship, you can recognize quality in the Cinaudagraph speaker. But there's more to Cinaudagraph's success than what you see on the surface. Actually, it's what stands behind this complete line of permanent magnet and electrodynamic speakers that counts most. It's the years of research and experiment, of design and assembly and rigid laboratory testing—all performed under one roof by trained engineers expertly supervised every step of the way. That's why today, Cinaudagraph is the world's outstanding speaker line.

Profits come biggest where volume sales come quickest. The turnover is rapid on Cinaudagraph speakers because every sale means a 100% satisfied customer. And you know what they say about satisfied customers—"your best advertisement".

There is a Cinaudagraph speaker for every indoor and outdoor job, in both electro-dynamics and permanent magnets from 5" to 27". Send for new catalog today.
Hotel dining and dancing spots need high-quality sound systems. Here, flat-baffled speakers on either side of the band stand give wide-angle sound coverage. Velocity mike used for vocal pick-up. "V" concentration of sound covers sides and rear.

Typical Sound Installations

2. Night Clubs and Restaurants

Equipment and methods to use in these profitable jobs

The increasing popularity of night-clubs, road-side restaurants, and similar entertainment - with - your - meal spots, makes the use of good sound systems a necessity.

Dinner music, vocal entertainment, and announcements are more enjoyable when they can be heard without effort. Good sound coverage puts the entire room on a parity with the best "ring-side" seat. No longer need certain parts of the room be shunned because of poor acoustics, for well-planned sound systems can overcome these defects.

Lodge clubs are excellent prospects for sound systems because of the widespread activity they embrace. Dances, plays, and initiations, are but a few of the things that can be more successful with sound equipment.

Skating rinks require PA systems just as much as they need skates. The extremely high noise level makes it necessary to use moderate to high power equipment with diversified sound outlets.

MANY NEEDS FOR SOUND

Night-clubs, restaurants, and lodge clubs need good sound reinforcing systems for one or more of the following reasons.

1. Modernistic room-layouts and decorative materials are "acoustic hazards." Low ceilings, hard finished floors, etc., all affect natural sound coverage.
2. Usual noise-level is too high for un-aided voices, small orchestras, and solo instruments.

2. The dance floor being near the orchestra dare, places the audience so far back that much of the aural entertainment is lost.
3. The tonal quality, strength, and versatility of a PA system fills a definite need in this field of public entertainment.
4. A good sound system attracts customers because hearing is a pleasure and not a task.

CONSIDER TYPE OF SERVICE

The type of service into which a sound reinforcing system is going and the type of people who are going to operate it, are very important points to consider when selecting and installing this equipment.

Equipment used in night-club type of service is generally handled by untrained personnel. The system is turned on early in the evening and operated continuously into the small hours of the morning. These facts call for well designed amplifiers, speakers, and microphones. The factor of safety for such material should be high to give long-range satisfaction.

Restaurant service is similar to the night-club operation in the continuous hours of service demanded of the equipment, and in the general type of personnel handling the system.

Lodge clubs are less strenuous on the equipment since they usually have

Wall serves as flat-baffle for speakers used in this lodge-club dining room. Velocity mikes used in band-shell on left and speakers' table on right.

RADIO TODAY
a handy-man or electrician who takes care of the PA system.
The types of equipment that are needed for night-clubs, restaurants, lodge halls, and skating rinks, are all similar and vary only in small details.

**BASIC EQUIPMENT NEEDED**
For the average night club, the following equipment is essential.
1. Amplifier of proper power rating. (See chart on page 36 of Radio Today for August 1939.) The amplifier should have at least a 4-channel input.
2. A sufficient number of speakers to handle the amplifier power, and to distribute the sound uniformly.
3. One non-directional mike for orchestral pickup. The frequency response of this microphone should be broad and as "flat" as possible.
4. One directional mike of good quality for pickup of singers and general vocal sounds. The very high and very low frequency response of this mike is not particularly important since voices do not extend into these regions.
5. One contact mike for pickup on guitars, and other solo instruments.
Additional equipment that will prove extremely useful and at the same time make the system more versatile, includes:
1. Lapel mikes for singers, actors, and announcers.
2. Phono turntable useful in intermissions, etc.
3. Spare mike of a universal character permitting its use as a directional or non-directional pickup.

The equipment needed by a restaurant depends upon the type of entertainment to be given. If an orchestra is used, the equipment will remain the same as the night club. Since vocal entertainment is not used as much in restaurants as in night clubs, a directional mike for vocal pickup may not be necessary. The lapel and spare mike may also be eliminated.

If the musical entertainment is to be furnished by recordings, two turntables are advisable. By using two turntables and channel mixing, the musical program may be continuous, just as two projector movies are continuous.

Lodge clubs will need the same equipment listed for the night club. The phono turntable is most useful to this type of installation. Sound effects for stage productions and initiations are big selling points for PA systems in this type of service.

Skating rinks will require the amplifier, speakers, and turntable. A good microphone for announcements is also required.

(Continued on page 50)

---

**TYPICAL NIGHT-CLUB SOUND INSTALLATION**

Good sound coverage is product of careful planning. Typical layout with box-baffled speakers focused on point five-feet above center of rear wall. Keeping sound from reflecting off dance floor reduces possibility of feedback. Three high-gain input channels necessary for ample pick-up on band-shell.
VOLTAGE AND POWER LOSS IN MIS-MATCHED IMPEDANCES

EXAMPLE:
30 db (6 WATTS) LEVEL IN 15 \( \Omega \)
LINE TO 8 \( \Omega \) SPEAKER
\[
\frac{Z(\text{LOAD})}{Z(\text{OUTPUT})} = \frac{8}{15} = 0.534
\]
FROM CURVE - LOSS = 0.4 db
POWER OUTPUT = 29.6 db
OR 5.46 WATTS

FOR SIMILAR IMPEDANCES ONLY

RATIO OF Z (LOAD) TO Z (OUTPUT)
Voltage and Power Loss in Mis-Matched Impedances

Probably no subject in radio has been more discussed than matched or mis-matched impedances. The sound man has been told that it is a cardinal sin to have the speakers of one impedance and the line feeding them of another value.

The full page graph in this issue shows just what effect various ratios of load to output impedance have on the power transferred and the voltage appearing across the load impedance.

Since power can only be dissipated in a circuit containing resistance, the impedances to be matched must be similar in character to comply with this graph. By similar, it is meant that the impedances must contain the same ratios or reactance to resistance. The similar impedances must further be qualified by having the reactance of both either capacitive or inductive. While this covers the technical aspect of the graph, it is not a problem for the sound man to worry about. The majority of impedances used by the sound man are nearly pure resistances and will therefore apply.

DIVIDING AMPLIFIER OUTPUT

The advantage of using this graph lies in the dividing of audio power among several speakers. The total output of an amplifier may be divided into any number of unequal parts by selecting the proper ratio of speaker to line impedance.

For example, if it is desired to connect a 6-watt speaker to an amplifier delivering 40 watts into a line, the 6-watt speaker may be taken to load its load and no more by a correct ratio of impedances. Thirty watts corresponds to a power ratio of 10 Log \( \frac{30}{.06} \) or 37 db, and 6 watts corresponds to 30 db. The loss in power will be 7 db. Using the graph, it is seen that an impedance ratio of 16.5 will give the loss of 7 db. The speaker impedance should be 16.5 times the line impedance.

The curve for voltage loss is useful in matching microphones to amplifier inputs. It is apparent that the larger the load impedance is with respect to the microphone impedance, the greater will be the voltage across the load. Since a microphone does not furnish power but merely swages the grid voltage, it is important to have a high load to output impedance ratio.

For quick estimation remember that a loss of 3 db in power is a loss of 50 per cent, and a loss of 6 db in voltage is also a loss of 50 per cent.

Other uses for the chart will present themselves as it is used.

New Uses for Chattabox Communicators

By including a station-selector switch on the Crosley “chattabox” inter-communicators, the units are now universal in application as a wireless or wired unit. Each unit is a master station with a possible selection of 15 other stations. As a wired system, a single insulated lead is all that is required from one station to another.

Individual gain control is possible with these units acting as master stations on the wired system.

A brand new use for these communicators is a department store or factory signal call system. A distinctive oscillating tone may be used, when the gain controls are advanced to maximum position, to signal departments or persons in a manner similar to the bell systems now used. Being wireless in operation, the system fits well into old buildings not wired for such service.

The improvements in the “chattabox” have been made by the sole distributors, Amplifiers Distributors Corp., Chrysler Bldg., New York, N. Y.

Designing Degenerative Amplifiers

The effect on gain of an inverse-feedback amplifier may now be quickly calculated with the aid of the graph prepared by the Hygrade Sylvania Corp.

The chart is plotted for normal amplifier gain vs. degenerated amplifier gain for different ratios of feedback voltage varying from 0.02 to 0.55. Included with explanatory text, this material should be useful to the sound man in designing or revising amplifiers to give the higher quality possible with inverse-feedback.

SOUND BUYERS

STOP
LOOK
AND LISTEN

and wonder at the marvelous convenience of the full length microphone stand, made in three sections to pack neatly under the false bottom in Webster-Chicago portable sound systems. Imagine the sales appeal you’ve got in that point alone, for band leaders, funeral directors, and every other user of portable systems.

at the astonishing flexibility of the new Webster-Chicago AMPLICALL intercommunicating and paging systems. Master stations may call any others up to 40, by the touch of a button; even remote stations can call any of THREE masters. Every industrial plant striving for speedier production is an AMPLICALL prospect!

to the big news in Mobile Sound—the Webster-Chicago Master Systems. From any position in the audience you can mix two microphone inputs, and control tone. Turning off a remote microphone automatically shuts off plate supply, to save battery current. They’re ideal for rentals!

WEBSTER-CHICAGO

The Sound of Tomorrow

If you haven’t seen the new, complete “Sound of Tomorrow” Catalog No. 139, send in the coupon now. The Webster Company, 5622 Bloomingdale Ave., Chicago.

The Webster Company, Sec. 0-9 5622 Bloomingdale Ave., Chicago

Send the new No. 139 Sound Catalog

OCTOBER, 1939
New Sound Products

New Equipment for Every Sound Job

Fairchild portable recorder
* Dynamically balanced, 16 lb. turntable is gear driven from a synchronous motor for 78 or 33 1/3 RPM. Crystal cutter head and crystal pickup are operated by a high fidelity amplifier. Adjustable pitch of 98 to 161 lines per inch. Model F-26-2 Fairchild Aerial Camera Corp., 88-06 Van Wyck Blvd., Jamaica, L. I., N. Y.—Radio Today.

Erwood amplifier
* Model 2418-A is an 18-watt amplifier adapted for general PA work. Input channels for two mikes or one mike and one phono. Circuit with 7 tubes is housed in steel case. Flame resisting wiring used. Erwood Sound Equipment Co., 224 W. Huron St., Chicago.—Radio Today.

Universal recorder

Webster Electric PA system
* Versatile sound system with removable amplifier for permanent location. Speakers and amplifier are entirely separate independant units for use alone or together. Power output is 15 watts, and features include AVC, dual tone control, power gain of 129 DB for mikes and 79 DB for phono. Frequency range is within 3 DB from 45 to 10,000 cps. Webster Electric Co., Racine, Wis.—Radio Today.

Operadio portable PA system

Transducer mike
* High-sensitivity dynamic microphone with directional pickup characteristic has alnico magnet, black bakelite case, chromium-plated swivel yoke, and 25-foot cable. Average output, —49 db. May be used as speaker. Available in 200, 500M ohm impedances and 50 and 500M ohms on special order. Transducer Corp., 42 W. 48th St., New York, N. Y.—Radio Today.

Astatic crystal pickup

Atlas mike plug-connector
* New microphone cable terminal is a combination plug or screw-cap connector. Removable male plug is of riveted construction and cable connection is made to screw-cap unit. Adjustable grip spring extension makes positive ground connection to cable shield. Amplifier input terminals are of the shorting and open circuit types. Atlas Sound Corp., 1447-51 39th St., Brooklyn, N. Y.—Radio Today.

Thordarson amplifier
* Featuring handsome steel cabinet, this 14-watt amplifier has multiple stage inverse feedback and low frequency booster. Linear response to 15,000 cps. High-fidelity amplifier lists at $57.50. Thordarson Electric Co., 500 W. Huron St., Chicago, Ill.—Radio Today.
Burlingame Appointed by IRC

Bruce Burlingame, well-known manufacturers' representative with headquarters at 69 Murray Street, New York City, has been appointed by the International Resistance Company, 401 North Broad Street, Philadelphia, to handle IRC fixed and variable resistance products to the jobber and industrial trade. His territory will comprise parts of Eastern Pennsylvania, Maryland, Delaware, New Jersey and the District of Columbia.

Meissner Develops New Vibrator

G. V. Rockey, v.p. and general sales manager, Meissner Mfg. Co., has announced that his company has developed "an entirely new vibrator which life tests prove to be of exceptional value." Shipments on the new product were started September 8th and preliminary reports from the field are most satisfactory, said Rockey.

Meissner statements reveal that at the end of the fiscal year, September 30, their jobbing division showed an increase of 32 per cent over a similar period a year ago and the month of September was the largest in the history of the jobber division.

GE. to Manufacture Radio Equipment and Accessories

With the revision of its radio patent agreement, General Electric has announced that it is now licensed to manufacture and sell, and will immediately offer television and frequency modulation transmitters including G-E tubes as standard equipment. Also available will be complete studio and control room equipment—lights, cameras, controls, monitors, and antennas. The license also covers transmitters and receivers for purposes other than television and frequency modulation. Transmitting tubes for replacement in G-E apparatus and for certain specialized applications are available at present, and after January 1, 1940, they will be on sale for nearly every purpose.

New Radio Parts Supply in Roanoke

The H. C. Baker Sales Co., 19 Franklin, Roanoke, has recently opened a wholesale radio parts department, with supplies for radio dealers, servicemen, experimenters, and amateurs in southwest Virginia. A complete stock of replacement parts is carried for all makes of radio receivers, radio transmitting equipment and sound systems. The officers of the new company are: Alfred B. Geer, president, and James H. Davie, secretary-treasurer.

How to stop feedback in P.A. set-ups!

With the 3-in-1 Cardioid Directional Mike you have pick-up control formerly impossible.

It provides new flexibility—gives you a ribbon mike or a dynamic mike or both, matched and equalized to offer a new high in clarity and fidelity. It has a large dead zone, minimizing feedback. It's ideal for any and all Public Address set-ups, as well as for broadcasting. Get full details. Send the coupon today.

639A MIKE SOLVES YOUR TOUGHEST PROBLEMS!

Western Electric CARDIOID DIRECTIONAL MIKE

Please send booklet describing Western Electric's New 639A Mike.

NAME______________________________

ADDRESS______________________________

CITY____________________STATE_________

GRAYBAR ELECTRIC CO., Graybar Bldg., New York. 

OCTOBER, 1939
A R Speaker Enclosure

You can not use a speaker with a very large flat baffle for the average indoor installation because of its excessive size. The A R Speaker Enclosure gives you the high grade sound of a speaker using a large flat baffle, but has been made compact and attractive for inside sound work. The beautiful two-tone grey finish blends with any decorative scheme.

For complete details address Dept. RT10

More Sound Products

Amperite streamline mike

* New line of streamline microphones feature station-type plug designed to eliminate breaking of the cable at the plug. Increased damping of mounting reduces shock noise. Amperite Co., 561 Broadway, N. Y. —Radio Today.

Wilcox-Gay recorders


University dual speaker

* Model WCC hf and if speakers uses separate driving units and electrical filter networks. Non-resonant rubber tired rims. 60 to 10,000 cycle range over wide angle. Highs through cellular bell and lows through trumpet. University Labs., 185 Chrystie St., New York, N. Y. —Radio Today.

Ward sound system

* Special microphone, amplifier and speaker mounted in a single case make compact unit for public speaking. Illuminated manuscript stand built into top of case. Crystal mike. Amplifier provides 15 to 18 watts power. Eight inch P.M. speaker. Phone input jack and extra speaker sockets provided. Montgomerie Ward Co., W. Chicago and N. Larr Sis., Chicago. —Radio Today.

RCA auto-record changer

* Automatic record changing mechanism has top loading crystal pickup, and plays 7 twelve-inch records or 8 ten-inch records. Plays any size records manually. May be attached to any radio-phonograph with sufficiently large cabinet. Motorboard dimensions, 14 x 11½. No. 9865 lists $44.50. RCA Mfg. Co., Camden, N. J. —Radio Today.

WHEN QUALITY COUNTS

THE CARRIER DYNAMIC MODEL 702-D

For Broadcasting, Recording, Reinforcing

Here is an instrument of striking professional appearance and outstanding performance. It features the new "Acoustic Equalizer"—an exclusive Carrier development—which makes possible a response curve whose linearity surpasses that of other types. Other features include: Wide range performance. High-powered, sealed cabinet construction.

Response ±1/2 db. 30 to 10,000 cycles.

List Price: 30 ohms...$60.00; 200 to 600 ohms...$68.50

Free catalog 108 fully describes this other Carrier microphones

CARRIER MICROPHONE CO.

493 S. Los Angeles Ave.
INGLEWOOD, CAL.

15 EAST 26th STREET, NEW YORK, N. Y.
• Leading The Parade of New Sound Products

Atlas "Hold-Tite" Connectors
They're the handiest . . . speediest . . . easiest to use shielded connectors yet designed for the man who is interested in sound. The new Atlas line features the multi-purpose "Duo-Plug" Connector (P-2 and F-1), which is the ONLY telephone type plug offering a reliable means of attaching the shield of single conductor cable. The "Duo-Plug" connector . . . male line connectors . . . and as a complete unit for Jack type inputs. Why not make better sound connections by using Atlas "Hold-Tite" Connectors?

• Send For FREE Fall Catalog
Jobbers . . . P. A. Men! Write for your copy of the new Atlas Fall Catalog describing "Hold-Tite" Connectors and a complete line of sound equipment and accessories.

ATLAS SOUND CORPORATION
1451-A 39th Street Brooklyn, N. Y.

JIM QUAM Says

Well, they are at it again! It seems strange to me that the European nations can be so harmonious when they are all at war. The radio manufacturer is facing new problems with no precedent for guidance. To the man who needs new ideas the manufacturer must have new ideas. But the manufacturers must have new ideas for the man who needs new ideas. The manufacturers must have new ideas for the man who needs new ideas. The manufacturers must have new ideas for the man who needs new ideas.

QUAM-NICHOLS CO.
33rd Place & Cottage Grove
CHICAGO

QUAM SPEAKERS

OCTOBER, 1939

Clarion sound system
* Complete system rated at 16 watts uses beam power tubes in push-pull for total gain of 113 db in mike channel. Frequency response from 40 to 9500 cycles and output impedances from 2 to 500 ohms. Two 10-inch PM speakers and a choice of one of five modern mikes are included with the floor stand, and wall baffles. Model C-418. Transformer Corp. of America, 69 Wooster St., New York, N. Y.—Radio Today.

Shure uniphasic mike
* Uni-directional crystal or dynamic microphones with cardiod pickup pattern are useful in sound installations troubled with feedback. Available in Model 720A uniphasic crystal type and series 55 unidyne, dynamic type. Shure Bros., 225 W. Huron St., Chicago.—Radio Today.

Webster Electric crystal pickup
* X-70A series crystal phonograph pickups have frequency response from 50 to 8500 cps and operate with 2.5 ounce needle pressure. Arm assembly is rubber cushioned to prevent "mechanical reproduction." Single hole mounting. Webster Electric Co., Racine, Wis.—Radio Today.

Smooth Performance for P.A. and Recording

New #630

DYNAMIC MICROPHONE

Modern in its functional design, tiltable for directional or non-directional pick-ups, this new "630" is suitable for all modern amplifiers . . . readily adaptable to high fidelity music and speech pick-up.

Rugged in construction . . . made entirely of metal and bakelite, it is impervious to heat, temperature changes, rough handling and salt air . . . a "natural" for service in tropical climates.

* FREQUENCY RESPONSE: 40-9000 c.p.s. with rising characteristic on upper end of curve.
* OUTPUT: -56 db. (open line), Standard output impedances include Hi-Z, direct-to-grid.
* VOICE COIL: Hand drawn aluminum wire for lightness, insulated with Polystyrene.
* MAGNETIC CIRCUIT: Large alnico magnet with Armco magnetic iron pole pieces.
* DIAPHRAGM: Heat treated Durev.
* TRANSFORMER: Built-in in all models except 50 ohm. Core material has extremely high permeability.

Available in both chromium and light gunmetal finishes. Full equipment includes a three contact locking connector, 20 ft. low capacity cable, on-off switch and tilting stand mounting.

630-GM (gunmetal) list price $25.00
630-C (chromium) list price 27.50

See this new "630" at your local radio parts distributor. Write for complete details.

ELECTRO-VOICE MFG. CO., Inc.
1239 SOUTH BEND AVE.
SOUTH BEND, INDIANA
SOUND IN NIGHT CLUBS
(Continued from page 43)

Amplifiers for night clubs, restaurants, and lodge clubs should have
good frequency response from approximately 50 cycles to 10,000 cycles.
Bass and treble "booth" controls are handy and
will find a lot of use. In skating
rink service, the wide range of fre-
quencies is not quite as important, but
the amplifiers should be able to cover
the range of the usual record, 100 to
8,000 cycles.

Four channels are necessary in the
amplifiers used at night clubs, lodge
clubs, and restaurants. Two channels
are usually sufficient for the skating
rink amplifier; one for a mike and the
phono into the other. It is a good idea
to count on future expansion of the
system and allow an extra channel.
Pre-amplifiers may always be added,
however, with the additional mixing
channels.

Speakers for restaurants, night clubs
and lodge halls should not be objec-
table from a decorative standpoint.
Flat and baffle speakers blend in
with artistic surroundings most easily.
The choice between electrodynamic
and permanent magnetic units is a
matter of personal preference. The
better grades of both types will give
excellent results. Where the speakers
are located at some distance from the
amplifier, the permanent magnetic
type may be more desirable because of
the simplified wiring.

USE LARGE SPEAKERS
The sum of the speaker power ratings
should total to 1.5 or 2 times the
average power to be used in the in-
stallation. By using speakers of larger
power capacity, the quality of repro-
duction is better since the speaker is
not overloaded on high-volume levels.
The subject of what type of micro-
phone to use is discussed in this
article permits. All of the better
grades of mikes are quite applicable
to this type of installation. Certain type
of microphone is more rugged me-
chanically, and these should be used
where rough service is likely.

Turntables vary a good deal in qual-
ity. For continuous use, as in res-
aurants and clubs, the type used
in a 15-watt, 2-channel amplifier is
used with inputs from a ribbon mike
and a contact mike.

The speaker and infinite baffle in the
night club layout were supplied by
Atlas Sound Corp., Brooklyn, New
York. The other installations pic-
tured here were made by Commercial
Radio and Sound Corp., New York, N. Y.

SELLING SOUND
(Continued from page 49)

Sound trucks are very versatile and
are profit makers for the owners. Po-
litical campaigns, police safety cam-
paigns, motion picture, and merchan-
dise advertising keep P.A. trucks busy.
The most recently installed is owned by
John A. Barnett, Niagara Sound Sys-
tems, Niagara Falls, Ont. A 40-watt
Operado amplifier drives the two Uni-
versity speakers mounted on the roof.
The speakers are set in such a man-
ner that they may be "aimed" in
any direction. A 360-watt AC MG set is
used in a sound-proof compartment
to supply the power.
**BEST BUY in Wireless INTERCOMMUNICATING Systems**

**CROSLEY CHATTOBOX**

$24.50 per pair, consisting of TWO COMPLETE MASTER STATIONS.

Complete two-way wireless loud speaking system. Perfect for offices. Plug into any 110 volt socket, AC or DC. Equipped with CALL-LISTEN-TALK switches and volume control. Write for information or catalogue.

SOLD ON 10-DAY TRIAL WITH MONEY-BACK GUARANTEE. ORDER TODAY. JOBBERS, DEALERS AND DISTRIBUTORS WRITE FOR SPECIAL QUANTITY PRICING.

AMPLIFIERS-DISTRIBUTORS CORP.
DEPT. R.T., CHRYSLER BLDG., NEW YORK
Sole Distributors of the CROSLEY CHATTOBOX

**UNIVERSITY “NON RESONANT” LOUDSPEAKERS will help you**

Round out your sound picture

**UNIVERSITY**

Our biggest selling feature is "NON RESONANT" Exclusive with University

But don't forget . . . .
Only University has ALL the following features:
- Absolutely Non Resonant under all conditions
- Efficient enough to cut amplifier cost in half
- 25 watts power rating cuts down number of speakers
- High acoustic output overcomes worst background noise
- Totally waterproof under all climatic conditions
- Uniform frequency response eliminates "Microphonics"
- Unbreakable diaphragm increases life of installation
- Razor sharp clarity on voice reproduction

**UNIVERSITY LABORATORIES**

195 CHRISTIE STREET, NEW YORK CITY

---

**Majestic Volume Expander and Bass Compensator**

The circuit diagram shown is the new expander-compensator invented by C. J. Hirsch, Chief Engineer for Majestic Radio and Television Corp. The circuit is being incorporated in the 1940 Majestic radios.

Automatic volume expansion is obtained by controlled degeneration through the 6U7 tube. A portion of the voltage appearing across the speaker voice coil is fed to the grid of the 6U7 and the bias and gain of this tube is controlled by the rectified signal voltage furnished by the 6Q7. When the input audio signal across the volume control is small, the bias on the 6U7 is high and the amplification of this tube is high and degeneration reduces the speaker output. Small audio signals are therefore reduced to a greater extent than large signals. C1, C2 and C4 regulate the bass response of the amplifier. Frequencies below the resonant period of the speaker are amplified more at low levels than at high volume giving bass compensation.

**German Electrical Exports Shown**

A detailed tabulation of exports of electrical equipment from Germany for the year 1938 which were valued at about $134,385,000 has just been prepared and made available by John H. Payne, chief, electrical equipment division, Department of Commerce. Two tables are included, one showing total German electrical equipment exports to all countries of the world and the second showing a detailed breakdown by commodities and countries.

The information is designed to inform American manufacturers and exporters of electrical equipment of those countries which may seek new sources of supply should the present European conflict continue to restrict exports from Germany.

---

**HERE’S WHERE THE Big Profit IS IN “SOUND”**

Read about this foolproof sales plan that hands the sound business—and the profit—back to the sound distributor lock, stock and barrel!

The men making the big money in public address today are members of the nation-wide, fast growing Clarion Institute of Sound Engineers. For C.I.S.E. represents an air-tight merchandising plan that assures profits to sound distributors who qualify.

**If you can qualify**

as a member of C.I.S.E., you enjoy factory purchasing power; exclusive territory; free P.A. engineering and consultation service; prepared national advertising and local sales promotion; furnished leads—a complete merchandising set-up, making the sale of “Sound” practically a profession, and you the authorized C.I.S.E. representative in your area.

**What to do**

Mail the coupon today. It is your application for membership in the C.I.S.E. It will bring you full details of this sensational BIG profit-opportunity that costs you nothing. Does it work? Last year C.I.S.E. members increased Sound sales 500 per cent! Act at once—remember, only one C.I.S.E. representative to a territory. Send this coupon today!

**Clarion Institute of Sound Engineers**

69 Wooster Street, New York

---

New recording products are illustrated and described in catalog No. T.B. Mike, amplifier, motor, remote speaker, and crystal play-back arm for use with the basic Speak-O-Phone recorder mechanism. Speak-O-Phone, 26 W. 60th St., New York, N. Y.
The amount of RF gain that a receiver can offer to the minute signals picked up by the antenna, largely determines the efficiency of reception. The RF stage improves the selectivity of any receiver and serves as the most efficient protection against "image" reception in superheterodynes. As explained in "Image Interference in Superhets" (September, Radio Today), the RF stage(s) keeps unwanted signals from beating with the local oscillator signals by attenuating, or reducing, the strength of all signals not "tuned-in" by the stage.

**TEST HIGH MU TUBES DYNAMICALLY**

A typical tuned RF stage is shown in Fig. 1.

The tubes used for RF amplifiers are of the high transconductance type, such as the 6D6, 6K7, 78, and 1562. Transconductance or mutual conductance is a measure of a tube's controlling ability, i.e., the ratio of a small change in plate current to the change in the grid voltage causing it; all other things remaining constant. The small changes effected in the grid voltage by the signal, therefore, create quite large variations in the plate current. The mutual-conductance of the typical RF amplifier tube is in the order of 1,000 to 1,500 micromhos and may be calculated from the plate resistance and the amplification factor for the particular operating point for the tube:

\[ g_m = \frac{a}{R_p} \]

Expressing this formula in words: Mutual conductance = Amplification factor \( \times \) Plate Resistance

Another characteristic feature of RF amplifier tubes (the pentodes in the more recent sets) is remote cut-off. Remote cut-off refers to the amount of negative grid bias required to reduce the plate current to zero and in the case of these super-control tubes, the cut-off bias is 15 to 20 times the normal operating bias. The advantage of this remote cut-off feature is that the gain of the stage may be varied over wide limits by changing the grid bias, and that large signals will not make the grid so negative that cut-off occurs with consequent distortion. The "bend" in the characteristic curve is not serious as a factor of distortion, since the small signal voltages usually handled do not swing the grid over a very large portion of the curve.

In testing high gain tubes such as those used in RF stages, a dynamic mutual-conductance test is the most conclusive. An emission test will prove little in determining the fitness of a high gain tube for RF amplification.

A straight mutual conductance test is better than an emission test but the AC voltage impressed on the grid during a dynamic conductance test more closely simulates actual operating conditions.

**BY-PASSES GIVE MOST TROUBLE**

The most common difficulty with RF stages is by-pass condenser failure in the screen grid circuit. The effect of the shorted condenser is to kill the stage although the set may be delivering a signal at the speaker, since enough signal energy is fed through the capacity of the tube to the next stage to operate the set. Where several tubes get their screen grid voltage supply from a common divider network as shown in the Fig. 1, by-pass condenser failure will reduce all screen voltages to zero and at the same time lowers all other plate and screen voltages, because of the greater current drain through the choke, speaker field, series dropping resistor, etc. Shorting of the cathode by-pass condenser will increase the volume of the signal, but the distortion will be very great. The reason being that the pentode tube must be operated at a certain minimum negative bias, and shorting the bias resistor out puts the grid at zero potential (in non-AVC sets).

In many of the older sets, the volume

---

**Fig. 2—Basic types of RF control circuits used for control of volume or sensitivity. Left diagram shows the series bias control. Plate current through variable resistor develops the voltage to make cathode positive. Right circuit shows bleeder system to apply positive voltage to cathode.**
control is a grid-bias control in the first RF stage, and in other models it is called a sensitivity control, when the regular volume control operates in the audio circuit. In this type of control circuit, a certain fixed resistance must be in the cathode circuit to put the proper minimum bias on the tube when the variable resistor is set as maximum volume or maximum gain. The size of this resistor may easily be determined from the grid negative grid voltage recommended for the tube and the cathode current. For example, a 6K7 tube should not be operated at an RF amplifier with less than —3 volts on the control grid. The cathode current for this tube will be the load imposed by the test instrument.

The screen grid current for the usual RF tube is quite small, being in the order of 1.5 ma., while the drain of a 1,000-ohm per volt meter is 1 ma. at full scale deflection or 66.6 per cent of the screen current! The usual series dropping-resistor in the S-G circuit is about 100,000 ohms, and the 1 ma. drain of the 1,000-ohm per volt meter would alone cause a 100 volt drop across the resistor. With the screen current added in, the voltage that would be indicated by the meter as being present on the screen grid, would be approximately 50 volts, assuming a 250 volt supply. This reduction in voltage is enough to kill the stage.

When making measurements with a low resistance meter, use the highest range on the instrument that will give a practical deflection. The error in reading the meter at the low end of the scale will be far less than the error resulting from loading the series dropping-resistor with the meter current requirement at full scale deflection. The voltage-drop method used in many receivers is less affected by the motor load since the current through the resistors is large in comparison to the meter current.

**MEASURE GRID VOLTAGE IN CATHODE CIRCUIT**

Plate voltage measurement is less subject to the errors of the screen circuit, since the plate voltage is usually obtained direct from the power supply. The DC drop across the primary of the RF coupling transformer should be in the order of a few volts. The magnitude of the plate voltage is less important in the pentode RF amplifier than is the screen voltage, since it is the screen potential that is the greatest factor in determining the mutual-conductance value.

The control-grid voltage is most accurately measured by putting the meter leads across the cathode resistor including the variable control if one is used in the circuit. This reading gives the equivalent of the negative grid voltage since the cathode is equally positive with respect to their common circuit; the chassis of the set in most cases. If it is attempted to measure the voltage at the grid of the tube with a 1,000 or 2,000 ohm per volt meter, the voltage drop in the high resistance AVC circuit, through which the grid is grounded, will make the readings inaccurate. In sets where AVC is not used, it will, of course, be just as accurate to check the grid voltage at the grid terminal as at the cathode.

Automatic volume control voltages must be checked with extremely high resistance instruments to give any degree of accuracy. Moving coil instruments of at least 20,000 ohms per volt sensitivity or a vacuum tube voltmeter are the most suitable. The magnitude of the AVC voltage varies with the signal, making the grids more negative with respect to the cathode on the stronger signals. The AVC voltage on the grids must not be mistaken for the fixed bias necessary to keep the tubes in the proper operating range. By checking the cathode voltage as well as the grid voltage, the presence of both may be assured.

**VOLTAGE GAIN CHECKS STAGE**

The grid voltage (as measured at its counterpart, the cathode voltage) should be checked with any variable control set in the maximum volume or maximum gain position. The voltage read will be the least negative voltage to appear on the grid and its value should be that given for the particular tube. In the case of a 6K7, this minimum grid voltage is —3 volts.

The actual gain in voltage from the grid of the RF stage to the grid of the succeeding stage is the measure of worth of the amplifier. The ratio of the AC grid voltage on the second stage to the AC grid voltage on the first stage is the voltage amplification of the combination of the tube and coupling unit.

To measure these voltages, the instrument must not draw current from the high resistance grid circuits. The (Continued on page 56)
Selling Service

Keeping the cash coming in with new ideas, methods, and progressiveness

Building Better Service

1. Give your old customers first consideration in busy seasons.
2. Tell customers and prospects about all of your services.
3. Sell trouble prevention service.
4. Keep a neat, orderly service shop.
5. Advertise wisely and consistently.

The fall of nineteen thirty-nine will long be remembered by the servicing fraternity for more than just the events in Europe.

The overnight jump in listening hours per set owner, drove home to listeners everywhere those slightly annoying clicks, buzzes, and “what have you,” that previously “weren’t worth bothering about.”

Everybody’s desire to get the latest war news kept the greater part of the 44,000,000 radios in the United States running from early one morning till early the next, and many set-owners quickly found that their sets were not “delivering the goods.”

None too good on even U. S. broadcast quality, the shortwave re-broadcasts from Europe were hopelessly lost.

Others remembered that the set they owned had something about a short-wave “hand” on it. By turning the various knobs, one produced a disheartening duet between the spark plugs on the autos in the street and some foreign newscaster speaking Oxford-English that had been censored to the point of extinction.

Of course the antenna running around the picture molding, or the bedspring aerial, had nothing to do with it.

SERCICEMAN SENT FOR

After trying vainly for a day or two, the family held a caucus and the idea was advanced that perhaps something was wrong with the radio! A serviceman was called in and he prescribed and administered the remedy—about three days later.

Being swamped with similar time-worn receivers, the average serviceman created some ill-will because he could not handle each job with his usual speed. In the hope of getting new customers, the serviceman stalled off some of the older clients. Unable to do a good, fast job for even the newcomers, his older “patients” looked elsewhere.

Neat, professional appearing service benches attract and hold customers. This one is owned by J. F. Waldron, Norwood, Mass.

The interesting fact about the repair jobs that were prompted by war, is that the service was bought, not sold.

The sudden rush of business came because the owner found that his set needed repairing. The owner was not, in most cases, informed of the advantages of keeping his set in tip-top shape by periodic inspection. He was not told that “prevention is cheaper and more effective than the “cure” in radio as well as health. He was not told that it had been 6 or 8 months since the tubes in his set had been tested, that his 3-year old aerial was less than half as efficient as when new, that the noisy volume control he had decided to get along with was due to fall in the middle of an interesting program.

A radio service shop designed for speed and convenience. Twenty individual repair benches and small trucks for handling large consoles, speed jobs.

This new shop in Madison, Wis., is owned by Harold and Milton Kidder.

RADIO TODAY
The sudden peak-influx of business should have been leveled out over the preceding "low" months by good advertising. Service, like any other commodity should be sold. But, you say, "why sell service when people are going to buy it?" The reason is simple, and sound.

ADVERTISING LEVELS-OUT PEAKS

The people who are in the market for radio repairs are non-technical and are not familiar with what is essential to the best radio equipment. Their radio and antenna depreciate (physically and electrically) so uniformly that it is not noticed until good reception is greatly impaired or complete failure occurs.

A lay public must decide upon the condition of their radios and the decision must necessarily be made from things they understand; seriously impaired reception and no reception at all.

The lay public is not equipped to recognize the minor, and less noticed defects that will eventually cause a major failure.

It should be the serviceman who analyzes the condition of the set and antenna at periodic intervals. The serviceman should make a conclusive report to the owner on the exact condition of the receiving equipment. The serviceman is the logical person to pass judgment on the quality of reception. He is the one who is equipped to make accurate measurements and has the knowledge and ability to draw correct conclusions from his observations.

SELL TUNE-UPS, REPAIR, EXTRA NEEDS

These are the things a serviceman should sell:

1. Keeping a radio and accessories in perfect condition at all times; not just repairing a radio when it is totally inoperative!
2. New equipment to make the radio more valuable to its owner; such as phonograph attachments, extra speakers, headphone connections to make "after hours" listening, unobjectionable, "tuning eyes," and AVC on older-sets.

New types of service must be sold to the public for they, not being technically minded, are unaware of what the serviceman can offer beside the ability to repair a set.

Use consistent advertising to bring to the listening public your "extra" services.

Direct mail is the most effective method of advertising, but to be effective it must be continuous and not sporadic. Calendars and blotters will keep your name in a home, but a leaflet, folder or card should be used regularly to describe your "noise-reducing antenna installation," the extra services mentioned before, and all the other things there are to make money with in the service game.

Robert W. Bennett.—Anyone who knows the present address of Robert W. Bennett formerly in the radio industry in St. Louis and Dayton, will confer a favor on his brother by sending it to Eli C. Bennett, 1836 Euclid Ave, Cleveland, O.

OCTOBER, 1939
Servicing RF Stages
(Continued from page 53)

device to do the job is, therefore, the vacuum tube voltmeter.

The mere presence of the signal in and beyond a given stage does not give
proof that the stage is doing its job to the best of its ability.

Measure the AC grid voltage of a stage with a VTVM and then the AC
voltage across the load resistance or impedance in the plate circuit of
the same stage and divide the latter reading by the former. The quotient is
the voltage amplification of the stage.

The voltage amplification of a tube is a function of the amplification
factor of the tube, the AC plate resistance, and the load resistance or impedance
in the plate circuit.

\[ \alpha = \frac{V}{\mu Z_L} \]

In this formula for voltage gain, \( \mu \) is the amplification factor of the tube, \( Z_L \)
is the load impedance, \( R_L \) is the resistance portion of the load, and \( XL \)
is the inductive reactance portion of the load.

The distributed capacity in the coils of an RF transformer makes it im-
possible to determine the theoretical value of inductance for maximum gain, since
resonance would occur at a low frequency and the stage would be worthless
beyond this point.

**TUBE GAIN LESS THAN \( \mu \)**

The voltage gain, \( \alpha \), cannot exceed the amplification factor for the tube.
The closer the voltage gain to the stage gain approaches the \( \mu \) of the tube, the more efficient the tube is as an RF amplifier.

The total voltage gain of a stage, measured from the grid of one tube to
the grid of the succeeding stage, involves the efficiency of the coupling
device as well as the \( \mu \) of the preceding tube. (See formula in Fig. 2.)

The most common coupler in RF stages is the transformer with a tuned secon-
dary.

The voltage gain of the entire stage is a complex function of the inductance
of the transformer primary and secondary, its distributed capacitance, the
mutual inductance between the primary and secondary, and the input impe-
dance of the grid of the driven stage.

In the equivalent RF stage circuit of Fig. 2, the \(-\mu Z_L\) is the voltage
appearing in the plate circuit of the first tube due to the grid voltage and
amplification factor of the tube. The negative sign indicates that the ampli-
fied grid voltage has been reversed in phase.

It is impossible to measure this voltage since a portion of it is lost in the internal
plate resistance of the tube. \( R_q \) is the plate resistance of the first tube; \( T_q \)
is the self inductance of the primary of the transformer; \( R_k \) is the AC resistance of
the secondary coil and condenser; \( C_k \) is the tuning capacity; \( R_{S2} \) is the input
resistance of the grid of the second tube; and \( V_{S2} \) is the shunt capacity from grid
to cathode in the plate tube. \( M \) is the mutual inductance between the pri-
mary and secondary and it is a function of the inductance of each of the
two coils and their physical relation to each other.

This equivalent circuit shows only

the path of the AC currents. Obviously for power reasons, the AC currents
must flow through blocking condensers in order to isolate the circuits. These
blocking condensers are the plate, screen, and cathode by-pass condensers in
the actual circuit. Their reactance (opposition to AC current) is negligi-
ble at radio frequencies and they do not enter into the equivalent circuit.

RF stage servicing may be simplified by first establishing the proper power
relations with static voltage and cur-
rent measurements and then analyzing
the signal portion of the stage in an
equivalent circuit. It is seen that
the grid of the second tube must be
operated with a negative bias to keep \( R_k \)
high. At ordinary frequencies, the shunt effect of \( C_k \) is negligible. With
the resistance \( R_k \) high and the react-
ce of \( C_k \) high, their load current
drawn through \( R_k \) will be a minimum
and the maximum of voltage will be
available on the grid of the tube.

**LOOPS REPLACE RF COILS**

The current new models are featuring
simplified installation in the home
through the use of loop antennas.
These loops have been built into the
set, and made a part of the antenna
transformer by designing the coil to
have the proper inductance, necessary
to cover the band with the regular
gang condensers.

Fig. 5 shows the new Philco model 40-120, 40-125 schematic for the RF
stage. The set uses six push buttons to select five stations and switch to
manual tuning. The push buttons
select stations by paralleling fixed cap-
acitors across the coils. Two-band
reception is obtained by changing coils.

The fixed grid bias for this RF stage is developed across the 180 ohm resis-
tor which also furnishes the bias for the 7A8 oscillator-modulator. An in-
teresting feature is the suppressor-
grid connection. By keeping the sup-
pressor-grid at the same potential as
the control grid (always negative),
the high ratio of screen to plate volt-
age may be used without difficulty
from secondary emission from the plate.
High RF gain is realized from this
stage.

An un-tuned RF stage is shown in the right hand portion of Fig. 4. The
Emerson CU-365 is a 5-tube AC/DC
TRF set with the 12J6GT functioning
as an untuned stage of RF amplifica-
tion, and also serving to isolate the set
from the antenna. The volume control
does double duty by varying the bias
on the tube and the amount of the anten-
a current to be supplied to the grid
of the tube. This type of circuit is
sharper in action than the simple
series cathode control. A stop on the
central leaves 200 ohms in addition to
the 1,000-ohm fixed resistor in the
cathode circuit. The small tickler coil
in the tuned RF stage puts the cathode
above ground and gives a small amount of regeneration.

**Price Change in N. U. Tubes**

A general revision in the net price
structure of National Union radio
tubes has been announced. New list
prices will be increased to conform with
industry standards.
Improving Reception with Built-in Antennas

Both loop and line antennas will usually provide excellent reception under average conditions in the home. Unfortunately, conditions in a distributor's or dealer's demonstration room are far from average, and usually are such as to provide poor reception. Thus, receivers with built-in antennas show up to decided disadvantage. To provide better set-demonstrations in such locations, the service department of Stewart-Warner suggests the following remedies.

Practically all AC-DC sets on the market use a buffer by-pass condenser across the power line. This condenser will also by-pass any radio signal in the line, so that the line antenna of any set that may be plugged into the same supply will get no radio signal to speak of.

Loop antenna sets operate under severe handicaps in buildings of steel construction since the steel framework acts as a shield and permits very little radio signal to pass thru. To demonstrate loop antenna sets under such conditions, an outside aerial may be connected to any large metallic object in the demonstration room near the loop sets. If a more finished installation is desired, the outside aerial may be connected to a large plate of metal or a copper screen fastened underneath the table on which the loop sets rest. The outside aerial serves to bring the radio signal into the building so that the loop antenna can pick it up.

Rider Lectures in N. Y.

Speaking before a group of New York and New Jersey servicemen, John Rider discussed the business problems of the servicing field. This first lecture of Mr. Rider’s was held at the Manhattan Center on September 21 and is one of a group of forty to be given in cities throughout the country by the RCA parts distributors and RCA Victor.

Auto Radio Installation Tips

The use of rubber for mounting purposes and mechanical insulation in the new cars introduces a serious electrical problem when auto radios are installed. Unbonded parts of the car pick-up and re-radiate ignition noise to the antenna. A quick way of checking for this type of interference is to use a large file as a connector between the suspected part and the frame or block of the car. Once located, the fender or other part should be securely bonded with flexible braid to the frame or motor. Loop mounting nuts holding dash instruments in place will often cause interference when instruments are not grounded. All gauges operating from the battery should be checked for loose parts and should be well grounded. Where grounding would cause a short circuit through the instrument, use a by-pass condenser in the order of 1/2 mfd.

Bad cases of tire static have been traced to canine indiscretion and a good scrubbing of the tire is the cure.

Ghirardi to Survey Technical Books

Alfred A. Ghirardi, well-known radio writer and consultant, has been engaged by the newly-formed United Technical Publishers Company to make a detailed survey of the text books now offered by American publishers for home study of various branches of radio, television, electricity, sound, aviation, and in fact all other technical subjects, and to select for each subject the best text-books published.

Mr. Ghirardi invites radio students, servicemen, and any others interested, to assist him in the survey by sending him lists of technical subjects in which they are in need of good instruction, and for which they would like to obtain the “best” book for home study. Requests and suggestions should be addressed to Mr. Alfred A. Ghirardi, care of United Technical Publishers Company, (Room 587) 45 Astor Place, Dept. 30, New York, N. Y.
RSA News

Among interesting speakers contributing to successful RSA meetings last month were: John Rider at Boston, New York, and Chicago, discussing RCA test equipment; Major Edwin Armstrong at New York City with a demonstration of frequency modulation; Robert Thompson of Meisner, at Chicago demonstrating and explaining the television kit; L. F. Wordie of G. E. in Pittsburgh discussing "Electronic Tubes in Industry"; Frank Cook, NRI, Washington, D. C., as m.c. at a "Know your own test equipment" discussion. Bruce Hume will speak in Newark on October 24th.

Several chapters are preparing material for the NAB-RSA "Curtain Raiser" cooperation. With the aid of Joe Marty, RSA executive secretary, a complete operating unit has been set up in Cleveland. Washington, D. C., and St. Paul, Minn., chapters are also at work on the plan.

A record of poor credit and undesirable customers will be compiled and local newspaper advertising increased by Lansing, Mich., members.

Ray Rogers has resigned from the Southern New Hampshire chapter having been transferred by his firm to Portland, Me. Walter Bennett succeeds him as secretary.

The Lehigh Valley Chapter in Allentown, Pa., and the Ohio Valley chapter have enrolled in the RSA television course.

New officers of the Jersey City chapter are: William Fuller, chairman; L. Coon, vice chairman; Frank Johnson, secretary; George Kuhn, Sr., treasurer; William Iannuzzi, sergeant-at-arms.

Soundview Marine Moves

The general offices and display rooms of the Soundview Marine Co. have been moved to the General Motors Building, 1775 Broadway, New York City. The company recently announced a new line of marine radio receivers. Models in the line include a 5 band set with separate speaker: a 7 tube, 3 band receiver with 6 inch p.m. speaker, and a battery-portable type five-tube superhet. All models are specially designed for marine use.

Bohlke to New RCA Post

W. H. Bohlke of the RCA service division has been appointed director of test equipment and service merchandising, announced L. W. Teegarden, manager of the RCA radio tube and parts division.

In his new duties Bill Bohlke will concern himself with the problems of servicemen in the field. He has had a great deal of experience as author and lecturer in the service field and has pioneered in radio and television research. During 1925 and 1926 he was in charge of all publications of the RCA service division and prepared the service lectures on antennas and receivers which were used that year in a series of meetings conducted by RCA throughout the country. More recently he has served as television engineer and editor of the text, "Practical Television by RCA."

Clough to Direct C-B Sales

Kendall Clough, chief engineer and president of the Clough-Brenton Co., is assuming personal direction of C-B instrument sales. It has been announced by the company.

Fred Wellman, active sales head during the past two years, continues as vice-president and advertising counsel.

BOOK REVIEWS


One of the greatest menaces to perfect radio reception is man-made static, or interference. Motors, diathermy equipment, electrical heaters, power transformers, and a multitude of other noise-makers are all discussed in this new manual. The subject of noise-reducing antennas, and antenna locations is reviewed with definite suggestions toward interference elimination.

Constructive ideas on locating the sources of interference and tabulation of current noise levels complicates the problem of tracing out noise-makers. A group of elimination procedure charts tells and shows how to combat the bigger ones. The wiring diagrams explain the connections of the recommended filters. Noise making equipment is classified for quick reference and sure cure. The price of this useful book is twenty-five cents.
RCA-Farnsworth Conclude Patent Agreements

Radio Corporation of America and Farnsworth Television and Radio Corporation announce that they have entered into patent license agreements, whereby each party has acquired the right to use the inventions of the other in the field of television and in other fields of their respective businesses.

RCA acquired a non-exclusive license under the patent of the Farnsworth Corporation for television receivers, and Farnsworth acquired a non-exclusive license under the patent of RCA for television transmitters and other radio and sound recording and reproducing apparatus.

Farnsworth acquired a standard non-exclusive license for broadcast and television receivers and electrical phonographs under the patents of RCA and also other non-exclusive licenses for television and broadcast transmitters and for its other fields of business.

Neither corporation acquired any right to grant sub-licenses to third parties under the patents of the other corporation.

Commenting on the agreement, E. A. Nicholas, Farnsworth president, said,

"I believe the signing of the agreements constitutes an ethical milestone in the development of the electronic arts in this country. Not only will the television and radio industries be stimulated to further development and refinement, but the ultimate result will be marked improvement of these great services for the American public."

Dealers Solve Trade-In Problem!

San Diego County, California dealers have worked out a plan through their Bureau of Radio and Electric Appliances whereby they recondition free of charge an old radio on the purchase of any console type radio or combination. They suggest to prospects that the old radio can be used in the children's room, the kitchen, workshop, etc. "Two radios for the price of one" is the theme used in large newspaper ads selling the need for two or more radios in the home.

The plan, written by J. Clark Chamberlain, is already accomplishing three things: encouraging the purchase of better radio sets; cutting down trouble in sales; and helping convince people that more than one set is necessary.

Those already cashing in on the plan say it takes the pressure off the salesmen by permitting him to suggest reconditioning the old set, instead of having to jog with the prospect as to allowance. They also report that it is saving them money since 10 per cent would usually be allowed for the useless radio on pur- chase of a console, whereas the average cost of reconditioning and reinstalling the old set in the home is rarely more than $5.

When the dealers find the old set will cost too much money to repair, the Bureau's answer is a classic. "I'm sorry, madam," say they, "but this old set is beyond repair; however, to carry out the spirit of the campaign, I'll be glad to take one of my own used radios on hand, recondition it, and give you two radios for the price of one."

Window cards, newspaper ads and radio-log booklets are distributed by the bureau as aids in contacting customers and advertising the campaign.

"Treasure Hunt" for Hidden Transmitter

Nearly one hundred ardent radio fans took to the field last month, with loop receivers in an attempt to locate a transmitter hidden within a 35-mile radius of Owensboro, Ky. The first car arrived at the transmitter in less than one and one-half hours after driving 32 miles. For those unable to locate the transmitter by radio means, the location was aired later in the day by the local broadcasting station. Amusements and refreshments were then served the treasure hunters. Occasion was the Eighth Annual Ken-Rad Treasure Hunt, September 10th.
Seven blind fakirs tried to describe an elephant. One grabbed the tail and said: "It's a snake."—Another felt on ear and said: "It's like a plant."—Another threw his arm around a leg and said: "It's like a tree.

Sequels to see the whole big picture at one time they were licked before they started.

Today, there are servicemen equally blind, who think their business is the repairing of radios only. There are others who think their work on P.A. systems will offset the losses due to cheap receivers. There are others who think that television will be their salvation. The truth is that individually they are wrong—yet collectively they are right. The successful service business of tomorrow will do all those things—and more. And, the serviceman who doesn't broaden himself to match the expansion of his industry will be licked by his own "blindness".

Be ready—know the fundamentals of your business—keep up on the developments of tomorrow. Check the books listed below and order those you need TODAY!

New "servicing by signal tracing"

Use the system of servicing which is fastest—most modern—the system you can apply to all receivers regardless of age, type or make—indepen-dent of the kind of circuit or tubes used—indepen-dent of every limiting factor herefore encountered. In this new book you learn what happens to the signal currents—the development of control voltages—and how all receivers are brought to a common servicing level. There is one thing that is common to every receiver—it is the signal. Read this book and you will be able to service the most complicated set with greater speed and less effort.

360 pages ................................ $2.00

THE CATHODE-RAY TUBE AT WORK
This book has established itself as a standard work. It is the most complete and practical book ever written on the subject. It is stated by the author that it is the only book on the subject written especially for servicemen. Get it today! 350 pages—Over 450 illustrations ........... $4.50

"An hour a day with Rider" books on automatic volume control will speed up your A.V.C. work. 96 pages, 65 illustrations, hard cover ........................................... 60c

ON RESONANCE AND ALIGNMENT. You need this book. Thousands sold! 96 pp., 48 illus., 60c

ON D.C. VOLTAGE DISTRIBUTION IN RADIO RECEIVERS. How d.c. voltages are led to tube elements, etc. Full of facts you need. 96 pp., 69 illus., hard cover .......................... 60c

ON ALTERNATING CURRENTS IN RADIO RECEIVERS. With drawings and diagrams ........... 60c

—AND REMEMBER........
You Need All 10 Rider Manuals for Profitable Servicing

RIDER BOOKS
For Servicemen who want to be "Ready"

JOHN F. RIDER, Publisher 454 FOURTH AVE. NEW YORK CITY

LET'S LOOK AT The Record

"Record Listening-Stations" amplifier fits on shelf in counter. Clerk changes records and adjusts volume.

Record Listening Stations

On other pages of this issue of Radio Today, an inexpensive method of demonstrating records is shown. The wiring diagrams for the amplifiers and power supply used are shown on this page. The turntable motor-board is designed to slide on rails and provide the maximum ease and speed to the clerk changing records. The vertical bulk-heads are spaced on 18-inch centers, and the number of tables per counter will depend upon the business transacted. A high-gain triode is used as the amplifier tube to deliver a satisfactory signal to the crystal, or other high-impedance headphones. The large bypass condenser in the cathode circuit improves the quality of reproduction. The headphones are isolated from the DC plate voltage for user-protection. The grid lead from the pickup is shielded to keep motor disturbances out of the amplifier.

The power connections to the amplifiers are made with 4-prong plugs. The filament leads in the power cable should be twisted together. The plug on the end of the cable connects to the socket in the power supply chassis. The power supply is straight-forward and designed for quiet operation by using sufficient filter components. The tubes used are not the latest types but it is felt that the dealer is more apt to have these on hand. The transformer should deliver 300 volts DC at 40 ma., and 6.3 volts at 1.2 amps. In addition to rectifier-tube filament supply.

Common power supply for the amplifiers uses large filter to give hum-free reproduction.
**Wax Worth Watching**

JELLY ROLL MORTON and the New Orleans Jassmen playing "Winin' Boy Blues and Oh, Didn't He Ramble—Bluebird B10152.

JAN SAVITT and his orchestra playing The Paper Picker and It's a Hundred To One, both with VC by Bon Bon—Decem 2738.

EDDY DUCHIN and his orchestra playing I Must Have One More Kiss Kiss Kiss, with VC by Durelle, Johnny and Trio, and What Is This Thing Called Love—Columbia 35204.

BEN BERNIE and his orchestra playing No Mama No and I'm Talkin' My Time With You, both with VC by Bailey Stuttgart—Victrola 9697.

SAMMY KAYE and his orchestra playing My Prayer with VC by Clyde Burke, and If I Knew Then with VC by Bunny Ryan—Victor 26569.

HORACE HEIDT and his Musical Knights playing Start the Day Right with VC by Harry Cotton, Helldrums and Everlast, and Stranger Things Have Happened, with VC by Larry Cotton—Columbia 35217.

CHUCK BULLOCK and his Levee Lovers playing I Can't Tell Why I Love You But I Do and Sundowned Seat, both with VC by Mr. Bullock—Vinylite 5995.

MAXINE SULLIVAN with orchestra singing Sing Something Simple and Jackie Boy—Victor 26572.

BENNY GOODMAN and his orchestra playing I Didn't Know What Time It Was and Love Never Went to College, both with VC by Louie Tobin—Columbia 35239.

THE SMOOTHIES with orchestra singing It's Funny to Everyone But Me and Myrtle—Bluebird B10492.

ETHEL WATERS with Ed Mallory and his orchestra singing Push-Out and Bread and Gravy—Bluebird B10416.

Serious


BIZET—Carmen Suite—Sir Thomas Beecham and London Philharmonic Orchestra. Columbia Set X-144.


HANDEL—Concerto Grosso No. 3 in D Major—Felix Weingartner and London Philharmonic Orchestra. Columbia Set X-142.


**Free GIFT MERCHANDISE or SHOP EQUIPMENT**

**RICH WARM 100% WOOL BLANKETS**

- Those warm, long wear blankets are first quality 100% virgin wool, beautifully bound with satin. Available in a variety of modern colors. Size 72" x 84". Dealer Deposit $4.00 Retail Value $12.00

**FAMOUS MARLIN SHOTS GUNS**

Retail Value $39.90


**ELGIN WATCHES**

Retail Value, $37.50

- Ladies ELGIN DE LUXE wristwatch, semi-baguette, 17 jewels, 10K gold filled case. Or man's CRUSADER 8/0 size, 17 jewels, 10K natural gold filled case. Dealer Deposit .................. $11.00

**ROGERS SILVERWARE**

Retail Value, $60.00

- 87-piece service for 8 persons in Good Housekeeping approved tarnish proof, fine wood chest. Encore design. Made and guaranteed by Simeon L. & Gen. H. Rogers Co., Famous Oneida silverware. Dealer Deposit .................. $12.00

**IT PAYS TO HANDLE NATIONAL UNION Radio Tubes and Condensers**

**SERVISE DEALERS!**

Do you want to increase your volume, give better satisfaction to your customers, protect yourself from cut price competition ... THEN WHY NOT WORK WITH N.U.... All our policies and sales promotions are aimed to build up you and your business. National Union offers a complete line of all (320) types of tubes. Quality is the finest that research skill and engineering can produce; backed by the most liberal replacement policy in the industry. The choice of leading service engineers everywhere ... they've got to be good!

**CERAMITE CONDENSERS**

The only midget electrolytic en- cased in ceramic insu- lation. Can't short even when jammed in tight places. Competitively priced. Available in all popular capacities and voltages.

**NOTICE!**

There is no truth to the rumor that National Union is going to discontinue premiums. A movement is on foot to try to persuade your jobber to discontinue giving you equipment with your tube purchases. National Union's plan is benefiting thousands of service dealers. Tell your distributor—"We want National Union offers continued!"

**Ask Your Jobber or WRITE NATIONAL UNION RADIO CORP.**

57 State Street, Newark, N. J.

**BITTER**

Brings You a Bigger NET from Record Sales

**MERCHANDISER No. 29**

For display or storage. Sets on counter or hangs from wall. Sheet steel, sprayed Duco finish walnut color. Racks: 140 10" records, 21" long, 37 1/2" high, 9" deep. Price $6.25 boxed F.O.B. Factory. **< CATALOG NO. 100 **

**RECORD MERCHANDISING EQUIPMENT**

Standardized, economical equipment for greater efficiency in selling records, albums, etc. Write for free folder showing full line.

**RECORD BOOTHS**

Standard Construction. Built of completely standardized sectional units which can be readily rearranged or added to as the need arises. Made of kiln dried birch. Finished in walnut mar- hopony or a painted finish. Can be readily converted into dark room for use in demonstrating television sets.

A BITTER CONST. CO., 2701 Bridge Plaza North, Long Island City, N. Y.
**War Creates Boost in Parts Trade**

That the war will be responsible for a big boost in the radio parts trade is the opinion of Charley Golenpaul, jobber sales head for Aerovox Corp. "In addition to the accepted use of radio as home entertainment, the average set is now operating many extra hours a week for news bulletins," says Charley. "As a result we have been receiving a greater volume of jobber orders this past couple of weeks. Increased radio listening time is certain to call for more replacements, with a nice business increase for serviceman, jobber and manufacturer." thinks Golenpaul.

**Graybar Now Jobbers for Majestic Territories**

Majestic Radio and Television Corp. have appointed the Graybar Electric Co. as exclusive distributors of Majestic radios in Wichita, Kan.; Kansas City, Mo., and Akron, Toledo, and City, Mo., and Akron, Toledo, Cleveland, Ohio, and Oklahoma City.

**Harry J. Erskine Dies After Appendectomy**

Henry J. Erskine, son of B. G. Erskine, president of Hygrade Sylvania Corp., died Saturday, October 7th after an appendicitis operation. He was twenty-one years old.

The young Mr. Erskine attended Petite Prep School in Pennsylvania and was, at the time of his death, preparing to return to his studies at Cornell University.

**G.E. Rally in Milwaukee**

A meeting of over 400 radio dealers from all parts of Wisconsin attended a General Electric radio dealers rally in Milwaukee last month to present the new line and discuss the advertising and promotion plans for 1940. The complete new line of G. E. sets was presented by Devine, factory representative, features were compared with other lines by T. F. Hall, G. E. merchandising department, and factory rep Ray Cochran gave the sales promotion and advertising story. After the meeting the entire group was served with a buffet lunch and refreshments. J. E. McNaughton, sales promotion manager, reports considerable volume of business realized by L. D. Morgridge, appliance sales department manager, and his men.

**Fry & Roberts Now Triumph Reps**

Triumph Mfg. Co., manufacturers of commercial radio testing apparatus have announced the appointment of Fry & Roberts, 2412 W. Seventh St., Los Angeles, as west coast representatives in the states of California, Arizona, Nevada and Utah. Plans have been completed for opening a San Francisco office November 1st.

---

**PAR-METAL PRESENTS**

**RACKS • CHASSIS • PANELS**

IN A GREAT NEW 1940 CATALOG

When you build your next transmitter, amplifier, public address system, exciter kit, frequency meter ... or any other job, be sure you use Racks, Panels and Chassis by PAR-METAL. It’s the most widely publicized line and is specified in constructional articles more frequently than any other line. The Reason: Highest quality, beautiful streamlined design and popular prices.

OUR NEW CATALOG is now ready. It describes the most complete line in the industry. Two big sections: Amateur and Commercial—devoted to relay racks, enclosed racks, transmitter racks, all purpose metal ready. It describes the most complete line in the industry. Two big sections: Amateur and Commercial—devoted to relay racks, enclosed racks, transmitter racks, all purpose metal panels, speaker cabinets and new models of amplifier foundation chassis.

Many new De Luxe chromium trimmed, streamlined models in both black or grey ripple finish are included.

2521 41ST STREET

PAR-METAL PRODUCTS CORP.
LONG ISLAND CITY, N. Y.

**LETTER BRINGS IT FREE**

---

**MUELLER**

Presents—

A Complete New Line of ALLIGATOR CLIPS

**IMPROVEMENTS!**

Round hollowed thumb grip

Teeth that really mesh

New End Connection

6 — NEW CLIPS — 6

All Popular Types, Insulated or Uninsulated, and a UNIQUE, SOLID COPPER R.F. ALLIGATOR!

SEND FOR FREE SAMPLES AND SHEET 702

Mueller Electric Co.
1573 E. 31st St., Cleveland, Ohio
**News of "The Representatives"**

At the September 12 meeting, "The Representatives of Radio Parts Manufacturers" elected an out-of-town president, S. K. MacDonald of Philadelphia. One of the features of the 1939-40 program will be to foster greater activities among members of the organization outside of New York City. Other officers elected at the meeting were: Pres. S. K. MacDonald, 1243 Arch Street, Philadelphia, Pa.; Vice-Pres. Martin Camber, 39 Dongan Place, N. Y. C.; Sec'y-Treas. David Sonkin, 220 East 23rd Street, N. Y. C. (re-elected).

Plans were discussed for the year's activities and given over to the newly formed committees for individual action.


Publicity: C. E. Cooper of Cooper-Dblashi, 51 Seventh Avenue, N. Y. C.

New members elected include: Sigmund H. Cohn, 2023 South Hill Street, Los Angeles, Calif.; Wm. E. McFadden, 915 Montrose Avenue, Columbus, Ohio; Bruce L. MacPherson, 1919 Wells Street, Port Wayne, Ind.; Milton Shapp, 4036 Walnut Street, Philadelphia, Pa.; Henry W. Burwell, 415 Peachtree Street, N. E., Atlanta, Ga.; James Millar, P. O. Box 116, Station C, Atlanta, Ga.; Edwin Guiness, 373 Washington Street, Boston, Mass.

**New Jobbers for Stewart-Warner**


The distribution territory of Brown-Dorrance Electric Company, Stewart-Warner radio distributors in the Pittsburgh area, has been expanded to include Wheeling, West Virginia, and vicinity, Kelsey announced.

**Anseny Record Cabinets**

Two record cabinets, the "Modern" and the "Kent" have been presented by the Anseny Radio Corp. The "Modern", built of real walnut and designed to hold a small combination with records below, lists at $129.50. The "Kent" model is made in 18th Century period design in garnet mahogany. List price is $29.50.

---

**Profit is made on turnover—not leftovers.** And what's the secret of turnover ... fast turnover? A product with a following ... proved in reliability. And behind the product, a reliable company ... we is in experience. Cornell-Dubilier capacitors sell faster because they are backed by a company 29 years "at it" and recognized for Consistent Dependability the world over. You can profit by standardizing on the complete line of Cornell-Dubilier Capacitors, Capacitor Test Instruments and Quietone Interference Filters. Available at all leading distributors.

Catalog No. 175A free on request.

Product of the world's oldest and largest manufacturer of capacitors.

---

**CORNELL-DUBILIER ELECTRIC CORPORATION**

1019 Hamilton Boulevard, South Plainfield, New Jersey

Cable Address: CORDU

---

**A GOOD NAME GOES A LONG WAY**

The good name of KEN-RAD Radio Tubes is due to the highest standards of quality in manufacture and performance.

KEN-RA RAD TUBE & LAMP CORP.

OWENSBORO, KY.

Export Office

116 Broad St., New York, U.S.A.

Cable Address: Minthorn, New York
THE MARK OF AN ETHICAL MERCHANDISER OF ADVERTISED RADIO BRANDS

Here is a symbol which bears watching. It is your safeguard against practices which have tended, in the past, toward taking away profits which are legitimately yours.

Dealers and Servicemen who have had to contend with destructive practices in the past, will welcome the opportunity which is now afforded them to help eliminate these practices. NRPDA Jobbers are merchandisers of nationally advertised radio brands. They are jobbers who are interested in Industry problems which affect your business. In short, NRPDA members recognize their responsibility to you.

That is why we urge you to deal with jobbers who display the NRPDA symbol. There’s an NRPDA Member in your territory. Address the Executive Secretary for his name.

NATIONAL RADIO PARTS DISTRIBUTORS ASSN.
TEMPORARY OFFICE OF THE EXECUTIVE SECRETARY
5 WEST 86th STREET
NEW YORK, N. Y.
Radio’s Smartest Auto Aerials
Are Made by Brach

New streamline design; smooth, noiseless; anti-rattle construction. Made of chrome-plated Admiralty brass. Approved and recommended by leading auto manufacturers.

See our new 92-inch Cowl Aerial with concealed mounting insulators.

Send for Latest Catalog
Covering Complete 1940 Line

L. S. BRACH
MANUFACTURING CORPORATION
World’s Largest Makers of Antenna Systems
55-67 DICKERSON STREET - NEWARK, N. J.

USE THESE LIGHT
"X" Series
PHONOGRAPH MOTORS
In Low-Cost Installations

DEVELOPED by General Industries Co. for maximum strength consistent with new lighter weight, constant speed and silent operation. Low in cost, ideal for use in popular-priced portable phonographs, table models and radio-phonograph combinations. Order motors to test, stating voltage and frequency of current you use and size turntable wanted.

MODEL CX


Model KX—Similar to CX, but lighter, smaller and lower in price. Comes complete with mounting plate and turntable, ready to install.

Model RX—Rim-drive unit with self-starting induction-type motor, rubber insulated. Quiet in operation. Driving pulley, idler and turntable positively aligned in one plane, assuring efficient, trouble-free performance. 8", 9", or 10" turntable included. Shipped ready to install.

Get Our New Catalog!

For latest catalog of all types of General Industries electric and spring-wound phonograph motors and automatic record changers, address

The GENERAL INDUSTRIES CO.
3938 Taylor St., Elyria, Ohio
New Booklets

"Radio Capacitors for all Requirements" is title of new 16-page catalog issued by Cornell-Dubilier Electric Corp., South Plainfield, N. J.

Two new bulletins illustrate and describe new L-C checker, and capacity-resistance bridge. Both bulletins obtainable from Aerovox Corporation, New Bedford, Mass.

New leaflet describing battery cables for emergency car starting service. Mueller Electric Co., 1583 E. 31st St., Cleveland, Ohio.


Characteristics of 584 tubes are included in new handbook available from National Union Radio Tube Corp., distributors.

Test and service equipment catalog shows the complete 1940 line of Earl Webber Co., 1313 W. Randolph St., Chicago.

Technical manual of 264 pages gives complete characteristics of 244 tubes. Hygrade-Sylvania Corp., 300 5th Ave., New York, N. Y.

Catalog of 1939-40 test equipment gives instrument specifications and uses. Copy of No. 121 may be obtained on request from Radio City Products Co., 88 Park Place, New York, N. Y.

Mr. Serviceman: "Be First with R.S.A."

Let's Grow Together in 1939!

MAIL THIS COUPON NOW!

RADIO SERVICEMEN OF AMERICA, Inc.
304 S. Dearborn St., Chicago, Ill.

Name

Address

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

I am interested in RSA membership. Tell me about it:

I am enclosing $4.00 for National dues and initiation:

(Does not include Local Chapter dues where Local Chapters are organized.)
US Record Issues New Releases

Hits from two shows and a movie are included in a group of popular, standard, foreign and Christmas records available after October 12 from United States Record Corp. Prominent in the popular and standard lists are: "Music in My Heart," played by Johnny Green and orchestra; "Ah! Sweet Mystery of Life," featured in the new picture "Gay Days of Victor Herbert" and played by Richard Hiber's orchestra; and "Lilacs in the Rain" with "Table in the Corner" on the reverse, orchestrated by Johnny Messner.

Hillbilly and special operators records are also listed.

Small Combinations Help Console Sales

The return of recorded music to almost universal popularity can immensely increase the sale of radio-phonographs, not only as the chief source of radio and recorded entertainment in the home but as an auxiliary, states John P. Gilligan, manager of Philco's specialty division.

"A large market, beginning to open up, has previously been overlooked," commented Gilligan. "The table-type of radio-phonograph is ideal as the second set in the home. Much has been said about the desirability of having a radio in the average home's bedroom. To most people interested in recorded music, it would be more desirable to have a small radio-phonograph in the den or other rooms.

"There would then be no need to restrict record-playing to the living room. In fact, there is no reason why record-enthusiasts should not want to listen to records in comfort and in various parts of the house as much as they want to listen to radio."

"The answer," said Gilligan, "is the small radio-phonograph. It not only fills a need and stimulates its own sales, but it stimulates the sale of larger combinations to those who do not already have them. If they buy a table model radio-phonograph for auxiliary use, it is almost certain they will soon want a larger more fully-tuned model for use in the living-room."

N. U. Foto Log

Third edition of National Union's "Radio Foto" was made available this month to retail service dealers. A radio map shows locations of principal broadcasting stations in Europe and a list provides information for short wave listeners and names of news commentators in U.S. and Europe. The book includes photographs of more than 300 radio performers, station listings in U.S. and a list of television stations. The Foto Logs are available through N. U. distributors at $2.90 per hundred with slight additional charges for imprinting in various quantities.

A football scoreboard sign in black, green and white on 28 guage steel. 20 x 28 inches may be obtained from jobbers at $.50 each.
Majestic Promotes Byrne: Appoints Van Horn

Harry T. Byrne has been advanced to the position of assistant general sales manager of Majestic Radio and Television Corp., and will work closely with W. R. E. Norris, general sales manager, in the expansive sales schedule now in operation. Byrne is a veteran in radio experience and for the past several years has handled executive positions in merchandising, sales promotion and sales management.

J. P. van Horn has been appointed advertising manager in another move of Majestic re-organization plans. Van Horn has had wide experience with distributor-dealer organizations, having been engaged in sales promotional and advertising activities for national manufacturers. He is a former newspaper advertising man and advertising agency executive.

Lewis to U. S. Record

United States Record Corp., manufacturers of Varsity and Royale records, recently announced the appointment of William R. Lewis as regional sales manager. Lewis takes over the middle western territory making his headquarters in Chicago. For many years he has been in close touch with the record and radio industries as sales executive for Victor Talking Machine Co., Southern Wholesalers, Washington, D. C., and G. E. Supply Corp., Baltimore.

Stromberg Adds More Dealers

Since introduction of the 1940 line of Stromberg-Carlson radios last May, half again as many dealers as in 1938 have been signed, according to Lee McCanne, Stromberg-Carlson radio sales manager. Commenting on the increase, McCanne said, “The 49 per cent increase in dealers may be attributed to the opening of distributorships in territories not previously represented by Stromberg-Carlson, and to the increased acceptance of the line because of greater values.”
Only AMPERITE gives you THE ACOUSTIC COMPENSATOR
and these

5 VITAL FEATURES

(1) It's a VELOCITY . . . (2) It's a DYNAMIC . . .
(3) It's a UNI-DIRECTIONAL . . . (4) It's a NON-
DIRECTIONAL . . . (5) Gives HIGH OR LOW PITCH.

These EXTRA features are made possible by the potentated Acoustic Compensator. By moving it UP, you change the AMPERITE Velocity to a
DYNAMIC microphone without peaks. At the same time you reduce the back pickup, making the microphone practically UNI-DIRECTIONAL.

With the Compensator DOWN, the microphone is BI-DIRECTIONAL: Contrary to popular conception, it has a wider pickup angle without fre-
quency discrimination than any other type microphone . . . Turning the microphone parallel to the ceiling makes it NON-DIRECTIONAL.

THE ACOUSTIC COMPENSATOR is standard on these models: RBHk (hi-imp); RBMk (200 ohms), with Cable Connector and Switch . . . Chrome or gunmetal, LIST $42.00
RSHk (hi-imp), RBSk (200 ohms) with Cable Con-
nectors and Switch . . . Chrome or gunmetal, LIST $32.00

GREAT VALUE at $22.00
Model RAH (or RAL)

Excellent for both speech and music . . .
Reduces Feedback . . .
Gives flat response without undesirable
peaks . . . Amazingly rugged. Frequency
range 60 to 7500 CPS. Output, -58 db.
MODEL RAH (hi-imp) with 12' of cable; MODEL
RAL (200 ohms) with 8' of cable . . . LIST $22.00

AMPERITE KONTAK MIKE
Puts Musical Instruments Across with
Sensational Effect!
So beautiful is the tone pro-
duced with the aid of the Kontak
Mike, that it was used in the
Philadelphia Symphony to am-
plify a mandolin solo.
MODEL SKH (hi-imp): SKL (200
ohms) LIST $12.00; plug extra.
List $1.50. MODEL KKH has
HAND VOLUME CONTROL . . .
LIST $18.00; plug extra. List $1.50.
FOOT PEDAL, for making beau-
tiful crescendos. LIST $12.00.

EXCELLENT WITH RADIOS
With the AMPERITE Boosting
Transformer and the high output KONTAK MIKE (Model
SKH, list $12.00) you can ampli-
yfy any stringed instrument at home, through the radio or
record player. Simple instal-
lacion. BOOSTING TRANS-
FORMER, Model BT. LIST $3.

AMPENITE KONTAK MIKE

AMPENITE MICROPHONES

Specify AMPERITE MICROPHONES

Sales Aids for the P. A. Man
(1) FREE Window Decal advertising your Sound Service. Size 5 1/2 x 9 1/2, finished in 4
colors. (2) FREE Window Display, 11 x 17. (3) Special Sound Equipment Letterheads.
Samples and prices on request. (4) FREE use of cut for printing business cards, etc.

AMPENITE CO. 561 BROADWAY, N. Y., U. S. A. CABLE ADDRESS ALKEM. NEW YORK
Everybody wants NEWS WHILE IT'S HOT! 
...THEY CAN HAVE IT WITH MOTOROLA

```
Everyday wants News while it's hot!

They can have it with Motorola.
```

**Easy TO GET FOREIGN NEWS DIRECT**

The demand for better radios has been tremendously stepped-up by the public's thirst for NEWS. This 3 Band Motorola is your best bet to capture this newer, bigger market that NEWS has created. Model 72C Walnut Finish Console has 7 tubes: Push-Pull; 10" PM Speaker; Tunes American and European Short Wave, Aircraft, Amateur and Police bands from 540 to 18,000 kc.; 6-Station Push Button Tuning. At a NEW LOW PRICE that people will go for!

**Motorola**

**America's Finest Radio**

```
Making fast sales for dealers.
```

**YOU'LL SELL MORE ROOM RADIOS**

This handsome H-133 "Sales-Maker" is selling plenty of Motorolas for dealers who are up on their toes reaching out for plus business. See Your Motorola Distributor... he'll show you how to get this Display FREE!
Getting Your Slice of Christmas Cheer
Don't be decoyed
by a condenser
that just looks like an

*FP (Fabricated Plate) CAPACITOR

You can no more expect FP (Fabricated Plate) Capacitor performance out of any other condenser... no matter how much it may look like an "FP"... than you could expect flight from a wooden duck.

It was only natural that the success of FP (Fabricated Plate) Capacitors would invite imitation in appearance. But the real difference cannot be imitated. FP (Fabricated Plate) Capacitors are constructed by a patented process that involved great investments of time and money to develop. The result is a capacitor that sets a new high in characteristics and performance.

Low R. F. Impedance... better filtering efficiency... surge proof construction... smaller sizes without a sacrifice of safety or efficiency... freedom from corrosion... these are just a few of the revolutionary features of FP (Fabricated Plate) Capacitors.

Over a Million Now in Use
As Original Equipment

Best evidence of the superiority of FP Capacitors has been their prompt adoption by leading set manufacturers. In addition to the millions already in use, future schedules call for the use of millions more. You'll be seeing them in all leading sets... and although they are being imitated in appearance, you can identify them by the number (1) or (3) in a circle, stamped on every genuine Fabricated Plate Capacitor.

Every Desired FP Characteristic in MALLORY Fabricated Plate Tubular Condensers.

Mallory Type BB Condensers are Fabricated Plate construction in a one-piece drawn aluminum can. Each is insulated with an attractive cardboard tube well marked for easy rating identification. Strong internal construction eliminates troublesome open circuits.

Remember only Mallory makes Fabricated Plate construction for replacement capacitors. The sooner you call your Mallory-Yaxley distributor and place your order... the sooner you'll shake hands with better profits.
The "HOLIDAY PACKAGE LINE"

It's flat—and it's different! Here are six "Clear as a Bell" SONORA models that are "Holiday-Style"—"perfect" for the big gift market!—perfect packages for easy selling right over the counter! Jobbers—you can't beat this SONORA selection for resale to your dealers—it's right in the groove for profitable holiday merchandising! Low lists (naturally maintained)—discounts that spell profit—no service problems—quick turnover—a national name known to millions—staging that hails the holiday shoppers—performance that's flat—you get just what you've been looking for in the SONORA "Holiday Package Line!" See below for Free Trial Offer and go into action NOW!

NEW "TRIPLE-PLAY" PORTABLE

These radios in one—for 1.4 Volt—110 Volt A.C.—110 Volt D.C.—that's the new SONORA "Triple-Play" Portable—America's most versatile radio! An entirely new kind of portable—a perfect "Over-the-Counter Package"—released just in time for the holiday season. Just check these "specs": 6 tubes (3 or 4) in the most sensitive, strongest Superhet circuit you could ask for; built in "Sonoscope"—no aerial or ground required; new one type, ideal circular dial; 5 p.m. dynamic speaker; A.V.C.; Sure Switch for changing from battery to electric current; beautiful new luggage style case that looks and feels expensive—only 600.00.24" has protective lid; weighs only 17 lbs. with batteries. A perfect "Holiday Package" at a list price of only $26.95.

FREE TRIAL OFFER TO JOBBERS ONLY!

We will ship you all, at no cost to you, the following models on your Free Trial Offer:

- TP-100
- TP-40
- TW-40
- TSA-105
- TJ-62
- TW-45

Send Full Details of Complete Line.

SONORA RADIO & TELEVISION CORP.
2626 W. WASHINGTON BLVD.
CHICAGO, ILL. DEP'T.

We will ship you all, at no cost to you, the following models on your Free Trial Offer:

- TP-100
- TP-40
- TW-40
- TSA-105
- TJ-62
- TW-45

Send Full Details of Complete Line.

NAME...
ADDRESS...
When list prices were lowered May 1st we took an opposite course to competitors who were promoting high list prices and extraordinary discounts to dealers.

It had often been stated that no one manufacturer could reform the tube industry but it has been demonstrated that one manufacturer, with the help and complete cooperation of its wholesalers could take a constructive position and maintain it.

The industry trend toward constructive merchandising is one that we would naturally endorse and it is logical, therefore, that we should do so by revising Tung-Sol schedules of list prices and compensation to conform with those already announced by our major competitors.

List prices which will be effective beginning with November business are shown on the attached price card, Form T-11. Using per cent of sales by type, indicates that the reduction will amount to only approximately 3% of old list prices.
Farnsworth Radios are moving . . . and how! Farnsworth dealers are making money now . . . will make more this Christmas!

Here's one of many enthusiastic comments that have poured in from dealers all over the United States:

"I have had the Farnsworth Line in for only two weeks. I put it on the floor, right beside two other radio lines in my stock. I can tell you, honestly, this new line is the hottest thing I've ever handled. I'm selling more Farnsworth Radios than both of the other lines combined."

Christmas is just ahead

The Farnsworth Line offers you the biggest Christmas opportunity in many years . . . with outstanding radio gifts for every purse and purpose. A small table model for children to hear their own programs. A second model for bedrooms. Portables to send back to school with the children. Superb radio-phonograph combinations that make a wonderful group-gift for the entire family. Study the representative models and their superlative features on the opposite page.

Prices are competitive

Set a Farnsworth Radio beside an comparable competitive model on the floor and its easy-to-see value will get the sale every time. And you get proper margin of profit!

Turn Christmas into cash

See your Farnsworth distributor now. Get the special Farnsworth Christmas display material.

Build your Christmas business around a representative window and floor display of Farnsworth Radios. Tag them . . . "For Dad" . . . "For Mother" . . . "For Sister" . . . "For Brother" . . . and so forth. Push this Farnsworth gift idea for the holidays ahead . . . and your cash register will ring with the merry jingle of Christmas profits.
A WONDERFUL GROUP-GIFT for a family to chip in and buy. Every line of this beautifully proportioned radio-phonograph combination (AK-76) sings “What a buy!” 8 tubes. Flo-Lite dial. 5 wave bands. Shielded loop Bilt-In-Tenna. Push-button tuning. Compartment for records. Capehart record-changer. Television sound connection. The low price will surprise you!

A SPLENDID PRESENT FROM HUSBAND TO WIFE. A charming low-boy console (AC-91) in a modern interpretation of period decoration. 10 tubes. Flo-Lite dial. 3 wave bands. Automatic volume control. Shielded rotatable loop Bilt-In-Tenna. Push-button tuning. Beam power output. Phonograph and television-sound connection. A model that’s made to move fast—right now!

FOR A SON OR DAUGHTER AT SCHOOL. Or for family outings. Smart portable model (AT-31)—takes entertainment wherever your customers go. 5 tubes. AC-DC current or battery operation. Bilt-In-Tenna. Dial light on both AC and DC operation. At a price that makes customers want to pick it up and take it with them.

FOR THE SMALL SON who wants to hear his cowboy program. Suggest this plastic model (AT-15) as an ideal gift for his room. Just as convenient and attractive for the master bedroom. 5 tubes. AC-DC superheterodyne circuit. Push-button tuning for 4 stations. Bilt-In-Tenna. A lot of radio for a little money.
Farnsworth Radios are moving... and how! Farnsworth dealers are making money now... will make more this Christmas!

Here's one of many enthusiastic comments that have poured in from dealers all over the United States:

"I have had the Farnsworth Line in for only two weeks. I put it on the floor, right beside two other radio lines in my stock. I can tell you, honestly, this new line is the hottest thing I've ever handled. I'm selling more Farnsworth Radios than both of the other lines combined."

Christmas is just ahead

The Farnsworth Line offers you the biggest Christmas opportunity in many years... with outstanding radio gifts for every purse and purpose. A small table model for children to hear their own programs. A second model for bedrooms. Portables to send back to school with the children. Superb radio-phonograph combinations that make a wonderful group-gift for the entire family. Study the representative models and their superlative features on the opposite page.

Prices are competitive

Set a Farnsworth Radio beside any comparable competitive model on the floor and its easy-to-see value will get the sale every time. And you get a proper margin of profit!

Turn Christmas into cash!

See your Farnsworth distributor now. Get the special Farnsworth Christmas display material.

Build your Christmas business around a representative window and floor display of Farnsworth Radios. Tag them... "For Dad"... "For Mother"... "For Brother"... and so forth. Push this Farnsworth gift idea for the holidays ahead... and your cash registers will ring with the merry jingle of Christmas profits.

FARNSWORTH TELEVISION & RADIO CORPORATION, FORT WAYNE AND MARION, INDIANA

A WONDROUS GROUP-GIFT for a family to ship in and buy.

Every line of this beautifully preeminent radio-phonograph combination (AC96) sings "What a buy!" 8 tubes, Flex-Lite Ant. 3 wave bands, Shielded loop Bilt-In-Tenna, Push-button tuning. Compartment for records. Superheterodyne circuit. The low price will surprise you.

A SPLENDID PRESENT FROM HUSBAND TO WIFE. A charming low-boy console (AC91) in a modern interpretation of period decoration. 8 tubes, Flex-Lite Ant. 3 wave bands, Automatic volume control. Shielded rotatable loop Bilt-In-Tenna, Push-button tuning, foam power output. Phonograph and television-sound connections. A model that's made to move fast—right now!

FOR A SON OR DAUGHTER AT SCHOOL. Or for family outings. Superb portable model (AT15) takes entertainments anywhere. Your customers go. 5 tubes, AC-DC current or battery operation. Bilt-In-Tenna, Band light on both AC and BC operation. As a price that makes customers want to pick it up and take it with them.

FOR THE SMALL SON who wants to hear his cowboy program. Suggest this plastic model (AT10) as an ideal gift for his room. Just as convenient and attractive for the master bedroom. 8 tubes, AC-DC superheterodyne circuit. Push-button tuning for 4 stations. Bilt-In-Tenna. A lot of radio for a little money.

FARNSWORTH TELEVISION & RADIO CORPORATION, FORT WAYNE AND MARION, INDIANA

4 RADI0 TODAY NOVEMBER, 1939 5
45 VOLTS THAT

LONG-LASTING, SENSATIONALLY SMALL

EVEREADY TRADE-MARKS

MINI-MAX

BRINGS THE

"B" BATTERY

BACK INTO

BIG TIME

Actual size
JOLTED AN INDUSTRY!

28 PORTABLE MANUFACTURERS
now building 1940 sets around
"MINI-MAX" 45-volt "B" battery...
a real break for "EVEREADY"
dealers and distributors!

Immediately upon the introduction of the "Mini-Max" 45-Volt "B" battery, 28 manufacturers of portable radios made a decision that vitally affects "Eveready" dealers.

They decided that the "Mini-Max" was to be the basis for their 1940 plans... they decided to build their portable sets around this amazing new battery. It's a cinch to know why...

"Eveready" "Mini-Max" offers the same number of listening hours as the conventional battery twice its size! And size for size it gives double the hours of service of conventional batteries!

Lastly—and most important—the compactness of the "Mini-Max" battery makes possible a portable that's really portable—and really practical!

No "Eveready" dealer has to look twice to see a tremendous, permanent market for this outstanding battery. For replacement alone it can efficiently power the majority of more than 300 models of portables, thousands of which are already in use. The "Mini-Max" "B" battery is so good... so completely alone in its combination of small size, lighter weight (\(\frac{1}{3}\) less), and long life... that no other replacement battery can touch it. And no consumer who has used it will touch anything else!

Here are some of the Top-flight portable radio Manufacturers using the "Eveready" "Mini-Max" "B" Battery:

<table>
<thead>
<tr>
<th>ARVIN</th>
<th>GAROD</th>
<th>SONORA</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIMAX</td>
<td>GENERAL ELECTRIC</td>
<td>SPARTON</td>
</tr>
<tr>
<td>COLONIAL</td>
<td>HOWARD</td>
<td>STEWART WARNER</td>
</tr>
<tr>
<td>CROSLEY</td>
<td>KADETTE</td>
<td>STROMBERG CARLSON</td>
</tr>
<tr>
<td>DEWALD</td>
<td>MAJESTIC</td>
<td>TRAY-LER</td>
</tr>
<tr>
<td>EMERSON</td>
<td>MISSION BELL</td>
<td>TROY</td>
</tr>
<tr>
<td>ESPEY</td>
<td>PACKARD BELL</td>
<td>WESTINGHOUSE</td>
</tr>
<tr>
<td>FADA</td>
<td>RCA</td>
<td>WILCOX-GAY</td>
</tr>
<tr>
<td>FARNSWORTH</td>
<td>SENTINEL</td>
<td>And Others!</td>
</tr>
<tr>
<td>GALVIN (MOTOROLA)</td>
<td>SKY CHIEF</td>
<td></td>
</tr>
</tbody>
</table>

NATIONAL CARBON COMPANY, INC.
General Offices: New York, N. Y., Branches: Chicago, San Francisco
Unit of Union Carbide and Carbon Corporation

The words "Eveready" and "Mini-Max" are registered trade-marks identifying products of National Carbon Co., Inc.
THE BIGGEST SCOOP IN RADIO THIS YEAR!

A MIRACLE HAS HAPPENED
VALUES LIKE THIS CAN'T BE REPEATED!

Take a Look at These Specifications
MODEL HJ-628

1. G-E BUILT-IN BEAM-A-SCOPE (No Aerial—No Ground) First Offered To The Public By G-E
2. G-E 14-INCH DYNAPOWER SPEAKER
   First Offered To The Public By G-E
3. G-E AUTOMATIC PHONO-RADIO CONTROL
   TONE ARM First Offered To The Public By G-E
4. G-E 6 FEATHERTOUCH TUNING KEYS
   First Offered To The Public By G-E
5. G-E 6 PRE-TESTED TUBES
6. G-E SUPERHETERODYNE CIRCUIT
7. G-E SPECIAL TONE MONITOR CIRCUIT
   First Offered To The Public By G-E
8. G-E DELUXE ROTOR CONTROLS
9. G-E FULL-VISION ILLUMINATED DIAL
10. G-E AUTOMATIC VOLUME CONTROL
11. G-E QUIET, CONSTANT-SPEED, SELF-STARTING MOTOR
12. G-E HIGH-FIDELITY CRYSTAL PICK-UP
13. G-E PLAYS 10 AND 12-INCH RECORDS
14. G-E "CUSTOM-CRAFT" CABINET

A GREAT SALES OPPORTUNITY FOR HOLIDAY AND WINTER SELLING!
Write, wire or phone your G-E Radio Distributor today. Only a limited number of these new G-E Model HJ-628 Radio-Phonograph Combinations are available.

READY NOW
New Carryabout Portable Radio Model HB-412
Operates on AC...DC...or Batteries. Designed to use new Long-Lasting.
MINI-MAX EVERSAY BATTERIES

JUST OUT!
THE SENSATIONAL NEW G-E RADIO-PHONOGRAPH COMBINATION

At a Revolutionary New Low Price!
Model HJ-628

Radio and Television Division, Bridgeport, Conn.

GENERAL ELECTRIC
The tiny band of brave Americans besieged in the Alamo in March, 1836, by Santa Anna and his 4,000 troops fought a hopeless battle. Shut off from the rest of the world, they perished because they had no means of communicating their plight to their fellow countrymen.

Today Radio would carry the news as instantly as it brought the world news of Europe's new cataclysm.

R.C.A. Communications provides radio communication to and from 43 countries and among leading cities of the United States. This great communications system has already played a stellar part in keeping the world enlightened about the present critical events in Europe.

The National Broadcasting Company, another service of the Radio Corporation of America, has thrown the resources of its two nation-wide networks into the cause of making and keeping America the "best informed nation in the world."

Discoveries made in RCA Laboratories are incorporated in equipment manufactured by the RCA Manufacturing Company so that America can have at its command the most advanced means of radio transmission and reception.

The services RCA renders to radio offer unmatched opportunities for dealers. By helping make radio great . . . RCA helps to increase your volume of business and your profits. Experience proves it pays to go "RCA All the Way."
RADIOBAR ANNOUNCES DIRECT FACTORY-TO-DEALER FRANCHISE

New Models! New Prices! New Policy! Write Now for Exclusive Territory!

Now! Aggressive dealers can secure exclusive sales territory for RADIOBAR, on a high-profit factory-to-dealer franchise! The new 1940 RADIOBAR models have greater sales appeal than ever before. New features, greater value!

Available with PHILCO Radio or Universal Models for Any Chassis

Factory-equipped with PHILCO chassis, or shipped to you with plain undrilled panel for mounting any chassis you prefer. 1940 RADIOBAR gives you full latitude in developing your own sales plan for best results. And list prices give greater consumer appeal than ever before.

High Profit-Line! Protected Territory

Generous direct-from-factory discounts. Your own protected sales territory. Write or wire RADIOBAR today for full details and illustrated folder. Territories are closing rapidly . . . act now!

CHIPPENDALE with Automatic Phonograph And PHILCO Radio

An exquisite cabinet creation of pure Chippendale design, houses a fully equipped bar, automatic record-changing phonograph, and 1940 PHILCO with electric push-button tuning. Here is an instrument with tremendous sales appeal.

WRITE OR WIRE NOW

RADIOBAR COMPANY of AMERICA
296 BROADWAY • NEW YORK

The "Zephyr" model, open at right, is available with PHILCO chassis, or with plain undrilled panel. Also available with doors for bar service only.

RADIO TODAY
Thanks Giving

Not for a generation has any year given us more to be thankful for than has Nineteen Thirty-nine. Radio men realize this probably more keenly than anyone else.

Half the world's population is technically "at war," engaged in the grim business of destruction of life—of liberty—of wealth—of happiness, and the radio trade knows full well what that means.

We should be thankful, indeed, that the terrors of war do not lap the shores of our land. That we are still creating, not destroying. That the flower of our youth is not being led to slaughter.

We should be thankful too that—
We have freedom of speech.
We have freedom of assembly.
We have freedom of radio and press.
We have freedom to worship our God according to the dictates of our own conscience.

We should be thankful for all of these things, and for our government of the people—by the people—for the people.

Foreign ideologies are challenging the profit motif in a free capitalistic national economy. This hits the radio business man "where he lives."

If we value our freedom in the pursuit of life, liberty, and happiness, it is our obligation to prove again that the highest standard of living the world has ever known was no happenstance, but was wrought by the sweat of our brow, the clearness and the correctness of our thinking.

We must push our standard of living up, and up, and up—till being a citizen of the U.S.A. will be preferred to a dukedom in any other land.

As business men, as radio men, ours is the obligation, (selfish, if you please)
To sell more things to more people.
To employ more people in making more things, to sell to more people.
To create wealth, by being worth our hire, and commanding our price.
To pay our co-workers ever more, that they may buy more of the products of others.
To bring more happiness to more people by showing them the joys and lasting pleasures to come to all the family, from an investment in good radios, and in better things for better living, electrically.

Sell the radio trade short if you must.
Cut and slash prices, if you know no better.
Outsmart the other fellow as you have so often tried to do.
But when you do these things, remember the hell you have raised in the past, and that there is no surer way to business suicide.

Only damn fools—or cowards—commit suicide. But they do leave the world a better place for their going.
The next five weeks will probably witness the sale of more radio sets in your town than any similar period in its history.

But much of this radio business is not going to walk into your store and buy. It’s got to be sold.

Sold on the merits of the new sets.

Sold on their lasting value as gifts.

Sold on the continuing pleasure their use brings.

The business is there—but like the cow, and her milk—you’ve got to take it from her—it won’t come without help.

At Christmas radio enters into open competition for the customers’ gift dollars with such things as books and fancies, scarfs and stockings, ties and slippers, cigars, and liquor, and a thousand and one other things, too.

TO LEAD THE PACK

Unlike the rest of the year, when radio is sold purely for what it is, and what it does, now it must be displayed and sold as a gift item in competition with other gift items.

Display—suggested gift displays, will be more productive of direct sales response during the holiday season than during any other period of the year.

Even if your sales are good, don’t neglect your windows now, if you want to get all the Christmas business you can.

With many gifts to buy for many people, “what to give who” becomes a perplexing question.

Keep your windows alive with the spirit of the season, with practical gift suggestions.

Show some packages already “gift wrapped,” around a tree, each tagged for some member of a typical family.

A small set for mother, for her sitting room or kitchen.

A set for dad, to hear the fights.

A short-wave set for the boy—and dad—to explore the far corners of the earth.

A small combination for jittery sister.

Nursery sets for the little tots.

A console or combination for the whole family, to enjoy good music, drama, and feature events.

From the department and chain stores we learn a merchandising lesson too. They take full advantage of the natural desire of most people to have their gift look more expensive than it actually is.

Get out your slow moving stock, last year’s models, late model trade-ins, clean and polish thoroughly, sharpen your pencil and price them “right,” display them with a bargain tag prominently.
Records bring the spirit of Christmas to every home. Get set for a rush on albums, children's records, and record players. Attractive window displays are the answer to bigger sales.

Lots of people will buy them now who would not be the least bit interested in a few months, and who would not pay more money for a current model.

**CHANGE FOR EXTRA SALES**

Some dealers make a practice of announcing these “gift-bargains” to their own customers only, by direct mail and phone. Others use them as “leaders” in their displays and advertising.

However you prefer to do it, now is the time to get rid of your slow moving stock and kill two birds with the one stone.

Make your customers happy with a gift-bargain, and put more of your money in the bank, less in frozen stock.

Many smart radio dealers have taken on small electric appliances particularly appropriate as gifts, and even other articles such as electric toys, records, cameras, to increase store traffic, expose more people to their radio displays as well as for the direct plus sales of these lines.

Others think it is better to stick to their regular lines of merchandise and use direct mail weekly during November and December to their own customer list, giving appropriate gift suggestions, one or two only, each week, on a more personal basis.

Whatever the dealer’s preference may be, the fact has been proven beyond the slightest doubt, that the greatest sales return per advertising dollar wisely spent comes in the four weeks preceding Christmas. Dealers who do not advertise then, simply cannot get their full share of the holiday business.

**GETTING PERSONAL**

Another thought that helps sales, particularly of gift merchandise, is to personalize the use of the article. Relate the use of the gift article to some person, just as the customer thinks in terms of the pleasure and satisfaction the person receiving the gift will get from its use. Such displays invariably are more effective and more productive.

Stores, and their personnel too, should reflect the gladness of the Yuletide spirit, in color, in cheerfulness, in courtesy, the better to be in harmony with customer's thoughts, and reflect a bit of “personality” in your customer relations.

Over the years these characteristics are very important in building goodwill, in bringing customers back again and again, until they think of your store as their store.

But it is more important during the holidays to emphasize your store’s personality when many new customers are coming to your store, perhaps for the first time, and you compress into a single day more customer contacts than during a normal week.

And you have got to be more “Courtesy Conscious” during this season too, because as the business rush increases, and your nerves get taut, you are meeting customers with short tempers, and these two make an explosive mixture. Goodwill may be shattered when customer relations are allowed to drift.
Production Curve Slopes Upward

As late reports roll in, manufacturers are reaching new high production figures, and are still unable to keep pace with the deluge of orders.

Order backlogs are increasing.

Demand for consoles is increasing faster than for small sets, pushing the average unit price up.

Dealers report inventories are increasing, and to a large degree indicate manufacturers order backlogs are overlapping. There still is good reason to believe that this year will surpass all previous years in number of units sold, and will be second only to 1929 in dollar value.

Plan Frequency-Modulation Stations for N.Y. and New England

Establishment of the first network of "stationless" radio broadcasting is foreseen in the application which has just been made by John Shepard, president of the Yankee network, for permission to operate two frequency-modulated broadcast stations—at the summit of Mt. Washington in New Hampshire and at Alpine, N. J.

The Yankee network based its application on the contention that FM radiocasting has passed out of the experimental stage and asked that stations using this method be authorized as regular radiocast stations.

MORE STATIONS

Parallel with the Yankee Network, experiments in frequency modulation are being made by the General Electric Company in Schenectady. After experimenting for a year with an FM station atop the State Office Building in Albany, the company decided to build an FM transmitter as part of its new television station in the Helderbergs, to be ready Jan. 1. Another experimental station already in operation has been built at Hartford, Conn., by Franklin Doolittle; and it is understood construction permits have been asked by persons in Detroit, Milwaukee, Los Angeles and other cities.

Frequency-modulated radiocasting, as compared with amplitude-modulated, the present type commonly employed, is the invention of Maj. Edwin H. Armstrong, radio-circuit inventor and Professor of Electrical Engineering at Columbia University. Major Armstrong, who perfected the super-regenerative and superheterodyne circuits for radio receivers, operates his own FM station at Alpine, N. J. Major Armstrong's invention produces a signal providing radio reception startling in its realism with greatly reduced static effects, either natural or man-made.

SERVICE WIDENED

The Alpine station to be built by Mr. Shepard would be a 50,000-watt station atop the Palisades, employing part of the antenna mast now used by Major Armstrong. The Mt. Washington station would be 5,000 watts, located 6,912 feet above sea level. Each of these stations with full power could cover receivers within a 75- to 100-mile radius of each of them. Together with the Paxton, Mass., transmitter, already operating, they would serve virtually all the major cities of New England, from New York to Portland.

Majestic Radio in Reorganization Move

In a telegram to Radio Today, W. B. E. Norins of Majestic Radio has outlined the action being taken on the reorganization of the firm.

Mr. Norins wired as follows: "Claude A. Roth has qualified as trustee of the Majestic Radio & Television Corp., Chicago, which is seeking reorganization under Chapter X of the Chandler Act.

"The purpose of this legislation is
James S. Knowlson, chairman of the board of directors of Stewart Warner Corp., has been elected president. The company reports sales to be now “at the best levels of the year.”

for the expeditious reorganization of corporations. Representations have been made to the trustee that additional capital will be forthcoming, so as to permit prompt reorganization and continuance of operation.

“The trustee is making an investigation of the affairs of the corporation with this end in view and will reach a prompt decision. In the interim the current business of the corporation will be continued by the trustee and current prices of the corporation merchandise will be maintained.

“Shipments of merchandise are going forward to distributors.”

Radio’s Thanksgiving Puzzle on the Cover

The matter of the location of the Thanksgiving date this year is just the sort of thing that should fall into the hands of Gracie Allen. There she is, with George Burns, on the front cover, with the dates even more tangled than President Roosevelt chose to make them. The youngsters are Sandra and Ronnie, who are an important and disarming part of the family.

When these artists go on the air, they manage to keep millions of people personally adjacent to their radio sets, and in that sense they are very much the business partners of the radio dealer. Theirs is another of the “programs that help you sell.”

The Burns and Allen show is heard on 52 stations of the CBS net, on Wednesday nights. The program ranks 'way up among national favorites, and is a downright "must" for those who like glib comedy with a fine lift to it.

"MAGIC WAVES"


Weekly Broadcasts by
Dr. O. H. Caldwell
Editor of Radio Today

NBC Red Network, Friday Evenings
7:45 p.m. E.S.T. 6:45 p.m. C.S.T.

Nov. 17—"Giant Voices." New Applications of Sound in Industry and Everyday Life.
Dec. 15—"Radio Shortwaves and Aviation." Flying Beams, Altitude Meters, Fog Landings.

Each program in the "Magic Wave" series will take up some important application of radio sets or radio tubes, showing how the principles of the listener’s own home radio set are being applied in other fields, and thus giving the listeners a better understanding of the marvelous properties of his home radio set and the amazing service it brings.

Presenting the first vice-president of the newly organized National Radio Parts Distributors Ass’n., Elliott Wilkinson, who is a partner of the well known radio parts jobber house, Wilkinson Bros. of Dallas, Texas.

Radio Due for a Greater Season

Industry executives are mincing no words about the utterly pleasant prospects ahead.

"The 1940 season looms as one of the best years in our history," says Sayre M. Ramsdell of Philco, who is feeling fine over the fact that production at his plants are breaking all previous records.

With the solid figures to back him, Mr. Ramsdell reports such trends as "sales far in advance of last year," and "one of the greatest radio buying years." And he declares that the European situation has made the public more radio-minded than it has been "since Marconi first tinkered with the wireless."
GE combination console

Majestic portable phono
* 5 tube super-het for AC or portable battery operation has built in loop antenna and spring motor phono. Model 1BR50BP. Majestic Radio and Television Co., 50th and Rockwell St., Chicago, Ill.—Radio Today.

Stromberg-Carlson period model
* This popular Chinese Chippen-dale model 400N employs five tubes in a superhet circuit. Covers the broadcast band and uses a 6-inch electro-dynamic speaker. Designed for AC operation only, model 400N lists at $69.95. Stromberg-Carlson Mfg. Co., 100 Carlson Road, Rochester, N. Y.—Radio Today.

Admiral table model
* Model 384-5S, five tube AC-DC superhet is furnished in attractive walnut wood cabinet with matched carrying handle. Five high-voltage filament tubes are used and no line resistor is required. Underwriters' approved. The vernier dial covers the 540 to 1,730 KC band. The built-in Aerescope gives no-aerial, no-ground reception. Five-inch permanent magnetic speaker. Continental Radio & Television Corp., 3800 W. Cortland St., Chicago, Ill.—Radio Today.

Sentinel push-button model

Crosley 3-power portable

Emerson table model

Farnsworth phono-radio
* A new table model combination radio phonograph in the 1940 line is AK17. The modernistic walnut cabinet is designed to play records with the lid closed. A crystal pick-up and single speed turntable handles 12-inch records. The half-circular dial is marked from 550 to 1,750 kc. List price $29.95. Farnsworth Radio & Television Corp., Marion, Ind.—Radio Today.

Feature personal radios as Christmas gifts in attractive window displays.
"No aerial—no ground" makes it easy to sell new models for every room in the home.

**Crosley superhet**

**Philco compact**

**Arvin 6-tube model**

**Motorola table model**
- Deluxe model 71A features six push-button tuning, three wave bands, and continuously variable tone control. The modernistic design is carried out with a slide rule dial and horizontal louvered speaker grille. Cabinet finished in walnut. Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Ill.—Radio Today.

**De Wald table model**

**Delco console**
- Six station automatic tuning, self contained loop antenna, RF stage, television and phonograph connections, 12-inch electro-dynamic speaker are features of this 9-tube superhet that tunes 3 bands. End panels of sliced walnut, and white holly inlay on pilasters. United Motors Service, Inc., 39-44 Grand Blvd., Detroit, Mich.—Radio Today.

**Radiobar period model**

**Lafayette table model**

**RCA automatic Victrola**

**NOVEMBER, 1939**
Profit Opportunities in 1940 Models

GE combination console

Admiral table model
- Model 11-708. Fire tube AC-DC superhet is furnished in attractive walnut wood cabinet with matched carrying handle. Five-high voltage filament tubes are used and no filter rectifier is required. Underwriters' approved. The vernier dial covers the 540 to 1180 KC band. The built-in Autocope gives no-signal, no-ground reception. Proven permanent magnetic speaker. Continental Radio & Television Corp., 5450 W. Cortland St., Chicago, Ill.—Radio Today.

Majestic portable phone
- 5 tube superhet for AC or portable battery operation has built-in loop antenna and speaker with motor phone. Model 1111150-4. Majestic Radio and Television Co., 550th and Rockwell St., Chicago, Ill.—Radio Today.

Stromberg-Carlson period model
- Table model Chinese Chipendale model 1007 employs five tubes in a superhet circuit. Covers the broadcast band and uses a 6126 electron-dynamic speaker. Designed for AC operation only, model 499M lists at $60.00. Stromberg-Carlson Mfg. Co., 110 Carson Road, Roch-ester, N. Y.—Radio Today.

Sentinal push-button model

Emerson table model

Philo compact

Lafayette table model

RCA automatic Victrola

De Wald table model

Delco console
- Six station automatic tuning, self-contained loop antenna, RP stage, television and phonograph connections. 12-inch electro-dynamic speaker are features of this 208 tube superhet that tunes 3 bands. End panels of solid walnut, and white bolly inlay on plastic front. United Motors Service, Inc., 30-44 Grand Blvd., Detroit, Mich.—Radio Today.
Christmas Gift Naturals

Your customers will soon be thumbing their check books and making gift selections by the hundred. Items on these pages will likely catch their fancy.

The Stewart Warner Senior Varsity radio will make a hit on any campus. College sons and daughters will want one.

Give him a Schick "Pocket Dressing Room" kit with the new "Colonel" model shaver. Pigskin-grained case with mirror, comb and new "Whiskit" sells for only $17.50. Schick Dry Shaver, Inc., Stamford, Conn.

An unusual and welcome gift which serves as a year 'round reminder of the donor is Edward's musical chimes Edwards & Co., Norwalk, Conn.

No more jumping out of a nice warm bed to shut off the radio! "Lullaby" bedlamp-radio is the reason. $19.95. Mitchell Mfg. Co., 1550 N. Dayton, Chicago, Ill.
Smartly shipshape in design, and fitted with a real ship’s bell strike is GE’s Gloucester model clock at $18.95. Ideal for the nautically minded.

RCA’s toy phonograph should be on every parent’s list for Santa Claus to bring the children. Complete unit is $4.95.

At the end of any trip there’s always a few wrinkles in suits or dresses. Travelers will appreciate the Tra-Valet—a smart looking case opens up into a convenient ironing board and contains an electric iron. Bersted Mfg. Co., Fostoria, Ohio.

When nothing but a hot water bottle will do, Fenwal automatic heater maintains the temperature at a constant level, substituted for the stopper. Gives dependable, soothing comfort, and “controlled” safe warmth. Only $3.90. Fenwal, Inc., Ashland, Mass.

There’s nothing like Heat King $7.95 portable air circulating heater for quickly raising the temperature so baby won’t catch cold when being bathed. It makes chilly rooms comfortable. Nat'l. Die Casting, 600 N. Albany Ave., Chicago, Ill.

Remington-Rand, Bridgeport, Conn., offers two complete gifts — the close shaver packaged in a silverplated cedar lined cigarette box for $15.75.
The Run of Your Store—
They like to feel that the store is theirs. It means easy-going demonstrations, with everybody in a good mood, and everyone thinking that the whole store is friendly and useful. Against the rifleshot type of presentation, a gentler "open house" attitude will garner more of the orders in the long run. Here's a salseman at Newmark & Lewis, Hempstead, N. Y., getting smiles and general good will from a pair of prospects, who just naturally like easy chairs and music.

What the Customer Likes

Displays of "Show" Value—
Certainly the customer likes brief, and to-the-point explanations of radio values. He likes a sales message presented with color and variety. Many display pieces of this type are simple outlines of "reasons to buy"—in this picture the Hellrung & Grimm store of St. Louis is using a complete set. It includes sharp arguments on "value up" and "prices down" and helps to simplify the selection of a radio, by naming exclusive features. Number of sets is smartly limited.

Programs "Now Playing"—
What his radio offers today, in terms of new features and old favorites, is something that customers will investigate. If you link these summaries with your new receiver values and your service offers, the setup is a sweet one. In this display built by Station WFBR of Baltimore, seven placards show the entertainment menu by days. The window proves that when radio makes its entertainment claims, there are plenty of details to back them up. WFBR cooperated further by broadcasting 15-min. tie-ins, and 21 spot announcements.
Compare them with any other combination

You’ll agree these two new

1940 RCA Victrolas

are unmatched

★ IN BEAUTY
★ IN PERFORMANCE
★ IN VALUE

On every count these new RCA Victrolas win, hands down! • They have beauty—distinctive beauty that marks the pinnacle of achievement by master RCA Victor stylists. • They have performance. One “listen” to their rich tone—one “look” at their imposing list of features will prove that to you. • They have value. It seems incredible that so much quality can be offered at such modest prices—but it’s a fact! • In short—they have everything—everything that’s needed to turn prospects into buyers!

RCA Victrola Model U-42 has a delightful cabinet with doors opening from front; Protec- Tonic Tone Seal which closes turntable compartment sound tight so that only the pure Victor Tone is heard. Phonograph features Automatic Record Changer, bass and treble tone control, newly designed tone arm for quick, easy needle changing. 7-Tube Push-Button Tuning radio (plus Magic Eye) provides reception of American and Foreign stations, has Magic Loop built-in Antenna, Push-Pull Amplifier and 12″ Electro-Dynamic Speaker for full, rich tone. Plug-in for Television Attachment and Television-Victrola Switch.

RCA Victrola Model U-40 is an outstanding value. Phonograph has Automatic Record Changer, Improved Viscaloid Damped Pick-up, 6 watts Push-Pull Output, 3-position bass-treble Tone Control, top needle loading tone arm, and other fine features. Radio has Push-Button Tuning for 6 stations, Built-in Loop Antenna. Plug-in for Television Attachment. Receives American and Foreign stations.

For best results, use Victor Needles.

RCA Victrola

RCA Manufacturing Company, Inc., Camden, New Jersey
A Service of the Radio Corporation of America

NOVEMBER, 1939
Now that the automobile show is over and the new cars are on the road, the public wants to get maximum pleasure from its motoring with a modern auto radio.

With the fast moving European situation demanding constant contact with news of the moment, motorists want radio in their cars. No longer is the winter season a period of stay-at-home for the motorist. New ventilating systems and car-heaters make winter traveling just as pleasant as those summer trips.

Right in step with the new safety features of the 1940 cars, is the push button tuned radio. With all of the new cars standardizing on dash-mounted receivers, push button tuning is a decided advantage to quick, accurate, and safe station-hunting. Single tuning-button receivers are making the job even more automatic. Pressing the control button from one to five times selects the corresponding station. The Philco model featuring single button control, employs an electro-magnetic solenoid to turn a rotary station selector-switch.

**COWL ANTENNAS USED**

New types of antennas are putting in an appearance, and very neat, too. The trend is definitely toward the single rod design. The reason is simplicity and good performance. Single hole mounting of the extension type antenna is popular because it is inconspicuous. Several new cowl antennas may be raised and lowered from within the car. A hydraulic system elevates the two or three sections to a height of 30 to 60 inches. When telescoped, only 3 inches project above the cowl. A single stroke of the under-dash plunger raises the aerial to its full height.

Standard cowl antennas are furnished with neat molded insulators to fit the contour of the car body. Single and double point mountings are used on new cars. An under-hood mounted cowl antenna is available for the older cars with conventional type hoods. A special bracket supports the aerial from the screws holding the hood well to the frame of the body.

**SIMILAR CIRCUITS**

An important feature of static noise reduction in the new antennas, is a small metal ball mounted on the tip of the aerial rod. Its purpose is to reduce the noise caused by electrical discharges to and from the tip. It is well known that a spark will jump between two sharp-pointed electrodes at a lower voltage than it would if the electrodes were spherical in shape. The same reasoning applies to the auto-antenna. A noise voltage must be higher to discharge from, or to, the ball tip of the antenna to cause noise in the set.

Auto radio circuits remain much the same as last year's models. The sensitivity and selectivity are ample for present needs and little has been done to further their high average. Tone quality has been improved in new models by the use of a larger speaker. Eight-inch electrodynamics are now being used in most of the sets.

Installing the auto radio and licking the interference problem is still the serviceman's biggest job. New cars have more rubber cushioned parts than ever before with the result that noise pick-up and radiation are more prevalent. Bonding of the interfering parts to the frame or engine block is the obvious solution to the problem. The difficulty lies in locating the part of the body radiating the noise. The only sure fire method is trial and error. A handy tool for trial grounding of suspected trouble-makers can be made from a piece of large size shield braid and pointed test probes made from hard brass bar-stock. The probes should be sharp enough to cut through the scale, rust, and paint. For a trial location of the interfering section, the regular antenna may be removed from the set and a shielded lead used instead. By leaving a few inches of the lead exposed at the end (Continued on page 38)

---

This smiling young lady quickly selects her favorite station with the single tuning button radio in the 1940 Ford.

New cars and Christmas season give dealer and serviceman extra profits

---

Cowl antenna for older type cars requires no drilling through body. Unit shown is made by Philco.
Saving of batteries by plugging in AC-DC current when available make CROSLEY portables highly saleable!

MODEL B-549A (Right)  A fast seller because it has so many uses in the home and out of the home—appeals to ALL members of the family—and presents a great big value in its saving of batteries when a light socket is available to plug in the AC-DC extension. It's a splendid radio. You'll find its performance in reception and clarity of tone delight all who hear it.

The switch over from batteries to AC-DC electric current is automatic, which is a leading selling feature. Weight only 12 lbs. Complete with 200 hour batteries it's “hot.” It moves swiftly at

$24.95

MODEL B-439A (Above)  Here we have the minimum in portables without sacrificing good quality, tone, volume and performance. 11 lbs. in weight. Size 11 x 6 1/4 x 5 3/4 inches. Airplane luggage fabric adds smartness. Sold with batteries good for 200 hours.

$18.95

PORTABLE COMBINATION MODEL B-5549A (Right)  is an unmatched value and a strong Christmas item because it's a 24-lb. combination of the 549A chassis and a husky spring wound motor. Equipped with the automatic switch over from batteries to AC-DC current when outlets are available, it promises economy in operation. 1 to 8 records can be stowed away inside with everything snug and tight for toting anywhere. Complete with 200 hour batteries.

$39.95

The Crosley line is ALL fast moving with superhets at $9.99, 2-band 7-tube superhets at $19.99. Other table models to $29.95. Consoles from $39.95 to $69.95 to deluxe combination consoles with Capehart record changers at $114.50.

Prices slightly higher in South and West.

THE CROSLEY CORPORATION, Cincinnati

NOVEMBER, 1939
In the four weeks between Thanksgiving and Christmas, four to five times as many radios will be sold as during the month of July.

Such a wide variation in sales imposes great demands on a retail organization. As the pressure goes up, and personnel reach greater heights of nerve tension, many impressions left with your new customers which are not truly characteristic of your business.

Against these conditions, smart dealers always plan to protect themselves.

First is the matter of personnel itself.

New people, unfamiliar with you and your business may easily do as much harm as good, before they are trained, and by the time they are trained the peak demand has passed.

"BUY APPEAL" WINDOWS

Many dealers have found a practical answer to this problem in the temporary employment of former co-workers, and in the evening employment of other members of the families of regular co-workers. Some dealers, looking ahead, employ high school students, on a part time basis during the Fall and Winter, and have them well trained when the peak demand comes.

Much is needed in the conduct of a radio store at Christmas time besides salespeople.

First, is window display. It is very easy when everyone is busy to forget to change the window displays at regular times. But it is just as important, when people are looking for gift suggestions, to keep your window alive with "buy appeal" as it is when business is not so good.

If you can't find any other regular

time to change your windows, you may want to do as lots of other dealers do, and make window displays a Sunday job during Christmas season, even if you do need the rest.

NEAT STORE DISPLAYS SELL

Second is your store display. This must be kept clean, neat, orderly, and ready for demonstration all the time. Some dealers assign every person to a portion of the sales floor displays, and the first job every morning is to put the display in order, and clean it. This is done again when each person returns from lunch. And during the day, all salespeople are under strict instructions to return any display they disrupt in selling, to its original condition after each sale. Ten cents in the "kitty" each time a salesperson disrupts a display, or anyone fails to keep their display section clean and orderly, the whole to be divided between those who kept their displays best during the holidays, provides an incentive, and creates a competitive urge to "beat the other fellow."

Sales mount fast in late November and December, and drop sharply in January.

Having in stock what the customer wants is important, but having too much inventory in January may be expensive.

So it's important to do most of your buying in direct relation to sales. Determine in advance what inventory you want in January, and remember you can always buy. Day by day check your sales against your inventory, and as stock comes down to your planned level, order the good sellers as you sell them, once or twice (Continued on page 27)

Red and green background is used by Tip-Top of Ossining, N. Y., to show up these sets as very "buyable." The soft cloth in Christmas colors made a simple and dignified setting for receivers and their neat, descriptive placards.

Meeting Christmas Sales Demands

You'll have some new problems during the period of peak sales, but they can be solved by planning and thoughtful action

The big parade of gift shoppers is under way. Here's Elsie Hitz, NBC radio actress, shown with the first of the buys.
Watch NORGE!

1. Watch NORGE design make news year after year.
2. Watch NORGE styling pull store traffic.
3. Watch NORGE features build more sales.
4. Watch NORGE performance make satisfied users.
5. Watch NORGE quality build prestige.
6. Watch NORGE merchandising make Norge dealerships worthwhile.
7. Watch NORGE dealers go to town.

ACT... Fill in Name and Address... MAIL NOW!
NORGE DIVISION, Borg-Warner Corporation
Detroit, Michigan

THE INDUSTRY'S Biggest OPPORTUNITY!

NOVEMBER, 1939
Refrigerator Merchandising Action

Wife of Indiana Dealer Starts at the Very Beginning But With Help of Manufacturer Works Up Man Size Volume on Appliances

Just as if she were following a recipe for a cake or a pie, Mrs. C. A. Evans of Bloomington, Ind., went to work on a formula for selling appliances. She made an intelligent attempt to develop something of pleasant flavor and true texture, and people liked it.

The thing turned out to have a golden top, too. Evans Electric Co. is making plenty of money. Nearly 100 Kelvinator refrigerators have been sold this year, along with about 40 washers and ironers.

OPEN MIND

When Mrs. Evans started her sales career, she had no direct selling experience, but she knew how to deal with the public because of her activity in club work, parent-teacher and political affairs. Her attitude was that “I liked people and was not afraid to work.”

She knew well enough that she had a good deal to learn about the technique of selling. Rather than trying to put up a false front, she was determined to learn the rules.

“My first step was to learn all I could about our products,” she reports. “Next, I read everything I could get hold of, about selling. And then I began cooperating in every sales promotion that the manufacturers planned. We have been Kelvinator dealers for 18 years, and we find that this company’s promotions have always been very effective. Our program is ‘to play ball with the factory.’ We have used the Kelvinator Cooking School, the letter writing contest, the Birthday Party, and more recently the Key Promotion.”

FRIENDLY STORE

In these efforts the Evans policy is to sell the woman first, and the matter of getting into the Bloomington homes turned out to be easy, whether it was straight house-to-house work, or a follow up after the prospect had been to the store. In this program, Mrs. Evans feels that women have an advantage—they know the detailed problems of the housewife and can talk about them in a sympathetic way.

The woman’s touch is apparent in the Evans store, too. There are easy chairs, antique tables, and flowers. Mrs. Evans says also that “in the store we keep a Kelvinator in operation and loaded, so that we can point out the economy of buying in quantities. Of course I am out on calls every morning, but we keep a young lad there on floor duty.”

There is always a trained service man around the place. Every time he finds a Kelvinator that has been in service a long stretch of years, the Evans store takes pride in it, and makes a point of the quality of the line.

KEY CAMPAIGN

In the Kelvinator Key Campaign, the Evans forces covered the town with cards, to which keys were attached, with the suggestion that the lucky keys will win big prizes if brought to the store and found to be the lucky ones. About 250 were dis-
SALES COURSES IMPORTANT

"Since I have been selling," says Mrs. Evans, "Kelvinator has given three sales courses, all of which have been very helpful. I remember that one of them was based on a series of 18 booklets, 'Sales Slants'. ... I still carry the sales kit I got for completing that course.

"Just now, I have finished the Kelvinator Sales Training Course, which I found to be very fine. We were given concrete applications of sales principles that we already knew, but did not practice. The last book, 'Using Your Time Profitably' alone was worth many times the cost of the course."

Mrs. Evans had heard that selling was a tough game. She does not like that expression at all. She says it is a matter of professional skill, industry and courage. She believes that it's a high-grade business; she feels that salesmen are the ones who keep the wheels of industry turning.

XMAS SALES DEMANDS

(Continued from page 24)

a week, or more often if necessary, allowing for normal delivery periods from your distributor. The slow selling models should be cleared out of your inventory during this time, and so should not be re-ordered as sold. The important thing is to set up your January stock plan, know your present stock and sales, and buy only as actually needed. A simple card record will do the job, so you won't lose sales of wanted models, and won't have a stock of unwanted models to eat up your profits.

MEET DELIVERY PROMISES

Many new customers come into your store during the Christmas season. How you serve them may well determine whether you make a customer or lose one. Courtesy costs little, means much, yet is so often lacking when nerves are taut and muscles tired. But then too, is when customers' tempers are just as short. So smart dealers take extra precautions to see that customers are served promptly and pleasantly, that promises made are kept, and that the store is sold with every radio.

Delivery promises should be made to customers only after being certain of your stock, and the condition of your own delivery service, but once given, should be lived up to 100 per cent.

ORGANIZE PERSONNEL

It is always a good plan to arrange for an emergency, or reserve delivery service, in addition to your regular delivery service. If that fails to measure up to the demands of your promises, there are still taxi-cabs and your own car, that could not be used to better advantage than to keep a promise, and satisfy a customer.

Many a customer has been lost forever to stores which, in failing to deliver a gift as promised, took from the customer all the element of surprise in that gift, with all of the disappointment reflected to the store, for an unthinking salesperson's indifference.

The answer to these, and many more Christmas details, is organization.

Before your personnel go under pressure, every problem of operation which you can foresee, should be definitely assigned to some one person. Most of our Christmas troubles come from the fact that what is everyone's job is no one's responsibility. Methods which serve well enough in slack selling seasons crack when the pressure goes on. Because most people will stick to the thing they are doing until it's done, many things are left undone when other work demands more and more time, unless each specific job is definitely assigned to a particular person.

The customer only knows how you treat her, what she gets,—not what you want to do, and the pay off comes from customer satisfaction.

Norge Shipments Register New Increases

The number of Norge products which went to distributors in October was 21,259, according to totals just released by Howard E. Blood, president, Norge division, Borg Warner Corp. He pointed out that this is 148.3 per cent of the figure for the same month of 1938.

Refrigerator shipments considered alone were found to be 183.4 per cent of those for October 1939, while washers were 141.8 per cent and space heaters 205.5 per cent.

These gains for October are well ahead of those for September, which showed Norge shipments to be 126.5 per cent of those for September last year.
After an introductory year in which the momentum of the great Philco name, the public demand and trade preference for a Philco product swept us far beyond our first year's quota...

PHILCO is Now Ready to Forge Ahead in Refrigeration with the New 1940 PHILCO REFRIGERATOR

• AN ENTIRELY NEW REFRIGERATOR—new inside and out—completely redesigned from top to bottom by Philco.
• PRESENTING every up-to-date refrigerator feature science has conceived.
• PLUS brand-new improvements and inventions developed by Philco's refrigerator engineers and presented for the first time in the new 1940 Philco Refrigerator.
• EYE-APPEAL AND BUY-APPEAL—the most beautiful refrigerator ever designed, offering the most complete service in the refrigerator field.
• AND NOW NAMED the "Philco Refrigerator", a full-fledged member of the Philco family.
• A FULL LINE of outstanding values to clinch sales in every price bracket.

Philco All Year 'Round for Profits A
For 1940 — Isn’t THIS the Kind of Refrigerator Proposition You’d Like?

1- A superior quality product with new, exclusive, advanced features that your salesmen can “get their teeth into” and your customers instantly see and appreciate.

2- A product with a NAME . . . with REAL public acceptance.

3- A company behind the product that knows the appliance field, that specializes in appliance merchandising, that devotes its entire thoughts and activities to your problems and your profits.

4- The backing of a powerful advertising campaign in the national magazines and your local newspapers . . . plus a steady stream of promotional plans and material.

5- A strong, aggressive distributing organization that’s schooled in merchandizing, experienced in service and not only supplies you with merchandise but goes all the way in local advertising and promotion to help you make sales.

6- A price structure that keeps you competitive and a discount policy that gives you the margin to make real money.

Coming Soon!

ear ’Round HOME RADIO • AUTO RADIO • TELEVISION • PHONOGRAPHS • RADIO TUBE PARTS • REFRIGERATORS • AIR CONDITIONERS • DRY BATTERIE
After an introductory year in which the momentum of the great Philco name, the public demand and trade preference for a Philco product swept us far beyond our first year's quota...

PHILCO is Now Ready to Forge Ahead in Refrigeration with the New 1940 PHILCO REFRIGERATOR

- AN ENTIRELY NEW REFRIGERATOR
- PRESENTING all Refrigerator features ever designed and perfected, with Refrigerator service, in a Refrigerator body.
- PLUS new improvements and innovations developed by Philco, a Refrigerator manufacturer and pioneer in every line of Refrigeration.
- EYE-APEAL AND BUY-APEAL—the most becoming refrigerator ever designed and perfected, with Refrigerator service, in a Refrigerator body.
- AND NOW NAMED the "Philco Refrigerator," a full-fledged member of the Philco family.
- A FULL LINE of outstanding Refrigerators to clinch sales in every price bracket.

For 1940 — Isn't THIS the Kind of Refrigerator Proposition You'd Like?

1- A superior quality product with new, exclusive, advanced features that your salesmen can "get their teeth into" and your customers instantly see and appreciate.

2- A product with a NAME . . . with REAL public acceptance.

3- A company behind the product that knows the appliance field, that specializes in appliance merchandising, that devotes its entire thoughts and activities to your problems and your profits.

4- The backing of a powerful advertising campaign in the national magazines and your local newspapers . . . plus a steady stream of promotional plans and material.

5- A strong, aggressive distributing organization that's school ed in merchandising, experienced in service and not only supplies you with merchandise but goes all the way in local advertising and promotion to help you make sales.

6- A price structure that keeps you competitive and a discount policy that gives you the margin to make real money.

Coming Soon!

Philco All Year 'Round for Profits All Year 'Round
Tubes Go to Laundry

New list prices bring forth dealer and distributor pros and cons

Just when radio dealers and servicemen could see an end to the tube chaos, no profits in the sale of tubes, the manufacturers put their heads together and did something about it.

With “deals,” premiums, and cruises following each upon the heels of another, no one knew just what their tubes cost today, much less what they would cost tomorrow. And profits had vanished in the mad scramble for volume in the battle of the discounts.

The new tube pricing plan is certainly “just what the doctor ordered” for a sick business.

The whole purpose of the plan is to bring order out of chaos, to stabilize prices, and profits, and to stop the “40 off” battle of the discounts, to put the merchandising of tubes on a sound practical basis.

ORGANIZED PROGRESS

To simplify the price structure for everyone, from producer to consumer, 342 tube types have been grouped into 8 list price levels, with uniform discounts.

To overcome consumer resistance, list prices have been reduced to levels only a little above what customers have been paying at most dealers’ stores.

To stop “deals” and to stabilize prices, discounts to distributors and dealers have been reduced to reasonable and sound levels.

The whole plan is constructive, is sorely needed, and offers a real opportunity for distributors, dealers and servicemen to really merchandise tubes, and earn a profit for their efforts.

PLAN GETS SUPPORT

Distributors seem to be four-square behind the plan, and think they can make it work.

Dealers are a little divided in their opinions yet, while agreeing that the plan should have a fair trial. Some of the dealer objections are:

1. Dealer’s mark-up, and therefore profits, are reduced.
2. People don’t know list prices, so why not make them high.
3. Customers like bargains, and “40 off” sounds good to bargain hunters.
4. Sales won’t increase, so lower prices mean less income.

But a far greater number of dealers, more farsighted perhaps, than their slow-to-change brethren, see much merit in the new schedules. They point out:

1. Mark-up is not decreased since full list hasn’t been the selling price, because of cut-price competition.
2. People do know the selling price of tubes, and a uniform price will prevent “shopping” and price complaints.

A SERIOUS MATTER

3. Selling at “40 off” builds a cut-price reputation, and casts suspicion on all your prices. People know pretty much that they “pay for what they get.”
4. Sales can be increased, taking business away from non-radio dealers.
5. The plan has got to work if the tube business is worth being in.

Most dealers say there has been no change in their sales, as the result of the plan, as yet.

REFORM DUE NOW

In the large cities, there are still some cut-prices being shown, while old stocks prevailed.

Some dealers have reported that some manufacturers’ representatives and wholesale salesmen did not seem too anxious to stabilize the prices. Said nothing would happen if they continued their “tube prices slashed” type of displays and advertising, if they did not quote actual prices. Over the counter prices could be anything the dealers wanted, so long as they didn’t give a receipt.

Such practices should be stopped at their very beginning, and salesmen or dealers who follow them should be plainly shown that they are not needed in the tube business.

Dealers and distributors who permit these practices to go on in their own organization, from selfish motives, will one day know they have hurt themselves badly.

How the New Plan Stacks Up

<table>
<thead>
<tr>
<th>List Price</th>
<th>No. of Tubes</th>
<th>% of Unit Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ .60</td>
<td>1</td>
<td>9.5</td>
</tr>
<tr>
<td>$ .70</td>
<td>3</td>
<td>16.3</td>
</tr>
<tr>
<td>$ .80</td>
<td>48</td>
<td>33.3</td>
</tr>
<tr>
<td>1.00</td>
<td>72</td>
<td>23.9</td>
</tr>
<tr>
<td>1.25</td>
<td>101</td>
<td>12.1</td>
</tr>
<tr>
<td>1.60</td>
<td>47</td>
<td>4.0</td>
</tr>
<tr>
<td>2.10</td>
<td>46</td>
<td>1.9</td>
</tr>
<tr>
<td>2.70</td>
<td>16</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Here’s a Chance for Clean-Up on Tubes

1. Cooperative action by tube manufacturers has now taken tangible form.
2. Tube merchandising has new opportunity to lift itself out of its unstable, bargain-ridden doldrums.
3. The public can be given a clearer idea that new tubes are worth the price.
4. The new engineering developments in the tube market will get the benefit of healthy merchandising.
5. Dealers may settle down to a definite profit schedule for tubes, and concentrate on aggressive service and merchandising plans, rather than price promotions.
PROFIT DEPENDABILITY — Sylvania's policies are keyed to give you Profit Dependability. You get real merchandising support, too, which helps to multiply your profits by multiplying sales!

PRODUCT DEPENDABILITY — Every Sylvania Tube is a scientific engineering accomplishment—a first rate product that you can be proud to recommend. More than 80 factory tests assure the Product Dependability of every Sylvania Tube.

COMPANY DEPENDABILITY — Hygrade Sylvania Corporation owns and operates three modern plants . . . does business in 124 countries of the world and offers you a complete and profitable line of fine products including panel lamps.

SYLVANIA
SET-TESTED RADIO TUBES
Hygrade Sylvania Corp., Emporium, Pa. Also makers of Hygrade Lamp Bulbs
PHILCO 215RX. Features Wireless Remote Control of favorite stations...an exclusive Philco achievement! 12 tubes, American and Foreign reception, Built-in Super Aerial System and scores of other improvements. A "sell-up" profit maker!


PHILCO TRANSITONE PT-43 One of a complete line of powerful, fine-toned, low-priced compacts...featuring Philco-invented Loktal tubes and safety construction. AC-DC operation, built-in Loop Aerial. Walnut and plastic cabinet.

PHILCO PORTABLE 88T Another Philco first! Plays anywhere, indoors or out, without aerial or house-current. Powerful, clear-toned foreign as well as American reception. 5 Loktal tubes, R. F. Stage, built-in Twin-Loop Aerial. Airplane cloth case.

PHILCO RP-2 WIRELESS RECORD PLAYER. Philco invented! Plays records, with lid closed, through entire radio circuit without wire connections to set. Lifting and replacing tone arm starts and stops turntable. Fine Walnut cabinet.

Year after year Philco is first with radio improvements that really count. First with the public...as shown by Philco's 10 straight years of leadership! First with the trade...as shown by an impartial nation-wide survey!

Consider some of Philco's recent achievements: Built-in Super Aerial System, with Twin-Loop Aerial and triple-power Television Tube; Wireless Remote Control—both exclusive with Philco! Loktal tubes; R. F. Stage in low-priced sets; SAFE low-priced Compacts; Self-Powered Portables; 1½ Volt Farm Radios; Wireless Record Players; DeLuxe Inter-Mix Record Changer—all Philco firsts! And these are only a few. No wonder "greatest improvements" is listed among 14 reasons why it pays to concentrate on Philco for turnover, volume and profit!

Every 1940 Philco is Built to Receive TELEVISION SOUND...the Wireless Way!
Philco gives you ALL 3

**G IN AND PLAY**'S CONVENIENCE. No aerial or wires to install. Plug in anywhere and play.

**PURITY OF TONE.** Greater freedom from power lines and man-made static, even in noisy locations.

**R-POWER.** Even gets foreign reception without an outlet. Amazing performance!

All three for full radio enjoyment. A mere built-in ever it may be called, gives you just one or two. Only you ALL 3 . . . because only Philco has the Built-in System!

**PHILCO FARM RADIO 100F**

Pioneered by Philco! Saves 2/3 of battery cost and current drain . . . gives electric-set performance, reliability, convenience and economy! New 1% Volt tubes, new-type circuit and speaker, new self-contained Battery Block.

**PHONOGRAPHS 509**

Philco's spectacular De-Mix Record Changer 10" and 12" records at one loading . . . a recorded music! American radio reception in super-value models.

**DEALERS PREFER TO SELL PHILCO!**

Reasons given by dealers in a national survey

1. Greatest Public Acceptance
2. Most Widely Advertised
3. GREATEST IMPROVEMENTS
4. Lowest Service
5. Most Complete Line
6. Easiest to Sell
7. Greatest Market
8. Finest Performance
9. More Satisfied Customers
10. Fastest Selling Line
11. Better Parts Service
12. Greatest Sales Appeal
13. Sound Factory Policies
14. Most for the Money

We believe that technical features make the best sales story. For that reason we prefer Philco, the radio that gives more engineering improvements for the money.

**BESMAN RADIO COMPANY, Boston, Mass.**

There's a good reason why we prefer to push Philco. It is 1940's most highly developed radio set.

**DONNES, INC., York, Penna.**

Philco's Built-in Super Aerial System is a truly great improvement. It gives new convenience and new performance, plus amazing noise reduction.

**EASTERN INDIANA OIL & SUPPLY CO., Geneva, Indiana.**

For new inventions and real worthwhile improvements, we like Philco for 1940.

**B & A RADIO & TIRE CO., Los Angeles, Cal.**

Philco has led the field in the 6 years we have featured this line, chiefly because of finer merchandise -- tone, dependability, latest improvements, fine cabinets and -- good dealer profits.

**KESSEL & KESSEL, Saginaw, Michigan.**

We have handled Philco radios for the past ten years, and our experience has taught us that every worthwhile improvement that has been made in the radio field has been made by Philco.

**SMITH'S RADIO SHOP, Nashua, New Hampshire.**

Philco's Built-in Super Aerial System is typical of the many improvements Philco has brought to radio. We're going the limit on Philco for 1940.

**BRENNELL'S ELECTRIC & MALTAS SHOP, Monroe, Wash.**
Year after year Philco is first with radio improvements that really count. First with the public . . . as shown by Philco's 10 straight years of Leadership! First with the trade . . . as shown by an impartial nation-wide survey!

Consider some of Philco's recent achievements: Built-in Super Aerial System, with Twin-Loop Aerial and triple-power Television Tube; Wireless Remote Control—both exclusive with Philco! Loktal tubes; R. F. Stage in low-priced sets; SAFE low-priced Compacts; Self-Powered Portables; 1½ Volt Farm Radios; Wireless Record Players; Deluxe Inter-Mix Record Changer—all Philco firsts! And these are only a few. No wonder "greatest improvements" is listed among 14 reasons why it pays to concentrate on Philco for turnover, volume and profit.

Every 1940 Philco is Built to Receive TELEVISION SOUND . . . the Wireless Way!

PHILCO 21SRX. Features Wireless Remote Control of favorite stations . . . an exclusive Philco achievement! 12 tubes, American and Foreign reception. Built-in Super Aerial System and scores of other improvements. A "sell-up" profit maker!


PHILCO Transmites PT-43. One of the complete line of powerful, fine-tuned, low-priced compact . . . featuring Philco's exclusive Loktal tubes and safety construction. A.G.C-operation, built-in Loop Aerial. Walnut and plastic cabinet.

PHILCO PORTABLE BBT. Another Philco first! Plays anywhere, indoors or out, without aerial or house-current. Powerful, clear-tuned foreign as well as American reception. 5 Loktal tubes, R. F. Stage, built-in Twin-Loop Aerial. Airplane model. Very portable.

PHILCO RP-2 WIRELESS RECORD PLAYER. Photo-invested Plays records, with lid closed, throughout the radio circuit without wire connections to set. Lifts and replaces tone arm starts and stops turntable. Fine Walnut cabinet.

Only Philco gives you ALL 3

"Plug in and Play" Convenience. No aerial wires to install. Plug in anywhere and play.

New PURITY of TONE. Greater freedom from power lines noises and man-made static, even in noisy locations.

Super-Power. Two ears foreign reception without an outside aerial. Amazing performance!

You need all three for full radio enjoyment. A mere built-in aerial, whatever it may be called, gives you just one or two. Only Philco gives you ALL 3 . . . because only Philco has the Built-in Super Aerial System!

PHILCO FARM RADIO 100F. Pioneered by Philco! Serves 3½ of battery cost and current drains . . . gives electric-car performance, reliability, convenience and economy! New: 1½ Volt tubes, new type circuit and speaker, new self-contained Battery Block.

Dealers Prefer to Sell Philco!

Reasons given by dealers in a national survey

1. Greatest Public Acceptance
2. Most Widely Advertised
3. GREATEST IMPROVEMENTS
4. Lowest Service
5. Most Complete Line
6. Easiest to Sell
7. Greatest Market
8. Finest Performance
9. More Satisfied Customers
10. Fastest Selling Line
11. Better Parts Service
12. Greatest Sales Appeal
13. Sound Factory Policies
14. Most for the Money

PHILCO GREATEST IMPROVEMENTS among 14 reasons why Philco is the one radio line dealers can depend on for surest profits over the long pull...and why they prefer to concentrate on Philco!
Record Profits Made Easy

Compact record counter combines unique demonstration system, ample storage space, and moderate cost.

For the benefit of the many small dealers who have asked us about "getting into the record business"—Radio Today last month presented a model stock plan, together with a simple way of controlling it.

Following through, we now present for the first time, a model merchandising unit, designed by Radio Today—expressly to fit the needs of the small dealer.

In only 20 square feet of floor space we have combined every necessary element to stock, display, demonstrate, sell, and wrap records and albums, for a $5,000 annual business.

The fixture is so designed that it may be used as an island fixture in the center of your store, or if you prefer, along wall space, as a counter.

The units are of uniform construction and finish, and so, as your business expands, you may add units as needed, to the first unit.

ROOM FOR COMPLETE STOCK

Under the counter are standard record stock bins, for 10 in. records, 12 in. records, albums, envelopes, catalogs, needles, and accessories, providing ample space to handle up to 550 records.

In the center of the unit is a recessed glass top and front, display case, in which records, needles, accessories, may be displayed in an attractive manner, where every customer must see, yet cannot touch or disarrange the display.

At each extreme end of the unit is a loudspeaking listening post, which may be used for individual record demonstrations, or for the promotion of special records.

At each end of the display case there is an earphone, for listening to a record being demonstrated.

This type of record demonstration has proven itself in one of the largest record departments in the country, and also successfully replaced the booths in one of the highest class department store record departments. It's thoroughly practical.

To make record demonstrations comfortable for the listener, knee-room is provided below each speaker compartment. Modernistic stools supplied with the record-merchandiser place the customer at just the right height to hear his favorite records.

One of the many advantages of this complete record-seller is that the sale and demonstration of records is under control of the clerk at all times. One person may demonstrate four records and take care of one or two customers all at the same time. Instead of giving the customer a half-dozen records to play by himself, the small dealer can now personally handle more people and take better care of the merchandise.

UNITs IN PRODUCTION

Four single amplifiers are mounted in pairs in each of the speaker compartments. One turntable serves each amplifier and the volume control mounted on the motor board switches the amplifier and motor on simultaneously.

These units are now in production by A. Bitter Construction Co., Long Island City, N. Y., a well known fixture builder, and may be bought either with, or without, the turntables, amplifiers, and speakers, so that dealers who can supply this material from their own stocks, or who have their own ideas of building them, may do so. Descriptive literature may be had on request from the manufacturer.

This stock fixture, together with Radio Today's model stock plans, and a simple means of controlling them, makes it easy and economical for any small dealer to get into the record business and get his share of the mounting record profits.

Will War Boost Record Sales?

A search of the Victor Talking Machine Company files reveals that the record business of that company more than doubled between the time the World War broke out and the entry of the United States into the conflict.

BIG SALES JUMP

Considering 1913 as a normal year, Victor record sales during 1914 were up 27 per cent; during 1915 the increase was 76 per cent over 1913; by 1916 it was 145 per cent better, and in 1917 record sales mounted to 161 per cent of the 1913 level. It is interesting to note that during the first half of 1914, the sale of records held steady at approximately the level of 1913. The increase that came following the declaration of war on August 14, 1914, was enough to pull the entire year's average up 27 per cent.

Increased purchasing power, and the desire for relaxation in music from the war news, are given as causes for the sales rise.
RECORD PACKS TRIMMED FOR CHRISTMAS APPEAL

“They’ll look swell hanging on Christmas trees!” reads the introduction to a list of record albums and gift selections just released by one of the big disc makers.

The fact is, the record industry is this minute getting dolled up in those bright new Christmas trims, all ready to help dealers get extra profits from the holiday season.

For instance, RCA Victor has issued a long list of musical master-piece albums, conveniently classified according to whether they’re orchestral, concertos, ballet, chamber, piano, operatic, novelty, juvenile, etc.

Dealers will be able to decide which of these are suitable for mothers, fathers, sisters, brothers, etc., and will be able to stage their promotions accordingly.

Under the Victor Bluebird label are 12 new sets for children, including two special Christmas albums “Star of Bethlehem” and “Tinkle Tonkle Town.”

At the Decca record headquarters, it was found that there are over 100 handsome albums ready for the Christmas market. Many of these are already popular but some are brand new; Albums No. 94 and 95 are likely ones, titled “Christmas in Song,” in two volumes.

POPULAR PRICED SETS

An example of Decca’s appeal to children is the new “Songs of Safety” album by Irving Caesar, specially wrapped in a gift envelope.

All of the Decca albums are colorful in appearance and it is recommended that dealers display the fronts of the sets, for the best effect and the liveliest sales appeal.

FOR A BIG SEASON

Columbia Recording Corp. has announced that it will soon be ready with “extensive material for the Christmas season,” so retailers may expect this aggressive firm to hit the market with merchandise of special interest.

If you look at the current record lists from the United States Record Corp. you will find many Christmas platters with lots of sales significance — holiday music in a popular vein. One of these is the novelty record by Tommy Riggs and Betty Lou, with the titles “Silent Night” and “Jingle Bells.”

Brand New Popularity for Recorded Music

Exceptional sales prospects for radio-phonographs are pointed out by John F. Gilligan, manager of the speciality division of Phileo, in a special statement on how radio has been responsible for both the death and the rebirth of recorded music. Mr. Gilligan said that the estimate for combination sales this year is 650,000 units, “as the popularity of recorded music still mounting fast.”

The Phileo executive emphasized that “radio listeners about two years ago suddenly began to buy records and radio-phonographs for the music they wanted to hear again under the best possible tone conditions ... by 1938, sales went over 370,000 radio-phonos and more than 40,000,000 records.”

It was also revealed that the average price of the combination in 1927 was about $750, compared with about $100 in 1938.

A New Wireless Job

Here’s a new two-speed commercial type wireless record player by Phileo. It sports an oversize motor, crystal pick-up and walnut cabinet, plays 10, 12 or 16 inch records.
A merry Christmas would not be half so merry if it were not for the sound effects connected with the holiday. Carols, choirs, bells, Christmas programs and speeches, talking toys, the voices around the dinner tables, the remarks at family reunions, recorded greetings, etc., are all part of it.

For the radio man who has an interest in recorders and special recordings, all this has a socko meaning. It happens that these holiday sound effects are mostly of a "personal" nature, and there will be a big demand for private recordings of them.

A lot of singers, whether professional, amateur or students, will be making Christmas recordings for use as gifts or greetings. Most of these people have plenty of money to spend, and the dealer's acquaintance with them will turn out to be highly profitable.

There are thousands of entertainment houses whose schedules include some form of music, and at Christmas time they will be willing to use their musicians to make up special recordings, to send to their patrons in place of the usual house greeting card.

OTHERS ARE INTERESTED

This is also true of voice teachers or music instructors who don't mind combining advertising with their annual Yule greeting. These discs may carry short classics combined with a "commercial" announcement, or they might carry the voice of one of the instructors.

In many of these cases where it is perfectly possible for dealers to stir up some business of very substantial proportions, it will be necessary for

him to take the initiative and to make the novelty suggestions to the prospects.

In many areas, some of these suggestions may strike the prospects as unheard of, but if the dealer is prepared to demonstrate or to cite instances where the plan has worked, the customer will be pleased, if surprised.

RECORDINGS BY THE DOZEN

It is a popular custom for orchestra leaders to distribute souvenir gifts among the members of the organization. This is a spot where dealers may step in and make an important sale by approaching a single person.

Dealers should not hesitate to spend extra time and effort on a prospect whose final decision will mean that scores of his friends will get an introduction to the whole idea of "personal recordings at Christmas time." For instance in the case of the orchestra leader, if he distributes a number of the personal records, it will doubtless occur to the individual musicians that they too might use the device.
"CAP" SAYS—

Manufacturers—Listen!

It certainly is your privilege, Mr. Manufacturer, to distribute your products through a large number of small dealers, through a small number of large dealers, or even to sell direct, through no dealers.

But you can't expect either dealer group to maintain a high morale and enthusiastic sales effort for your product if you are elsewhere cutting their throats!

Morale and enthusiasm are mighty important factors on the selling line of a sales organization—as on the firing line of an army.

No manufacturer can hope to have enthusiastic dealer distribution when he permits cut-price department store advertising.

If you don't want dealer distribution—that's fine.

But if you do—for your own sake and that of your dealers, stop trying to be a trick circus rider on two horses at once.

It can't be done—long—at best. The merchandising methods of dealer and department store, are so diverging that you'll "do the split" to your own discomfort if you keep riding them both.

Dealers are plenty "fed up" with manufacturers who play both ends against the dealer in the middle.

If you think the independent dealer is important, snuggle up to him on an honest basis. Stop cutting his throat by selling to discount houses, co-operative industrial buying groups, and predatory price cutters.

You'll find the dealer is just as loyal to you as you are to him.

You're foolish if you expect more.

The Record BAR you've been waiting for!

Newest "Bitter" Unit in Which All Stock-keeping, Selling and Demonstrating Activities Are Centered in One Compact, Inexpensive Fixture.

1 Ideal unit for small dealers needing maximum economy in equipment and floor space. Takes only 12 sq. ft. floor space—Fits any size or shape or store—Island fixture or against wall.

2 Provided with record bins to hold 500—either 10" or 12" records and albums.

3 Four listening stations with separate turntables and amplifiers. Two earphones and two speakers. (Available with or without EQUIPMENT.)

4 Enclosed glass showcase for display of albums, accessories.

5 Provided with needle and accessories drawer; space for wrapping material.

6 Latest releases under glass in each listening station.

7 Standardized design. Add-a-unit when necessary. Retain original intact.

8 Send for free folder showing full line.

A. BITTER CONST. CO.
2701 Bridge Plaza North,
Long Island City, N. Y.
EST. 1910

NOVEMBER, 1939
What happened when a Philadelphia radio dealer sailed into the camera business. Customer interest piled up, and now the photo business rates displays like this full window. Camera studies in the background, a batch of new clickers in front.

Cameras Click at Christmas!

If the radio dealer wants to wrap up some non-radio gift packages this year, camera merchandise is the kind that fits into his electrical selling and nets solid profits on the side.

The thing that adds excitement to the camera market during the Christmas period is that thousands of scenes and portraits are coming up at this time which people will be more than anxious to record on film.

Such things as family homecomings, groups of guests, Christmas parties, family Christmas trees, snow scenes, winter sports, dinner scenes, etc., are now due to be photographed by the

Just out is this "Hi-Lite" spot light for indoor camera fans, presented by Lafayette Camera Division, Radio Wire Television, Inc. Features include pre-focus bulb, light weight, wide focusing range, constant output, etc.


mas season, the following have been noted:
1. At this time of year, the "sentimental" picture is of the greatest interest and in the sample photos which are used around the cameras, the emphasis should be on children, fireside scenes and similar subjects.

2. The practice of using photos on Christmas cards is increasing in importance, and dealers may profitably help their customers with the mechanics of the process. However, action on this score should be taken early.

3. In every community there is some local subject of special interest to everyone. These may concern objects or scenes of a civic nature, local celebrities, or spots of historical interest. If a dealer will show pictures of these in his windows or on his counters, the interest will be substantially hiked.

NEW AUTO RADIO SEASON

(Continued from page 22)

and "probing" around the car, the general vicinity of the interference may be located.

Beside the noise radiation by the various parts of the body not securely grounded, generator, high tension supply, wheel static, and electrical appliances can cause interference that is picked up by the antenna and power cable.

Generator brush sparking causes a characteristic noise whose pitch varies with the speed of the motor. A 0.5 or 1.0 mfd. condenser across the battery side of the cut-out will generally clear up the trouble unless the commutator is too badly pitted.

The adequate shielding now used on auto radios eliminates most of the high tension interference. If such noise does exist, it may come through the oil pressure line or the ignition control wiring. The copper oil line should be well bonded to the frame and the wiring coming through the fire-wall should be by-passed.

SELL AS CHRISTMAS GIFTS

With low prices an important sales point for the new cars, extras such as radios, are optional equipment. This means that the radio dealer can do a real job of selling a product he is familiar with—auto radio. Thousands of new cars will be sold in the next few months without a radio. Here are prospects who will want a new radio when a live-wire dealer demonstrates their many advantages. Auto radios make ideal Christmas gifts. Contact one member of a family sporting a new car and sell him the idea of giving the family entertainment and enjoyment on their motor trips.
YOU can use Utah speakers for every original equipment or replacement requirement with full assurance that they will give PLUS performance. Utah speakers have, for years, been passing successfully the many scientific tests of leading radio engineers. They are also out in front in the all-important consumer-listener tests, which determine the success or failure of sales and service work.

Properly selected, Utah speakers enable you to obtain maximum performance value from all other parts in receivers, P.A. systems, etc. Utah designing keeps abreast of all industry developments. Utah engineering and precision manufacturing provide maximum efficiency and performance. Insist on Utah-made parts and avoid customer dissatisfaction and the loss of time and money. If you don't have a copy of the 32-page, illustrated Utah catalog write for it today.

OTHER DEPENDABLE utah PRODUCTS

UTAH VIBRATORS
Well over a million radio sets are equipped with Utah vibrators.

UTAH TRANSFORMERS
A complete line to service practically every requirement — replacement, service, set builder, amateur, P.A.

UTAH-CARTER PARTS

UTAH RADIO PRODUCTS CO.
814 ORLEANS ST., CHICAGO, ILL.
CANADIAN SALES OFFICE:
414 BAY ST., TORONTO, CANADA
Cable Address: UTARADIO CHICAGO
Typical
Sound Installations

No. 3—Churches

Profitable field for public address equipment reaches its peak activity during the Christmas season

Plans for a merry holiday season this year include many a money-making job for the “sound” dealer. Installations in churches now claim the attention of the trade. The musical programs, plays and pageants that are such a prominent part of church activities at Christmas are ideal subjects for sound reinforcement equipment. These, and many other seasonal programs are assured successes with the quality, power, and depth that a good sound system can produce.

Christmas plays are especially enhanced by the recorded sound effects that are available. Children’s tiny voices can be heard by fond parents sitting in the back row of the balcony, when sound reinforcement is used.

Chimes are especially popular at Christmas time. With the excellent recordings of chimes that are on the market, every church, large and small, may thrill its congregation and the immediate neighborhood.

YEAR ‘ROUND ACTIVITIES

The church requirements for a sound system are by no means limited to the Christmas season. The many year-round activities of every church are all potential users of sound equipment. Club meetings, ice-cream socials, bazaars, suppers, Easter plays, and special programs of all types are occasions that need and will use the advantages of a good sound system.

The musical programs that are so important to a church can be doubled in their effectiveness through the use of high-quality sound amplification. Choir and organ music may be enriched with increased power and tone. The uniform sound coverage over all the church is in itself a great improvement and reason for installing amplifying equipment.

In many of the older churches heavy wood paneling, high arched ceiling, and a deep balcony make it difficult to hear unaided sound well in all parts of the auditorium. Well designed layouts and appropriate equipment can supplement in the “dead” areas and make all parts of the room equally attractive from an acoustical standpoint.

The usual period of amplifier service will be intermittent. Equipment will only be in continuous use for two to three hours during plays or special programs and one to two hours during regular Sunday services.

This period of use means that the equipment will not command a special operator. The controls must, therefore, be simple and easily handled by the janitor or caretaker. Automatic record-players will be desirable because of the operator-freedom they will give. Chimes may be played automatically and timed by a clock to start and stop at predetermined periods. Simplified and automatic operation is a big selling point for the sound system.

Four trumpet speakers in tower of St. Andrew’s church, Calumet City, III., broadcast chimes recordings.

BASIC EQUIPMENT REQUIRED

Each type of sound installation has certain requirements as to the quality of equipment required.

The complement of units required for a complete sound installation is divided into the “must” items and “optional” equipment.

1. High-quality amplifier of proper power rating, and a minimum of 3 input channels. See bar graph.
2. Sufficient number of speakers to divide the power output and give uniform coverage. See bar graph for approximate number of speakers to use.
3. Two microphones; one for voice and the second for choir and organ.
4. 12 or 16 in. turntable.
5. Chimes recordings.
Optional equipment:
6. Headphone hearing aid units and controls.
7. Vibra-harp.
8. Set of tubular chimes (chime console).
10. Church tower or spire speakers to be used with chimes.

The amplifier for church use, as in other public installations, must be of high quality. Poor tonal quality, hum, and non-linear response characteristics will give results that are far worse than the poor coverage of unaided sound. The sound man who makes the installation is in the responsible position of explaining the advantages of quality equipment. The poor sound systems are the most noticed and for this reason, it is important to make your job boost your sound business.

Recorded music and chimes are pleasing in cemeteries. The North Shore Garden of Memories, Chicago, is sound equipped by Webster Electric Co.

Radio Today
GOOD FREQUENCY RESPONSE NEEDED

The volume, tone and mixing controls may be incorporated within the amplifier, or built into a separate mixing panel. Custom built installations generally employ the latter method of control, while the "built up" jobs which use separate units have the controls in the amplifier chassis.

The power capacity of an amplifier for church use may be estimated from the graph shown. The width of the bar is the range of amplifier powers which will be satisfactory. If a choice between two amplifiers in the same power range must be made, select the unit with the greater capacity. The larger available power will mean improved quality at the lower and more normally used sound levels.

The frequency range of the church amplifier must be exceptionally good. The low-frequency response should be approximately 40 cycles to cover most of the low organ tones. For chimes and organ reproduction, the high frequency range should be 8,000 to 10,000 cycles. The response over this range should be uniform with not more than ±3 db. variation.

Speakers for a church interior are usually mounted in a flat baffle. This type of housing gives the best appearance and a wide angle of sound coverage. Since a church has a low noise level, the "beam" directing effects of trumpet speakers are not required.

PUT SPEAKERS IN "DEAD" AREAS

The major advantage of a good sound system is the reinforcing of the natural sound in "dead" areas under balconies, etc. In these locations small

Equipment used in St. Andrew's church shown in rack on right consists of two Thordarson 60-watt amplifiers, turntable, and monitor speaker panel. Complete amplifier, automatic record player housed in console cabinet. This unit was supplied by Rangertone, Inc., Newark, N.J., for church in that city.

PM's or electrodynamics in flat baffles are used to build up the level and give uniform sound coverage over the entire room. Where deep balconies are present, speakers should be located just under the leading edge, and focused down and across the seats. The sound in the balcony seats should also be reinforced with small speakers mounted on the walls or columns.

The number of speakers to use in a given installation depends upon several factors. When cone-type speakers are used (most common type for low power jobs) the output of the amplifier must be divided up so that a speaker will not receive more than its rated capacity. Except for the lower power amplifiers, each speaker handles less than the total output. The combined power ratings of the speakers must equal or preferably be greater than the rating of the amplifier.

The quality of reproduction is in-

creased by using larger speakers, since the normal sound intensity is below their rated capacity. Speakers driven at their full rating do not give the quality of reproduction that they would if run at a lower level.

USE SPEAKERS TO SPREAD SOUND

The bar graph shown gives an approximation of the number and size of speakers to be used with various amplifier powers. These values are to be used as a guide and not a hard-and-fast rule. The final decision on the number and power rating of the speakers to be used, depends upon the layout of the area to be served. The more complex rooms with coves, wings, and balconies will require a greater number of speakers to put the sound where it is needed. Improved sound coverage is realized when the amplifier power is diversified through a number of speakers.

The installations pictured are typical in the sense that they illustrate good layouts that have worked well. They may be larger or smaller than those encountered by the average sound man, but their principles apply to almost any job of their type.

The microphones may be any good type. The frequency range should be from 40 to 10,000 cps for the choir, organ, chimes and vibra-harp pickup.

MOUNT TURNTABLE SOLID

The turntable should operate at both 33 1/3 and 78 r.p.m. A high quality crystal pickup should be used to give full reproduction of chimes recordings.

An important thing to remember in the installation of turntables is that a good solid, level mounting will insure the best results. Vibration in the table (Continued on page 52)
Operadio inter-communicator

* Combination paging and inter-communication system with unlimited number of stations. Ten push buttons are provided on master unit and additional station switch banks may be added. Two way communication may be had between the master and any of outlying stations. Type BH, Operadio Mfg. Co., St. Charles, Ill.—Radio Today.

Audiograph portable PA

* Operating from 6-volt battery or 110-volt power line, model AMR-25C delivers 25 watts output. Crystal phono pickup, inclined control panel, battery economy switch, and constant speed motor are featured. Licensed under ERPI. John Meek Industries, Randolph & Elizabeth Sts., Chicago, Ill.—Radio Today.

Clarion school system

* Model S-468T all purpose school system has superhet tuner, 25-watt amplifier, speaker-microphone, inter-communicator amplifier, level indicator, and selector panel for 20 to 40 speakers. Six inputs for radio, phono, mikes and spare. List, $292.50. Transformer Corp. of America, 69 Wooster St., New York, N. Y.—Radio Today.

Amperite mike coupler

* Transformer for matching impedance of contact mikes to radio phono terminals or grid of AF tube. Musical instruments may be played through the radio with improved effects. List price, $5.00. Amperite Co., 561 Broadway, New York, N. Y.—Radio Today.

Brush Microphone

* High fidelity crystal microphone with response from 30 to 9,000 cps. Output level is —54db. Particularly suited for night clubs and ballrooms. Satin chrome spherical case for model QO and telephone black for model QOM. Brush Development Co., 3211 Perkins Ave., Cleveland, Ohio.—Radio Today.

Lafayette sound system

* Thirty to forty-watt sound system uses four channel amplifier with frequency response from 50 to 10,000 cps. Model 758T. Two channel remote control unit is also available. Complete with two 12-inch speakers and ribbon or crystal mike. Lafayette Radio Corp., 196 Broadway, New York, N. Y.—Radio Today.

Western Electric speaker

* Model 31A horn is used for reproducing high frequency register from 400 to 6,500 cycles over horizontal angle of 120 degrees and vertical angle of 60 degrees. This wide angle coverage gives same effect as four trumpet speakers. New horn is of cast aluminum and suitable for indoor or outdoor use. Western Electric Co., 196 Broadway, New York, N. Y.—Radio Today.

Helen O'Connell, vocalist with Jimmy Dorsey's orchestra, gets off a few high notes with the model 630 Electro-Voice dynamic microphone.
Is That Rider's New Book?

Yes, Servicing by Signal Tracing.

What d'ye think of it?
I think it's swell.

I don't mean the book, I mean do you think this new System of Rider's is any good?

Any good? Say, where have you been for the past two years! Don't tell me you don't know about servicing by signal tracing—it's the only true method of dynamic testing!

So what? I can find out what's wrong with a receiver by the same method I've used for ten years.

Sure you can, and you can deliver your jobs on horseback, but it's quicker and cheaper to use a car. Receiver designs aren't as simple as they were ten years ago. The sets we're getting in here right now are so complicated that this new system of Rider's is a Godsend.

Yea, for Rider.

OK, get smart about it. But just take my word, you better read up on it today, because you're going to be using it tomorrow. If you're gonna keep up with competition you've gotta shoot troubles a lot faster than you have been because every year it gets tougher and tougher to "outguess" the new sets when they go bad.

So, how's what you call servicing by signal tracing going to make it easier?

By tracing the signal—the one thing that's fundamental in any make receiver. Find out where that departs from normal and you have found the trouble.

Then that method could be applied to servicing P. A. systems, Television or most anything.

Sure, any type of electrical equipment through which a signal passes. It doesn't make any difference whether it's a new or old receiver or one they bring out next year—tuned r-f or superhet—three tubes or thirty—they all are diagnosed by the same procedure if you use the signal tracing method.

It seems too good to be true, it sounds so simple.
It's like a lot of things. You feel like saying, 'it's a wonderful nobody thought of that before,' but when you understand it you can't quarrel with it—it's good.

What's the book tell you?
In the first seven chapters Rider tells, in his easy to understand style, about the behavior of a normal signal from the antenna post to the loudspeaker, and signal characteristics at the points between. The rest of the book explains the signal tracing method step by step.

Let's see that book!
Sure, but you can't borrow it. It only costs $2.00 and besides it's about time you spent some time and money getting ready for tomorrow's business.

Is that all that book costs? Why it's got 360 pages. I'm going to the jobbers this afternoon. I'll pick up my own copy. And I hate to admit it to you, but thanks a lot for a darn good tip.

Believe Me

The Ten Rider Manuals
and the system of Servicing by Signal Tracing make a combination that can't be beat for faster, easier, better trouble shooting—and when I say that I'm saying they mean profits with a capital "P."
They help every serviceman help himself to bigger money.

JOHN F. RIDER, Publisher
404 FOURTH AVE. - NEW YORK CITY
Export Div: Rockefeller Int. Elec. Corp., 100 Varick St., N. Y. C. Cable: ARLAB

NOVEMBER, 1939
New Things

**Kadette radio clock**
* Model L-40 features an attractive electric clock, radio and automatic radio switch. The clock may be used to turn the five-tube superhet on and off at any desired time. Built-in loop antenna. List, $29.95. Kadette Radio Corp., Ann Arbor, Mich.—Radio Today.

**Lafayette table model**

**RCA table victrola**
* Model R-60 is designed to play 10 or 12-inch records. Automatic mercury switch starts motor as soon as pickup is moved toward record. Other features are three-point tone control, auto-tone compensation, and electro dynamic speaker. Size 8 x 14 x 9 1/2 inches. RCA Mfg. Co., Camden, N. J.—Radio Today.

**Colorama color control**

**JFD noiseless antennas**

**Charg-O-Matic battery**

**GE record player**
The plastic cased wireless record player shown in use is model HM21. The new unit has a crystal pickup, self-starting electric motor, and is finished in rich mahogany.

Radio Today
SPRAGUE TEL-OHMIKE
CONDENSER and RESISTOR ANALYZER

It Shows Up Intermittent Opens!

TEL-OHMIKE saves you money, not only by providing you with a basic instrument which allows you to use the meters you already own, but it saves you valuable working time. It enables you to make more complete and more accurate tests of ALL the characteristics of condensers and resistors in less time, than ever before at any price! TEL-OHMIKE measures capacity from .00001 mfd. to 2000 mfd. It measures leakage current and power factor of electrolytic condensers; it measures insulation resistance up to 10,000 megohms. It analyzes air, paper, mica, oil, dry and wet electrolytic condensers under their exact working voltages!

KOLOOHM RESISTORS

The biggest improvement in 20 years—with more practical, useful features than any other resistor—for no more money.

Here are the wire wound resis-
tors you have been waiting for—resistors you can use anywhere at full wattage ratings, even for the highest resistance values—resistors that are completely insulated and operate cooler—resistors that are different in construction and outstandingly superior in performance. All wire in KOOLOHMS is coated before winding with Rubencote, a new heat-proof, moisture-proof insulating material. This permits tightly interleaved windings, larger wire sizes, higher resistance values in less space, and perfect insulation throughout. No fine resistance wires! No cements or enamels!

Moisture-proof ceramic jackets provide rugged mechanical protection and high voltage insulation.

Resistance values guaranteed to plus or minus 1% accuracy. Non-inductive KOOLOHMS with zero inductance, even at 50 MC, and distributed capacitance of only 25 muf., are available at unheard of low prices! All units have Teledot indicators.

Your jobber now has Sprague KOLOOHMS in 5-watt fixed types; 10-watt fixed, 10-watt Non-inductive and 10-watt adjustable. Catalog Free.

Teledot Wattage Indicator
Koolohms take overloads better than any other resistors—yet, for double safety, the red dot (Teledot) on the ends of the units automatically changes color and warns you when 25% overload occurs. No guesswork. Teledot tells you!

SPRAGUE PRODUCTS CO.

NOVEMBER, 1939
The heart of the superheterodyne receiver is the oscillator, and mixer stage or stages. Here the signal frequency is combined with a locally generated frequency to produce the intermediate signal that still retains the original amplitude modulation, or intelligence.

An analogous oscillator-mixer circuit could be conceived as two alternators, one representing the signal, and the other the local set oscillator. By varying the output voltage of the signal alternator, amplitude modulation would be effected. Conversely, varying the speed of the signal alternator and holding the output voltage constant would result in frequency modulation.

When the frequencies of the signal and oscillator differ by some fixed frequency, a resultant wave that bears the same modulation characteristics as the signal will be present in the circuit. Its frequency will be the difference between the signal and oscillator frequencies.

The oscillator signal voltage is nearly a sine wave and having a constant frequency difference with the carrier signal, a beat or intermediate frequency is produced.

**SEVERAL TYPES OF OSCILLATORS USED**

The oscillators commonly used employ several different fundamental types of circuits, all producing much the same results. Three types are shown in Fig. 1.

The most commonly used type of separate oscillator is the familiar tickler-feedback circuit. A portion of the AC plate voltage is coupled back to the grid circuit through the transformer action of the two coils, and thereby maintains oscillation, since the grid circuit losses are supplied from a part of the plate power.

The electron-coupled oscillator is featured by a high-degree of frequency stability. The screen-grid tube makes possible the use of the electron-coupled principle, since the screen electrode may be used as a plate in a typical triode oscillator circuit, such as the Hartley shown. The load in the plate circuit may be a resonant coil and condenser combination (not used in receiver oscillator circuits), or the plate may be grounded for rf through a bypass capacitor, thus putting it in parallel with the screen for rf currents. The frequency stability arises from the negligible effect of plate-voltage variation for a screen-grid tube. The voltage feedback from the plate to grid circuits is through the mutual coupling of the portion of the tank circuit between grid and cathode, and plate and cathode. The usual ratio of turns for the cathode-plate portion of the coil to the total coil is one to three. This gives a sufficient voltage feedback to maintain oscillation. For oscillator coils in the higher frequency ranges, the turn ratio may be slightly lower, 1:2.5, to compensate for the additional losses in the grid circuit at high frequencies.

**OSCILLATORS SIMILAR TO CLASS C AMPLIFIERS**

The Hartley oscillator is found in many forms, with the usual circuit variation being in the manner in which the plate voltage is fed to the tube. The electron-coupled circuit is a type of Hartley oscillator, and the two work much the same in respect to coupling of plate energy back to the grid.

Self-excited oscillators, regardless of the type of connection, are Class C amplifiers with provision for feedback of a portion of the plate power to supply the grid losses and maintain the oscillations.

Class C amplifiers (and oscillators) have a characteristic, pulse-like plate current wave, and they are distinguished by the amount of grid-bias with which they operate. The average grid-bias for an oscillator is 1.5 to 2 times the cutoff value for the tube. Since the grid must be driven positive in order to draw current and develop its own bias, a large value of exciting rf-grid-voltage is necessary. For the best efficiency this rf-grid voltage peak should approach the minimum value of rf plate voltage.

As far as servicing oscillators is concerned, these ideal curves and fundamentals are only a means of explaining what occurs when certain components of the circuit are not operating properly.

**COMPONENTS DETERMINE PERFORMANCE**

The grid condenser Cg serves two purposes. First, it offers a low impedance path to the rf currents and, second, it maintains a uniform dc bias on the grid by charging on the positive grid cycles and discharging through the leak on the negative rf cycles. The capacity is not critical and 100 mufd is a

---

![Fig. 1—Three common types of oscillators used in superhets. A, Tickler-feedback; B, electron coupled; C, Hartley. Oscillator voltage taken from grid or cathode circuit.](image)

![Fig. 2—The conversion conductance of a tube is a measure of its gain. Conversion for 6L7G with -6 volts on grid No. 1 is nearly uniform with oscillator voltage greater than 12 volts. Noise to signal ratio is much lower at high oscillator output voltages.](image)
common size. Intermittent oscillations may be traced to a grid condenser of too high capacity. The reason for a large capacity stopping oscillations, is that the dc grid bias is held at too constant a negative value. Sudden lead variations which make the plate current drop, do not permit the grid bias to reach zero fast enough to "pulse" the plate current and maintain the oscillation.

The plate or screen by-passes in an electron-coupled oscillator are the paths through which the rf currents must return to the cathode. Their reactance, or opposition to the flow of these currents must be small. A value of 0.01 mfd. is generally the smallest value used. At 1,000 KC, a 0.01 mfd. capacitor has a reactance of 16 ohms.

The oscillator grid bias is developed by a grid rectified rf current flowing through the leak. Triodes used in most supers employ a 50,000 to 50,000 ohm resistor as a grid-leak. This value is not extremely critical and may vary 5,000 ohms without a noticeable effect.

Two other requirements of the oscillator are proper magnitude of voltage delivered at the mixer stage and proper frequency of this voltage.

**LOWER HISS WITH HIGH OSCILLATOR VOLTAGE**

Since the strength of the IF signal is directly proportional to the oscillator voltage, it is desirable to have as high an oscillator output as possible. While converter stages have a higher "hiss" noise level in pentagrid amplifiers, the "hiss" level is practically independent of the oscillator excitation. Since low conversion gain accompanies low oscillator excitation to the mixer, an abnormally high noise to signal ratio may exist. Therefore, the "hiss" noise level may be reduced by increasing the signal voltage delivered by the oscillator.

The lower curve shown in Fig. 2 gives the relation between noise-to-signal ratio and the root-mean-square voltage delivered by the oscillator to the mixer grid of a 6L7. It is noticed that beyond 10 volts RMS the noise-signal ratio is practically flat and at a minimum. (The root-mean-square value of an AC wave is the square root of the average of the squares of all the instantaneous current or voltage values over a cycle. If one RMS amperes were passed through a resistance, it would dissipate the same amount of power as one amperes of DC.)

The conversion conductance of a mixer is the ratio of the IF signal current developed to the IF signal voltage producing it as the value of the signal voltage approaches zero. (Conductance is the ease with which a current flows in a resistive circuit and is the reciprocal of resistance.) The value of conversion conductance for a well designed stage is between 500 and 600 micromhos, depending upon the type of tube used, and the electrode voltages used.

**GRID BIAS CHECKS OSCILLATIONS**

The oscillator may be checked for operation by measuring the grid voltage. A vacuum tube vtm that has a low reactance test lead and does not "pull" the circuit out of oscillation, is necessary for direct observation. If such a meter is not at hand, low-range milliammeters may be placed in the cathode and plate circuits (for a triode) and the cathode current minus the plate current is equal to the grid current. The product of the leak resistance and grid current gives the grid-bias. A 500 microammeter may be placed directly in the grid lead to indicate the presence of oscillation and bias. The grid potential over the band may be observed with the vtm or the ammeters. The grid current and bias should remain quite constant or have a uniform rise toward the low frequency end of the band. The plate or screen current will be minimum when the oscillator is working and will vary in the opposite way from the grid current. Intermittent operation may be checked in oscillator circuits by watching grid current or bias.

**CONTROL GRID-BIAS REGULATES GAIN**

Control grid bias for both pentagrid combination stages, and separate first-detector oscillator circuits is in the neighborhood of —3 to —6 volts. Greater negative bias cuts the conversion gain. To keep the oscillator frequency at a definite relation to the signal fre- (Continued on page 48)
Here's a brand new feature that will \underline{UP} your profits!

THE NEW
WESTON
MODEL 777
TUBE and BATTERY TESTER

tests batteries as well as tubes under load
... gives dealers and servicemen extra sales and profit from battery replacements!

Look at the figures ... and the opportunity. Over 30% of radio sales in recent months were portable battery or combination receivers. And sales still mounting and expected to climb in 1940. Here's a real opportunity to sell tubes ... and a brand new market in the sale of battery replacements. » » » To enable servicemen and dealers to “cash in” on this opportunity, WESTON provides the Model 777 Tester ... which not only provides a thorough check on all tubes, but also tests all radio batteries under load. The “Good — Replace” scale instantly indicates whether the battery delivers sufficient potential to insure good reception. (Such a test cannot be made with ordinary battery testers, nor with high current drain meters.) » » » So with Model 777 you not only will be equipped with a tube checker that will remain serviceable for years, but you also will be able to check the batteries while you are checking the tubes. No tube checker today is up-to-date unless it supplies this battery test ... enables you to give complete customer satisfaction, with more profit for yourself. Be sure you have complete information on Model 777. Return the coupon today.

WESTON ELECTRICAL INSTRUMENT CORP.
597 Frelinghuysen Avenue
Newark, New Jersey

Send literature on the Model 777 Tube and Battery Tester.

Name: ____________________________
Address: __________________________
City: ___________________ State: ______

Tests Radio Batteries Under Correct Load
“Good — Replace” indications based on battery manufacturers' standards and receiver requirements for good reception.

★ Tests high filament voltage tubes (up to 117 volt types)
★ Tests for noise
★ Tests open elements
★ Individual element test
★ Tests Loktal tubes
★ Spare socket for possible future requirement
★ Tests OZ4
★ Tests ballast tubes
★ Tests for shorts
★ Large WESTON Meter
SERVICING MIXER STAGES
(Continued from page 47)

quency, a method of tracking is necessary. The common system used is a
padder in series with the oscillator tuning condenser.
The curves in Fig. 5 show the relation between frequency and capacity
and between the total capacity and tuning capacity for a series-padder ar-
rangement. As seen from the curves that a small difference in capacity at
the high frequency end of the band will give the necessary IF interval.
As the signal frequency decreases, greater changes in oscillator capacity are nec-
cessary to maintain the IF difference. The total oscillator capacity must
therefore change at a slower rate at high frequencies than at low frequen-
cies. The series padder and tank con-
denser has a curved characteristic that
gives a fair degree of tracking.
In adjusting for tracking, the series
padder is used to give the correct fre-
quency difference at the HF end of the
band and the parallel trimmer on the
tank circuit is used to balance up the
frequencies at the LF end of the
band.
Television converter oscillators are
identical to those used in broadcast
and SW receivers. Similar servicing
methods apply. The audio and video
signals for a television station are so
related that a single oscillator gives
the correct intermediate frequency for
both signals, 8.25 mc for the audio and
12.75 mc for the video.
Frequency modulated-wave receivers
also employ oscillator-mixer stages
quite similar to standard broadcast de-
sign. The stages are designed for high
frequency and have small impedances. A GE model uses a 6K8
pentagrid converter with the ticklerfeedback oscillator circuit.
Several of the new receivers are
using the same oscillator frequency
range for two different signal fre-
quency ranges. For the broadcast band,
the oscillator works at IF above the
signal and for the 100 to 200 meter band, the oscillator is at IF below the
signal.

New Servicing Instrument
Made by Aerovox

Nearly 700 Chicago radio dealers and servicemen attended the RCA
sponsored meeting addressed by John Rider.

test loop, electron "eye" indicator
and the necessary power supply.

Two output terminals are ca-
pacity coupled to the oscillator to
check the resonant frequency of coils.
The IF and RF circuits of a receiver
may be aligned by the usual methods.
In many cases, capacitors may be
checked while in the radio circuit,
since the inductance and stray capacity
of the connected wiring may not slightly
affects the capacity reading.

One of the advantages of this instru-
ment is that capacitors are measured
at radio frequencies where they nor-

Admiral Loop Checker

Two new units for checking the
performance of loop antenna receivers.
A shielded radiating loop for attach-
ment to the signal generator gives
more accurate results in aligning such
receivers. Signal is radiated from
Aerometer and the capacity loading ef-
fect of the oscillator is not present in
the receiver. The second instrument
is a tuning wand for checking the
tracking of the loop over the band. If
both ends of the wand locate the sig-

A skeleton diagram of the new
L-C checker built by the Aerovox
Corporation, New Bedford, Mass.,
shows the basic elements. Funda-
mentally, the instrument consists of a
calibrated oscillator, link coupled

Partial circuit for L-C checker.

with impedance of 100 ohms or less. Loop and re-actance waves are made by
Continental Radio and Television
Corp., 3800 Cortland St., Chicago, Il.

Course Planned by Philco

Special arrangements have been
made by the Philco Radio and Tele-
vision service department with the Na-

tional Radio Institute, to train serv-
cemen through the fall months the training of
servicemen. Included with the offer
is a free model 026 circuit tester made
by Philco. Additional Servicing
arrangement has been made to give training in the
air conditioning and refrigeration
fields through the Utilities Engineering
Institute.

Book Review
Servicing by Signal Tracing
By John F. Rider. Price, $2.00
Published by J. F. Rider,
404 Fourth Ave, New York, N. Y.

This new three-hundred page book
is the manual for the theory of serv-
cing receivers by the method of trac-
ing a signal through the amplifying,
rectifying, and control circuits of any
receiver, past, present, or future. Not
only applicable to broadcast receivers,
the system is carried to public-address
equipment, and television.
The first chapter describes the basic
of the signal tracing system, and the
fundamental reasons for choosing the
system as a universal servicing aid.
The following three chapters treat the
fundamental subjects of amplification,
detection, and coupling devices. Here,
the basic material that is needed by the
serviceman to understand the goings-
on in any electronic equipment, is pre-

Signal tracing in oscillator, mixer,
and control stages as well as PA equip-
ment, and television receivers is dis-
cussed at length in separate chapters.
The exact methods of application and
deduction are explained.

The remainder of the text is devoted to
locating specific faults by the signal
tracing system, the design of receivers,
and a discussion of instruments neces-
sary to do the job of tracing the signal

NOVEMBER, 1939

49
New Service Products

**Centralab**

**Universal Split-Knurl Replacement Control**

Sh! It's a dank dark secret . . . known only to several thousand service men . . . it takes a special shaft to fit the knobs on many of the new (1938-39-40) sets.

So, instead of tearing your heart out thinking up new cuss words, get in touch with your nearest Centralab jobber for a Universal Split-Knurl control with the shaft that cuts as easily as butter.

Shaft is brass—3½” long from mounting surface. For switch type add Midget Radiohm switch covers K155, K156, K157, or K158.

**Philco Station Setter**

★ New wireless station setter for aligning receivers having push-button tuned stations. Eight buttons on the aligning oscillator are pressed one at a time, and the corresponding station button on the receiver is padded until the signal from oscillator is heard. Philco Radio & Television Co., 70a & G Sts., Philadelphia, Pa.—Radio Today.

**Weston Check-Master**

★ Portable test instrument includes fundamental servicing facilities, and tube checker. Voltage is measured in five steps from 7.5 to 1,000 volts AC or DC. Current ranges from 1 to 100 ma. Resistance to 10 megs in 4 steps. Tube tester handles all receiver tubes including loktals, gas rectifiers, Noise, short, and leakage may be tested. Model 774. Weston Electrical Instrument Corp., Newark, N. J.—Radio Today.

**DuMont Oscilloscope**

★ Two new models 175 and 175A are available with wide range sweep amplifiers to cover television frequencies. Control circuits added to discharge sweep oscillator make study of transient conditions simpler. Only one sweep trace occurs when transient condition trips sweep oscillator. Uses intensifier type cathode ray tube. Allen B. DuMont Labs., 2 Main Ave., Passaic, N. J.—Radio Today.

**Fieron Circuit Tester**


**Consolidated Tube Tester**

★ Model 9,000 dynamic conductance tester with new improvements now tests 117-volt tubes and loktals. Counter or portable type. English reading scale. Consolidated Wire & Associated Corps., 516 S. Peoria St., Chicago, Ill.—Radio Today.

**Hickok Ohmever**

★ Ultra low-range ohmever has two scales 0-6 and 6-600 ohms with error of approximately 1 per cent. Special low resistance test leads of No. 6 stranded wire are used on model 4975S. Operates from three self-contained flash light cells and accuracy is not affected by changes in battery voltage. Hickok Electrical Instrument Co., 10614 Dupont Ave., Cleveland, Ohio.—Radio Today.
Loktal adapter kit

- Kit contains five wired adapters.
- Tests new Loktal tubes in octal sockets of any tube tester. Tops are color coded for different tube groups. $5.00. American Phenolic Corp., 1250 Van Buren St., Chicago, Ill.—Radio Today.

Radio City tube tester

- Model 311P tube tester checks all present tubes, as well as resistors, condensers, pilot lamps. Checks gas rectifiers. Hot inter-electrode leakage tests. Ohmeter reads to 1 meg in two steps. Capacity ranges from 0.001 to 16 mfd. in two steps. Available as either counter or portable type. Radio City Products Co., 88 Park Pl., New York, N. Y.—Radio Today.

Clough-Brengle capacity tester

- Model 230 AC bridge measures capacity from 2 mmfd. to 200 mfd. in three ranges showing opens and shorts. Measures resistance from 2 ohms to 20 mgs in two steps. Also measures power factor of condensers, transformer turn ratio, leakage, and insulation resistance to 2,500 mgs. Clough-Brengle Co., 5501 Broadway, Chicago, Ill.—Radio Today.

When company and product are reliable
PROFIT is GUARANTEED

Into the capacitors it builds today, Cornell-Dubilier is pouring 29 years of specialized experience. The Consistent Dependability of C-D's has won the confidence of capacitor users throughout the world. To meet this tremendous demand, turnover must be fast. Profits come biggest where volume sales come quickest.

You too can profit by standardizing on the complete line of Cornell-Dubilier Capacitors, Capacitor Test Equipment and Quietone Interference Filters.

Available at all leading distributors Catalog No. 175A free on request.

Product of the world's oldest and largest manufacturer of capacitors.

CORNELL-DUBILIER
ELECTRIC CORPORATION
1019 Hamilton Boulevard, South Plainfield, New Jersey
Cable Address: CONEU

"PINCOR" Rotary Converters

Provide the most dependable means for converting direct current to alternating current. Particularly well adapted for operating radio receivers, public address systems, power amplifiers, signs, A.C. motors, etc. Available in two standard classifications "DA" and "TR"—both with or without filter—engineered for converting 6, 12, 32, 110 or 220 volts D.C. to 110 or 220 volts A.C., 40 to 2,000 watts. There is a "Pincor" converter for every requirement. Write for complete descriptions and data.

Pioneer Gen-E-Motor Corporation
Dept. R-2K, 466 E. SUPERIOR ST., CHICAGO, ILL.
Without obligation please send me "PINCOR" Rotary Converter Catalog and Data.

NAME........................................
ADDRESS...................................
CITY..................................... STATE..
Individual pickup and amplification of each instrument in this orchestra gives unique musical effects.

**Orchestra Employs Sound System to Develop New Effects**

A unique use of multiple sound systems is being made by the Buddy Wagner Band. Seven thirty-watt amplifiers are built into the music stands and the two input circuits of each amplifier are operated from Kontak microphones made by the Amperite Co., New York. Nine Kontak mikes are used on the violins, saxophones, piano, and bass, and three Amperite ribbon mikes are used to pick-up trumpets and trombones.

A master gain control for each of the seven amplifiers is mounted on a control stand which is operated by the band leader. In addition to the seven amplifier gain controls, there is a master control which may be used to fade or accentuate all the amplifiers at once. This complete control board makes it possible to obtain unusual effects by mixing the various instruments of the orchestra. Solo parts may be brought up by the orchestra leader and the remaining instruments held in the sound background.

**MANY ADVANTAGES**

The advantage of using a number of amplifiers and microphones is that the sound being amplified is much more natural, and does not have the usual directional effect common to one and two speaker systems. The combinations and possibilities in mixing the various instruments are almost unlimited. The musicians using such a system do not have to play as loud as they would without amplifiers, and the result is better and more pleasing music.

An accompanying photo shows the complete band and mixing panel. A separate speaker with directional baffle is mounted above the stage to handle vocal arrangements.

**SOUND INSTALLATIONS**

(Continued from page 41)

and pickup will destroy the good quality of the records.

Hearing-aid equipment is generally installed in a few pews located in various sections of the room. It is wiser to spread the outlets around over the church auditorium than to confine them to one section. This will avoid splitting family groups.

The equipment consists of the necessary wiring and outlet jacks. Customary procedure is to supply those requesting hearing aid with the necessary headphones. The power fed into this circuit is only 2 or 3 watts and may be taken from a driver stage for the final amplifier. The volume control should be installed in the amplifier or mixing panel. The operator should have monitoring facilities to set the desired level.

**TWIN AMPLIFIERS USED**

For the broadcasting of chimes from the church tower or steeple, trumpet speakers should be used. The power used may vary considerably; 50 watts

Approximate number of speakers and amplifier power for a church sound system determined from these bar graphs.
is low to medium power for this service.

The quality of reproduction for the speakers should be very good if the full effect of the chimes is to be realized.

The beautiful St. Andrew's Church in Calumet City, Ill., is well equipped with Thordarson amplifiers.

The equipment rack shown houses two 60-watt amplifiers, automatic record changer control panel, and monitor speaker. The amplifiers have a frequency response of 30 to 15,000 cps with a ±1 db. variation. Three high gain channels are separately controlled. Two channels (following the input channels) incorporate compressor-expander circuits that make it possible to expand recordings and compress speech.

A directional horn type Jensen speaker is mounted above the cross-shaped grille in the dome of the ceiling. The horn is focused on the back and center of the church. The high speaker-mounting gives ample sound coverage over the entire room.

Four Shure uni-directional microphones are used. Two mikes in the pulpit give voice pickup from any position. The other two are used on the altar.

Four exponential-horn type speakers are mounted on one of the twin spires shown.

COMPLETE CHURCH SYSTEM

Pictured on the second page of this article is a complete church sound system including automatic record player, amplifier, monitor speaker and storage space. This unit installed in a New Jersey church was furnished by Rangertone, Inc., 201 Verona Ave., Newark, N.J.

The amplifier delivers 105 watts for the broadcasting of high quality chimes records also furnished by the same company. The automatic record changer plays both sides of ten records. Two channel input is available for either microphones or phone and mike. The chimes records used are individually recorded for highest quality of reproduction.

MANY RELATED USES FOR PA

Cemeteries and funeral parlors are using amplified chimes to give a pleasing effect.

Equipment for this type of service is similar to that needed for churches. It should be of good quality and have a wide frequency range.

The North Shore Garden of Memories, at North Chicago, Ill., is sound-equipped by Webster Electric Co., Racine, Wis.

A rack-and-panel equipment layout is used with a built-in turntable. Exponential horns are used on the roof to give ample sound coverage.

Arcturus Soft Ball Aces Are the Champs

The Soft Ball Team of the Arcturus Radio Tube Co., Newark, N.J., emerged as champs of the local Industrial Recreation Soft Ball League, after a match in which they defeated a team from Eastern Air Lines.

Here's the answer to operating problems you labeled "impossible"—Western Electric's 639A Mike!

Now, you can overcome even the poorest acoustic conditions because the 639A Cardioid has a large dead zone which blankets audience noise and minimizes feedback. It offers you new flexibility of control—with its 3-way switch, you can have in addition to its Cardioid characteristics, bi-directional or non-directional characteristics.

Get the full details on how the 639A Mike can solve your toughest problems. Send the coupon now.

Western Electric CARDIOID DIRECTIONAL MIKE

GRAYBAR ELECTRIC CO., Graybar Bldg., New York. Please send booklet describing Western Electric's New 639A Mike. 87-11-36
NAME..................................................
ADDRESS...........................................
CITY..............................................STATE...........
Art Moss Reports
New NRPDA Members

Arthur Moss, executive secretary of the National Radio Parts Distributors Association, has just returned from a trip covering Richmond, Virginia; Baltimore, Maryland; and Washington, D. C., during which the following concerns in this territory became new members in the National Radio Parts Distributors Association:

Wholesale Radio Parts Co., Baltimore, Md.

Rucker Radio Wholesalers, Washington, D. C.

Columbia Radio Supply, Washington, D. C.


"Jobbers everywhere were enthusiastic over the new set-up in the replacement tube market," reports Mr. Moss. "A local chapter of NRPDA Jobbers is being formed for the territory of Virginia, Maryland, and the District of Columbia. This chapter will meet at various times to discuss problems facing the Jobbers in their territory."

Littelfuse Expands Again

Another expansion move, which is the fifth in twelve years, has been made by Littelfuse, Inc., Chicago. The company has now occupied enlarged quarters and increased plant capacities at 4757 Ravenswood Ave.

A check-up reveals that since the firm was founded by E. V. Sundt in 1927 (with an idea and total capital of $150) the company has enjoyed steady growth until now it has over 250 domestic distributors, and a complete representation abroad.

Mr. Sundt now reports that current business is up 35 per cent over last year.

New Aerial System Stirs Trade Applause

Widespread acclaim from dealers, distributors, servicemen and even consumers is being noted at Philco headquarters, following the introduction of the company's new built-in super aerial system in all of its 1940 sets. It has been revealed by Robert F. Herr, the firm's manager of parts and service.

One dealer wrote, "My customers who have purchased 1940 Philcos are calling me on the telephone—not complaining or calling for a serviceman, but telling me how thrilled they are with their new radio."

Another dealer states, "My call-backs for service have been cut 75 per cent on the new Philcos which I have sold."

New Loudspeaker for Quam Group

Development work in the Quam-Nichols Laboratory came to a practical standstill Oct. 26 when Ted Trzyna, chief engineer, walked in and announced a "loud speaker" of entirely new design. He claimed better than 100 watts output, amazing sensitivity and fidelity of tone, and only seven pounds weight. What "Ted" really meant was that he had achieved the proud distinction of fatherhood, his wife having presented him with a seven pound boy, who will be known as Junior.

Jim Quam seems to think that Ted will learn a few things about "speakers" he had never known before.
Service Business Has Stronger Tone

"The busiest and most profitable season in many years," is the phrase that describes the condition of radio servicing in the Mississippi Basin area, according to Walter Jones, head of the commercial engineering department of Hygrade Sylvania Corp., who has just returned from Sylvania headquarters in Emporium, Pa., after a service meeting tour in the southern territory.

Mr. Jones conducted meetings on "Tune in the Radio of Tomorrow" in Indianapolis, Ind., St. Louis, Mo., Des Moines, La., Omaha, Neb., and Denver, Colo.

"The fine business conditions in radio servicing," Mr. Jones reported, "seems to be largely due to interest in the short wave broadcasts from the war zone. Many radio owners who have never before used the short wave band on their receivers are having their sets put into condition and calling on servicemen to help them get better reception on short wave."

Bennett Heads GE Tube Sales

The new manager of radio tube sales for General Electric is H. W. Bennett, who was previously a district radio sales manager in the company's offices at Minneapolis, Minn. News of Mr. Bennett's promotion comes from Terry Hadlock, radio and television department manager for GE.

Mr. Bennett operated one of the first radio transmitters in the country prior to the U. S. entrance into the World War, and had been highly successful during his nine years as district official for GE.

"Air Pal" Cops a Design Award

Selected by the judges of the Fourth Annual Modern Plastics Competition for Honorable Mention in the "decorative molded group" of entries was the "Air Pal" made by Stewart Warner Corp. This radio was the only one to receive recognition by the judges, at the recent New York event.

The "Air Pal" was designed by Barnes and Reinecke, industrial designers, Chicago, and it has been one of the most popular of the SW sets in the low-priced group, according to SW radio division sales manager L. I. Kelsey.

New Distributors for Farnsworth

New among the distributors for Farnsworth Television & Radio Corp. are M. H. Kirchbaum, Sioux City, la.; Bertram Motor Supply Co., Boise, Ida., and Smith & Hirschmann, Rochester, N. Y. These additions announced by Pierre Boucheron, general sales manager, raised the total number of distributors to 49.

Important additions to the territories of two distributors recently were also noted by Mr. Boucheron.

Chattanooga was added to the territory of the J. L. Perry Company, Nashville, Tenn., and Knoxville was assigned to Southern Bearings and Parts Co., Charlotte, N. C.

NY Reps for Detrola

Announced by the Detrola Corp. of Detroit is the appointment of Freed & Saphin as their New York metropolitan division representatives. This office will have Detrola exclusively, operating from big showroom at 230 Fifth Ave., New York City, where a full line of radios and cameras will be on display.

Philco Design Gets Another Boost

Philco radio has again been cited as an outstanding example of radio furniture design, by a leading national magazine, according to news from Sayre Ramdell, vice-president of Philco Radio & Television Corp. A feature article in the November issue of Women's Home Companion, by the famed editor and design consultant, Virginia Hamill, shows a Philco 218RX (spinet type) in the most modern living room.

In earlier issues of House Beautiful and Good Housekeeping, Philco models had also been chosen.

Oak Mfg. Co., Chicago, makers of wave band and selector switches, vibrators, mechanical tuners, etc., for the radio industry, has just acquired the Reliance Die & Stamping Co., also of Chicago, according to a word from the Oak president, Edw. F. Bessey.

The Oak company will take over the modern factory of the Reliance firm at 1260 Clybourn Ave., along with extensive office space, and will greatly expand its operations. The Reliance condenser, popular in the radio industry, will be continued, and the whole condenser department will be enlarged.

Only the Chicago offices and plant of Oak will be moved to the Clybourn Ave. address and the new operations will function as Oak Mfg. Co.

Novel Slogan Contest for Admiral Radio

An unusual contest for slogans on Admiral radios is a feature of a 3-month ad campaign being conducted by M. A. Hartley & Co., the Admiral jobbers in Staunton, Virginia. Entries will be given awards for the best slogans, the main words of which begin with the letter "A" and in the word "Admiral." For instance, "Admiral Delivers Most In Radio Satisfaction At Least Cost."

The contest will be plugged via an extensive series of radio spot announcements giving the names of local dealers, and details of the campaign. Radio sets will be given as prizes.

Gale Notes Dealer Enthusiasm

Lee Baker, sales manager for Gale Products Co. has just completed a swing around the key cities in the East, including Baltimore, Washington, Philadelphia, New York, etc., and reports an exceptionally bright outlook for his company in 1940.

Dealers welcomed the news that in 1940 Gale will offer a hermetic unit as well as the conventional type. Hale Bros. of San Francisco have taken on the line exclusively and others to line up are George's of Washington, D.C.; Le Moynes, Denver, Colo.; Slack Furniture, St. Louis, Mo.; and Republic Light of Lima, Ohio.

Brooklyn Dealers to New Headquarters

The Electrical Appliance Dealers Association of Brooklyn, Inc., of which Thomas W. Bolger is executive manager, has moved to new and enlarged permanent headquarters at 1271 Bedford Ave., Brooklyn, N. Y., where it will have a combined display room and office.

Ken-Rad for Tahitians

From Tahiti comes the news that the Tahitian Government has adopted Ken-Rad tubes as standard.
Majestic Ready With New Push Button Portable

Proudly carried by W. B. E. Norins of Majestic is the company’s new portable job, ready for the big market in stylish sets that can be taken along as “broadcast companions.”

Just added to the 1940 line of the Majestic Radio & Television Corp., Chicago, is the model 5BD push button control portable receiver with 5 tubes, for AC, DC, or battery operation. The new superhet comes in a trim case similar to a small traveling bag, and has a sliding panel to protect the buttons, dial and manual knobs when not in use.

Features of the new set include an embossed dial panel, the Hi-Q Loop antenna inside the case, and a slide rule dial. The receiver comes with handsome coverings in rawhide or steerhide, and weighs 12 lbs. total.

Howard Finds Combos Going Strong

“During the past 60 days, combinations are moving off dealers’ floors at a rate unequalled in my 20 years in the radio business,” is the conclusion of Howard Briggs, vice-president of Howard Radio Co., Chicago, after a sales tour of eastern U. S.

Another Howard official, Charles B. Shapiro, sales manager, has just taken off for a trip to the West Coast, for a period to be spent in promotion of combination sales. Both executives are highly optimistic about the sale of these products.

Philly Jobbers Light Five Candles

The fifth anniversary of the Century Radio Co., Philadelphia Jobbers for Sylvania radio tubes, was celebrated late last month as the attention of radio men in the area focused on the lively growth of the company during the last five years. Norman M. Sewell is manager of the firm.

A group of eight dealers who have been with Century since the very first were especially mentioned and honored by being caricatured on a separate page of the “Century News” anniversary edition. They are: Carlton Holtby, Lansdowne, Pa.; Jack Goldberg, Philadelphia, Pa.; Ed Rader, Trenton, N. J.; R. C. Mahan, Philadelphia, Pa.; Mort Parr, Upper Darby, Pa.; Air Sho, Philadelphia, Pa.; Bert Goodman, and Stanley Craven, Jenkintown, Pa.

New Ad Drive for Radios

Currently running in large display space in newspapers throughout the country is a new advertising campaign on Philco's Wireless Remote Control of Radio. Ernest B. Loveman, advertising manager for the company, had announced a year ago the opening of the drive Oct. 19. The campaign features a special trade-in allowance by the dealer, available for a limited time.

Roth Starts New Firm

A new company, Roth Appliance Distributors, has been organized by W. H. Roth to operate at 467 W. Virginia St., Milwaukee. Mr. Roth was formerly an official of the Radio Specialty Co., Philco distributors, but has sold his interest in this firm and will now concentrate on a complete line of Norse home appliances in Wisconsin and northern Michigan.

WITH SERVICE ON THE MOVE:
YOU AND A SIMPSON TESTER CAN "GO PLACES!"

WHEN servicing jobs were scarce, you may have hesitated to "treat" yourself to some much-needed Simpson Testing Equipment. But now it’s a different story. With service again on the march, Simpson speed, convenience and accuracy can put dollars right into your pocket.

A few of the "hit numbers" of today’s Simpson line are illustrated here. Notice the wide range of requirements they cover—and the better they cover them. Men who know testers have acclaimed Simpson equipment as the real advance in ten years of instrument building—and the proof of this is as close as your jobber!

See the Simpson line today and you will decide to put it to work tomorrow. You and Simpson Testing Equipment can form a profitable partnership right now.

SIMPSON ELECTRIC CO., 2302 Eunice Street, Chicago

INSTRUMENTS THAT STAY ACCURATE

MODEL 325 GIANT TUBE TESTER
Tests All Tubes—Filament Voltage 1.5 to 120 Volts.
• Has handsome, illuminated red, green and black scale on a silver etched dial with full 5-inch meter. Checks each element separately;-shows on dual-sensitivity neon tube. Has jack for noise test. Convenient drawer contains neat tube charts. Meter is reversible for horizontal use. "Wings" available for rack mounting.
Your price... $34.50

MODEL 440 "TEST MASTER" Tests All Tubes—Tests All Circuits
Filament Voltage 1.5-120 Volts
Has screen fluorescence and angle test; hot cathode leakage neon test; "sensitive" neon short check; "good" and "bad" scale, and "noise test." Has six A.C. and D.C. voltage ranges; three resistance ranges; four milliampere ranges; six Decibel ranges.
Your price... $59.00

MODEL 260
● The new high sensitivity set tester for television and radio servicing. At 25,000 ohms per volt this instrument is far more sensitive than any other in its price range. Six voltage ranges; both A.C. and D.C. Resistance ranges from 0.5 ohm to 19,999,000 ohms. Fanueral readings from 1 microamp to 500 ohms. Your Price...
(Similar model, No. 215, with 5,000 ohms per volt at $27.50.)

MODEL 320 GIANT SET TESTER
● First set tester with giant (3-inch scale) illuminated dial meter—first with 50 ranges which include nine voltage ranges both A.C. and D.C.; six milliampere ranges; five resistance ranges; four capacity ranges; seven Decibel ranges. Test leads furnished for 5,000 volts furnished with each tester. Entirely A.C. operated—no batteries needed. "Wings" are available for rack mounting.
Your price... $37.50

NOVEMBER, 1939 57
WHAT IS AN “EXPENSIVE” RESISTOR?

You can buy resistors at almost any price—but remember, you generally get just about what you pay for. One lost service customer, one call-back as the result of trouble with a “cheap” resistor can cost far more than you can possibly save on dozens of resistor “bargains.”

Insist on IRC Insulated Metallized Resistors—the finest most reliable resistors at any price. You can rely on them any time, any place, under the most severe conditions. They are a good investment in long, satisfactory performance. They are the least expensive resistors to use because they are the best resistors for protecting your reputation for highest quality workmanship on every job.

INTERNATIONAL RESISTANCE CO.
401 N. Broad St., Philadelphia, Pa.

Sales Helps

Bright Colored Holiday Display Outfit

A lively looking new 10-unit Christmas display, printed in bright colors, has just been made available to dealers by the Galvin Mfg. Corp., makers of Motorola. The wreath is fitted with tree lights, to provide extra attention value.

Santa tells the radio story in Philco’s new series of 5 displays, all in full color.

The Lights and the Colors of Christmas

For those dealers who want to display a modest assortment of flashlights and batteries against a jolly Santa Claus background, the Burgess Battery Co. now offers a display 33 x 48 inches.

Jobbers Trend Toward Local House Organs

Increasing favor among radio jobbers, for the idea of publishing house organs for their local trade, is reported by Hygrade Sylvania Corp. Many of the Sylvania distributors find it a profitable stunt to keep their servicemen and dealers up-to-the-minute on new merchandise and new merchandise being offered locally. Prominent among these is Morris Wills of Spokane, Washington with his R.R.C. News, Norman Sewall, Century Radio, Philadelphia, Pa., with his Century News, and Tom Brown, Tom Brown Radio Co., St. Louis, Mo., with the Analyst.

Latest venture in this jobber journal field is the Dale Reporter, put out by Maurice Desprez of Dale Radio, New York.

Besides the figure of Santa, there’s a Christmas tree and a fireplace illustrated. The latter may be illuminated for extra effect.

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

ALL YOUR RADIO NEEDS

Get This BIG FREE CATALOG

Here in this one big book you will find everything you need in radio including radio sets, parts and supplies... newest public address systems... latest amateur equipment... testers and kits... your nationally known favorites at lowest possible prices. Best of all, our service is better than ever. Most orders are shipped the same day they are received. Be sure to write today for your copy of this big FREE CATALOG and save money. Not only do you save money, but you also save valuable time by sending in one order for your entire needs selected from this big valuable catalog of the radio industry. Join the thousands of others who now buy their entire needs from E. A.
A trio of jobber executives doing a good job in New England, at the H. Jappe Co., Worcester, Mass. Left to right: Ken Clafin, John Manoog (Manager), and Steve Boyko.

**Stewart Warner Plans National Convention**

To meet on Nov. 27-28 at the Edgewater Beach Hotel in Chicago are all of the Stewart Warner jobbers, their salesmen and servicemen, district managers, etc., for the annual national refrigerator sales convention, according to word from Charles R. D'Olive, SW household appliance division manager.

According to D'Olive “the 1940 Stewart-Warner refrigerators will again bring out exclusive innovations in design, construction and value.” Another feature of the convention is “Quality Lane”—a dramatic exhibition of the product and the parts and processes that go into it.

A special section of the convention is being devoted to the distributor servicemen.

According to present plans, James S. Knowlson, chairman of the board and recently-elected president of Stewart-Warner will head the list of speakers. Frank A. Hiler, vice president and general sales manager, will discuss appliance sales and merchandising plans for 1940. Other speakers include Joseph C. Elliff, S. W. sales and merchandising executive; C. C. DeWees, appliance advertising manager; A. B. Dice of Hays MacFarland & Co.; the advertising agency for Stewart-Warner; and Mr. D'Olive, who will conduct the convention.

**Big Plans Revealed for RCA Managers**

From RCA Victor's 10 district sales offices throughout the U. S. recently came the field managers for a meeting at Camden in order to conclude plans for a comprehensive pre-Christmas sales, advertising and sales promotion campaign.

The managers assembled under the direction of Fred D. Wilson, manager of field activities. Among the RCA Victor officials addressing the group are Henry C. Bonig, commercial vice president; Vance C. Woodcox, vice president in charge of package goods sales; E. W. Butler, manager of the radio, victrola and television division; D. J. Finn, advertising manager; E. C. Cahill, manager of the photophone division; George Ewald, manager of commercial sound sales; L. W. Teegarden, manager of the radio tube and parts division; and W. W. Early, manager of recording and record sales.

The district managers who attended are: Arthur Kemp, Boston; M. F. Blakeslee, New York; William Kelley, Baltimore; James Cocke, Pittsburgh; John West, Cleveland; Sidney Camper, Atlanta; Richard Graver, Chicago; Harold Winters, Kansas City; George Malseed, Dallas, and E. J. Rising, San Francisco.

**Solar Names Shefler**

The appointment of H. George Shef- ler has been announced by Solar Mfg. Co. of Bayonne, N. J., as district sales manager at Phoenix, Arizona.
Radiobar Has New Franchise for New Models

Linked with the announcement of new 1940 models, the Radiobar Co. of America reveals that it will feature "a new, exclusive dealer franchise with direct factory-to-dealer distribution plans." The plan, according to C. T. Hillman, general manager of the company, is to allot the franchise to aggressive merchandisers on an exclusive territory basis.

Mr. Hillman says that the new 1940 models stress greater style and value appeal and that they will be available with factory-installed radio, or with plain panels for dealer installation of any chassis the customer desires.

One model is available for bar service only, with a liquor storage compartment in place of the usual radio panel. Because of its patented construction, Radiobar offers the advantages of a full-service bar in a space-saving cabinet hardly larger than the ordinary console radio.

Applications for exclusive dealer franchises are now being received by the New York office at 256 Broadway, New York City, and acted upon as quickly as possible. The new selective franchise plan of merchandising is designed to give Radiobar dealers greater protection on their promotional activities, and officials of the company expect it to increase Radiobar sales to a new record for the 1940 selling season.

Big Contest on Radio Cabinet Design

A cash prize competition, for original designs in radio cabinets, is being sponsored by General Electric and the magazine Interior Design and Decoration. Minimum amount of $1,550 in prizes will be awarded, in search for radio designs satisfactory both to expert decorators and manufacturers. Purpose is to inject some "fresh thinking" into cabinet design, by getting ideas from established stylists as well as students.

Entry blanks and full instructions come from Harry Y. Anderson of the magazine at 50 Rockefeller Plaza, New York City. Closing date is Dec. 15.

Portables Develop Year Round Sales Demand

A definite trend toward a year round market for portable radios has been pointed out in a statement by James H. Carmine, assistant general sales manager of Philco.

Mr. Carmine declares that football and other sports keep the sales curve up in the fall, winter sports and Christmas buying serve as a cold-month spur, and then comes the usual heavy demand for portables during the spring and summer.

Radio on City of Flint

Probably the most discussed shipment of radio tubes in the industry at the moment is the batch that National Union consigned to an Irish distributor via the S.S. City of Flint. The seized vessel and her cargo have been the subject of extraordinary diplomatic exchanges between the leading European powers.
Christmas Packs for Gift Radios

For those dealers and distributors who want to get in on the streamlined radio packaging being done for the Christmas trade by Stewart Warner, the announcement has been made that the service will be furnished free to those receiving shipments of the Air Pal and Campus sets prior to Nov. 15.

Radio sales manager L. L. Kelsey of Stewart Warner, who is to be credited with this merchandising idea, says also that a limited number of the gift cartons are available at cost for use with stocks on hand.

Conn Buys Controlling Interest in Federal Recorder

That the controlling interest in the Federal Recorder Co., New York, has just been bought by C. G. Conn, Ltd., of Elkhart, Ind., is the announcement of Alfred L. Smith, executive vice-president for Conn. Federal makes recording equipment for home, school and professional use, and will now have the extensive facilities of the Conn firm at its disposal.

Max M. Pochapin will continue as president of the Federal company, and Roy Bennett as manager of sales promotion. A big expansion program is being planned and national advertising in trade and consumer publications will be scheduled. It was pointed out that as a result of the merger, Federal has at its command a full time experimental laboratory plus skilled technicians, strong financial resources, modern factory, the latest precision machinery with over 900 skilled craftsmen, and the experience of 60 years in the manufacture of precision sound and musical instruments.

Federal headquarters remain at 50 W. 57th St., New York City.

India Jobbers Have New Headquarters

Rama Brothers, the prominent distributors of radio and transmitting equipment who were formerly located at Kamachi, India, have moved to new headquarters at 4, Sir Bhandarkar Road, Camp Poona 1, India. Rama has written to Rano Towar to say that "we shall be glad if you will kindly request your advertisers to send us particulars and prices of their new products."

Soft Ball Team Challenges All Comers

The Cinaudagraph Soft Ball team of Stamford, Conn., hereby issues a challenge to any team in the industry to a game or a series of games indoors this winter or outdoors in the spring.

"Cinaudagraph Sensations" were victors in the 1939 YMCA Industrial Minor League, and next year they hope to enter the American League.

Television Demos on Tour

Opening a series of television demonstrations to be held in the key cities of the U.S., a mobile unit of the Farnsworth Television & Radio Corp. staged a 6-day show at the Ft. Wayne, Ind., Chamber of Commerce Auditorium. E. A. Nicholas, Farnsworth president, was one of the speakers at the event which attracted some 25,000 local persons.

Get Bigger Sales Volume . . . Use Light, Low-Cost Units

MODEL CX

YOU will find the new "X" series of General Industries motors ideal for use in popular-priced portable phonographs, table models and light radiophonograph combinations. Models CX (shown) and lighter still KX direct drive and Model RX rim drive. All three induction type. Constant speed. Cool. Quiet. Trouble-free. Shipped ready to install, with turntable and mounting accessories. Get our latest prices—order motors for testing in your new assemblies.

Send for NEW Catalog

LEWIS INDIAN BUDGETS

MONTGOMERY WARD

9 Great Mail Order Houses
More Than 600 Retail Stores

MONTGOMERY WARD & CO.,
Dept. RT-32, Chicago, Ill.
Please RUSH at once your FREE Radio Equipment Catalog.

Name

Address

City

State

NOVEMBER, 1939
NEW BOOKLETS


Parts, supplies, and equipment illustrated in 1940 general catalog of Burstein-Applebee Co., 1015 McGeachy St., Kansas City, Mo.

New sound equipment catalog illustrating and describing complete line of Erwood Sound Equipment Co., 224 W. Huron St., Chicago.

Serviceman’s capacitor replacement catalog contains 240 pages of Cornell-Dubilier replacements for all types of receivers. Data includes basic circuit and working voltage for each receiver. Cornell-Dubilier Electric Corp., S. Plainfield, N.J.


NEW "630" DYNAMIC, modern and functional in design, titlable for directing, or operation. VHM 630—dual tube, $17.95. Ideal for all modern amplifiers, readily adaptable to high fidelity music and speech pickup. Frequency response, 40-8000 c.p.s. Output—56 db. (open line). Standard output impedances include Hi-Z, direct-to-grid.

See this new "630" at your local distributor.

ELECTRO-VOICE MFG. CO., Inc., 1239 South Bend Ave., South Bend, Indiana

TWO ATTRACTIONS

★ BENAY VENUTA, popular stage songstress, featured on Mutual Broadcasting System coast-to-coast programs.

★ NEW "630" DYNAMIC, modern and functional in design, titlable for direction. In stock.


See this new "630" at your local distributor.

Write for complete details.

ELECTRO-VOICE MFG. CO., Inc., 1239 South Bend Ave., South Bend, Indiana

Sound specialists are making money in P.A. with LAFAYETTE!

SET IN THIS PICTURE!

Today, owners of stadiums, ballrooms, churches, department stores, offices, garages are sold on the importance of Sound. New outlets for P.A. sales develop every day! You can sell these—and profit more—with the Lafayette line for 1940.

WE'VE GOT THE SYSTEM

For every purpose and purse. Allied, too, Lafayette offers three lines—a Deluxe, Standard and Economy to help you quickly turn prospects into customers, stock into cash profit. For there's an appeal in Lafayette's packaged P.A.—and performance that can't be matched even at twice the low Lafayette price.

HER?S ALL YOU DO

Test out coupon and mail for FREE catalog. See the world's most complete line of sound systems. Compare Lafayette features for feature, dollar for dollar with any other P.A. Then, go to town with Lafayette—the money-making line in the low price field.

LAFAYETTE P.A.

address the coupon to

LAFAYETTE P. A., Dept. 1229, 100 Second Ave., New York, N. Y.
INDEX TO ADVERTISERS

ABC RADIO LABORATORIES .......................... 56
AEROVOX CORP .................................. 56
BITTER CONSTRUCTION CO., A .............. 37
BURSTEIN-APPLEBEE CO .................................. 38
CENTRALAB ........................................ 50
CINAUDOGRAPH CORP .................................. 52
CONTINENTAL RADIO & TELEV. CORP. Cover I
CORBIN-DUBLIHER ELEC. CORP ................ 51
CRUSLEY CORP .......................................... 23
ELECTRO-VOICE MFG. CO., INC ............ 62
FARNsworth TELEV. & RADIO CORP ...... 4, 5
GENERAL ELECTRIC CO .................................. 8
GENERAL INDUSTRIES CO .................................. 61
HYGRADE SYLVANIA CORP ......................... 31
INTERNATIONAL RESISTANCE CO .............. 58
KEN-RAD TUBE & LAMP CORP ................. 59
MALLORY & CO., INC., P. R. .............. Cover II
MONTGOMERY WARD & CO .................................. 61
NATIONAL CARBON CO., INC .................. 6
NATIONAL UNION RADIO CORP .............. 54
NORGE DIV., BORG-WARNER CORP ........ 25
OPERADIO MFG. CO .................................. 59
PHILCO RADIO & TELEV. CORP 28, 29, 32, 33
PIONEER GEN-E-MOTOR CORP .................... 51
RADIOBAR CO. OF AMERICA ...................... 10
RADIO CORP. OF AMERICA .......................... 9
RADIO SERVICEMEN OF AMERICA ............... 60
RADIO WIRE TELEVISION, INC .................. 62
RANGERTONE, INC .................................. 64
RAYTHEON PRODUCTION CORP ............. Cover III
RCA MFG. CO., INC .................................. 21
RECOTON CORP .......................................... 53
RIDER, JOHN F .................................... 43
SIMPSON ELECT. CO .................................. 57
SOLAR MFG. CORP .................................. 63
SONORA RADIO & TELEV. CORP .............. 1
SPRAGUE PRODUCTS CO .................................. 45
SUNL ENGINEERING CO .................................. 56
TRIPPLETT ELECTRONIC INSTRUMENT CO .... 55
TUNG-SOL LAMP WORKS, INC .................... 2, 3
UTAH RADIO PRODUCTS CO ...................... 39
WESTERN ELECTRIC CO .................................. 53
WESTON ELECT. INSTRUMENT CO .................. 48
ZOPHAR MILLS, INC .................................. 64

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

NOVEMBER, 1939

It's your DOLLAR

ask your Jobber

He will give you a certificate like that below, if you stop in and EXAMINE the EXAMETER. You may find this new circuit and components analyzer the greatest time-saver you ever bought. Or you may prefer one of the standard Solar Capacitor Analyzers. The $1.00 credit is good on any of these three outstanding instruments.

This offer is good for a limited time only, so ACT NOW!

Catalog Free Upon Request

SOLAR MFG. CORP. Bayonne, New Jersey

SOLAR ANALYZER CC
Measure capacity to 100 mfd., resistance to 2 mega. indicates power factors, spots leaky condensers and intermitents; continuity meter, sloping panel cabinets.
DEALER COST $24.90

SOLAR EXAMETER EX
Output indicator; peak voltmeter ranges 0-35, 0-310 and 0-3500 volts; r.f. alignment indicator; measures capacitance to 2000 mfd., resistance to 1½ mega. indicates power factors, spots leaky condensers and intermitents; continuity meter.
DEALER COST $39.00

SOLAR ANALYZER CB
Measures capacity to 70 mfd., resistance to 2 mega. indicates power factors, spots leaky condensers and intermitents; continuity meter. Most popular condenser tester on the market.
DEALER COST $19.20
For New XMAS PROFITS!

Now, for the first time, at a popular price, Rangertone makes available high fidelity Chime Recordings of traditional Christmas songs. No music so beautifully, so appropriately expresses the spirit of Christmas. These high quality Rangertone recordings are designed for Amplification as well as for home use. Churches, Institutions, Stores, Home and Community celebrations offer a large and profitable market. And experience has proven that this type of music greatly stimulates the holiday buying spirit. Disks are 10 inch, each with two selections.

Retail Price, 75c
A Better Product — A Better Profit
Check this List
540—O, Little Town of Bethlehem
541—It Came upon the Midnight Clear
The First Noel
542—While Shepherds Watched Their Flocks
O, Holy Night
543—Come All Ye Faithful
We Three Kings of Orient Are
544—Hark, the Herald Angels Sing
Joy to the World

Send Your Order Today

RANGERTONE, INC.
201 VERONA AVE., NEWARK, N. J.

WAXES AND COMPOUNDS
FOR INSULATION & WATERPROOFING
of ELECTRICAL and RADIO COMPONENTS
• such as transformers, coils, power packs, pot heads, sockets, wiring devices, wet and dry batteries, etc. Also WAX SATURATORS for braided wire and tape and WAXES for radio parts. The facilities of our laboratories are at your disposal to help solve your problems.

ZEPHAR MILLS, Inc.
120-26th St., Brooklyn, N. Y.

Radio Proves High Holiday Appeal

That radios are one of the U. S. favorites in Christmas buying is revealed in a survey on "What Folks Want for Christmas" conducted by Sales Management magazine. Radios and musical instruments ranked fourth on the list, while autos and tobacco tied for first, writing materials came in second, and personal accessories were third.

Among radio brand preferences, Philco was first, RCA-Victor second, Emerson third, and Zenith fourth.

"Lou" Chatton Back With Andrea

Louis C. Chatton has joined the sales forces of Andrea Radio & Television Corp., according to news from F. A. D. Andrea, president. Mr. Chatton had previously had 14 years of experience with the Andrea firm, and has a wide acquaintance among U. S. jobbers and dealers. His appointment is another step in the expanding domestic operation of the company, whose sales organization is headed by David Spector.

Stromberg "War-Map"

With war in Europe stimulating peak interest in newcasts and short-wave broadcasts direct from battle areas, Stromberg-Carlson has just published a war map and radio log for its dealers to hand out.

One whole side of the sheet contains a large, seven-color map of the European war zone for reference in keeping tabs on progress of the war. On the opposite side is given a log of "News In English" broadcasts direct from European capitals together with a log of foreign language news broadcasts beamed toward North America. Also included are short-wave tuning tips, a time conversion table, and a chart showing when to use the various short-wave bands.

A dozen Stromberg-Carlson radios offering unusually quiet short-wave reception are illustrated and described in the new piece, as well as the Stromberg-Carlson Antenn Kit which is recommended for short-wave reception.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF AUGUST 24, 1912, AND MARCH 3, 1923

Before me, a Notary Public in and for the State and county aforesaid, personally appeared... Etc., of the afkoresaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by Act of March 2, 1935, embodied in section 517, Penal Laws and Regulations, printed on the reverse of this form, so wit:

1. That the names and addresses of the publishers, editor, managing editor, and business managers are...

2. That the owner is (if owned by a corporation, the name and address of the corporation; if owned by an individual, the name and address of the individual)

3. That the owners, officers, and stockholders (if any, the name and address of each) holding one per cent or more of the total amount of stock of the corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other non-incorporated entity, its name and address, as well as those of each individual member, must be given.

4. That the names and addresses of the officers, editors, managers, and other officials or agents of the corporation, the names and addresses of the stockholders or owners, and the names and addresses of the individual owners of the stockholders or owners, must be given. If owned by a firm, company, or other non-incorporated entity, its name and address, as well as those of each individual member, must be given.

5. That the dates of publication of at least the last 12 issues of this...
Raytheon-equipped Transmitters and Receivers Are Used on the Gatti Expedition...

Into the heart of the African Jungle, the famous Gatti Expedition is pushing its way through virtually unexplored territory, peopled with little known savage tribes and more savage animal life. Radio is the sole link with civilization!

Tubes do not grow on trees in Africa, and space being very limited, Commander Gatti experimented until he found the tube he could rely on. Like almost all scientific expeditions—it was RAYTHEON.

They are identical tubes—taken from stock—which otherwise you might have used as a replacement in Mrs. Jones' radio set! That is the kind of tubes RAYTHEONS are. One quality, Judged by scientists everywhere—the best in the world!

Get started now giving your customers the best. You will be surprised how it will increase your prestige, turnover, profits and goodwill. By acting now you can have all these advantages without costing you any more than tubes scientists brush aside.

RAYTHEON

"WORLD'S LARGEST EXCLUSIVE RADIO TUBE MANUFACTURERS"
PLAY IT UP BIG FOR A BIG CHRISTMAS PLAY!

It's hot... right off the fire, this brand new Admiral number. Built to help you cash in on the Xmas gift trade. A knockout in value with plenty of eye-appeal in the smartly styled walnut cabinet with stream-lined carrying handle. Make it your "model of the month." and it will make a month of real profit for you!

Model 384-5S—Five full working tubes of the new low current type give powerful 6-tube performance. Full-sized permanent magnet dynamic speaker. Equipped with Aeroscope... automatic volume control... vernier dial... television sound connections. Tunes 540 to 1730 KC.

AMERICA'S SMART SET

MODEL 384-5S

$16.95

(Far West and South $17.95)

WITH FULL DEALER DISCOUNT

Continental Radio & Television Corp. • 3800 W. Cortland St. • Chicago, Ill.
American Radio Earns New Markets

DECEMBER

Retail Clean-Up After Christmas
In Every Direction
depend on

MALLORY
Replacement Parts

for faster, more profitable service

YEAR after year thousands of radio service engineers have found that the use of Mallory Replacement Parts is a certain route to better jobs... better customers... and better profits.

Mallory Condensers and Capacitors have made "profit" history in both the replacement and the manufacturing field. They include such outstanding leaders as Mallory Tubular Condensers... Mallory FP (Fabricated Plate) Capacitors, and Mallory Fabricated Plate Tubulars, Type BB. No line of condensers or capacitors gives so wide a range of replacement applications. Millions are in use.

Mallory Vibrators and Mallory-Yaxley Volume Controls enjoy an equally enviable position of leadership. They are the first choice of leading radio service engineers everywhere.

No matter what size business you conduct... you'll find Mallory Radio Replacement Parts your answer to improved service and increased profits. If you haven't already turned to Mallory... call your nearest Mallory-Yaxley distributor now and introduce yourself to a new conception of profits.

VIBRATORS... CONDENSERS

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

Use
MALLORY
REPLACEMENT
CONDENSERS...VIBRATORS

Use
YAXLEY
REPLACEMENT
VOLUME CONTROLS
AT THE CHICAGO STADIUM

RAYTHEON PLAYS TO THE WORLD'S LARGEST SPORT AUDIENCE

2,632,916

rabid sport fans are a fair estimate of attendance in a year's time at the famous Chicago Stadium.

Eddie Callahan and Al Soudan are the technical experts who keep that vast indoor arena in fighting trim. The sound system is their pet. They baby it like a couple of tigers with a cub. Nothing is too good for that P. A. job. So naturally they insisted on using genuine RAYTHEON tubes!

Callahan and Soudan are engineers—they know their electronics. You will find that almost always the experts—the men on top—recognize the dependability and quality of RAYTHEON tubes.

It isn't surprising that RAYTHEON tubes are used by set manufacturers in a greater number of circuits—where quality limits are an important factor—than any other brand.

It isn't an accident that RAYTHEONS are tops for uniformity. Nor is it an accident that servicemen and dealers who use only the best parts, feature RAYTHEON tubes—to insure their successful business! Yet RAYTHEONS cost no more!
This new CBS power...

**WCKY**
CINCINNATI, O.
50,000w.

**WRVA**
RICHMOND, VA.
50,000w.

**WWL**
NEW ORLEANS, LA.
50,000w.

**KRLD**
DALLAS, TEX.
50,000w.
KWKH 50,000w.  SHREVEPORT, LA.

WJSV 50,000w.  WASHINGTON, D.C.

in addition to ...

WABC 50,000w.  NEW YORK, N.Y.

WBBM 50,000w.  CHICAGO, ILL.

DECEMBER, 1939
WCAU 50,000w.
Philadelphia, Penn.

WJR 50,000w.
Detroit, Mich.

KNX 50,000w.
Los Angeles, Calif.

WCCO 50,000w.
Minneapolis, Minn.

KMOX 50,000w.
St. Louis, Mo.
WBT 50,000w. CHARLOTTE, N.C.

WHAS 50,000w. LOUISVILLE, KY.

KSL 50,000w. SALT LAKE CITY, UTAH

50,000 watts where it counts the most! CBS

DECEMBER, 1939
There's No Doubt About It Now...

The BIG PROFIT REFRIGERATOR

SINCE the first announcement of Philco's plans in refrigeration for 1940, it has become mighty plain that dealers from Coast to Coast know that a new major force has entered the industry. If you haven't yet heard the advance story, better contact your Philco distributor at once because important decisions are being made right now that will mean important profits to many a dealer in the years to come.

Activities in lining up dealer coverage are far ahead of schedule. The trade seems to recognize a ground-floor opportunity in the Philco Refrigerator contract. And there is no doubt that the 1940 Philco Refrigerator line will be a sensation. It will positively smash all tradition and present to the buying public a new idea of refrigerator service and value.

There is no doubt, also, that Philco will be set to sell that product with the finest appliance distributing and merchandising organization in the country. From one end of the nation to the other, they're lined up solidly now; the same strong, successful, hard-hitting distributors that have carried the Philco name to overwhelming leadership over the years. They have had a hint of what is to come in advertising, promoting and merchandising the Philco Refrigerator, and they're straining at the leash to go into action in the old-time dominating, smashing Philco way that they know so well.

With all this advance excitement, Philco is being careful to keep in mind its original objectives. Of course, Philco intends to move ahead in refrigeration. But the purpose from
The beginning was and is to give Philco distributors and Philco dealers a balanced, All-Year-'Round source of profits. Philco means to keep its refrigerator contract profitable for its dealers. Only as many dealers are being sought as are needed to accomplish the goal that has been set. And those dealers who have done an outstanding job for Philco through the years are entitled to first consideration in building the dealer organization for Philco refrigerators. Philco welcomes them now to its All-Year-'Round family just as they will welcome the advantages of Philco public acceptance, Philco advertising and Philco merchandising in their refrigerator picture.

Philco is working day and night at headquarters to get ready for the distributor convention which will unveil the greatest line of refrigerators ever to greet the eyes of the trade. Shortly thereafter you'll see them at local meetings in your area. If you're making your 1940 refrigerator plans now, you should be giving some mighty serious thought to the glorious pageant of profits that will greet you at those meetings.

PHILCO RADIO & TELEVISION CORPORATION
SINCE the first announcement of Philco's plans in refrigeration for 1940, it has become mighty plain that dealers from Coast to Coast know that a new major force has entered the industry. If you haven't yet heard the advance story, better contact your Philco distributor at once because important decisions are being made right now that will mean important profits to many a dealer in the years to come.

Activities in lining up dealer coverage are far ahead of schedule. The trade seems to recognize a ground-floor opportunity in the Philco Refrigerator contract. And there is no doubt that the 1940 Philco Refrigerator line will be a sensation. It will positively smash all tradition and present to the buying public a new idea of refrigerator service and value.

There is no doubt, also, that Philco will be set to sell that product with the finest appliance distributing and merchandising organization in the country. From one end of the nation to the other, they're lined up solidly now; the same strong, successful, hard-hitting distributors that have carried the Philco name to overwhelming leadership over the years. They have had a hint of what is to come in advertising, promoting and merchandising the Philco Refrigerator, and they're straining at the leash to go into action in the old-time dominating, smashing Philco way that they know so well.

With all this advance excitement, Philco is being careful to keep in mind its original objectives. Of course, Philco intends to move ahead in refrigeration. But the purpose from the beginning was and is to give Philco distributors and Philco dealers a balanced, All-Year-Round source of profits. Philco means to keep its refrigerator contract profitable for its dealers. Only as many dealers are being sought as are needed to accomplish the goal that has been set. And those dealers who have done an outstanding job for Philco through the years are entitled to first consideration in building the dealer organization for Philco Refrigerators. Philco welcomes them now into its All-Year-Round family just as they will welcome the advantages of Philco public acceptance, Philco advertising and Philco merchandising in their refrigerator picture.

Philco is working day and night at headquarters to get ready for the distributor convention which will unveil the greatest line of refrigerators ever to greet the eyes of the trade. Shortly thereafter you'll see them at local meetings in your area. If you're making your 1940 refrigerator plans now, you should be giving some mighty serious thought to the glorious pageant of profits that will greet you at those meetings.

PHILCO RADIO & TELEVISION CORPORATION
Brings Your Present Tube Tester Up-to-Date!

What an opportunity to bring your tube tester up-to-date! Dozens of new type tubes, new terminal arrangements and numerous new heater voltages obsolete most present testers.

NOW... this amazing Philco offer brings you a new $25 R.T.L. Modernizer absolutely FREE! This revolutionary new invention plugs into any tube tester having a six-prong socket and heater voltages up to 75 volts. Enables it to handle all present tubes and heater voltages as well as allowing for hundreds of new tubes with voltages up to 150 volts. And when new tubes with different sockets are developed... a socket blank adapts them! A chart giving correct settings for your particular tester comes with the Modernizer. Charts are now ready for practically all testers in use.

Small, compact... measures 5 by 12 by 2½ inches... weights only 4 pounds. Finished in light grey crackle. Has two rows of telephone type switches, one row in red, the other in ivory.

Act now... find out how easy it is to obtain one of these sensational Modernizers for your tube tester FREE!

REG. PRICE $25
BUT YOURS ABSOLUTELY FREE

HILCO RADIO & TELEVISION CORPORATION

I want to bring my present tube tester up-to-date.
Please tell me how I can get the new $25 R.T.L. Modernizer absolutely FREE.

IY PRESENT TUBE TESTER IS—
Make_________________________ Model_________________________

S A M E ____________________________
ADDRESS__________________________
CITY____________________________
New Radios Have Box Office

The fact that people certainly linger longer around radios if they are new ones, is being freshly used in industry-wide promotion.

In the "Radio Christmas" drive suggested by Arthur Stringer of National Association of Broadcasters, and co-sponsored by RMA, terrific benefits are seen for all branches of the trade. Stations, servicemen, parts jobbers, set distributors, utilities, manufacturers, local newspapers, local charities (and certainly the listeners) all get a boost in this nationwide movement to get tumble-down radios out of circulation.

**GENEROUS ENTERPRISE**

However the local fellows prefer to execute it, the idea is to locate and to fix up the better models among the outmoded receivers, and to dispatch them to charity agencies. Donors of the sets are to get the widely-publicized credits they deserve. There is a plan whereby the utilities go to work on the "lean listening" periods of the day, by using December envelopes stuffers on radio.

Stations contribute a series of announcements on the air, servicemen pick up the sets from the donors (and make contacts), parts jobbers furnish the parts, set distributors make up some expenses, and utilities distribute new material, while the public gets interested in the "benefit" angle and the trend toward better reception. The whole community rallies its Christmas spirit for the "Central Repair" station, where the gift receivers are being repaired in full view.

In the earlier stages of the industry-wide promotion, some 23 chapters of Radio Servicemen of America have been participating. Plans are being made to extend this cooperative action to all cities where R.S.A. groups are, as the results so far have been highly gratifying to all concerned.

**Sea Lanes to the South**

To balance the radio export prospects lost by the United States in the European market, there are gains expected in the Latin American and other world markets, is the conclusion of John H. Payne, chief of the Electrical Division of the Dept. of Commerce, in a statement to Radio Today.

The elements in the radio situation are, as viewed by this expert, (1) Ex-

**Radio Performs at Its Peak!**

The year-end sum of radio sets sold in 1939 will apparently be a cool 9,000,000, which will be an all-time high spot for the industry. Receiver sales are currently running about 22 per cent ahead of last year, when the total was 7,100,000.

Radio sales for this year bring the number of sets in use by American listeners to a total of 45,200,000 as 1940 opens, if you consider that about half of the sales made in 1939 were replacements.

Along with these increased numbers of radios, comes increased quality. The dollar volume of all sets sold so far in 1939 is running 30 to 35 per cent ahead of last year.

Port prospects in Latin America are good but require careful development. (2) The belligerents have established contraband lists which include all forms of communication equipment for possible war use. (3) European neutrals are finding it more and more difficult to buy American radios, and (4) Many competitive European radio items (notably those from The Netherlands, our chief competitor in Latin America) are being seriously hindered in reaching non-European markets.

Mr. Payne declares that "Latin America must sell her goods substantially to other countries if she is to secure the credits with which to buy our radio sets. So far, the changes which have occurred have been a curtailment of her markets. Our big opportunity seems to lie in the development of our import purchases from that area."

The details of Uncle Sam's new grip on the world radio market are mapped on following pages of this issue.

**High Price and Thin Ice**

"Price must remain fairly stable until increased demand is made concrete in the form of increased purchasing power, which in turn will be reflected in a continuous heightened production level," declares Sayre M. Ramsdell of Philco in vigorously recommending a "price armistice" as a war-time stabilization measure.

Mr. Ramsdell's view is that if price increases come too fast, the demand will shrink because purchasing power has not had the chance to match the price jumps. Then as demand lessens, production will necessarily lag. Pro-
duction can be maintained, through continuing demand. Then purchasing power will be given a chance to get down to the persons usually last to feel the effect of rising prosperity—the general consumer.

The Philco executive believes that control of price increases can best be maintained through agreements in and between the various business associations which represent virtually every branch of American industry.

Lower Television Prices Tested

A two-month experiment to determine whether the public will buy television receivers at lower prices than those originally announced, has been finished by RCA Mfg. Co., in the trade areas of three New York towns, Newburgh, Middletown, and Poughkeepsie. The discount to dealers was understood to be 40 per cent. Prices were reduced 30 per cent or more, and the local buyers showed substantial interest.

It is reported that in the Newburgh area alone, some 100 receivers were sold. Importance of the price factor is clearly indicated when this figure is compared with the mere 1,220 sets which manufacturers managed to sell in the entire New York metropolitan area since April 30.

In the test territory, the receivers were advertised in the newspapers, without quoted prices. The biggest demand was for sets in the $200 range. RCA officials have made no formal comment on the results, except that they are planning to get a full review of the opinions of distributors and dealers before a definite change of price policy is announced.

Meanwhile, telecast programs are being steadily improved, and the FCC shows signs of relaxing its ban on telecast commercials. CBS is expected to open a regular program service in New York about Feb. 1.

National Parts Show for 1940

The dates for the 1940 Radio Parts National Trade Show are June 11 to 14, when the main exhibition will happen in the Exhibition Hall of the Stevens Hotel, Chicago. Demonstration and conference rooms will be in both the Stevens and the Blackstone Hotel.

Designated as “Jobber Days” at the event are June 11 to 13. Friday, June 14th, will be “open house” for the general trade.

Officers for the 1940 Radio Parts Manufacturers National Trade Show, Inc., have been elected: A. A. Berard (Ward-Leonard), president; H. E. Osmun (Centralab), vice-president; and J. J. Kahn (Standard Transformer), sec.-treas. S. N. Shure of Shure Bros., president of the Trade Show for the past three years, remains on the board as Director at large.

Seven Million Are Richer

Just distributed to more than 7,000 persons throughout the U.S., was a total of $350,000,000 in Christmas Club money. Announcements from the Christmas Club Corp. reveal that the sum is 7 per cent in excess of 1938, as 4,700 banks are paying out an average of $48.80 as against $47 last year.

Distribution of these savings started Dec. 4, and it is estimated that $813,400,000 will be spent for Christmas purchases. For those who believe that radio is the finest of all gifts, these figures are signals for action.

Broadcast Champ on the Cover

The expert musician on the cover of this issue is the broadcast star, Benny Goodman, “swinging” his way into favor with radio listeners abroad, as well as with millions of fans in America. His program on NBC is one of those which make the modern radio receiver an important and an easier-to-sell product.

Officials of the International Division at NBC have noticed that Mr. Goodman and his orchestra are top-rank favorites with listeners in South America and other areas abroad. He’s doing an A1 job of selling the general idea of U.S. radio superiority.

Gigantic Radio Sales Drive in Wisconsin

An extraordinary radio promotion with a real punch and a terrific scale to it, is all set to blanket the state of Wisconsin during the month of December. Local dealers, distributors, and stations will be active in the elaborate campaign sponsored by the newspaper, Milwaukee Sentinel.

The drive includes two big contests, announced in special section of the paper and on eight stations in the state. More publicity for the contests has been arranged with 132 weekly papers, and a 20-ft. motion picture trailer will appear in 22 Milwaukee theaters.
"MAGIC WAVES"


Weekly Broadcasts by
Dr. O. H. Caldwell
Editor of Radio Today

NBC Red Network, Friday Evenings
7:45 p.m. E.S.T.  6:45 p.m. C.S.T.


As "Magic Waves" coast-to-coast shows continue, radio listeners are treated to more dramatic demonstrations of the principles which are operating in their home receivers. And while the network audiences learn the striking facts about radio set and tube operations in other fields, in each of the broadcasts listed above, they realize that their own receiver is after all a mighty impressive device.

Apple for the Teacher

In a project which will mean getting more and better radios into the schools of the country, RMA is cooperating with the National Research Council to decide on the specifications of the receivers best adapted for education use. After specifications have been agreed on, the approved receivers will be listed by a committee of the Council, and the list will be widely distributed to school teachers, free. Funds for this school radio project have been supplied by Carnegie Corp. of New York.

All Frenchmen Use Everybody's Tubes Forever

Some weeks back, when the Ken-Rad tube people proudly declared that their tubes were being used by the French Ministry of Post and Telegraph, Radio Today made a straight-forward news item out of it.

When the Hygrade Sylvania folks saw the paragraph, they sent a gentle reminder that there was also some Sylvania traffic at the French Ministry. This material was likewise published.

Now, Arcturus has forwarded a pleasant note saying that their distributors in France have, for some time, supplied tubes to the French officials.

If there are any other tube makers who deal with the French offices, Radio Today is the one to communicate with. The editors are too deeply into the subject to quit now, and anyway, they rejoice over the fine acceptance of American tubes abroad.

Nice order for first carload of Wilcox-Gay's Recordio goes to sales manager Warren Hasemeier, from Pat Mar- nack, Radio Specialties Co., Los Angeles.

At Crosley's big distributor convention late last month, general sales manager T. W. Berger left, and asst. sales mgr. Neil Bauer acknowledge jobber applause.

New radio honors go to George Sco-ville of Stromberg-Carlson as the company celebrates its 45th anniversary.
While nerves are taut over the events in Europe, radio proves again how it draws "the four corners of the earth" closer together.

Not only in this country, but throughout the world, nothing satisfies the human craving for news as it occurs on both sides of the story, as does radio. Sales of all radios in general, and short waves sets in particular have jumped ahead, as countless people want to hear, themselves, what is happening in the capi~ols of the world.

As the war goes on, this world wide rebirth of radio interest will greatly increase the sale of American radio in the world's markets.

Twenty-six countries now account for 88.4 per cent of our total radio exports.

Of the first ten largest users of American radio, consuming 59 per cent of our exports, only England and France and possibly Sweden, comprising some 14 per cent, should buy less American radio in 1940 than in 1939.

As the industries of the British Empire, Canada, South Africa, Australia, New Zealand turn more and more to the production of essential munitions of war and the demand for radio increases, certainly we can, if we will, sell these countries substantially greater quantities of radio equipment in 1940.
Hod in New Markets

Exports hold strong tone in markets abroad

As the supply of German and Dutch equipment is curtailed, the South and Central American countries will be in the market for more American radio equipment than ever before.

The business customs of these countries are different than ours. They like to do business their way. If we really want their orders, we should not try to make them buy what we make, but rather, make what they want to buy.

Observers declare that if during the months immediately ahead of us, we can prove to our southern neighbors, and to other markets, that we can make what they want, and sell it the way they want, we can so intrench ourselves that no competitor may ever again seriously challenge our position.

In the radio markets of the world, the war presents an opportunity, not an obstacle, to American radio manufacturers.

(The figures presented in the world charts herewith are based on the latest yearly totals, for 1938, on dollar volume of exports compiled by the Bureau of Foreign and Domestic Commerce. They include sets, tubes, parts, speakers and other radio accessories. Countries whose war-time activity is expected to decrease their purchases of U. S. radio are omitted from the lists.)

DECEMBER, 1939

9. Venezuela .............. 2.42
10. Colombia .............. 2.33
11. New Zealand ............ 2.20
12. Philippines ............ 1.58
13. Puerto Rico ............ 1.40
14. Peru .................. .91
15. Panama ................ .83
16. Bolivia ................. .64
17. Newfoundland ........... .47
While nerves are taut over the events in Europe, radio proves again how it draws "the four corners of the earth" closer together.

Not only in this country, but throughout the world, nothing satisfies the human craving for news as does radio.

Sales of all radios in general, and short waves sets in particular have jumped ahead, as countless people want to hear themselves, what is happening in the capitals of the world.

As the war goes on, this world wide rebirth of radio interest will greatly increase the sale of American radio in the world's markets.

Twenty-six countries now account for 89.4 per cent of our total radio exports.

War-time Markets

<table>
<thead>
<tr>
<th>Country</th>
<th>U.S. Export $</th>
<th>Per Cent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>8.10</td>
<td>9.10</td>
</tr>
<tr>
<td>Union of South Africa</td>
<td>5.87</td>
<td>6.57</td>
</tr>
<tr>
<td>Argentina</td>
<td>4.56</td>
<td>5.56</td>
</tr>
<tr>
<td>Brazil</td>
<td>2.53</td>
<td>2.92</td>
</tr>
<tr>
<td>Mexico</td>
<td>2.50</td>
<td>2.92</td>
</tr>
<tr>
<td>Cuba</td>
<td>1.88</td>
<td>2.22</td>
</tr>
<tr>
<td>Chile</td>
<td>1.35</td>
<td>1.62</td>
</tr>
<tr>
<td>Commonwealth of Australia</td>
<td>1.35</td>
<td>1.62</td>
</tr>
<tr>
<td>New Zealand</td>
<td>1.20</td>
<td>1.44</td>
</tr>
<tr>
<td>Philippines</td>
<td>1.29</td>
<td>1.51</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>1.40</td>
<td>1.70</td>
</tr>
<tr>
<td>Peru</td>
<td>0.31</td>
<td>0.39</td>
</tr>
<tr>
<td>Panama</td>
<td>0.56</td>
<td>0.68</td>
</tr>
<tr>
<td>Bolivia</td>
<td>0.47</td>
<td>0.56</td>
</tr>
<tr>
<td>Newfoundland</td>
<td>0.47</td>
<td>0.56</td>
</tr>
</tbody>
</table>

Exports hold strong tone in markets abroad

As the supply of German and Dutch equipment is curtailed, the South and Central American countries will be in the market for more American radio equipment than ever before.

The business customs of these countries are different than ours. They like to do business their way. They do not like us to try to make them buy what we make, but rather, make what they want to buy.

Observers declare that if during the months immediately ahead of us, we can prove our southern neighbors, and to other markets, that we can make what they want, and sell it the way they want, we can so interlace ourselves that no competitor may ever again seriously challenge our position.

In the radio markets of the world, the war presents an opportunity, not an obstacle, to American radio manufacturers.

(The figures presented in the world charts herewith are based on the latest yearly totals, for 1938, on dollar volume of exports compiled by the Bureau of Foreign and Domestic Commerce. They include sets, tubes, parts, speakers and other radio accessories. Countries whose war-time activity is expected to decrease their purchases of U. S. radio are omitted from the lists.)
NOW is the time to check up on stock, outstanding orders and sales, and to make sure everything is OK for the months just ahead.

It's a long time since the radio business has had four months sales like the quartet just drawing to a close.

Because some lines have been short, and we have placed orders outside our actual sales demand, it's important now, that dealers large and small, take an accurate physical inventory, and study it.

After the inventory has been recorded, checked, and totaled at cost, it should be analyzed and studied.

Tabulate your stock by line, and by model, and check this, model by model, against your December sales.

Most dealers expect a turnover of 8 to 10, but certainly a turnover of less than 6 per year is not profitable, may even be dangerous.

ACTION BY MODELS

January sales will be not more than half your December sales, and February still less.

A stock on January first, equal to your December sales, represents about 70 days supply, or a turnover of only a little better than 5.

And so as you check your stock, model by model with your December sales, any model the current stock of which is

1. Less than half of December's sales is OK.
2. More than half, but less than total, December sales should have a little extra selling effort.
3. More than December sales should get a quick "shot in the arm," and started moving through a price reduction, a "special trade-in," an extra salesman's commission, or even all of these.

You should look at your stock too, with an eye to the age of each model. Any that you bought before September first you've had too long.

You should look over your "trade ins" with a super-critical eye, and don't try to fool yourself when you make an honest appraisal of their selling price. If you can't sell them readily, wholesale them, salvage them, or junk them, for they will never be worth any more than they are now, and they are costing you good money to keep them around.

If you have plenty of store traffic, some "bargain" signs and a "price" window, may be enough to bring your stock into line.

But if, as so often is the case, your store traffic is limited, and you can only move these slow models at the expense of losing the sale of another model, then you should use your overstock to kill two birds with one stone.

SHOUT YOUR STORY

When you price these surplus models "right" use your windows, newspapers, direct mail and phone, to shout the savings of a "clearance sale," a "pre-inventory sale," a "floor

Tags on "sleepy" models will stand a 20 per cent mark-down as the first of your clearance measures. Old prices marked out are attractive to customers, too.
model" sale, or any other sale that will catch the consumer's fancy.

Get some new customers, make some new friends, at the same time you throw out your frozen capital in this slow and non-moving stock.

Stock at the end of January, model by model should be less than half of December sales of that model. Not only should you place your sales emphasis to that end, but you must watch your buying too, so that you can get into the Spring with not more than 30 days stock on hand, in units as well as in dollars.

STAGE A CATCHY SALE

January and February are months of sales, and radio must not only compete with the department stores "white sales," "housewares sales," "inventory sales," and "furniture sales," but they must appeal to the customer when she is particularly "sale" conscious.

To meet this form of competition for the customer's dollar, requires some ingenuity, some imagination, some dramatic presentation, and lots of hard work.

Price, or some form of "bargain" appeal, becomes really important, but co-ordinated promotional effort is more important. Your bid for more business should take on the appearance of an event, something the customer feels must be looked into, and must be sound enough to change that initial interest into an urge to buy that can't be resisted.

Some outstanding sales events have resulted from a sudden inspiration, but most success in business comes from hard thinking and careful planning.

Conditions are very uncertain, the future does not stand out in sharp relief, and so makes planning and control of your business more important than ever.

SOUND MERCHANDISING

First, there seems little question but that the September-October "boom" consisted largely of moving ahead the purchase of radio already at least thought about. This probably means that January and February will show a seasonal decline below normal of about half the amount October-November was above normal.

If you clear your stocks, and buy on this basis you'll be a lot safer, and in a position to pick up any "deals" that do look good to you.

It would be unsafe to plan on January sales being more than 10 per cent over 1939, and by the same token, you should hold your expense to 1939 levels, with a reserve in your sales promotion account to force sales when necessary.

Certainly you should plan in January to contact by mail and phone or personal call, every prospect from September to date who did not buy.

Go after these prospects to sell them, with everything you have in your bag of tricks, including trade-in allowance on your slow moving numbers.

Many radio buyers have become so used to the after Christmas price reductions that they will be harder to sell when prices are firm.

To offset this buying resistance some smart dealers are planning to use more advertising, to let their sales promotion expense go up a bit.

BUYERS ARE READY

The trend of buying preference is turning toward consoles. Lower priced consoles, it's true, but consoles do now represent a larger percentage of units than a year ago. It's interesting to note that the largest increase in console sales has been attained by those who "planned it that way."

Dealers who recognized the change in customer's demands, and really went to work with a console selling job. It paid dividends.

How far this trend will go only time will tell, but in future buying, and planning, this trend should receive plenty of thought, and effort, to keeping it going. That's where the real profits are.

In spring buying it would seem wise to go a little lighter than usual on the higher priced table models and compacts, and a little heavier on the consoles in the $50 to $75 range, and sell up to them. But in any event, get stocks down, keep them in line with sales, don't anticipate, and push the consoles.

Flood of Figures for Radio Men

Everybody and everything in the radio business will get counted and analyzed, beginning in January, when the U. S. Censuses of Business and Manufacturers will start. The resulting summaries and totals are expected to be of great benefit and it is hoped that everyone will promptly cooperate with the figure-takers.

Also, in the Population Census which starts in April, the radio buying and listening public will be spoken to; all the 33,000,000 homes will be visited and the existence of all types of radio equipment will be recorded. Interest in television and facsimile will be checked.

Formal figures will be forthcoming on merchandising, store stability, employment, inventory, time payments, etc. Radio firms are required by law to fill in the questionnaires, but the reports are confidential and "cannot be used for taxation, investigation or regulation."
Meet the New Year

New sets have more sales punch as winter-time broadcasts reach entertainment peak

GE radio-phono console

Beauty plus is found in GE model HJ-628, a 6-tube radio-phono combination. Has console-grand walnut cabinet with full length lid, six feathertouch tuning keys, rotor manual volume control. The Beamascpe eliminates aerial and ground. Phonograph features automatic control tone arm, crystal pickup.

Trav-Ler war reporter

* "War Reporter," AC-DC, 6-tube superhet, built especially for European short wave broadcasts, but also efficient for domestic broadcast reception. Illuminated slide rule dial, 4-in. electro-dynamic speaker, automatic volume control. $19.95. Trav-Ler Radio & Television Corp., 1028 W. Van Buren St., Chicago, Ill.—Radio Today.

Philco radio-phono

* Model 502-122, radio-phono-graph compact. Permits a closed lid while either 10 or 12 in. records are on turntable. Improved tone arm. 550-1700 kc. $29.95. Main body, plain sliced walnut; diagonal band, striped mahogany; thin stripe above and below the band is maple. Philco Radio & Television Corp., Tioga & C Sts., Philadelphia, Pa.—Radio Today.

RCA model 46X13


Arvin portable superhet

Crosley AC-DC compact

Sparton 5-tube superhet

Philco console
* Model 201XX, replacing 200XX, features a new type of banding, made of plain sliced walnut and butt walnut border. 8 station push buttons. 3 wave bands. AC, 361/4 in. high, 36 in. wide and 141/2 in. deep. $139.95. Philco Radio & Television Corp., Tioga & C Sts., Phila., Pa.—Radio Today.

Farnsworth plastic midget

RCA Victor K-81 console
New note in radio furniture styling is RCA Victor's new 7-tube console, K-81. Features Tenna-Vane control from instrument panel of built-in antenna, magic eye tuning indicator, as well as plug-in connections for victrola and television attachments. Three bands, 12 in. speaker, push-pull output.

With New Models
Slick assortment of new receivers for the folks who crave the war news from Europe

DECEMBER, 1939
Meet the New Year With New Models

New sets have more sales punch as winter-time broadcasts reach entertainment peak

GE Radio-Phono Console

Beauty plus is found in GE model HJ-924, a 6-tube radio-phonograph combination. Has console-gran walnut cabinet with full length lid, six leather-touch tuning keys, rear manual volume control. The Remsma scope eliminates aerial and ground. Phonograph features automatic control tone arm, crystal pickup.

Emerson Table Radio


Crosley AC-DC Compact

* Model 913, 6 tube superhetodyna. Built-in loop antenna. Easily portable with handy handle. 4 in. electro-dynamic speaker. Molded plastic case in ivory, red, blue or tan. Crosley Corp., 1233 Arlington St., Cincinnati, Ohio—RADIO TODAY.

Spartan 6-Tube Superhet

* Model 500-D, five Cincinnati AC-DC, with ivory cabinet, ivory electro-dynamic speaker. $50·00. Sparks Withington Corp., 2000 E. Danison Ave., Jackson, Mich.—RADIO TODAY.

Philco Console


RCA Victor K-81 Console

New note in radio furniture styling is RCA Victor’s new 7-tube console, K-81. Features Tru-Vue console from instrument panel of built-in antenna, magic eye tuning indicator, as well as plug-in connections for record and television attachments. Three bands, 12 in. speaker, push-pull output.

Slick assortment of new receivers for the folks who crave the war news from Europe

Philco Radio-Phono

* Model 560-112, radio-phonograph compact. Permits a closed lid while either 10 or 12 in. records are on turntable. Improved tone arm, $30.00. Mahogany, plastic cabinet, walnut finish. Douglas Brand, 3rd Ave. and 34th St., New York, N. Y.—RADIO TODAY.

RCA Model 46X10


Arvin Portable Superhet

* Model 650A, 6 tube, AC portable with ivory plastic cabinet. Equipped with Paid-for-sequent loop antenna. Permanent magnet speaker. $40.00-70.00. Arvin Corp., Columbus, Ohio—RADIO TODAY.

Kuvro Plastic Midget


DECEMBER, 1939
We believe this Farnsworth Achievement has no parallel in the industry

Starting from scratch only four months ago, Farnsworth today is acknowledged one of the major factors in the radio industry.

On August 7th, Farnsworth factory production was started. Most 1940 lines had been presented to the trade months earlier—during the spring months. At that time, however, the present Farnsworth staff had not even been formed.

In the few remaining fall months, Farnsworth went from a standing start to large-volume, mass production. Meanwhile, the Farnsworth line had been received so well that Farnsworth distributors and dealers continually increased their orders... forcing Farnsworth sales and production far beyond original estimates.

Despite this additional demand, Farnsworth has made a remarkable showing in meeting commitments. By November 1st, 70% of all orders booked had been filled... 100% for many models. Yet production has been controlled to prevent surplus inventories and to best serve dealer interests.

This record, we believe, is unique in the industry. For quality was not sacrificed for quantity. Farnsworth Radios went out correctly engineered, soundly manufactured, trouble-free, brilliant in performance. As a result of these accomplishments, Farnsworth is the rising name in the radio industry—the company which the finest distributing organizations and dealers have joined because of the soundness and progressiveness of its program... a program which has justified their confidence in us.

But we at Farnsworth consider this only a beginning! During the coming year, more and more radio dealers who join hands with Farnsworth will benefit by their decision. Our program for the coming year is now in preparation. You will find it designed from the dealer's point of view... a policy which has become typical of Farnsworth operations.

To those who have not yet joined Farnsworth, I suggest you see your Farnsworth distributors immediately... learn how the Farnsworth program for the future carries on our reputation for doing things in this business the new, better and more profitable way.
1. A radio style show, starring a spread of cabinets styled in authentic designs by Stromberg Carlson, attracted crowds over 1,000 strong for the Jenkins Music Co., Kansas City.

2. Nothing will pep up record sales like personal appearances of popular musicians. Here are Harriet Hilliard and Ozzie Nelson on store duty.

3. When “big names” select a radio in your store, lots of good publicity results. Here’s football star Sid Luckman and his wife.

4. Blow-up of a letter from Vernon Boyd of Admiral Byrd’s group makes a nifty Philco display for Stern’s of Philly.

5. Popular interest in radio tubes is stirred via monster replicas which clearly show elements. They appear at each end of this Ken-Rad display by Pittsburgh, Pa., jobber.

6. Civic shows are great places for radio displays like this one which 50,000 guests saw at Worcester, Mass. Emerson jobber Atlantic Elec. Supply Co., did the job.

DECEMBER, 1939
What the well-equipped ski fan now carries along includes a portable radio like this Philco. A new prospect for dealers.

A radio dealer in New Jersey has his window piled full of Christmas snow. The decorative kind which makes the new sets look like a million.

"This year," he says, "I'm holding on to my snow. There's a lot of interest in winter sports around here, and after Christmas I'm going to put in a big display of portables."

Thus, a new sales note struck by a nimble-witted merchandiser. And plenty more radio men are saying that the public interest in portable receivers is becoming a full-year affair.

Ski fans (whose ranks are steadily expanding as the sport becomes a more popular-priced one) want to take a portable along to the mountain slopes this year.

Skating parties are not half so much fun, without a handsome new portable playing merrily away. Evening periods at winter resorts become twice as brisk if several guests have their own portables.

ENTERTAINMENT PEAK

Variety programs and dance music are high among the entertainment preferences of the winter-sport fans, although many of them will be anxious this year to keep in touch with international news. And of course mid-winter is just the season when the network shows reach their heights, and the radio artists have developed such a following that a trip to a winter resort will by no means interrupt the listening habits of the people involved.

PROMOTION IDEAS

1. Get together with your local travel bureau, for names of prospects.

2. Dramatize the extra-convenience features of new models.

3. Publicize the schedules of local trains leaving for winter playgrounds.

4. Arrange with neighboring sporting goods houses to display your sets along with winter togs.

Below, the "Carryabout" HB-412 three-way job in washable pigskin, new, from GE.
Santa Claus himself couldn't think up a better gift! With this line of brand-new RCA Victor Little Nippers in your store, the Christmas season will be a selling season for you—in a great big way! Because these Little Nippers are the sort of gifts that will click! Low in price, packed with features, and alive with radiant color, they'll sell like water in the Sahara! Put 'em in your window and on your counters—and they'll bring you a merry jingle, jingle of profits!

1 Talk up these sales features of Model 45X1 and you'll "go to town"! Extra long, illuminated Dial... Pentode Beam Power Output for greater volume and purer tone... AC-DC operation... 3 RCA Victor Tubes, 2 of them double-purpose, giving set equivalent of 7-tube performance. Mahogany plastic cabinet. Also available in Ivory as Model 45X2.

2 Model 45X12 has an array of features that spell sales! Built-in Magic Loop Antenna... large, easy-reading, clock-type Dial... super-sensitive, Electro-dynamic Speaker... powerful and selective Superheterodyne Circuit. Antique Ivory plastic cabinet with easy-grip, plastic knobs. Also available in Mahogany plastic as Model 45X11.

3 Put big set features in a little radio—and you have a sales honey! Model 45X13 has big, built-in Magic Loop Antenna... Easy-reading, clock-type Dial... Super-sensitive Electro-dynamic Speaker... Superheterodyne Circuit with Power and Selectivity. Beautiful cabinet constructed of fine woods and veneers.

4 Sensational sales features at amazingly low price! Model 46X1 has Pentode Beam Power Output for more volume, purer tone... 7-tube performance, because 2 of the 5 RCA Victor Tubes are the double-purpose type... Built-in Magic Loop Antenna... Fire Underwriters' Approval. Deep Mahogany plastic cabinet. Also available as Model 46X2 in Ivory finish.

5 Hotter than a firecracker! Model 46X3 has Magic Loop Antenna... 5 RCA Victor Tubes, 2 of which are the double-purpose type, thus giving this instrument 7-tube performance... Pentode Beam Power Output for greater volume and purer tone... Plug-in Ballast Resistor... Fire Underwriters' Approval, and a delightful cabinet of rich woods and selected veneers.

6 It's beautiful—it's low in cost—and look at all the sales features Model 46X11 has! Tunes in Standard Broadcast, State and Municipal, Police and International Short-wave Bands. Handsome, plastic cabinet. Also available in Ivory as Model 46X12 and in beautiful wooden cabinet as Model 46X13.

For finer radio performance—RCA Victor Radio Tubes
New Refrigerators Have Oomph!

Rolling properly out of the refrigerator plants this month are the first models of the very merchandisable lines for 1940. The parade has just started; many more slick numbers will be forthcoming from some of the leading manufacturers next month.

Shown at the national distributor convention held by Stewart Warner were 12 models, all ready for one of the largest jobber gatherings in the history of the company, according to Charles R. D'Olive, chairman, and manager of the household appliance division.

Featured announcements included the news that the Dual-Temp refrigerator, leader of the 1939 line, had been extended to include three models for 1940, each with a freezing locker for frozen foods.

Norge officials, at the company's annual convention, pointed to a string of new models and demonstrated important improvements in "usable and accessible food storage space." The extra interior space (as much as 14.4 per cent more in some models) was accomplished without adding to outside dimensions, according to announcements.

Considerable interest surrounds the new "Cellaret" feature, a ventilated, non-refrigerated reserve cold-storage space for packaged foods and bottled goods.

**PHILCO COMPLETELY NEW**

At a big convention in Palm Beach, Fla., on Jan. 15-19, Philco has scheduled the introduction of refrigerators "completely new, inside and out, incorporating latest scientific advances in refrigeration engineering."

The events of the Florida gathering will be repeated for distributors and dealers west of the Rocky Mountains on Jan. 23-25, at Coronado Beach, Calif., according to news from Philco vice-president Sayre M. Ramsdell.

Getting an accent at both meetings is the Philco plan for a profitable all-year-round merchandising program for dealers and jobbers. The company will also present its new line of air conditioning equipment at the conventions.

**SHELVADORS FOR 1940**

Crosley distributors, some 300 strong, went to Cincinnati for the huddle which saw the 1940 line of Shelvadors unveiled by T. W. Berger and Neil Bauer. The models appeared against an optimistic background furnished by the announcement that sales of Crosley products during the first 10 months of 1939 were 53.1 per cent over those of the corresponding period of 1938.

Along with the new refrigerators came new radios, ranges and washers, and it was announced that Crosley Corp. will shortly bring out an "entirely new line of small commercial ears."

(Please turn to page 24)

Mighty pleased over Philco's refrigerator convention plans for next month is Cliff S. Bettinger, center, Philco Pacific Coast mgr. At right is Thomas A. Kennally, gen'l Sales mgr.; left, John Ballantyne, treas. First convention is Jan. 15-19 at Palm Beach, Fla.; second is Jan. 23-25 at Coronado Beach, Calif.

**RADIO TODAY**
a Preview of
GALE FOR 1940

A DYNAMIC 1940 REFRIGERATOR LINE
There's a new Gale line of breath-taking beauty — packed with extra features — super-powered by the 'Mechanical Icebergs'! It's PLUS value from top to bottom!

A SENSATIONAL NEW MERCHANDISING PLAN
Would you like to cut down your inventory? Would you like to have more models to show? Would you like to take the gamble out of buying? Would you like to be the tough competition? Would you like to build profitable volume? Would you like to eliminate "loss leaders"?
The 1940 Gale plan does all of these things AND MORE! It's revolutionary! It's simple! It's practical!

A REAL FACTORY-TO-DEALER PROGRAM
Remember, with Gale you deal direct with the factory! You get your full margin of profit on every Gale sold! The brilliant 1940 line, the revolutionary new merchandising plan and Gale's profit-building, direct-from-factory program gives you a tremendous opportunity to build volume and make real money in 1940. Watch for full details.

GALE PRODUCTS
GALESBURG, ILLINOIS
Division of Outboard, Marine & Manufacturing Co.

GALE Products
1631 Monmouth Blvd.
Galesburg, Illinois
Gentlemen: Put my name on the list to receive full information on the GALE program for '40!

Company
Address
City State
By

DECEMBER, 1939
NEW REFRIGERATORS HAVE OOMPH!
(Continued from page 22)

GALE HAS PROFIT PLANS

Gale Products, Galesburg, Ill., will shortly introduce a new string of 1940 models, powered by a new device called "Mechanical Iceberg." The models will be backed by a new merchandising program, direct-from-factory style, and are said to feature a number of striking improvements in design and ability.

The Gale forces are making a point out of more profit for the dealer, plus high value and completeness of line. Preliminary announcements also emphasize the beauty and the volume-building qualities of the new line.

Dealers Will Sell at List Prices, or Else!

Strict enforcement of Fair Trade price regulations under the various state statutes now gets strong support from Schick Dry Shaver, Inc., who is notifying its dealers that the company will proceed against them for an injunction and damages, if they sell the Schick product below the list prices.

Ralph J. Cordiner, Schick president, says that the company has a firm belief "that the maintenance of prices is an absolutely essential factor in the welfare of American industry and the Continuance of the business revival begun several months ago."

Mr. Cordiner says that all the 30,000 retailers of Schick shavers are aware of the Fair Trade price regulations in their states, and those who violate these rules will be disfrianchised.

New Distribis for Stewart Warner


Statement by Charles R. D’Olive of Stewart Warner reveals that refrigerator orders placed by distributors at recent convention exceeded by more than 40 per cent the orders written last year.

Presenting the Deluxe ML8-70, one of the 13 models in 5 series of Crosley’s new 1940 Sherwood refrigerators, ranging in price from $99.50 to $137.50. The Freezorcold 2-part cooling unit shown is introduced in all models except one table top. Contains separate ice cube compartment and miniature cold storage plant. A spacious Cold Drawer, under the Freezorcold, has slightly above freezing temperature. All models have 18-point temperature control. Shelves in the door, and sliding interior shelves. Glass shelf in Deluxe models forms top for full width crispers that extends entire width of the compartment. Also in Deluxe models is the Storabin for non-refrigerated foods. Interior light below evaporator. All are powered with Electro-saver unit.

Brown of Philco Shifts Posts

Harry Boyd Brown, national merchandising manager for Philco and one of the best known speakers in the trade, has been placed in charge of all Philco air-conditioning activities. Larry E. Gubb, Philco president, made the announcement.

Davy Jones Gets Good Refrig Service

One of the less tragic things to come up dripping from the ill-fated submarine Squalus was a Kelvinator refrigerator. It has just been returned to the factory, after a two months’ session with Davy Jones.

The model came up with its features flying. Compressor, condenser and expansion valve units were still filled with refrigerant and the evaporator functioned perfectly. The only part that needs replacing is the motor.

Here are models 660, left, and 540-570 of the 1940 line of Stewart-Warner refrigerators. New group includes 12 numbers; 3 Dual-Temp, 2 DeLuxe, 4 Standard and 3 Sav-A-Step models. Dual-Temp has freezing locker for frozen foods, sterilizer ray lamp. Absence of evaporator gives more room for food, eliminates defrosting. DeLuxe models have generous cold storage space in roomy freezing unit, oversize meat chest, sliding vegetable freshener and fruit basket. Standard series features combined meat and vegetable chest, with lift-out section on bottom shelf. Sav-A-Step models have the removable unit to hang on door or carry foods to table, cold storage chest for extra supplies, sliding vegetable freshener and fruit basket.
can you fill these shoes?

YOU'LL BE
WALKING ON VELVET
IF YOU CAN

here's what it takes!

- A location free from interference with already established Tung-Sol dealers
- Ability to turn over an adequate tube stock at least every 3 or 4 months
- A realization that sticking to established prices means full profit
- The will and the skill to use sales helps and displays to bring customers in

here's what you get!

The Tung-Sol sales-tested plan of protected profit—and a sufficient supply of Tung-Sol Tubes to start you rolling—without a penny of investment. Check! Then write us today.
New Radio Models

RCA combination

Browning FM kit
* Component parts for frequency modulation receiver include wired IF and second detector unit, and wired RF tuning unit. Uses 6 tubes exclusive of audio and rectifier. RF stage. Tunes 40 to 54 mc. Browning Labs., Inc., 750 Main St., Winchester, Mass.—Radio Today.

Andrea phono-radio-tele comb.
* Model 8-P-12 deluxe combination with television, radio and phonograph. 12 in. Tele tube, 5 television tuning bands. 3-band, 10-tube, all-wave radio, with 6 automatic tuning buttons. Automatic phono-graph with crystal pick-up. Record changer changes eight 10, or seven 12 in. records. Mahogany console with doors concealing operating controls. $189.50. Andrea Radio Corp. 48-20 48th Ave., Woodside, L. I., N. Y.—Radio Today.

Lafayette 6-tube midget

Majestic lowboy console

Belmont all-purpose portable

Soundview marine radio
* Series 700-2, one of 12 new models. 7 tubes, 3 bands, illuminated slide rule dial, superheterodyne circuit. 8 in. permanent magnet dynamic speaker in a separate cabinet. Covers 550-1,850 kc, 1,650-5,700 kc and 5,500-17,500 kc. Gray ripple enamel cabinet, chromed brass panel. Parts are sealed against salt air. Kars-White Corp., 1775 Broadway, New York, N. Y.—Radio Today.

Emerson CS-317 radio
Holiday Greetings

W e feel that the confidence you have in our company is no idle allegiance, and by the same token our special expression of thanks to you during these holidays is no casual sentiment. It is a sincere feeling of gratitude we have toward our old and new friends who have added an abundant measure of goodwill and happy relations to our assets.
PHILCO

All-Purpose Portable

For AC-DC and Battery Operation

PHILCO 84T. Self-powered for use anywhere . . . instantly convertible to AC-DC operation! Battery automatically disconnected when house current is used. Plug-in cord concealed when battery is in use. 5 tubes, built-in Loop Aerial. Powerful, fine-toned. Ventilated airplane cloth case. Approved by Underwriters' Laboratories.

PHILCO 502

Radio-Phonograph


PHILCO RP-1

Wireless Record Player

(Right). Plays 10" and 12" records through entire radio circuit without wire connections to set! Powerful, even speed motor. Attractive Walnut cabinet.


PHILCO 140T. In same cabinet but with Manual Tuning.

Dealers everywhere agree that Philco year's "hottest" line . . . offering more, bigger values and the greatest assortment at every price. And now, just when you thought stimulus, Philco brings you thrilling new CABINETS that make its line "hottest".

Study the new Philcos pictured here . . . they're only part of the most popular, most profitable line in radio history!
Radio is the sensation new MODELS... new CABINETS in radio Still Hotter!

PHILCO 217RX
with Wireless Remote Control

(Left). A new version of the world's most thrilling radio! 12 tubes, American and Foreign reception, Built-in Super Aerial System... plus Wireless Remote Control of favorite stations. No wires, no plug-in—tune from any room! Magnificent Inclined Sounding Board cabinet of choice Walnut, with folding lid that covers the Inclined Control Panel.

$189.95

PHILCO 201XX
New Beauty... Top Performance!


$139.95

Western Prices Slightly Higher
PHILCO
ALL-
PURPOSE
PORTABLE

For AC-DC and Battery Operation

PHILCO 84T. Self-powered for use anywhere... instantly convertible to AC-DC operation! Battery automatically disconnected when house current is used. Plug-in cord concealed when battery is in use. 5 tubes, built-in Loop Aerial. Powerful, fine-toned, Ventilated airplane cloth case. Approved by Underwriters' Laboratories.

PHILCO 502
Radio-Phonograph


PHILCO RP-1
Wireless Record Player

(Right). Plays 10" and 12" records through entire radio circuit without wire connections to set. Powerful, even speed motor. Attractive Walnut cabinet.

PHILCO
announces sensational new MODELS...new CABINETS that make the Hottest Line in radio Still Hotter!

Dealers everywhere agree that Philco 1940 is the year's "hottest" line... offering more new features, bigger values and the greatest assortment of models at every price. And now, just when you need extra sales stimulus, Philco brings you thrilling new MODELS and CABINETS that make its line "hottest" ever!

Study the new Philcos pictured here and remember...they're only part of the most popular salable most profitable line in radio history!

See Your Philco Distributor NOW!

PHILCO 145T. The handcrafted best-performing low-priced American and Foreign model ever offered! Built-in Super Aerial System with 6 tubes and Twin-Loop Aerial! Carry it from room to room, plug it in anywhere and enjoy powerful, pure-toned reception! Electric Push-Button Tuning, Inclined Sounding Board cabinet of sliced and but Walnut.

PHILCO 140T. In same cabinet but with Manual Tuning.

PHILCO 201XX
New Beauty... Top Performance!


PHILCO 217RX
with Wireless Remote Control

(Left). A new version of the world's most thrilling radio! 12 tubes, American and Foreign reception, Built-in Super Aerial System plus Wireless Remote Control of favorite stations. No wires, no plug-in—tune from any room! Magnificent Inclined Sounding Board cabinet of choice Walnut, with folding lid that covers the Inclined Remote Panel.

$189.95

Philco All Year 'Round for Profits All Year 'Round
Typical Sound Installations

Details on how public address specialists made a hit with church officials in Illinois

The sound installation in the Grace Community Church of Lake Bluff, Ill., started as a very small proposition: the original idea being the installation of hearing aids for those members of the congregation who are hard of hearing. However, in studying the question of hearing aids, the pastor and the committee visited a church about 40 miles from Lake Bluff which was using sound for a musical tower. Notice of this visit was made in the paper of the city in which this job was located and the Operadio jobber there immediately got in touch with the pastor of the Lake Bluff Church. From then on the job grew.

Some of the members of the congregation were contacted by the pastor and these members agreed to underwrite the sound job which was to take in hearing aids and the singing tower.

SURVEY MADE

The Grace Community Church is not a large edifice. It is housed in a medium size frame building with a 40 ft. steeple and is located in the approximate center of the village. A sound survey was made of the proposed installation; recommendations as to the amount of power and the various other things that go with the sound job were made; and the job was started.

In the pastor’s study in a steel cabinet, was placed an Operadio Model 855 amplifier with a Model A-3925-A turntable and a small monitor speaker. A microphone was placed before the pulpit and another in the organ loft. Twelve Trimm hearing aids were fastened to the backs of as many pews in various places in the auditorium and in the steeple on a platform, were placed three Atlas storm-proof horns housing 12” Operadio heavy duty speakers. The louvers in the steeple were cut out and a frame covered with a very fine mesh copper screen was placed in the opening in front of the horns. This screen was placed on both sides of the frame so as to make it weather resistant. Another speaker was installed in the room adjacent to the church auditorium, which is used for meetings of various kinds. A switching arrangement was installed in the study so that the output of the amplifier could be switched to the musical tower, the hearing aids, or the auxiliary speaker heretofore mentioned.

HEARING AIDS USED

The job was completed on a Saturday afternoon and the first tests were to be made of the hearing aids. The mother of one of the church Elders, a little old lady of about 80 who had not heard a church service in years, was brought in and instructed in the use of the lorgnette type hearing aids. The organ was played and then the pastor began speaking through the system. The quick smile of contentment that came over the little old lady’s face amply repaid the men who had contributed to the cost of the installation and who were watching the first tests.

SUCCESSFUL JOB

Then a record was placed on the turntable, a switch-over made, and that old, old church favorite “Abide With Me” played on chimes with a background of vibra-harp rang over the village of Lake Bluff. In less time than it takes to tell, the villagers began to appear in front of the church and it was not long before a constant stream of people were passing into the church and through the pastor’s study to see and hear this new miracle of science which had so suddenly appeared in their midst.

The whole installation was successful from the very outset. One of the young men in the congregation was named to assist the pastor in operating the equipment and for over a year the equipment has been operating successfully with no more servicing than just one change of tubes.
Groups of trumpet speakers brought the thrills of the Cornell-Columbia game to 25,000 spectators. The installation was made by A. C. Stallman, jobber, Ithaca, N. Y.

The village of Lake Bluff came into being originally as a Methodist Camp Meeting Ground and from this grew the village. Most of the residents belong to the Grace Community Church. However, considering that there is no industry in Lake Bluff, the men for the most part are commuters, most of whom work in Chicago. So that they and the members of their families might receive the most possible good from the singing tower, the pastor inaugurated evening vespers services. These begin as the evening train pulls into the station and as the villagers wend their way homeward, they listen to the clear and restful music of the singing tower. This service is in addition to the 15-minute broadcast before the Sunday morning service begins.

The satisfaction of the congregation of the Lake Bluff Church in their sound equipment is unbounded. The pastor of the church has spoken of it in the various church gatherings and has made the statement that he would not be without it.

SIMILAR INSTALLATION

Another installation made by the same jobber was the St. Mary's Catholic Church of the City of Elgin. This church was built quite a number of years ago when there was more thought given to the inside appearance of the church than to the acoustical effects. The auditorium is very large with an extremely high ceiling in the form of a cross through the center.

It was found that the congregation from about the center of the church to the rear had difficulty in hearing the Masses. A Model 1025 was placed in the sacristy with a remote controller at the very rear of the church. Microphones were placed at the Chancel Rail and at the Altar and four speakers were installed on up-right pillars in the body of the church. The head usher at each Mass takes his place at the remote controller and now everyone at all of the Masses hears everything that is said.

That sound equipment has its place in churches today is an accepted fact. It enables the church to have its sound or singing towers and it enables the pastor to put over his message without that strain on the vocal cords which has been necessary in the past to cover his entire congregation.

Large-scale sound re-enforcement is an important feature of the services in the Church of Perpetual Help, Brooklyn, N. Y. The cubic content of this church made complete sound coverage a big problem. Projector type speakers are located in canopy overhead. Complete sound pickup is realized with mikes located in the pulpit.

DECEMBER, 1939
New Sound Products

New equipment for every sound job

giving 110 db gain in mike channel and 80 db in phono channel. Built-in matching transformer is tapped for 8 and 16-ohm speakers. Full range tone control. 110-volt 60-cycle. List $75.47. Transformer Corp. of America, 83 Wooster St., New York, N. Y.—Radio Today.

Carrier velocity mike

Amperite kontak mike
* Model KKH is new streamlined contact microphone with built-in volume control. Up to four microphones may be paralleled to one input and each controlled separately. Easy to attach to violin, guitar, piano, etc. Amperite Co., 541 Broadway, New York, N. Y.—Radio Today.

Operadio portable PA
* Model 414 portable public address unit is rated at 14 watts and is housed in a single three-piece carrying case. The two upper halves each house a 12-inch PM speaker and 25 feet of rubber covered cable. Two channels for microphones are electronically mixed. Controls are set in illuminated recess on the face of the amplifier. Equipped with crystal mike. Operadio Mfg. Co., St. Charles, Ill.—Radio Today.

Amplifier Co. 30-watt PA
* High-fidelity 7-tube amplifier rated at 30-watt; with 90-db gain. Frequency response ±1 from 20 to 20,000 cycles. Output impedances, 7 taps from 1 ohm to 500 ohms; high-impedance input. Automatic volume expander, compressor, and AVC. Remote control; photo-cell input terminals. Low and high frequency control. List $81. Amplifier Co. of America, 17 W. 20th St., New York, N. Y.—Radio Today.

RCA Portable Turntable
* Rim-driven 78 or 33⅓ RPM turntable provides both recording and instantaneous playback of 16 inch records through any PA system. A high quality magnetic pickup is used. Recording attachment, easily installed, operates from center to rim or from rim to center. List price, turntable, $236.50; recording attachment, $120. RCA Mfg. Co., Camden, N. J.—Radio Today.

Kenyon cath-o-drive units
* Three new transformers for cathode modulation of RF stages. T-471, T-472, and T-473 are designed for 200, 300, and 450 ma. secondary current respectively. Audio tubes for these transformers are, 6P6, PP 665, and PP 6L6 respectively. Kenyon Transformer Co., 840 Barry St., New York, N. Y.—Radio Today.

Clarion sound system
* Ten to fifteen-watt amplifier model C-410 is supplied with two speakers, baffles, mike and stand. Five tubes are employed in circuit

Turner crystal mike
* Model 44X microphone with selective directional pick-up. 10-15 DB differential between front and rear pick-up. Eliminates audience noises, background disturbances, reflections and reduces feedback problems. 90° tilting head. Moisture-proof crystal, automatic barometric compensator. $27.50. The Turner Co., Cedar Rapids, Iowa.—Radio Today.

Kenyon cathode-ray tubes
* Kenyon cathode-ray tubes are designed for television reception. Type 442 is for 60-cycle operation. Type 443 is for 400-cycle operation. Type 543 is for 1000-cycle operation. Kenyon Corp., 840 Barry St., New York, N. Y.—Radio Today.

Philo wireless record player

Kenyon transformer
* Kenyon transformer designed for television reception. Type 842 is for 60-cycle operation. Type 843 is for 400-cycle operation. Type 844 is for 1000-cycle operation. Kenyon Corp., 840 Barry St., New York, N. Y.—Radio Today.
Selling Sound

This mobile PA system has turntable, radio tuner, and monitor speaker mounted in a rack within the truck.

Traveling Church Sound System

Designed especially to carry religion into the isolated sections of Virginia and West Virginia, the trailer pictured was built and equipped with a 30-watt sound system, complete with phonograph turntable and radio tuner.

The equipment, supplied and installed by Lafayette Radio Corp., 100 6th Ave., New York, is mounted in the trailer in rack and panel fashion. The speakers mounted above the trailer give wide sound coverage. The radio tuner is a 9-tube superhet. The phono may be operated through the monitor speaker alone as well as through the trumpet speakers mounted on the trailer. Power for the system is supplied from a 1,600-watt AC alternator driven by a four-cylinder gas engine, while auxiliary lighting is supplied from a six-volt storage battery system.

Cold Weather PA Problems

When winter temperatures drop, be prepared for some special troubles with portable equipment. If your amplifier employs wet electrolytic capacitors, do not expose the unit to cold weather as the condensers may be ruined by freezing. Mobile systems that are likely to be left standing idle in cold weather should be adapted for that use by using only capacitors that cannot freeze. Phonograph motors are another source of cold weather headaches. The heavy grease used in the gear systems will become stiff enough in cold weather to prevent the motor from obtaining normal speed. Clean out the gear case and refill with a heavy oil. Use a light oil for the bearings. When the equipment is brought into a warm room after having been exposed to cold, moisture will condense on the cold parts. The amplifier should be allowed to dry before power is applied. Where moisture proof transformers are used, this precaution may not be necessary. Damp resistors, and condensers can still cause shorts however, and it is a good idea to play safe.

Air Minded are Sound Minded

The air lines of the country are using public address equipment for many purposes. Competing with the roar of motors, the amplifiers "get the message through."

The Eastern Air Line terminal at Miami, Fla., uses marine midget speakers, made by Atlas Sound Corp., 1447-51 29th St., Brooklyn, N. Y., in the passenger waiting rooms, ticket offices, and at the arrival and departure platforms as shown in the photo. The hangars, and air field proper, are equipped with larger marine speakers using 8 and 12-inch cone speakers. With such a system, important information may be directed to any part of the field.

Similar types of installations may readily prove profitable to sound men. Bus terminals, trucking centers, large garages, etc., are all good prospects for announcing and call systems.

Western Electric 639A reaches new high in pick-up control

By combining dynamic and ribbon units in one mike...equalizing and combining their outputs...Western Electric produces the 639A.

With the 3-way switch you can have cardioid, ribbon or dynamic performance. It's ideal for Public Address as well as broadcasting use.

Send the coupon for full details...today.

GRAYBAR ELECTRIC CO., Graybar Bldg., New York.
Please send booklet describing Western Electric's New 639A Mike...RT-12-39

NAME...........................................
ADDRESS......................................
CITY............................................STATE....................................
New Things

Taco power antenna

* New power antenna makes a portable set out of any small receiver. Uses the building's electric wiring and power lines beyond, for antenna. Small enough to mount inside the set cabinet. Non-directional. Set line cord plugs into receptacle of power antenna, and the latter's plug goes to the electric outlet. Technical Appliance Corp., 17 E. 16th St., New York, N. Y.—Radio Today.

C-D motor capacitors

* Multiple capacitor unit known as Test Mike provides twelve capacity values from 18.75 to 150 mfd. for easy connection to electric motors using the capacitor start principle. Pilot lamp operates when cut-out opens capacitor circuit. Service Mike, still more compact, eliminates pilot lamp and switches. Cornell-Dubilier Electric Corp., S. Plainfield, N. J.—Radio Today.

Sprague condensers


Midco lighting plants

* Midco lighting plant, one of new 1940 line of generators, pumping units, motor attachments, and lawn mowers. 750 w., AC, 12 v., DC push button starter. 1,800 rpm. 4-cycle engine. Heavy duty connecting rods, increased oil capacity, automotive float feed carburetors. Q-37, standard model, $175; Q-38, with remote control starting built in, $205. Midco Mfg. & Distributing Co., Inc., S. 13th & Kentucky Ave., Sheboygan, Wis.—Radio Today.

Aerovox dry electrolytics


Ohiohm resistors

* Ceramic-insulated wire wound resistors with axial terminal wires make strong construction. Strain on leads not transmitted to resistance wire. In power capacities from 5 to 20 watts and resistance tolerance of plus-minus 5 per cent. Ohio Carbon Co., 12508 Berea Rd., Cleveland, Ohio—Radio Today.

Philco tele generator

Solar capacitor


Dumont ceramic condenser


Amphenol molded socket

Designed to fit the new RCA all-glass miniature tubes. Black bakelite; 7 contacts arranged in 3/4 in. circle. Held in place with a spring steel ring. Floating contacts. Center sleeve shields contacts from each other. Diameter is no greater than that of tube. Adapters for these tubes available for use with tube testers and analyzers. American Phenolic Corp., 1250 West Van Buren St., Chicago, Ill.—Radio Today.

Clarostat glass-ohms

Flexible power resistors insulated with braided glass fibres have 300 per cent overload capacity. Units may reach 1,000 deg. F. without charring insulation. Several size cores with various resistance and wattage per inch capacities. Clarostat Mfg. Co. Inc., 235 N. Sixth St., Brooklyn, N. Y.—Radio Today.

THOUSANDS MORE WILL GET UTAH QUALITY AND PERFORMANCE THIS CHRISTMAS

Utah products will assure satisfactory performance and maximum enjoyment for the many thousands who will find radio receivers among their Christmas presents this year. The continually growing preference of many manufacturers for Utah parts, reduces the possibility of customer dissatisfaction—avoids unnecessary loss of time and money. Service work is more profitable when Utah replacement parts are used. Utah’s designing keeps abreast of all industry developments. Utah’s engineering and precision manufacturing enable you to obtain maximum performance value from each Utah part and all other parts in receivers, P. A. systems, etc.

If you don’t have a copy of the 32-page illustrated Utah catalog, write for it TODAY—there is no obligation.

DECEMBER, 1939
So You Got Rider’s New Book!

You Bet, “Servicing by Signal Tracing” is the Biggest Two Dollar’s Worth I Ever Saw.

What d’ya think of Rider’s new system of radio servicing?

It’s the only true method of dynamic testing

So what? I can find out what’s wrong with a receiver by the old methods.

Sure you can, but the sets we’re getting in here right now are so complicated that it takes too long to diagnose the troubles by old style methods. Take my word for it, you better read up on Servicing by Signal Tracing today, because you’ll use it tomorrow if you’re gonna keep up with competition.

How’s signal tracing make it easier?

Well, the signal’s the one thing that’s fundamental in any make receiver.—Find out where that departs from normal and you’ve found the trouble.

Then that method could be applied to any receiver, and to servicing P. A. systems, Television or most anything.

Sure, any type of electrical equipment through which a signal passes. The first part of this book tells about the behavior of a normal signal from the antenna post to the loudspeaker, and the signal characteristics. The second part explains the signal tracing method step by step. Get a copy, it only costs $2.00.

Is that all? Why it’s got 360 pages! I will get my own copy.—And, thanks a lot for a darn good tip.

... and Believe Me The Ten Rider Manuals

combined with the system of Servicing by Signal Tracing make servicing faster, easier and more profitable.

JOHN F. RIDER, Publisher
404 FOURTH AVE. NEW YORK CITY

Export Dir.: Reine Int. Elec. Corp., 120 Varick St., N. Y. C.
Cable: ARLAB

36
Wabash Photolamp


Cornell-Dubilier capacitors

MD Dykanol impregnated tubular paper capacitors using aluminum foil and multilaminated Kraft paper; non-inductively wound. Winding sealed with wax outer coating. Particularly appropriate for television receivers, test equipment and amateur transmitter applications. Capacity values in a variety of sizes; voltages up to 1,600 v. Cornell-Dubilier Elec. Corp., S. Plainfield, N. J.—Radio Today.

Meissner signal shifters

Two new models of variable frequency exciter units for use as oscillator stages in transmitters include the deluxe voltage-regulated, temperature compensated unit. Plug-in coils fit the units for operation on 160, 80, 40, 20 and 10 meter bands with sufficient power to drive a 200-300 watt amplifier. Meissner Mfg. Co., Mt. Carmel, Ill.—Radio Today.

Ken-Rad tube

Addition to line is 3Q5GT, a split filament tube for operation on 1.4 or 2.8 volts. Beam-power output tube with T9 bulb, octal base. Ken-Rad Tube and Lamp Co., Owensboro, Ky.—Radio Today.

Radio City service instrument

Model 801 combines tube tester, and multi-meter into single 12 x 12¼ x 6-inch unit. 4½-inch square meter gives sensitivity of 1,000 ohms per volt. Ranges: AC/DC voltage to 1,000, DC current to 10 amps, and DB ranges. Available for 115 or 220 v. AC. Checks all types of tubes. Provision for hot inter-element short and leakage tests. List $27.95. Radio City Products, 88 Park Pl., New York, N. Y.—Radio Today.

A World Famed Name

DEWALD

Proven Quality Since 1921

unveils its 1940 LEADERS

Model C500—Special features are: Superheterodyne AC-DC-Slide rule dial; Push button AUTOMATIC TUNING; Automatic volume control; 5 ½” DYNAMIC speaker; LOUDFONIA, needs no aerial or ground. Hand-rubbed cabinet. Width: 15”. Range: (150 to 555 Meters.)

Model 204—Third in a sensational trio, featuring—Two-band superheterodyne AC-DC-Automatic mechanical push-button tuning; New type tone chamber; Automatic volume control; Variable tone control; Beam power output; 6½” Dynamic speaker; Hand-rubbed matched Walnut cabinet. Width: 15”. Range: (16-51 and 170-555 Meters.)

DEWALD, in 1940, will have a larger consumer acceptance than ever. It is a larger, more versatile line even than in the past ... and its models we have incorporated VALUE—STYLE—PERFORMANCE and STABILITY. ... Write for complete catalog.

DEWALD RADIO MFG. CO.
440 LAFAYETTE STREET, NEW YORK, U. S. A.
Licensed by RCA, Hazeltine, etc.
Cable Address: DAVWALD NEW YORK

Plane arrivals and departures are announced through this Atlas marine speaker located at the United Airline terminal in Miami, Fla. Similar units are located in waiting rooms, and ticket windows. See story, page 33.
Announcements of brand new recordings this month have a notable range of variety and appeal. The makers of discs are uncovering plenty of fresh music, to the extent that dealers have a mile-wide choice of titles to work on.

One of the featured releases from Columbia Recording Corp. is a group of five rediscovered dances by Johann Strauss, just recorded by Howard Barlow and the Columbia Broadcasting Symphony. The set (M-389) includes three 12-inch records of gay, interesting music of wide appeal.

United States Record Corp., makers of Royale and Varsity labels, has just signed the Philadelphia Chamber Orchestra and the Royal Symphony Orchestra of Philadelphia for exclusive Royale discs. To be recorded shortly by the latter group are Schubert's "Unfinished Symphony" and Mozart's "Symphony No. 40 in G Minor," for the Royal-Varsity album series.

The United States company is also concerned with some extra brick platters such as "Billy" by Lang Thompson and his orchestra (8169) and "She Really Meant to Keep It" by Johnny Messmer and his Music Box Band. (8117)

**NEWSPAPER CANTATA**

New activity at Victor ranges from Jessica Dragonette's cantata recording of the famous "Is There a Santa Claus?" newspaper editorial, to some "rhythm in the raw" discs actually recorded in African jungles. The latter batch of tribal music comes in album F-10.

Of considerable sales significance also are a couple of tie-ins being empha-

**Wax Worth Watching**

**BENNY GOODMAN** and orchestra playing Scatter-Brain, with vocal by Louise Tobin—Columbia 35241.

**RUSS MORGAN** and orchestra playing The Girl With the Pig Tails in Her Hair, with vocal by Mr. Morgan and Carolyn Clarke—Decca 2695.

**CHICK BULLOCK** and his Lovers playing Are You Hurryin' Any Fun, with vocal by Mr. Bullock—Vocalion 5125.

**HORACE HEIDT** and his Musical Knights playing Poppy Wippy Woe, with complete vocal chorus—Columbia 35280.

**BLUE BARON** and orchestra playing it's a Whole New Thing, with vocal by Charlie Flutter—Bluebird B10487.

**BOB CROSBY**'s Bob Cats playing The Love Nest—Decca 2823.

**KAY KYSER** and orchestra playing Happy Birthday to You, with vocal by Glynis Johns and Harry Babbitt—Columbia 35283.

**BOB ZURKE** and his Delta Rhythm Band playing Cuban Boogie Woogie—Victor 26411.

**OZZIE NELSON** and orchestra playing Three Feet Skipper Jones, with vocals by Herriot Hilliard and Mr. Nelson—Bluebird B10495.

**MATTY MALNECK** and orchestra playing Carnival of Venice—Columbia 35289.

**BRUNSWICK SALON ORCHESTRA** playing Strauss waltzes Artiste's Life and Emperor Waltz—Brunswick 35474.

**WEST INDIAN SCORES IN FEATURE GROUP**

One of the exceptional projects at Decca Records is the continued work on a group of "Calypso" records. This is West Indian music, recorded by artists designated as "King Radio," "The Carassier," "Pretender," "The Lion," or "Lord Invader."

Many of the Calypso titles are curiously identified with current figures or events, such as "Roosevelt in Trinidad," "Flood Scandal," "The Fire Year Plan," or "Civil War in Spain."

**Philco Long Shank Needle**

A new type of phonograph needle has been made available by Philco's parts and service division. The new needle features a long shank which, says Philco, improves tone quality "by breaking up the vibrations which are normally produced from contact of the needle with the service."

Capable of easily playing twenty records, the new type of Philco needle is being merchandised in twenty-five cent packages.
Pictured above is the new record merchandiser, designed by Radio Tobar and built by A. Bitter Construction Co., on actual store duty.

Soon after the music started floating from this unique fixture, customers of the store began moving in the direction of the "bar," and they found the record demonstration to be pleasant and interesting. The Davega store in Jersey City, N. J., where this photo was taken, reports the local interest in recorded music to be substantially hiked.

It was found that records are often bought by several persons at a time, and the four-listening-post capacity of the "bar" turned out to be invaluable.

Customers were attracted by the dressy appearance of the record department, and many of them regarded it as an entertainment device planned for their pleasure.

The fact that the music appeared to come from several points about the fixture seemed to stir the curiosity of people, and this served as an initial "stopper" in many cases.

As the device has storage space and convenient turntables, a single attendant was able to handle the customers.

War Boosts Patriotic Record Sales

During the first thirty days of the European war, sales of two of RCA Victor's most popular patriotic records showed sales increases in all parts of the country according to reports from musical merchandise dealers.

Sales of Kate Smith's waxing of "God Bless America," with the "Star Spangled Banner" on the reverse, increased 15 per cent during September, while Lawrence Tibbett's recording of "My Own United States" with the "Battle Hymn of the Republic" on the other side, sold 37 per cent better in September than in August.

Steinway Takes on Radios

Steinway & Sons, the famous musical dealers in Steinway Hall, New York City, have become franchised dealers of the Capehart division of the Farnsworth Television & Radio Corp. and for the first time in their history will display Capehart radio-phonograph combinations.

The Steinway house leads the group of 41 dealers who have been added to the roll of Capehart dealers since the 1940 line was introduced last August. Thirty-nine of these are in cities where the firm previously had no representatives, but it was pointed out by J. C. Hunter, sales manager, that the company will hold to its traditional policy of restricted dealerships in local markets.

Recorders in Schools to Be Surveyed

A survey of recorders and playback equipment now being used in the schools and colleges of the country will be undertaken by Kline M. Koop, Ph.D., who has joined the staff of Universal Microphone Co., Inglewood, Calif., for that purpose. Dr. Koop, an authority on audio-visual education, has started a tour of the 11 Western States, as the first part of the project.

Demonstration Discs

So that dealers will be able to conduct convincing demonstrations of radio-phonographs, Philco has now issued a kit of demonstration records. Twelve specially selected discs come in a handy compact album, so that any type or nationality of prospect may be appealed to by the proper recording.

A Grand Pickup for Better Phonographs or Radio Phonograph Combinations

ASTATIC MICROPHONE LABORATORY, INC.
Youngstown, Ohio

The World's Finest Phonograph Needles

Made of highest type steel, specially shafted and finished by an exclusive process, these are the BEST phonograph needles - - - because they maintain extreme hi-fidelity realism surprisingly long, because they minimize wear on the records, and because they are remarkable for low surface noise. With RECOTON "Superior," "Acoustic," or "Automatic" Needles (each designed for a specific use), you are sure of getting the utmost out of the finest records. Do not be satisfied with less than the BEST!

Samples and Prices on Request

Agencies Open in Many Countries
Servicing I.F. Stages

Basic tests to check gain, and quality in intermediate frequency amplifiers.

In following the progress of the signal controlled voltages and currents through the RF stages, and the combining of these controlled voltages with a local oscillator potential, the following things were observed. The original signal picked up by the antenna was impressed upon the grid of a radio frequency amplifier tube and when this stage was operating correctly, a new voltage appeared in the plate circuit of this tube that was an exact duplicate of the original signal with the exception of amplitude. The amplitude or peak voltage of the original signal has been increased by the amplification factor of the stage.

MANY VOLTAGES

This amplified version of the signal was then “mixed” electronically with another voltage of different frequency developed by an oscillator in the circuit. The result of the mixing of these two voltages is a group of voltages of different frequencies. One has the same frequency as the signal, one has a frequency equal to the sum of the oscillator and signal frequencies, and one has a frequency equal to the difference of the signal and oscillator frequencies.

Since the original purpose of the superheterodyne system was to create a voltage of constant frequency modulated by the speech or music of the original signal, the voltage that has the difference of oscillator and signal frequencies appears to be the most useful. The reasons are that the difference in frequency may be made lower than either the signal or oscillator frequency and that the amplifier to handle these voltages will give more gain at lower frequencies. The second important reason is that it would be very difficult to maintain a constant sum of the oscillator and signal frequency with a gang-condenser. The oscillator frequency would have to decrease at the same rate the signal frequency increased.

The purpose of the intermediate amplifier is to give selectivity, and amplification of the desired voltages. By using a sharp tuned band-pass network, the IF amplifier can be made to discriminate among the various voltages present in the plate circuit of the mixer stage.

TYPICAL AMPLIFIER

In Fig. 1, the typical IF amplifier circuit is shown. It is a conventional pentode amplifier operating class A. The grid bias is therefore adjusted to

![Fig. 1—Typical IF stage with all necessary components. Stage gain is checked by measuring IF voltage before and after the stage. DC bias voltage must be blocked out of VTM.](image1)

make the operating point fall on the straight portion of the characteristic curve.

The group of voltages that we have found to exist in the plate circuit of the mixer tube are present across the primary of the transformer, T1. This transformer has both its primary and secondary tuned to the frequency that is the difference between the signal and oscillator frequencies. Such a tuned transformer has sharply defined current and impedance relations with frequency. See the characteristic curves for a double tuned transformer in Fig. 2. It will be noticed that the transformer has three resonant frequencies. If the primary and secondary are both tuned to f1, the transformer will also indicate peaks at f1 and f2. The prominence of these resonant points will depend upon the amount of coupling between the coils. A similar “drooping” characteristic will be produced by tuning the primary and secondary to slightly different frequencies. With very close coupling, the dip at the “center” resonant frequency will become a serious factor in the performance of the stage. The two side frequencies, f1 and f2, are shifted further from the fundamental frequency as the coupling of the coils is increased.

The result of this dip at the fundamental frequency is a distortion of the audio signal due to the unequal amplification over the range of modulation.

The curves for impedance, or total opposition to the flow of current, and resistance show the variation of these quantities in the primary of the transformer. As the curve shows, the apparent resistance in the primary is not a constant value, but varies with frequency. This resistance that is reflected into the primary is the sum of the small resistance of the primary coil plus a product of the secondary coil resistance and a complex quantity.

![Fig. 2—Characteristic curves for double tuned IF transformers. The impedance in the primary is resistance at resonance, usually about 50M ohms. Difference between f1 and f2 depends upon degree of coupling. Mistuned primary or secondary makes peaks different heights.](image2)
that includes the frequency, factor of coupling, and the impendance of the secondary. With very close coupling, a small resistance in the secondary will reflect several hundred times the resistance into the primary. This tends to "broaden" the selectivity of the transformer.

**COUPLING VARIES GAIN**

In order to keep the top of the curve as uniform as possible, the coils of IF transformers are loosely coupled. This reduces the overall gain of the transformer but increases the selectivity. In order to secure high quality, the tops of the IF curves are flattened out by the third windings to the transformer. This winding is grounded electrically or left floating. Such tertiary windings make it possible to couple the primary and secondary more closely for higher gain but at the same time build up the dip at the center. Other types of high-fidelity transformers use a third winding coupled to the primary and connected electrically between the secondary and ground. The coil is tapped and various portions may be connected in the circuit to give different bandwidths. The accurate adjustment of high-fidelity transformers requires the use of an oscilloscope and a frequency modulator. More about alignment later.

**LEAD DRESS IMPORTANT**

The other components of the IF stage are straightforward. The decoupling resistor in the AVC lead is a filter for IF frequencies and also a prevention of inter-coupling between controlled stages. The by-pass capacitors are large enough to effectively short out the IF frequencies. They may be returned to ground or directly to the cathode. Insufficient or open by-pass capacitors in the screen or plate circuits of the IF stages will cause instability with possible oscillations. Another cause of oscillation in IF stages is poor shielding between the plate and grid circuits. The position of various leads in the stage is important. Keep plate and grid leads well separate.

The first step in testing a faulty IF stage is to check on the operating voltages necessary to proper operation. Plate and screen voltages may be measured with a high resistance voltmeter with but slight error due to loading. For the measurement of AVC voltages and stage gain, the vacuum tube voltmeter is essential. The voltages on all electrodes should be within ±20 per cent of the rated values for the particular tube in use. In some cases it is impossible to locate the recommendations of the set manufacturer, use the values given for the particular tube and adjust for best performance. If oscillation in the IF stage is troublesome, lower plate and screen voltages will usually cure it.

**IF COIL NOISES**

Certain brands of noise that are sometimes mistaken for faulty audio frequency transformers may be traced to IF transformers that are partially shorted or open. This cracking noise sounds identical for both causes. The distinguishing feature is that the noise caused by faulty audio transformers is not greatly changed by variation of the volume control and is independent of the frequency to which the set is tuned. The same noise caused by faulty IF transformers, does not occur with the volume control turned down and also does not occur without a signal input. It is also more noticeable on speech than music.

The gain of the IF stage may be calculated with a vacuum tube voltmeter. The voltage gain from the grid of one tube to the grid of the following stage, will be approximately 100. Powdered iron core transformers will give a greater gain that the air core type, and broad-band high fidelity transformers will have a lower gain than the usual types.

**FREQUENCY MODULATION IF**

With the introduction of television and frequency modulation, IF frequencies were greatly increased to overcome image problems and give the wide band characteristic needed. Fig. 4, the circuit for the two IF stages of the new frequency modulation receiver built by Stromberg-Carlson. The transformers in these stages are tuned to 2,100 kc and are "broadened" with the use of shunting resistors. The band-pass for these IF stages is approximately 200 kc, or 100 kc either side of the fundamental. In all other respects, the stages are quite similar to the usual variety. The tubes used are of a high gain type developed for high frequency use and are similar to the 1582-1583 types. Servicing of these stages is exactly the same as for standard broadcast. Proper alignment necessitates the sweep oscillator-oscilloscope method.

Television IF stages are even broader in their band-pass characteristics. The transformers in such receivers take on the form of wide band-pass filters rather than the customary dual tuned coupled unit. With high gain tubes being used in all such, resistance coupled IF stages are being used in some sets. Their advantage is a broad frequency characteristic, but nothing is added to the selectivity. See Fig. 3 for the circuit of a resistance coupled IF stage used in a lightweight portable.

**ALIGN NORMALLY**

Many methods for alignment of IF transformers have been given in the past and most of the systems are very good. The usual method is to feed IF signal into the grid of the IF tube and adjust each transformer for maximum indication on an output meter in the audio circuit. The signal from the test oscillator is usually kept at level which does not operate the AVC system. The two main reasons for keeping below the AVC point is that the stage is slightly detuned by the application of negative voltages to the grid, and the variable gain produced by the AVC voltage would make the indication of resonance difficult when the usual output meter is used. Since the set is normally operated with the AVC voltage present on the grid, better alignment would be secured if the transformers were adjusted under normal conditions. The oscilloscope used as an indicator of resonance will overcome the difficulty of the AVC voltages altering the gain as the transformer is tuned. Oscilloscope alignment gives a visual result that is positive. The method in brief consists of sweeping the frequency of the test oscillator over a 20 kc range and observing the gain versus frequency curve on the oscilloscope. As the frequency is varied both ways from the fundamental, a double trace appears when the primary and secondary are tuned to different frequencies. By balancing the trimmers, the curves may be made to coincide and "straddle" the fundamental IF frequency.

---

**Fig. 3—Resistance coupling used in Emerson portable DP-302-306 IF stages.**

**Fig. 4—Wide band IF amplifiers used in frequency modulation receiver. 22M and 10M resistors broaden the characteristic to pass ±100 kc. High intermediate frequency of 2.1 mc permits selectivity with the wide band-pass.**

DECEMBER, 1939
New Service Products

New equipment to make the serviceman's job easier

Hickok volt-wattmeter

* Dual meter instrument checks line voltage, and power consumption of electrical equipment. Two power ranges from 0-750 and 0-1,500 watts on electrodynamometer meter with linear scales. Two cords are supplied for connection to line and appliance. Voltmeter has separate test leads. Model 145. Hickok Electrical Instrument Co., 18514 DuPont Ave., Cleveland, Ohio.—Radio Today.

Simpson signal generator

* Model 310 signal generator employs stable electron coupled circuit with RF output from 0.1 microvolt to 0.1 volt in four steps with complete variable control. The 400 cycle audio voltage is variable from 0 to 5 volts. Six bands over the range from 75 kc. to 30 mc. Coils are wound on ceramic cores and individually shielded. Triple shielding of case, grounded pointer, and shielded line cord prevent radiation. Price, $37.50. Simpson Electric Co., 5216 Kinzie St., Chicago, Ill.—Radio Today.

Sprague R-C analyzer

* Tel-Ohmike, a new wide range resistance, capacitor analyzer checks leakage current, power factor. Capacity range is from 0.00001 mfd. to 2,000 mfd.; resistance from 0.5 ohm to 5 meg.; power factor to 50 per cent. Tests are made with exact working voltage on condensers. Tester uses serviceman’s voltmeter and milliammeter. Price $29.70. Sprague Products Co., North Adams, Mass.—Radio Today.

Hexacon soldering irons


Radio City multi-tester

* Model 445 AC-DC tester measures DC voltages to 2,500, AC voltages to 1,000, DC millis to 1,000 and amps to 10, resistance to 1 meg, DB from —8 to plus 55. Self-contained in 3 x 6 1/2 x 5-inch case. Radio City Products, 88 Park Pl., New York, N. Y.—Radio Today.
Weston battery tester

* Pocket-size battery tester provides correct load to dry batteries, giving actual check on condition. Replace-Good scale furnishes positive indication. Tip jacks provided for 1.5, 6, 45, 90-volt units. Weston Electrical Instrument Corp., Newark, N. J.—Radio Today.

Philco vibrator tester


Durakool mercury switch

* Silent, unbreakable, non-inflammable metal mercury switch with two double reduction agents, which increase its efficiency and reliability, 40 to 200 amperes. Operates with small tilt with little energy. Allows many new applications from wall switching to motor starting. Durakool, Inc., Elkhard, Ind.—Radio Today.

Lectrohm soldering pots

* Two electrically heated solder pots for tinning small electric wires. Single heat units. 110 v.

AC-DC. Cast iron pot (1½ or 2 lbs. solder capacity) mounted on cadmium plated steel stand. Nichrome element, 6 ft. cord and plug. Lectrohm, Inc. 5133 W. 25 Place, Cicero, Ill.—Radio Today.

G. Warren Kimball, William H. Bohlke and John Meagher of RCA shown with demonstration receiver and equipment.

RCA Dynamic Demonstrator Shown

A new piece of apparatus for demonstration of the uses of radio test equipment has been recently completed by the RCA Mfg. Co. This graphic demonstrator consists of a ten-tube superheterodyne receiver mounted on a flat vertical panel with the various parts placed near their schematic symbol. By employing a system of tip-jacks and jumpers, any part in the circuit may be disconnected or shorted. Thus the set may be "set-up" to correspond to almost every fault. This receiver, perfectly capable of normal operation, is analyzed with the oscilloscope, oscillator, chanalyst, and voltmeter, for any trouble in the circuit.

William H. Bohlke, Director of Test Equipment, John R. Meagher, and Warren Kimball, all of RCA, will each cover separate sections of the country lecturing on servicing problems with the aid of the dynamic demonstrator.

**Only AMPERITE gives you THE ACOUSTIC COMPENSATOR and these**

5 VITAL FEATURES

(1) It's a VELOCITY
(2) It's a DYNAMIC
(3) It's UNI-DIRECTIONAL
(4) It's NON-DIRECTIONAL
(5) Gives HIGH or LOW PITCH

By moving UP the Acoustic Compensator you change the Amperite Velocity to a DYNAMIC microphone without peaks.

THE ACOUSTIC COMPENSATOR (also Cable Connector and Switch) are standard on these models: RBSk (hi-imp); RBMx (200 ohms), chrome or gunmetal, LIST $42.00 . . . RSHx (hi-imp), RBSx (200 ohms), chrome or gunmetal, . . . LIST $32.00.

AMPERITE KONTAK MIKE, Model SKH, IDEAL FOR MUSICAL INSTRUMENTS. CAN BE USED WITH ANY AMPLIFIER, AND WITH RECORD PLAYERS AND RADIO SETS . . . LIST $12.00; Plug extra, $1.50 list.

Specify AMPERITE C. M. BROADWAY, N. Y. U. S. A. CABLE ADDRESS ALKEN, NEW YORK.

AMPERITE MICROPHONES

DECEMBER, 1939
### Service Notes

**Stewart-Warner Models O3-5C and O1-5D**

These two models are identical with the exception of the phonograph connections on the O1-5D. The accompanying circuit diagram gives the connections for both models. In observing the phono connections, it will be seen that the set will be inoperative with the phono plug out of its socket since the audio lead from the second detector to the volume control is open with the plug out.

To align the IP stage, put .01 mfd dummy condenser in signal generator, and feed signal into trimmer lug on large section of tuning condenser. Set signal generator at 465 kc and adjust 2nd transformer first for maximum response. Adjust first IP transformer, and wave trap for maximum rejection at 455 kc with 200 mmfd dummy antenna on signal generator. Align trimmers on oscillator and antenna variable condensers for peak response at 1500 kc with 200 mmfd dummy antenna, in the order mentioned.

**Inverse Feedback in GE H-600U**

Improved audio fidelity is realized in the H-600U and 610U models of the General Electric Co. A secondary winding on the output transformer furnishes a bias voltage for the 6J5GT driver tube that varies with the audio output. This voltage is fed to the cathode of the 6J5GT to increase or decrease the normal dc bias developed by the 3,300-ohm resistor. This constantly varying bias in the cathode circuit has the same effect as a signal opposite in phase applied to the grid. Overload distortion is thereby cancelled out. Reversing the connections on the feedback section of the output transformers would produce positive feedback. Amplitude distortion, and instability would result.

### RCA Moves to Standardize Tube Types

Plans to standardize the types of receiving tubes to a relatively small list of 36 standard, against the more than 450 overlapping types now extant, has been advanced by the RCA Radio Tube Division.

In a recent survey conducted by L. W. Teegarden, RCA tube and parts sales manager, 90 per cent of all sales centered in 30 types of tubes. Of these 30 types, only 20 basic functions were represented.

In view of these facts, 36 tubes have been selected to fill the needs of set-designers for practically every type of audio receiver. All new RCA Victor radio receivers and Victrolas now contemplated for future production will be designed around the tubes included in the 36 basic types.

The following list includes the proposed types for standardization.

<table>
<thead>
<tr>
<th>METAL</th>
<th>GLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(6.3v)</td>
<td>Non-ectal GT (6.3-50v)</td>
</tr>
<tr>
<td>6H6</td>
<td>GT &amp; G (1.4v)</td>
</tr>
<tr>
<td>6J5GT</td>
<td>G</td>
</tr>
<tr>
<td>6J5</td>
<td>6SQ7</td>
</tr>
<tr>
<td>6SC7</td>
<td>6SQ7</td>
</tr>
<tr>
<td>6SK7</td>
<td>6SQ7</td>
</tr>
<tr>
<td>6SA7</td>
<td>12C8</td>
</tr>
<tr>
<td>6SF5</td>
<td></td>
</tr>
<tr>
<td>6SJ7</td>
<td></td>
</tr>
<tr>
<td>6SK7</td>
<td></td>
</tr>
<tr>
<td>6G7</td>
<td></td>
</tr>
</tbody>
</table>

### Service Test Report Form Provided by N. U.

A shop check-up form for use by servicemen in figuring repair costs and furnishing the customer with a permanent record of the work done on his set, is available through local National Union Radio Corporation distributors. The green and white "official radio service analysis and test report form" measures 5 1/2 x 13 3/4 inches. Thirteen major headings and more than forty sub-heads completely check the condition of any radio receiver.
SERVICE NOTES

Servicing Mixer Stages

In referring to the tracking of the oscillator and signal frequencies, the terms LF and HF were inadvertently transposed in the second paragraph on page 49 of the November issue.

The series padder in the oscillator circuit is adjusted to give tracking at the low frequency end of the band instead of the high frequency end as stated. The reverse is, of course, true for the parallel padder. The series padder is usually the capacity of the tuning condenser and would therefore be used at the low frequency end, whereas a variation of its capacity would have the most effect on the frequency of the oscillator. The parallel padder, because of its small capacity, could only be useful at the high frequency end where the total capacity of the condenser combination is at a minimum.

Solar Circuit and Component Analyzer

This new servicing instrument introduced recently by the Solar Mfg Corp., Bayonne, N. J., has many useful virtues. It may be used as an output and RF alignment indicator, capacitance bridge, resistance bridge, power factor indicator, leakage indicator, and peak voltmeter. This instrument is available for 110-volt operation on 60 cycles in model EX-1-60, and for 120-240 volts, 25-60 cycles in Model EX-2-U.

Capacity is measured with this instrument in a Wein bridge circuit. Six direct reading ranges provide measurement from 10 mfd to 2000 mfd. The portion of the Exan-eter employed in the capacity bridge is shown in the left hand part of the diagram. A source of 50 volts AC is applied across the calibrated potentiometer R, which is paralleled by the standard capacity C, C, or C, in series with the test capacity.

The 6ES indicator is connected to read the voltage between the common point of the capacitors and the arm of the potentiometer. When the voltage drop across the capacitors and their respective portions of R equal, the eye will open and indicate a balance. Capacity is read directly from the dial. The resistor R, is a power factor balance used for electrolytic capacitors only. It is calibrated in power factor to 50 per cent.

SENSITIVE VTVM

The resistance bridge shown on the right portion of the schematic is also a Wein circuit and functions exactly the same as the capacitance bridge. The range of this bridge is 50 ohms to 7.5 mgs in two steps. Capacitor leakage is indicated on the 6ES by use of the neon indicator circuit. Mica, paper, and electrolytic units may be accurately checked.

Another useful purpose this instrument serves is the measurements of both peak AC and DC voltages with a VTVM. The circuit employs 6ES rectifier mounted in a test prod, a balance bridge, and the 6ES indicator.

This voltmeter has three ranges, 0-35, 0-350, 0-3500. The voltmeter may be used for RF alignment, and audio work with very little loading of the circuit due to the "goose neck" construction.

MONEY-SAVER De Luxe!

WHAT IT WILL DO

Makes more complete, more accurate tests of ALL condenser and resistor characteristics in less time than ever before... at any price!

Indicates "opens" and "shorts"

Shows up intermittent opens

Measures leakage current and power factor of electrolytic condensers

Measures insulation resistance up to 10,000 meg.

Measures capacity from .0001 mfd. to 2000 mfd.

Measures resistance from 0.5 ohms to 5 meg.

Analyzes ALL condenser types at exact working voltages.

SPRAGUE TEL-OHMlKE

Sprague Tel-Ohmike IS A REAL LABORATORY CONDENSER AND RESISTOR ANALYZER—at a price within reach of every serviceman who recognizes the importance of such an instrument in helping him do better, faster work and making more money doing it. Instead of buying meters twice, you pay only for Tel-Ohmike and use the voltmeter and milliammeter you already own. The result is an up-to-the-minute, obsolescence-proof instrument worth at least $50 . . . for a net price of only $29.70. As long as there are condensers and resistors to be tested, Tel-Ohmike will be just as good, just as modern as it is the day you get it. Tel-Ohmike gives you the widest range, the most features of any similar instrument on the market at any price. Ask your jobber to show it to you, or write for free descriptive folder.

SPRAGUE PRODUCTS CO., NORTH ADAMS, MASS.
A recent winner in the Sylvania shop modernization contest was Burbank Radio Service, San Jose, Cal. The bench top is of tempered pressed wood. Indirect lighting illuminates the inclined panel.

Production Changes In H-500U GE Models

Several revisions have been made in the circuits of the H-500U and H-510U model GE receivers. Some of these models have a 12A8GT oscillator-mixer circuit as shown in the accompanying diagram in place of the original 12SA7GT circuit. The change involves the use of several new parts. The original oscillator portion of the circuit employed the electron coupled system while the 12A8GT is connected to a tickler-feedback circuit. The new oscillator coil is known as RL-293 and the antenna coil is RL-085. The grid bias resistor has been changed from 33,000 to 47,000 ohms but the coupling condenser remains the same.

Another change made in these models and also H-520U concerns the volume control circuit. Later receivers of these models have the volume control circuit shown with the 2 meg control in place of the 0.5 meg used in earlier sets. Further changes in the circuit include the addition of a 0.5 meg fixed resistor from the AVC bus to ground and the isolation of the volume control from the AVC voltage with a 0.002 capacitor. The remainder of the circuit is the same for all sets.

Weston Issues Tube Base Connection Data

Base connection diagrams for over 500 types of radio tubes and ballast resistors are available in a new four-page folder from the Weston Electrical Instrument Corp., Newark, N. J. All tubes are listed in numerical and alphabetical order with the reference to the corresponding base diagram.

Service-Dealer Helps by N. U.

Powerful promotion material for the serviceman and dealer is the new Foto Log for 1940. The 5½ x 8½ radio station log book has an attractive orange cover and is filled with photographs of radio stars and latest info on European short wave broadcasts. These logs may be purchased from National Union Radio Corp., 57 State St., Newark, N. J., for $2.50 per 100 and cost of imprinting.

New volume control and mixer circuits in the GE H-500U receivers. Change in circuit on left is within the dashed line.
Sales Helps

Stromberg Cards Look Ahead for Dealers

The importance of television and staticless (frequency modulation) radio is accentuated in new placards issued by Stromberg-Carlson to be displayed along with Labyrinth radios. The cards point out that “... this radio is ready for high fidelity television sound when connected with the SC 105 television picture receiver, and high fidelity staticless radio when connected with the SC 425H frequency modulation radio.

The signs are printed in new gold, black and red.

The company has also released a new display device which features a full-length illustration of a young beauty in evening dress, for display in window or interiors.

Tube Display Pieces Now Ready

“please don’t spoil my song"

The second of the series of display units being released through Arcturus distributors is now ready, and includes one window display piece, two counter pieces and one streamer, all of them done in eight colors.

The streamer and one of the counter pieces show a lively tie-in with the interest in football broadcasts, and the others of the group show a young singer at the microphone making a plea “don’t spoil my song.” All four of the pieces are available from Arcturus jobbers, or details may be obtained from Arcturus Radio Tube Co., Newark, N. J.

Clarion Has New Folders and Streamers

A new series of sales stimulators are being offered free by Transformer Corp. of America, 69 Wooster St., New York City, in the interest of Clarion’s Fall sales campaign on sound equipment.

Folders for consumer use come in lively colors, with space for dealer’s name. Window streamers are 36 in x 14 in. in four colors.

C-D Flasher

New Cornell-Dubilier point-of-sale display urges users to “Buy Union Made Cornell-Dubilier Capacitors.” Treated in blue and gold the flasher display is designed for use in either windows or interiors.

New Theme to Boost Winter Tube Sales

For use by dealers and servicemen as a radio tube winter window display is a new placard 40 in. high, lithographed in eight colors, released by Hygrade Sylvania Corp., Emporium, Pa. The display capitalizes on the coast-to-coast interest in ice skating as a major winter sport of America, and ties this theme neatly into the matter of “New Pep For Your Radio.” The card is suggested as “an ideal focal point for any complete window display which a dealer might work out featuring winter sports.”

FREE This handsome, handy
MANUAL FOR RADIO SERVICING
Worth several dollars!

Now, without cost, have at your fingertips all the latest data on servicing defective capacitors (includes circuits shown in new Rider Vol. X) in one handsome, sturdily bound volume. Concise, stripped of all non-essentials, this new C-D Capacitor Manual for Radio Servicing is nevertheless complete, containing everything you need to know about capacitor selection for replacement. Over 240 pages—a wealth of information it took months to gather!—yet Cornell-Dubilier has arranged the material so simply and in such orderly manner that reference is surprisingly quick and easy.

Contains all this!

Set manufacturers names listed alphabetically. Model data covers capacitor values, working voltages and standard C-D capacitor types required for replacement (number of standard types reduced to absolute minimum), references to illustrative circuits (over 165 are given in back of Manual), manufacturers original part numbers, and the Volume and page of Rider’s in which complete schematic circuit is to be found for general checking purposes.

Here IS something for nothing! Get your FREE copy of Cornell-Dubilier’s new “Capacitor Manual for Radio Servicing” today. Discover how this reliable source for all capacitor stock requirements saves you time, speeds service work, increases stock turnover. See your C-D Distributor at once!

ARCTURUS
THE TUBE OF STAR PERFORMANCE

DECEMBER, 1939
"Repers" Stage Trade
Tour in Northwest

A good-will trade tour among radio servicemen in the Northwest was wound up last month by "The Repers," an organization of radio parts manufacturers' agents travelling out of Minneapolis and St. Paul, Minn. Meetings were held in Duluth, Minn., Fargo, N. D., and Sioux Falls, S. D., on the "open forum" style, with the newest developments in radio service equipment a feature.

Joe Marty of Radio Servicemen of America was a guest speaker at each meeting. Interest and attendance were such that plans are being made to hold similar tours annually.

The "Repers" taking part in the tour were Roland Borke, Fred Kennedy, Mel Foster, Fred Hill, Jack Heimann, Flint Harding, Joe McCarthy, Dwight Lindberg, Merrill Franklin, and Henry Hildebrandt, Secretary of the group is Mr. Foster, 601 Cedar Lake Rd., Minneapolis, Minn.

Nagle Forms Own Firm
in Test Equipment Field

A new company, the Ted Nagle Equipment Corp., located in the General Motors Building in Detroit, Mich., has been organized to market the radio service and automotive test equipment formerly produced by Bendix Radio Corp. Ted Nagle, who was previously director of sales for the automotive division of the Bendix firm, is president.

Engineers who had formerly worked with Bendix in Mr. Nagle's department will remain with him in the new company. A complete laboratory, and all the newest scientific equipment will be used by the Nagle firm "for the development of improved and entirely new equipment."

Philo Radio Service
Campaign Organized

Plans for a comprehensive radio service campaign have just been completed by the Radio Manufacturers' Service of the Philo Radio Corp. The two major features of the plan include an educational campaign consisting of service meetings where those attending get real facts to help them in their daily work. The second feature of the campaign consists of a nationwide availability of parts supplies for all models of Philco home and auto sets ever made. These exact replacement parts will simplify the servicemen's problems.

Radio Men Victors in
Hunt for Transmitter

That radio engineers may be more skilful in the design and use of direction-finding equipment than the experts from the airplane plants was indicated in a transmitter-hunting contest staged last month by Ken-Rad.

The Admiral device used by winners of the transmitter hunt.

Tube & Lamp representatives in Chicago.

In the novel "Treasure Hunt" for a transmitter hidden about 32 miles from a common starting point, 25 teams took part. Many were radio men, and two teams were from United Airlines. They all gathered at a street corner in Chicago, and all of them drove for five minutes before they took their first readings on the equipment which they had prepared. Then they drove in the direction indicated by their "finders" which was in some cases 100 per cent wrong, as was discovered later.

The winning team was the group of Admiral engineers from Continental Radio & Television Corp., including George Harrigan, Bob Jones, John Phalen, and John Altman. They covered a total of only 39 miles and found the transmitter in one hour and eight minutes. The Admiral equipment used in the hunt was simple, compact and designed to be read while driving.

The United Airlines teams came in third and fifth.

RSA Chapter Hears
FM Lectures

The Boston Chapter of the RSA have just completed a series of lectures and demonstrations on frequency modulation reception.

Discussion was led by Mr. Glenn Browning. An interesting history and diagram analysis was the basis for the instructive meetings. Equipment loaned by the General Electric Co. was demonstrated. A prominent participant in the evening discussion was Mr. Irving Robinson, manager of the Yankee Network who has pioneered FM in the New England area.

Knapp Becomes
Howard Executive

The new sales promotion manager for Howard Radio Co., Chicago, is Robert Knapp, who has formerly worked with Motorola and with Zenith. The announcement says that "his thorough understanding of manufacturer, jobber and dealer relationships will enable him to further increase Howard's rapid dealer expansion."
**Utah Notes a Lift in Sales Abroad**

Harry Scheel of Utah points to big boost in parts sales.

Harry Scheel, who is the export sales manager for Utah Radio Products Co., reveals that foreign sales are now about 50 per cent over the preceding year. He reports that the distribution of Utah speakers, vibrators, transformers and Utah-Carter parts through recognized foreign trade channels has been substantially strengthened, and that the firm’s products are now being used and sold in the majority of the key market spots abroad.

**Jersey Show Gets Important Results**

The gala “Radio and Light Conditioning” show sponsored last month by the Central Jersey Electrical League attracted a 3-day total of 5,500 persons to its combined program of platform lectures and booth exhibits.

The radio part of the event included a talk by Harry Taylor of Fineburg’s, (local Philco distributor) along with novel demonstrations of Wireless Remote control and television. The Harley-Tohin Co. demonstrated a “Mechanical Man.”

Full cooperation of manufacturers and distributors was enjoyed by the sponsors and the event was complete with entertainment, prizes, and newspaper advertising. As a result of the show, one radio dealer reported $1,000 worth of radio business, and others credited the event with great sales significance. Plans are afoot for another similar show next Spring.

**Gillig To New Post at Emerson**

To fill the newly created post of sales promotion manager for the Emerson Radio & Phonograph Corp. is Phillip Gillig, a leading figure in radio and appliance merchandising. His efforts will now be combined with sales and advertising executives at Emerson.

Several months ago, Mr. Gillig resigned as an executive vice-president of the Ludwig Baumann chain of radio, appliance and furniture stores in the metropolitan area, where one of his duties was the supervision of the retail radio department. He had held this post for 15 years, and is now a recognized expert in radio promotional and merchandising matters.

**Masters in Stewart-Warner Drive**

Appointed to work with Stewart-Warner radio distributors throughout the U. S. is Floyd D. Masters, named by the SW radio sales manager, L. L. Kelsey. Mr. Masters has had 17 years’ experience in the radio and household appliance field.

Selection of the new official is another step in the expansion of the Stewart Warner radio activities. Mr. Kelsey revealed that during the last six months, the drive has resulted in some 3,000 new dealers under the SW banner.

**Wiebe Resigns**

Fred A. Wiebe, a popular executive of the Brown Supply Co., distributors at 2800 Pine St., St. Louis, Mo., has resigned his position there, and will undertake new activities in the radio trade.

**Investigate**

You'll find Arcturus Tubes tops in Quality!

**Investigate**

You'll find Arcturus Dealer Helps real Sales Builders!

**Investigate**

You'll find ARCTURUS EQUIPMENT DEALS earn extra profits!

**The Equipment You Need — When You Need It**

The coupon below is your key to one of the greatest money-saving opportunities you've ever had...it will bring you facts and figures that show how easy and practical it is to obtain the newest models of store and shop equipment at practically no cost, merely by ordering a high quality Arcturus Tube.

Don't miss it...mail the coupon today — then you be the judge!

**FREE! New Edition of the Arcturus Dealer Helps Folder**

New ideas... new items... new selling material that bring profitable business to your store. Be sure to get your copy.

MAIL THE COUPON

ARCTURUS

ARCTURUS RADIO TUBE CO., Newark, N. J. T-28
Without cost or obligation, send my copy of the ARCTURUS DEALER HELPS FOLDER and details of the ARCTURUS EQUIPMENT DEAL.

**Get This Big FREE Catalog**

You'll Like Our Prompt Service

**BURSTEIN-APPLEBE Co.**

1012-14 McGee Street, Kansas City, Missouri

DECEMBER, 1939
25,000
GUARANTEED CIRCULATION
Including

Executive, engineering, purchasing and sales heads of ALL manufacturers in the radio and electronic field.

ALL jobbers of parts, accessories, servicing equipment, sets, sound systems, etc.

Operating engineers or technicians of all U.S. broadcast stations and recording studios.

Handpicked lists of dealers and service dealers, sound specialists, auto radio installers, etc.

Heads of U.S. government communication and recording services — Weather, Forestry, Coast Guard, F.B.I., Army, Navy, Air services, etc.

Published by
Caldwell-Clements, Inc.
480 Lexington Avenue, New York
RCA to Distribute Apex Abroad

An agreement whereby RCA Victor will act as exclusive distributor for Apex Electrical Mfg. Co., Cleveland, in all foreign markets except Canada, has been announced by the two firms. Apex business abroad has previously been mainly with Europe and South Africa, but the company now gets the benefit of RCA's world-wide affiliations, including eight subsidiaries in principal countries and distributors at other points. The agreement starts Jan. 1, 1940.

Du Mont Tries Lower Prices for Television

A special Christmas allowance on retail sales of the four extra-large-screen television models made by Allen B. Du Mont Labs, Inc., Passaic, N. J., has been announced by the firm during December. The consumer will save about one-third off the list prices, during the offer period, so that officials may test the importance of prices in the television market.

List prices remain the same, and dealers are being billed at present quotations. However, retailers will get a compensating rebate as soon as proof is given that the receivers have actually been sold and installed.

Sentinel Plays Santa Again

Practically 100 per cent registration has been noted in the new contest called "Sentinel Plays Santa," announced for distributors' salesmen by Sentinel Radio Corp., Cleveland, Ohio. The event opened Nov. 15 and will end on Dec. 15; prizes are awarded for points earned for the sale of various models, including the leaders.

Gifts will be given to all salesmen who get 25 points, according to the bulletin issued by general sales manager G. W. Russell. The awards include radios, luggage, Christmas turkeys, electric clocks, etc.

Stewart Opens Branch

The new West Coast factory branch of the F. W. Stewart Mfg. Corp., Chicago, has been opened at 451 Venee Blvd., Los Angeles.

20 million owners of old type sets can "pep" them up by use of vertical non-directional antennas.

Antennas of this type approved by leading set manufacturers.

JFD NEW 1940 VERTICAL Non-Directional HOME ANTENNAS

With Improved Adjustable Brackets Easily and Quickly Attached Anywhere

Flats roof, ventpipe, chimney, wall, eaves, window, ridge pole, parapet or anywhere.

Vertical antennas now used by all principal broadcasting stations—Non-directional—Improve short wave and broadcast reception on new or old model sets—4 sections or 12 ft. and 8 sections 10 ft. 4 in. extended.

The natural impedance of the 16 ft. 4 in. being near the impedance of the radio set antenna coil, better results will be obtained with the longer antenna where the broadcasting station is more than 10 miles distant.

Write for full information.


DECEMBER, 1939
The Cuban radio jobber, Luis Godoy, and Mrs. Godoy make a call at Arcturus Radio Tube Co., Newark, N. J., and are greeted by sales manager Jack Geartner, right. Mr. Godoy handles Arcturus tubes in Havana.

Dealers to Benefit From New Cost Survey

Early next month, radio dealers will receive from Dun & Bradstreet a questionaire on retail operating costs, which means that these experts are again conducting a nationwide research on this subject under a three-year interim.

The company has received thousands of requests for average expense and operating ratios, and has decided to compile an up-to-date series of figures based on new survey figures from merchants. The new Retail Survey is designed to furnish yardsticks against which the retail merchant may measure his business in respect to such matters as turnover, markup, expense control, credit policies, etc.

Each dealer contributes his experience and in return he receives the composite experience of others in his line. Merchants are urged to cooperate promptly, in filling out the questionnaires.

Speak-O-Phone Names New Reps

A group of sales representatives have just been appointed by the Speak-O-Phone Recording & Equipment Co., 19 W. 60th St., New York City, makers of instantaneous recorders and recording equipment.

The new reps are: Paul Cornell, 3292 Cedarbrook Road, Cleveland Heights, Ohio; Mel Foster, 601 Cedar Lake Road, Minneapolis, Minn.; Henry Seigel, 295 Pine St., Gardner, Mass.; Royal Stemm, 21 E. Van Buren St., Chicago; Royal Smith, 912 Commerce St., Dallas, Tex.; Byron Moore, 191 Stair Ave., Buffalo, N. Y.; and Don Wallace, 4214 Country Club Drive, Long Beach, Calif.

Davin Leaves Detrola

J. J. Davin, Sr., recently the advertising and sales promotion manager for Detrola Corp., has resigned that post and will now enjoy an "at ease" period before he continues his business activity. His vacation includes a trip by plane from his home at the Lake Shore Athletic Club in Chicago, to San Francisco, Los Angeles, New York and back to Chicago, as a guest of his son J. J. Davin, Jr., of United Airlines.

Perron to New Quarters

Ray Perron, the New England representative who conducts a "technical selling service" on radio and electrical apparatus, has moved to new quarters at 80 Devensport St., Taunton, Mass. The Perron services are offered to distributors, manufacturers, industrials, utilities, broadcast stations, universities, laboratories, etc.
Radio Leaders
Honor Charities

On Nov. 26 at the Waldorf-Astoria Hotel in New York City, more than 1,200 of the leading figures in the radio, music, refrigeration and related fields, met to honor the third merged appeal of the New York & Brooklyn Federations of Jewish Charities. The annual event is part of an effort to raise funds for 116 affiliated hospitals, family service agencies, etc., and tickets are $100 per couple.


Times Appliance Expands

Times Appliance Co., Inc., the prominent New York jobber house where E. B. Ingraham is president, has moved into larger quarters at 525 Fourth Ave., New York City. "Increased volume of business," plus the addition of a number of new products, is the reason.

Elaborate showrooms and new wrinkles in demonstration equipment are featured at the new site, "for the use of Times Appliance dealers and their customers." The firm handles Westinghouse radio and appliances, Columbia, Vocalion and Brunswick records, along with a complete stock of general photographic supplies.

Braid to Handle Norge

Braid Electric Co., Nashville, Tenn., are again distributors for the complete line of Norge appliances, according to word from Ben S. Gambill, head of the firm. The Braid association with Norge began back in 1930.

This jobber covers Central Tennessee and Southern Kentucky, with vice-president P. E. Griffith in charge of territory sales, and Arthur Boyd directing city accounts. The company, in addition to Norge products, handles Zenith sets and a complete line of electrical supplies.

Southeast Sales Up

Sales of radios in the Southeast area of the U. S. appear to be improving rapidly, is the report of Howard C. Briggs, vice-president of Howard Radio Co., Chicago. Mr. Briggs has just toured the territory along with Hollingsworth & Still, representatives for Howard.

Philco Sails for the South Pole

Aboard the North Star, the supply ship which Admiral Byrd took out of the Philadelphia Navy Yard last month for his third antarctic expedition to the South Pole, is a brand new Philco table model.

The receiver was delivered to Vernon D. Boyd, master mechanic of the Byrd company, by Fred E. Ogilby, Jr., of Philco Distributors, Inc., Philadelphia, after Mr. Boyd had phoned for service on his old Philco set. The latter receiver was six years old and a veteran of other polar expeditions.

Sales Manager
Post Open

A nationally known parts manufacturer, who operates with a full coast-to-coast distributor set-up, now has a place for a sales manager. Headquarters are in New York. Inquiries should be addressed to Box 41, Radio Today, 480 Lexington Ave., New York City.

Allied Names Rubin

The appointment of J. W. Rubin as the new advertising manager for Allied Radio Corp., Chicago, has been announced by Allied president A. D. Davis. Mr. Rubin started some years ago as a shipping clerk for the company, and steadily worked himself up to his present executive post.
Radio Exhibits Set for 1940 Fair

That radio will be well represented at the New York World's Fair of 1940 is indicated in the decision of General Electric, Westinghouse, and other large companies to take part in the exhibitions next year.

In surveys made by Market Analysts, it has been found that visitors to the Fair were mainly the ones of substantial income—people who are able to buy. Inquiry also revealed that effective display of a company's products actually created a sizeable amount of good will, at a cost which compares well with other forms of advertising.

Philco Export Firm Increases Staff

New appointments to the staff of American Steel Export Co., export distributors for Philco, have been revealed in New York by Howard McAteer, president.

Timothy Williams, of the Philco offices in London, was named to handle all export sales of Philco refrigerators and Philco-York air conditioners.

Horacio Lima now becomes resident manager of ASECO for Brazil while Hans Stauder was appointed resident manager for Mexico, and Cameron S. Herbert was chosen to fill the same position in Bogota, Columbia.

Albert A. Bombe, formerly with the International General Electric Co., was assigned to South and Central American sales of Philco radios and refrigerators.

Gale in Kentucky

An example of the business tempo at Gale Products, Galena- burg, Ill., is furnished by a brisk incident at the plant last month. C. P. Rossberg, Gale executive, got word from Louis ville, Ky., that an important business contract was to be discussed with Joe Fleischaker of WII Sales.

Mr. Rossberg chartered a private plane and it was only a matter of minutes before he was ready for action on the Louisville deal.

And on the return hop, the Gale official himself was at the controls of the plane.

Majestic Reports More Activity

Shipments of Majestic radios, according to news from the factory at 2600 W. 50th St., Chicago, are "gradually nosing ahead of back orders," and the company expects to fill and to deliver all present orders in ample time for the Christmas period. Production lines are moving at full speed.

The report is that the demand for console models is currently exceeding the orders for table models, although three of the new Majestic superhets in the table model group are moving rapidly.

Majestic has just issued a series of brand new Christmas displays, for immediate dealer use.

Western Labs Has New Recorder

News from the Western Sound & Electric Laboratories, 311 W. Kilbourn Ave., Milwaukee, Wis., reveals that the company is introducing a portable recorder, in a luggage style case, to sell for less than $100 complete. The unit will record and play back, and the features will include visual volume level indicator meter, a separate 10 in. speaker in bass reflex type cabinet, 10 to 12 watts amplification, and special ability as a public address system.

E. M. Dieringer, president of the firm, announced that a console type recorder, complete with radio, will be brought out later.
New Booklets


High voltage tank condensers, coils, insulators and sockets are described in new booklet by E. F. Johnson Co., Waseca, Minn.


Emerson presents a new price list catalogue for all parts for sets released prior to August 1, 1939. Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York, N. Y.

Weston Electrical Instrument Corp., 614 Frelinghuysen Ave., Newark, N. J., reports a new illustrated folder entitled "Ideas for Profitable Servicing."

A detailed description of a new brush type wire stripper is given in an illustrated leaflet by Ideal Commutator Dresser Co., Sycamore, Ill.

Specifications of new dynamic microphones and handy units for use with milks are furnished in a pamphlet by Shure Bros., 225 W. Huron St., Chicago, Ill.


No. 75, 1940 catalog and data book on spray painting and finishing equipment now available upon request to Binks Mfg. Co., 3114-40 Carroll Ave., Chicago, Ill.

Camera div. of Radio Wire Television, Inc., 100 Sixth Ave., N.Y.C., announces a dealer's catalog offering a comprehensive line of Lafayette photograpic accessories and supplies. Available on request.

Of practical value to designer, manufacturer or serviceman of motor-starting capacitors is the new "Industrial Capacitors Manual" issued by Aerovox Corp., New Bedford, Mass. Copy may be had from local jobber or the company direct.

"Replacement Motor Starting Capacitors," new 1939-40 catalog listing exact duplicate replacement capacitors for all types of AC motor driven equipment from air conditioners to water systems. Direct requests for Catalog No. 162 to Cornell-Dubilier Elec. Corp., South Plainfield, N. J.

Hygrade Sylvania Corp., Salem, Mass., presents 2 new folders, describing, illustrating and giving specifications of Miralume HP-100 and HP-200 fluorescent lighting units. Supplied upon request.


Quality Plus Economy!
Manufactured by DUMONT ELECTRIC CO., Inc.
514 Broadway, New York
Export Dept.—116 Broad St., New York N. Y., U. S. A.
Cable Address—MINTHORNE
If your jobber cannot supply you
Please write us
Our condensers are particularly designed for use in foreign countries.
Sales and Jobber Territory Open

Electrolytic-Paper-Mica Condensers

Fleron Pole Aerial

MODERNIZE OLD SETS with ANTEXEN
The best selling indoor aerial on the market. Always gives satisfaction. Don't be without it. Millions of old sets can use Antenex. Makes new sets work better.

TELEGRAPH SETS Beautiful new bakelite models single and double sets with wire.

Boy Scout Official Set
Write for
New Catalog R653
M. M. Fleron & Son, Inc., Trenion, N. J.
Detrola Sets Record and Names Bullion

It has been announced by Detrola Corp. of Detroit, Mich., that sales for the year 1939 will be the largest of any year in the history of the company. The firm expects this month an initial dividend of 55¢ a share.

Following the resignation of J. J. Davin as vice-president in charge of sales and advertising, it is revealed that T. E. (Tom) Bullion will be his successor. Mr. Bullion has for the past year been director of sales for Detrola, and will now supervise both sales and advertising.

Low-Boy Goes Well

A trend in consumer demand for consoles is seen in the news from Pierre Boucheron, general sales manager for Farnsworth. He reports that the company's production schedule on the low-boy model AC-91 has been over-sold 40 per cent. He cites this experience as proving that "a properly designed low-boy model of pleasing proportions will find plenty of buyers."

This set is 30½ inches high. It will remain in the Farnsworth Spring production program.

Noll Is Service Manager for General Electric

The new head of the product service department of the appliance and merchandise section of General Electric is W. C. Noll, according to news from vice-president H. L. Andrews. In this post Mr. Noll will direct service activities on radios as well as all appliances sold by the department. He has been with GE for 30 years, and for the past 12 years has been service manager on refrigerators, ranges and related products.

Stromberg Reduces Price of Largest Combo

The largest automatic radio-phonograph combination in the Stromberg Carlson line for 1940, the 470-PF Labyrinth model, is now ready for delivery at an eastern list price $80 less than originally announced. The model is Chippendale design, has remote control, television connection and many other features; it now sells for $395 instead of $475.

Mr. Serviceman: FOR BETTER BUSINESS—
FOR BIGGER PROFITS DURING 1940—
JOIN RSA!

* You belong in this big, live servicemen's organization that is really doing things for its members! * RSA secured cooperation with broadcasters to sell servicing to the public over the air. * RSA helps you to solve many difficult technical problems. * RSA sends you technical bulletins. * RSA does many other beneficial things—for you. Send now for complete details.

Let's Grow Together in 1940!

RADIO SERVICEMEN OF AMERICA, Inc.

JOE MARTY, JR., EXECUTIVE SECRETARY
304 S. DEARBORN STREET, CHICAGO, U.S.A.

MAIL THIS COUPON NOW!

RADIO SERVICEMEN OF AMERICA, INC.
304 S. Dearborn St., Chicago, Ill.

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

I am interested in RSA Membership. Tell me about it......
I am enclosing $4.00 for National dues and initiation......
(Does not include Local Chapter dues where Local Chapters are organized.)
They might have been the "FORTY-EIGHTERS"

Gold was discovered in January, 1848 in the tail race of Sutter's Sawmill in Eldorado County, California. Because of poor communications, word spread slowly and not until 1849 did the ensuing "gold rush" reach its height.

Hardly before the echoes of the first shout of "gold" died out along Sutter's Creek, NBC engineers and announcers would be on the spot with portable broadcasting equipment developed in RCA Laboratories and built by the RCA Manufacturing Company. Out over the two great NBC networks, which provide the broadcasting service of the Radio Corporation of America, would flash the discovery news in a thrilling program featuring a personal interview with James Wilson Marshall, the finder of the first nugget.

Both in America and abroad listeners would turn the volume a little higher on their RCA Victor receivers so that not one precious word would escape them.

Then as the rush started for Eldorado County, police in cities and towns throughout the nation would direct the flow of traffic with 2-way RCA Police Radio Systems. And songs improvised by the gay "Forty-Eighters" to make the going more pleasant would, of course, be recorded on Victor and Bluebird Records and reproduced everywhere by RCA Victrolas.

In lieu of any present discovery of gold, RCA stands ready to serve you in every respect in every field of radio.


Radio Corporation of America RADIO CITY, N. Y.
RCA Manufacturing Co., Inc. • National Broadcasting Company • RCA Laboratories Radiomarine Corp. of America • R.C.A. Communications, Inc. • RCA Institutes, Inc.
Saving of batteries by plugging in AC-DC current when available make CROSLEY portables highly saleable!

MODEL B-549A (Right) A fast seller because it has so many uses in the home and out of the home—appeals to ALL members of the family—and presents a great big value in its saving of batteries when a light socket is available to plug in the AC-DC extension. It's a splendid radio. You'll find its performance in reception and clarity of tone delight all who hear it.

The switch over from batteries to AC-DC electric current is automatic, which is a leading selling feature. Weight only 12 lbs. Complete with 200 hour batteries it’s “hot.” It moves swiftly at $24.95

MODEL B-439A (Above) Here we have the minimum in portables without sacrificing good quality, tone, volume and performance. 11 lbs. in weight. Size 11 x 6 1/4 x 5 3/4 inches. Airplane luggage fabric adds smartness. Sold with batteries good for 200 hours.

PORTABLE COMBINATION
MODEL B-5549A (Right) is an unmatchable value and a strong Christmas item because it's a 24-lb. combination of the 549A chassis and a husky spring wound motor. Equipped with the automatic switch over from batteries to AC-DC current when outlets are available, it promises economy in operation. 1 to 8 records can be stowed away inside with everything snug and tight for toting anywhere. Complete with 200 hour batteries.

$39.95

The Crosley line is ALL fast moving with superhets at $9.99, 2-band 7-tube superhets at $19.99. Other table models to $29.95. Consoles from $39.95 to $69.95 to deluxe combination consoles with Capehart record changers at $114.50.

$18.95

Prices slightly higher in South and West.

THE CROSLEY CORPORATION, Cincinnati