

RADIO *and Television* TODAY



Benny Goodman and U. S. Radio "Swing" Into Favor Abroad

American Radio
Earns New Markets

DECEMBER

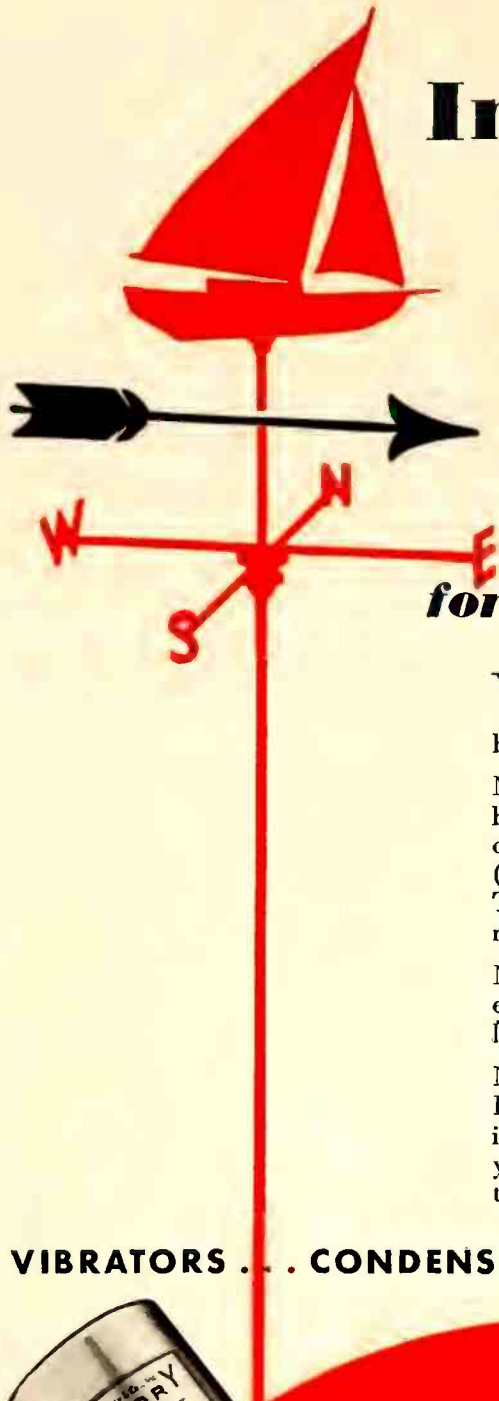
Retail Clean-Up
After Christmas

In Every Direction
depend on

P.R. MALLORY & CO., Inc.
MALLORY

Replacement Parts

for faster, more profitable service



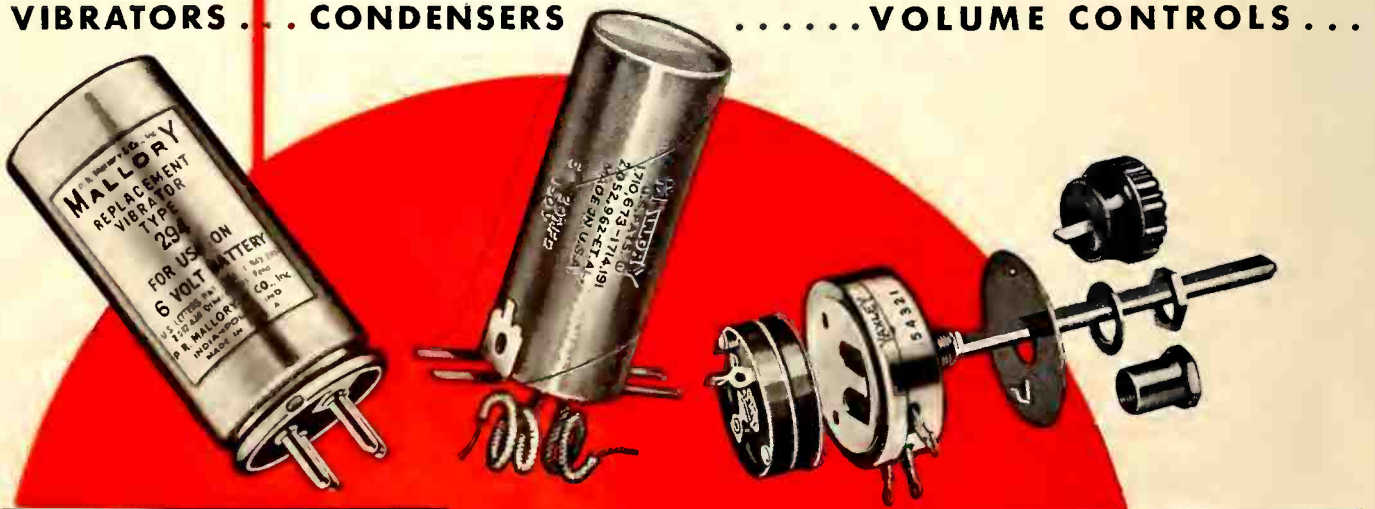
YEAR after year thousands of radio service engineers have found that the use of Mallory Replacement Parts is a certain route to better jobs . . . better customers . . . and better profits.

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 VOLUME CONTROLS . . .



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

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

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!



RAYTHEON

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

"WORLD'S LARGEST EXCLUSIVE RADIO TUBE MANUFACTURERS"

This new CBS power...

WCKY 50,000w.
CINCINNATI, O.

WRVA 50,000w.
RICHMOND, VA.

WWL 50,000w.
NEW ORLEANS, LA.

KRLD 50,000w.
DALLAS, TEX.

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

8 MORE COMING! 

WCAU 50,000 w.
PHILADELPHIA, PENN.

WJR 50,000 w.
DETROIT, MICH.

KNX 50,000 w.
LOS ANGELES, CALIF.

WCCO 50,000 w.
MINNEAPOLIS, MINN.

KMOX 50,000 w.
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

There's No Doubt About It Now . . .

The BIG PRO REFRIGERAT

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 being careful to keep in mind its original objectives. Of course, Philco intends to move ahead in refrigeration. But the purpose from

Philco All Year 'Round for Profits All

FIT NEWS in CON for 1940 is PHILCO!

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

Year 'Round

HOME RADIO • AUTO RADIO • TELEVISION • PHONOGRAPHS • RADIO TUBES
PARTS • REFRIGERATORS • AIR CONDITIONERS • DRY BATTERIES

There's No Doubt About It Now...

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PHILCO RADIO & TELEVISION CORPORATION

Philco All Year 'Round for Profits All Year 'Round

HOME RADIO • AUTO RADIO • TELEVISION • PHONOGRAPHS • RADIO TUBE PARTS • REFRIGERATORS • AIR CONDITIONERS • DRY BATTERIES

Free!

Brand New Invention

Brings Your Present Tube Tester Up-to-Date!



REG. PRICE

~~\$25~~

BUT YOURS ABSOLUTELY FREE

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 7½. Enables it to handle all present tubes and heater voltages as well as allowing for hundreds of new tubes with voltages up to 150. 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 2¼ inches... weighs 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!

PHILCO RADIO & TELEVISION CORPORATION
Tube Dept., Philadelphia, Pa.

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.

MY PRESENT TUBE TESTER IS—
Make _____ Model _____

NAME _____

ADDRESS _____

CITY _____

ask
Your PHILCO DISTRIBUTOR
How to Get Yours
or Mail Coupon NOW!

RADIO *and Television* TODAY

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 envelope 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 25 chapters

of Radio Servicemen of America have been participating. Plans are being made to extend this cooperative action to all cities where RSA 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-

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.

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 26 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.

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-



Mapping great plans for the 1940 Radio Parts Mfrs. National Trade Show, June 11-14, the Board of Directors includes, standing left to right, H. E. Osmun, J. J. Kahn, and K. C. Prince. Foreground shows A. A. Berard, S. N. Shure, Ken Hathaway.

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.



L. W. Teegarden, tube manager for RCA, starts the long-needed simplification of tube types for future receivers. See page 44.

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 7,000,000 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 \$113,400,000 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"

New Things in Radio, Present and
Future Uses of Radio Tubes.

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.

Dec. 15—Radio and Ships at Sea. Beacons. SOS Calls. Depthmeters and Depth-charting. Seeing Through Fog. Electronic Sextant. Fog Alarms.

Dec. 22—Radio's Part in Aviation. Dispatching. Beams. Fog Landings. Altimeters.

Dec. 29—Locating Underground Treasure. Mining Precious Metals. Locating Oil. Subfoundations for Dams and Buildings. Locating Pipes, Leaks, etc.

Jan. 5—Tubes in Astronomy. Automatic Time Observations. Measuring Star Magnitudes. Detecting Limits of Distant Galaxies. Timing Variables. Guiding Telescopes.

Jan. 12—Radio Tubes in Crime Detection. Discovering Concealed Weapons. Listening in on Gangs. Electric-Eye Safeguards Against Marauders. Automatic Court Reporting.

Jan. 19—How Tubes Make Long-distance and Overseas Telephony Possible. Putting 200 Conversations Over a Single Wire. Secrecy Through "Scrambled Speech."



Nice order for first carload of Wilcox-Gay's Recordio goes to sales manager Warren Hasemeier, from Pat Marinack, 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.

Jan. 26—Tubes as Traffic Police. Signal Lights Operated by Electric Eyes and Space Controls. Electronic Timers. "Clocking" Speeders. Counting Cars.

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 co-operating 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 Every- body'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 straightforward 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.



New radio honors go to George Scoville of Stromberg-Carlson as the company celebrates its 45th anniversary.

American Radio Gets

Uncle Sam's sets equal
to all war-time
demands



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 capitols 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

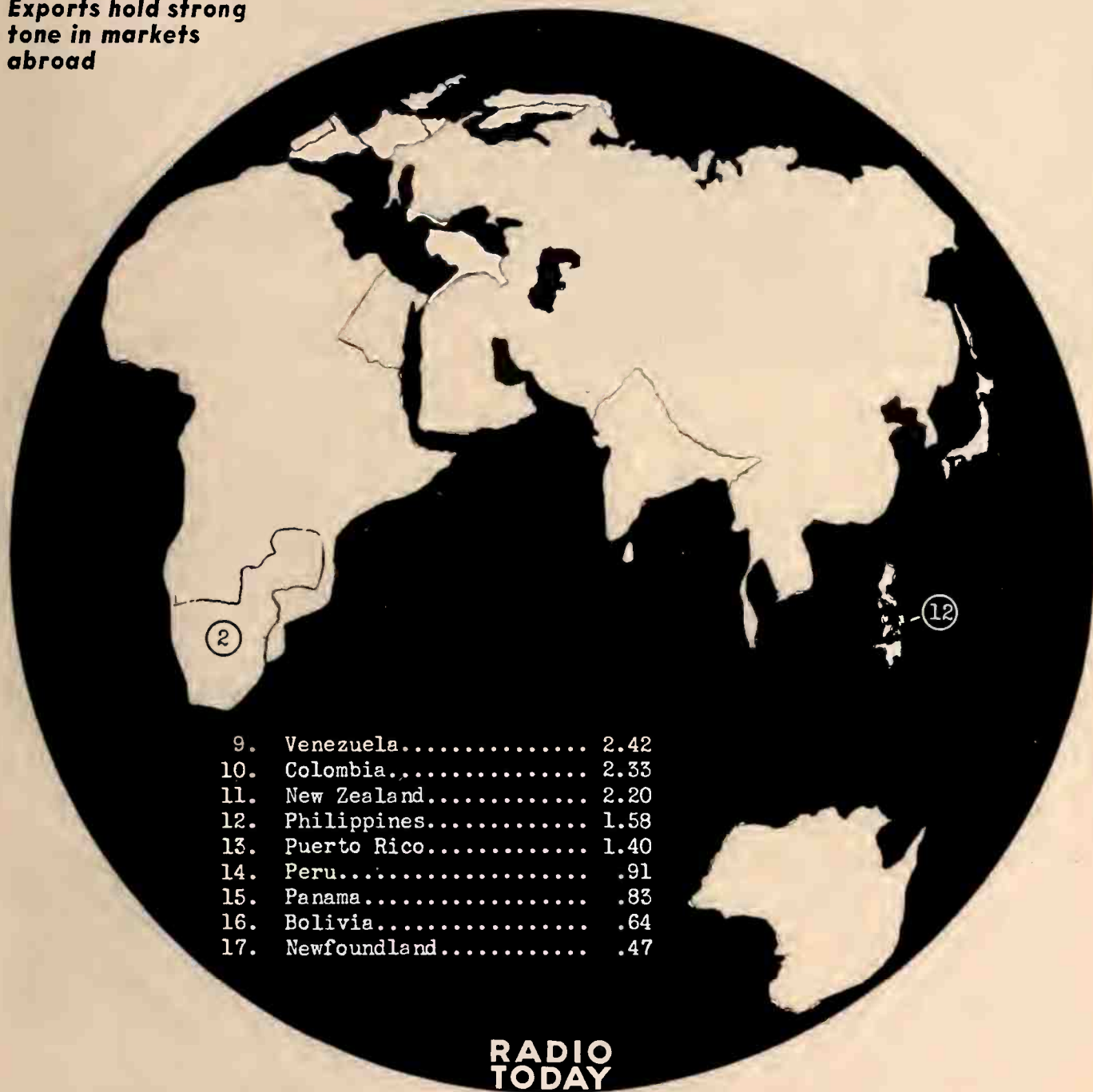
Twenty-six countries now account for 83.4 per cent of our total radio exports.

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.

Mod 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.)

American Radio Gets Nod in New Markets

Uncle Sam's sets equal to all war-time demands

Exports hold strong tone in markets abroad



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Clean-up

after Christmas

**What action to take on
those year-end stocks**

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 reduc-

tion, 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 thaw 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 go 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

FROZEN CAPITAL



Can Be Thawed via

1. Friendly sales next month.
2. Fresh displays throughout.
3. More contacts with prospects.
4. Traffic-building promotions.
5. Prompt handling of trade-ins.

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 Manufactures 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."



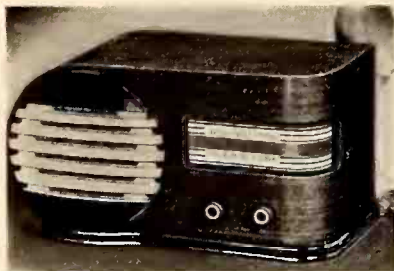
GE radio-phonograph console

Beauty plus is found in GE model HJ-628, a 6-tube radio-phonograph combination. Has console-grand walnut cabinet with full length lid, six feathertouch tuning keys, rotor manual volume control. The Beamscope eliminates aerial and ground. Phonograph features automatic control tone arm, crystal pickup.



Emerson table radio

★ Model CV-316, 5-tube, AC-DC superheterodyne. Standard American broadcasts. Inner-Ceptor loop antenna. Electro-dynamic speaker. Matched butt walnut cabinet. \$22.95. Emerson Radio & Phono. Corp., 111 Eighth Ave., New York, N. Y.—RADIO TODAY.



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.

Meet the New Year

New sets have more sales punch as winter-time broadcasts reach entertainment peak



Philco radio-phonograph compact

★ Model 502-122, radio-phonograph 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

★ RCA Victor Nipper model, one of new line of 11 models. Superheterodyne chassis. Receives domestic and foreign broadcasts. Music and speech tone control, Magic-Loop antenna. Electro-dynamic loud-speaker, automatic sensitivity control. 9¼ in. high, 13½ in. wide and 7¼ in. deep. RCA Mfg. Co., Camden, N. J.—RADIO TODAY.



Arvin portable superhet

★ Model 602A, 6-tube, AC portable with ivory plastic cabinet. Enclosed back. Phantom-scope built-in antenna. Permanent magnet speaker. 540-1,750 kc. \$18.95. Noblitt-Sparks Industries, Columbus, Ind.—RADIO TODAY.



Crosley AC-DC compact

★ Model 5519, a 5-tube superheterodyne. 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., 1329 Arlington St., Cincinnati, Ohio.—**RADIO TODAY.**



Sparton 5-tube superhet

★ Model 500-C, blue Cloisonné with ivory catalin. AC-DC, broadcast band, 540 to 1,700 kc. Automatic volume control, illuminated dial, 5 octal base tubes, full dynamic speaker. Grounded internally. \$22.50. Sparks-Withington Co., 2400 E. Ganson Ave., Jackson, Mich.—**RADIO TODAY.**



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. 36½ in. high, 36 in. wide and 14¹⁵/₁₆ in. deep. \$139.95. Philco Radio & Television Corp., Tioga & C Sts., Phila., Pa.—**RADIO TODAY.**

With New Models

Slick assortment of new receivers for the folks who crave the war news from Europe



Farnsworth plastic midjet

★ Model AT-11, 5-tube, AC-DC superhet. Airplane dial, 540-1,730 kc. Automatic volume control. Built-In-Tenna, 5 in. permanent magnetic speaker. Convenient handle, grille louvres. \$13.95. Farnsworth Television & Radio Corp., 3700 Pontiac St. extended, Fort Wayne, Ind.—**RADIO TODAY.**

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.





GE radio-phonograph console

Beauty plus is found in GE model HJ-628, a 6-tube radio-phonograph combination. Has console-grand walnut cabinet with full length lid, six feather-touch tuning keys, rotor manual volume control. The Beamscope 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-phonograph compact

* Model 502-122, radio-phonograph compact. Permits a closed lid while either 10 or 12 in. records are on turntable. Improved tone arm, 560-1700 kc. \$29.95. Malu body, plain silex 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

* RCA Victor Nipper model. one of new line of 11 models. Superheterodyne chassis. Receives domestic and foreign broadcasts. Music and speech tone control, Magic-Loop antenna. Electro-dynamic loud speaker, automatic sensitivity control. 9 1/4 in. high, 12 1/2 in. wide and 7 1/4 in. deep. RCA Mfg. Co., Camden, N. J.—Radio Today.



Emerson table radio

* Model CV-316, 5-tube, AC-DC superheterodyne. Standard American broadcasts. Lanes-Ceptor loop antenna. Electro-dynamic speaker. Matched hutt walnut cabinet. \$22.95. Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York, N. Y.—Radio Today.



Crosley AC-DC compact

* Model 6519, a 5-tube superheterodyne. 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., 1329 Arlington St., Cincinnati, Ohio.—Radio Today.



Sparta 5-tube superhet

* Model 500-C, blue Cloisonné with ivory catalin. AC-DC, broadcast band, 540 to 1700 kc. Automatic volume control, illuminated dial, 5 octal base tubes, full dynamic speaker. Grounded internally. \$22.50. Sparks-Withington Co., 2400 E. Garson Ave., Jackson, Mich.—Radio Today.



Philco console

* Model 201XX, replacing 200XX, features a new type of handling, made of plain silex walnut and hutt walnut border. 8 station push buttons. 3 wave bands. AC, 36 1/2 in. high, 36 in. wide and 14 1/4 in. deep. \$139.95. Philco Radio & Television Corp., Tioga & C Sts., Philadelphia.—Radio Today.

Meet the New Year With New Models

New sets have more sales punch as winter-time broadcasts reach entertainment peak

Slick assortment of new receivers for the folks who crave the war news from Europe



Arvin portable superhet

* Model 802A, 6-tube, AC portable with ivory plastic cabinet. Ed closed back. Phantom-scope built-in antenna. Permanent magnet speaker. 560-1760 kc. \$18.95. Nobilit er. Sparks Industries, Columbus, Ind.—Radio Today.



Farnsworth plastic midget

* Model AT-11, 5-tube, AC-DC superhet. Airplane dial, 540-1730 kc. Automatic volume control. Built-in-Tenna, 5 in. permanent magnetic speaker. Convenient handle. grille louvers. \$18.95. Farnsworth Television & Radio Corp., 3700 Pontiac St. extended, Fort Wayne, Ind.—Radio Today.

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.





W *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.

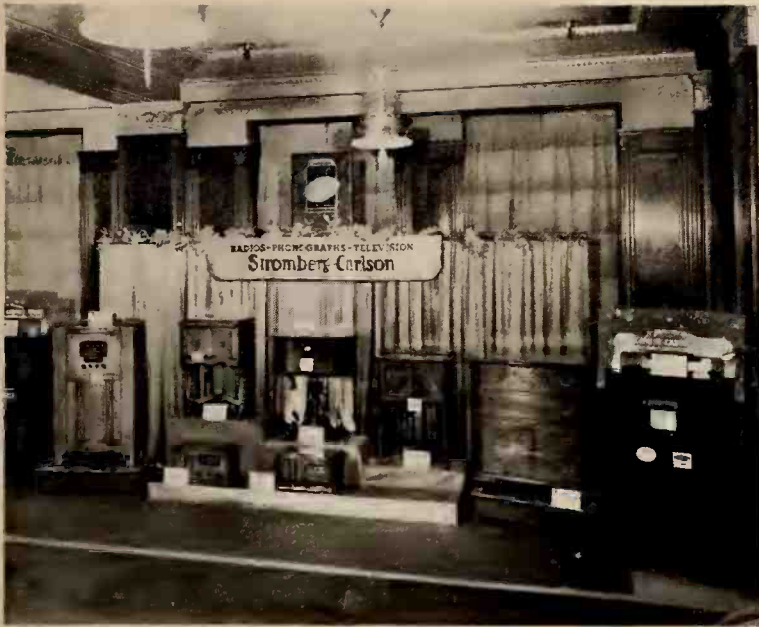
But we at Farnsworth consider this only a beginning! During the coming year, more and more radio dealers who join hands with Farnsworth will benefit by their decision. Our program for the coming year is now in preparation. You will find it *designed from the dealer's point of view* . . . a policy which 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*.

C. C. Nicolai

PRESIDENT

FARNSWORTH TELEVISION & RADIO CORPORATION . . . FORT WAYNE and MARION, INDIANA



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.

Ideas for Income

1. Cabinet style show.
2. Artists in person.
3. "Big names" stunt.
4. 6-ft. testimonial.
5. Giant tube display.
6. Civic show splash.



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.

Portable Profits in Winter



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.



Above, the Emerson DF-302, 6-tube superhet, matched walnut with inlays. \$39.95.

Centre, Crosley's automatic battery or AC-DC all-purpose superhet, five tubes.

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.



"WHEW! LOOKS LIKE EVERYBODY'S GETTING ONE OF THESE NEW RCA VICTOR LITTLE NIPPERS!"

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 large, Edge-lighted Dial . . . Pentode Beam Power Output for greater volume and purer tone . . . AC-DC operation . . . 5 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

Trade-mark "RCA Victor" Reg. U. S. Pat. Off.
by RCA Mfg. Co., Inc.



RCA Victor

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



Introducing the Monogram model, left, and the Royal Viking of the 1940 Norge Rollator line which comes in 4 series, 3 Royal Monogram Supreme (top models), 3 Royal Monogram Deluxe, 2 Royal Monogram and 4 Royal Viking. Capacities range from 3 to 8 cu. ft. Simple exterior design retained, improved Lazilatch door handle, neutral gray gaskets and interior throat lining. Improved Handefroster with tray which directs drip to spill-proof reservoir. All sliding shelves with guard rails in top models. Hydrovoir vegetable crisper, fruit drawer and basket, dairy and egg basket, have glass sliding tops. Double-width ice tray, rubber grids. Fast Freezer has ample space for storing packaged frozen foods. 5-piece set of crystal glass containers, 3 covered dishes, 2 beverage bottles with Deluxe models.

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 cars."

(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.

HAVE YOU HEARD ABOUT THE NEW GALE MERCHANDISING PLAN?

I LIKE TO DEAL DIRECT WITH THE FACTORY!

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.

THE NEW GALE IS A WOW!

I UNDERSTAND GALE IS THE SURPRISE OF THE YEAR!

THE BOSS TOOK ON GALE REFRIGERATORS. I'LL BET HE GOES TO TOWN!

GALE UNDERSTANDS WHAT DEALERS NEED!

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 _____



NEW REFRIGERATORS HAVE OOMPH!

(Continued from page 22)

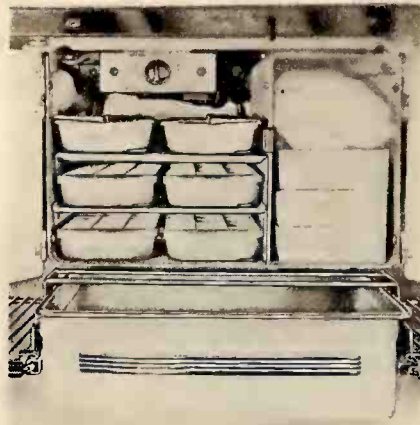
GALE HAS PROFIT PLANS

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



Close-up of the improved Freezorcold.

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 disfranchised.

New Distributions for Stewart Warner

Five new distributors have been announced for Stewart Warner refrigerators: R. B. Wall Co, Wilkes Barre, Pa.; The Forston Co., Houston, Tex.; E. B. Latham Co., Newark, N. J.; Jenkins Music Co., Oklahoma City, Okla.; and B. J. DeJarnatt, Fresno, Calif.

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 Shelvador 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 crisper 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.

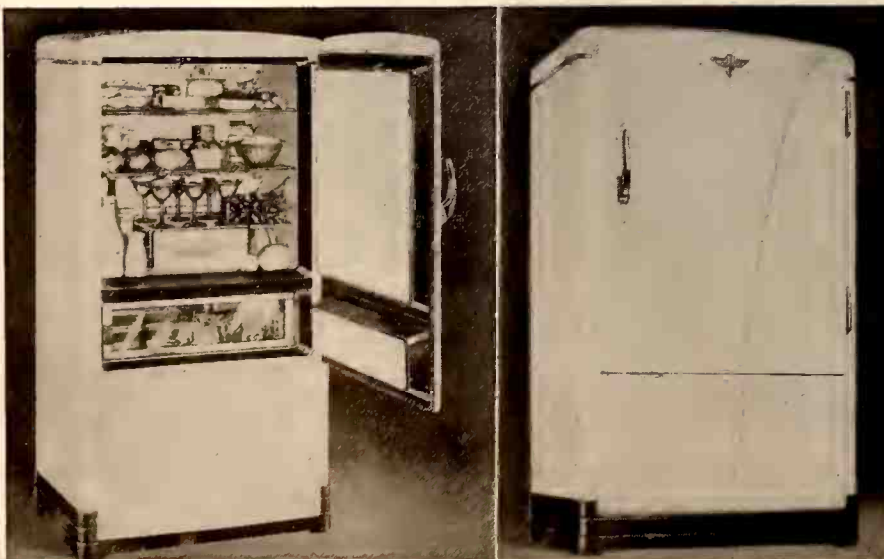
Brown of Philco Shifts Posts

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.

TUNG-SOL *Vibration Tested* **RADIO TUBES**

TUNG-SOL LAMP WORKS, INC. DEPT. C. RADIO TUBE DIVISION
SALES OFFICES: Atlanta Chicago • Dallas • Denver • Detroit Kansas City
Los Angeles • New York General Offices: Newark, New Jersey

New Radio Models



RCA combination

★ RCA Victrola model U-44 featuring the protecto-tone seal. Has high-power push-pull output, and a 3-band, 9 tube radio, with magic eye tuning indicator. Built-in loop antenna. 18th Century regency style cabinet in matched walnut veneers. Record storage space provided in cabinet. RCA Mfg. Co., Camden, N. J.—RADIO TODAY.

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-F-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-

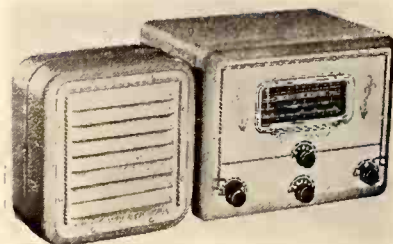


graph with crystal pick-up. Record changer changes eight 10, or seven 12 in. records. Mahogany console with doors concealing operating controls. \$599.50. Andrea Radio Corp., 48-20 48th Ave., Woodside, L. I., N. Y.—RADIO TODAY.



Lafayette 6-tube midget

★ Model D-73, antennaless, AC-DC superhet receiver. Dynamic loud-speaker, "beampower" output tube, built-in loop antenna. External antenna terminals provided, as well as phono and tele sound connections. 540-1,650 kc. Radio Wire Television, Inc., 100 Sixth Ave., New York, N. Y.—RADIO TODAY.



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. Karns-White Corp., 1775 Broadway, New York, N. Y.—RADIO TODAY.

Emerson CS-317 radio

★ Emerson table model superhet, AC-DC, 6 tubes. Miracle Tone chamber with 6½ in. electro dynamic speaker. Television terminal. Automatic volume control. Tone control. Figure-stripped walnut curved top and base. Matched butt walnut front. \$39.95. Emerson Radio & Phono. Corp., 111 Eighth Ave., New York, N. Y.—RADIO TODAY.

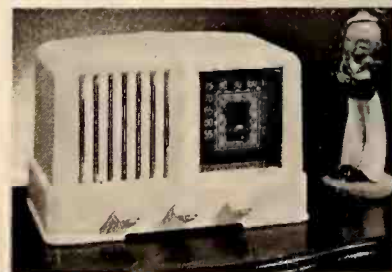


Majestic lowboy console

★ Model 3BC90-B, 9-tube superheterodyne with 6 permeability tuned stations and 3-wave bands. Touch tuning push button control. Magic eye assures sharp tuning. Automatic volume expansion, and automatic bass compensation. Hi-Q short wave loop for foreign and police reception. Stump and sliced cut matched walnut cabinet. Majestic Radio & Television Corp., 2600 West 50th St., Chicago, Ill.—RADIO TODAY.

Belmont all-purpose portable

★ Model 513, Belmont battery, AC-DC portable. 5 tube, superheterodyne. Dynamic speaker. Counter-sunk controls. 540-1,550 kc. A.V.C. Two-tone walnut wood cabinet. Suede zipper case available. Belmont Radio Corp., 1257 W. Fullerton St., Chicago, Ill.—RADIO TODAY.



RCA little nipper model

★ RCA Victor model 46X12, one of new Little Nipper line of 11 models. All feature built-in antennas, electro-dynamic loudspeakers, beam power output, superheterodyne chassis. Some wood, others plastic. Range from \$9.95 to \$24.95. 46X12 has 5 tubes, plus ballast resistor, 3-color dial, music and speech tone control, automatic volume control. Extra-large Magic Loop antenna. Natural antique ivory plastic cabinet. RCA Mfg. Co., Camden, N. J.—RADIO TODAY.

Holiday Greetings

WE 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.



H Y G R A D E S Y L V A N I A C O R P O R A T I O N
EMPORIUM • SALEM • ST. MARYS

PHILCO

announces
that make



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.

\$29⁹⁵
Complete
with Batteries



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.

\$19⁹⁵



PHILCO 502 Radio-Phonograph

{Left}. Plays 10" and 12" records with lid closed. Noiseless, self-starting phonograph motor. Tone Control for records, Volume Control for both radio and phonograph. Powerful, fine-toned, 5-tube radio. Attached Aerial . . . no ground needed. Approved by Underwriters' Laboratories. Inlaid Walnut cabinet.

\$29⁹⁵

Dealers everywhere agree that Philco year's "hottest" line . . . offering more bigger values and the greatest assortment every price. And now, just when you need stimulus, Philco brings you thrilling new CABINETS that make its line "hotter"

Study the new Philcos pictured here . . . they're only *part* of the most popular, most profitable line in radio history!

See Your Philco Distributor



PHILCO 145T. The handsomest forming *low-priced* American and Foreign ever offered! Built-in Super Aerial System and *Twin-Loop* Aerial. Carry it from room to room, plug in anywhere, play! Electric Push-Button Tuning. Lovely Walnut cabinet.

PHILCO 140T. In same cabinet but with Manual Tuning.

Philco All Year 'Round for Profits All

nsational new MODELS...new CABINETS

Hottest Line in radio *Still Hotter!*

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**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.

\$189⁹⁵

**PHILCO 201XX
New Beauty . . .
Top Performance!**

{Right}. A "sell-up" model in a new cabinet of exquisite beauty! Built-in Super Aerial System with 11 tubes and Twin-Loop Aerial for super-performance on both American and foreign stations. Just plug in anywhere and enjoy powerful, pure-toned reception! Electric Push-Button Tuning. Inclined Sounding Board cabinet of sliced and but Walnut.

\$139⁹⁵



Western Prices Slightly Higher

ear 'Round

HOME RADIO • AUTO RADIO • TELEVISION • PHONOGRAPHS • RADIO TUBE PARTS • REFRIGERATORS • AIR CONDITIONERS • DRY BATTERIES

PHILCO

introducing sensational new MODELS... new CABINETS that make the *Hottest Line* in radio *Still Hotter!*



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.

\$29⁹⁵

Complete with Batteries



PHILCO 502 Radio-Phonograph

(Left). Plays 10" and 12" records with lid closed. Noiseless, self-starting phonograph motor. Tone Control for records, Volume Control for both radio and phonograph. Powerful, fine-toned, 5-tube radio. Attached Aerial... no ground needed. Approved by Underwriters' Laboratories. Inlaid Walnut cabinet.

\$29⁹⁵

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.

\$19⁹⁵



Dealers everywhere agree that Philco for 1940 is the year's "hottest" line... offering more 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 "hotter" than ever!

Study the new Philcos pictured here. And remember... they're only part of the most popular, most salable, most profitable line in radio history!

See Your Philco Distributor NOW!



PHILCO 145T. The handsomest-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 in anywhere for play! Electric Push-Button Tuning. Lovely Walnut cabinet.

\$39⁹⁵

PHILCO 140T. In same cabinet but with Manual Tuning.

\$35⁰⁰

Western Prices Slightly Higher



PHILCO 201XX New Beauty... Top Performance!

(Right). A "sell-up" model in a new cabinet of exquisite beauty! Built-in Super Aerial System with 11 tubes and Twin-Loop Aerial for super-performance on both American and foreign stations. Just plug in anywhere and enjoy powerful, pure-toned reception! Electric Push-Button Tuning. Inclined Sounding Board cabinet of sliced and butt Walnut.

\$139⁹⁵

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.

\$189⁹⁵



Philco All Year 'Round for Profits All Year 'Round

PHILCO SALES CO. • 300 N. LAUREL ST. • CHICAGO, ILL. • PHILCO SALES CO. • 300 N. LAUREL ST. • CHICAGO, ILL. • PHILCO SALES CO. • 300 N. LAUREL ST. • CHICAGO, ILL. • PHILCO SALES CO. • 300 N. LAUREL ST. • CHICAGO, ILL.

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.



Music hath charms — as this World's Fair merchant discovered selling toy saxophones. The "Beer Barrel Polka" poured through the speakers above the arch as sales soared. Sure-fire arrangement for store departments, etc. Make up several small sound systems with phono for rental to exposition booths, etc.





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 vesper 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.

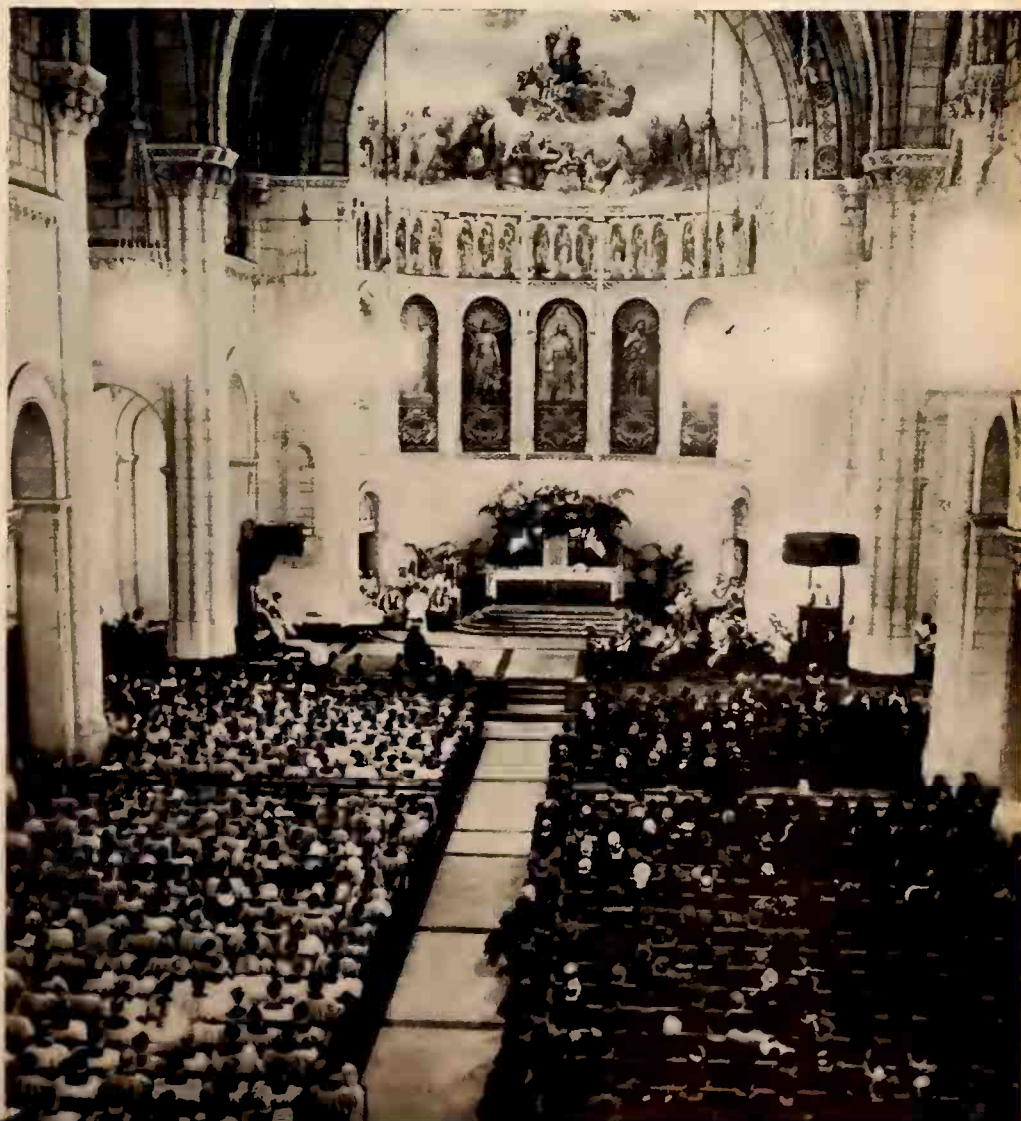
It was found that the congregation from about the center of the church

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.

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

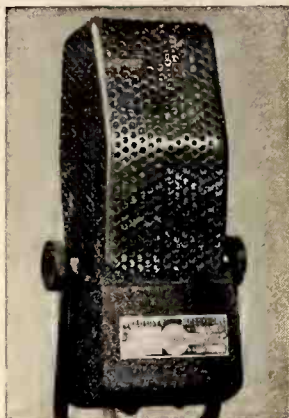
at all of the Masses hears everything that is said.

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.



New Sound Products

New equipment for every sound job



Carrier velocity mike

★ Model 300-V velocity microphone is designed especially for locations troubled with feedback. Stand or suspension mount, rubber shock insulation. Complete with 20-ft. shielded cable. Available in 200 and 500-ohm impedance. Carrier Microphone Co., 15 E. 26th St., New York, N. Y.—RADIO TODAY.



Amperite kontak mike

★ Model KKH is new streamlined contact microphone with built-in volume control. Up to four mikes may be paralleled to one input and each controlled separately. Easy to attach to violin, guitar, piano, etc. Amperite Co., 561 Broadway, 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

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 \$76.47. Transformer Corp. of America, 69 Wooster St., 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 mikes 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.

Philco wireless record player

★ Two-speed commercial type wireless record player for standard 78 rpm. and 33 1/3 rpm. of 10, 12 and 16 inch sizes. Oversize motor, crystal pick-up, oscillator-modulator chassis. Walnut cabinet. Philco Radio & Television Corp., Tioga & C Sts., Philadelphia, Pa.—RADIO TODAY.



Turner crystal mike

★ Model 44X microphone with selective directional pick-up. 13-15 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.



Amplifier Co. 30-watt PA

★ High-fidelity 7-tube amplifier rated at 30-watts 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 33 1/3 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, 6F6, 6V6, and 6L6 respectively. Kenyon Transformer Co., 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 1,500-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 39th 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 are readily prove profitable to sound men. Bus terminals, trucking centers, large garages, etc., are all good prospects for announcing and call systems.

REVOLUTIONARY

MIKE

proves ideal
for P. A. use



7 REASONS WHY:

1. Cardioid Directional
2. 120° equal pick-up
3. No feedback
4. Subdued audience pick-up
5. New clarity
6. High fidelity
7. Unequaled control

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.



Western Electric
**CARDIOID
DIRECTIONAL MIKE**

GRAYBAR ELECTRIC CO., Graybar Bldg., New York.
Please send booklet describing Western Electric's
New 639A Mike. RT-12-39

NAME.....
ADDRESS.....
CITY..... STATE.....



Sweet and
(WITH ACCENT ON THE)
LOW

"When the organ plays at twilight" can you still hear the LOW notes when the volume is turned down? With Old Man Centralab at the console you get true tone compensation . . . for his Standard and Midget Radiohms are available with 1, 2, or 3 taps to match the original control.

Wherever tapped controls are indicated be sure to use Centralab with the long straight resistor strip that gives smooth accurate attenuation throughout the entire circumference.

Old Man Centralab suggests:

With short wave listening on the up, Centralab Wave change switches do the trick . . . better.



Centralab

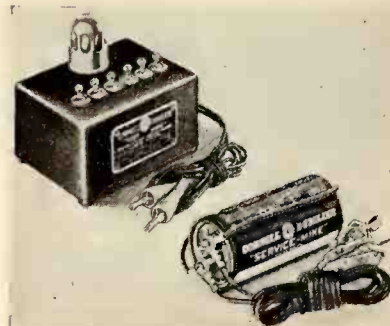
Div. of Globe-Union Inc.
MILWAUKEE, WISC.

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

★ Type SB tubular cardboard dry electrolytic condensers. Spade bolt mounting, standard Sprague sealed type construction. 8-8 mfd., 450 v. unit, 8-16 mfd, 450 v., 12-16, 200 v. Sprague Specialties Corp., Beaver St., North Adams, Mass.—RADIO TODAY.

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

★ Prong-base midget can electrolytic capacitors, for compact assemblies and replacements. Hermetically sealed. Safety vent. Negative can. Single and multiple-section units. Mounting prongs slip into elliptical fibre supporting washer, rivetted on chassis, and bent over. Aerovox Corp., New Bedford, Mass.—RADIO TODAY.

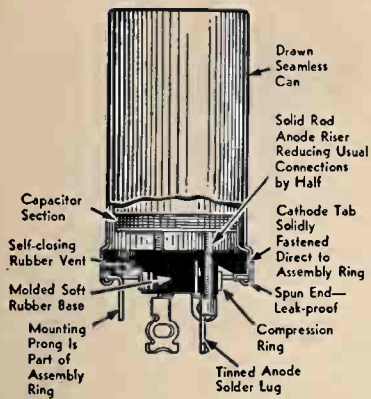


Ohiohm resistors

★ 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

★ Model O77T, television signal generator supplies horizontal and vertical blanking, synchronization, and serrated wave forms locked with 60-cycle line. Video signs of both polarities are supplied. Push-button tuning of 7 channels between 44 and 108 mc. Philco Radio & Tel. Corp., Tioga & C Sts., Philadelphia, Pa.—RADIO TODAY.



Solar capacitor

★ New dry electrolytic capacitor has soft rubber molding through which all terminals are passed. Features improved RF characteristics, thorough sealing, freedom from cause of intermittents. Solar Mfg. Corp., Bayonne, N. J.—RADIO TODAY.



Dumont ceramic condenser

★ New tubular condenser, ceramic sealed. Compact; no larger than paper types of equal rating. Fireproof, salt air proof. Available with straps for solid mountings. Capacities from .00025 to .5, 100 v. to 2,000 v. Dumont Electric Co., Inc., 514 Broadway, New York, N. Y.—RADIO TODAY.

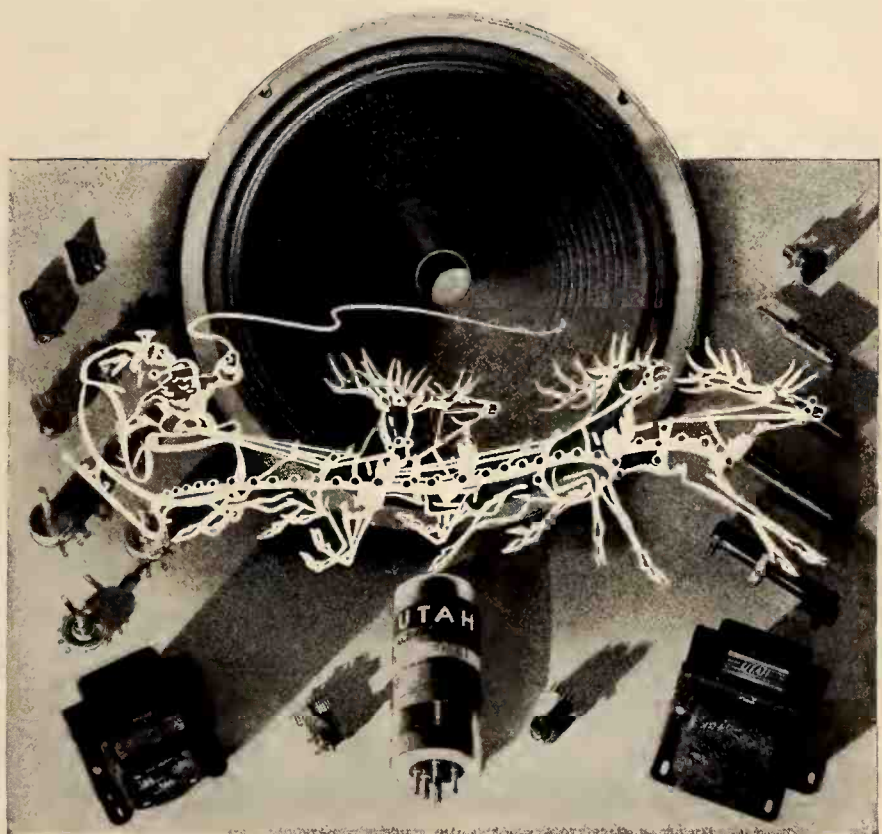
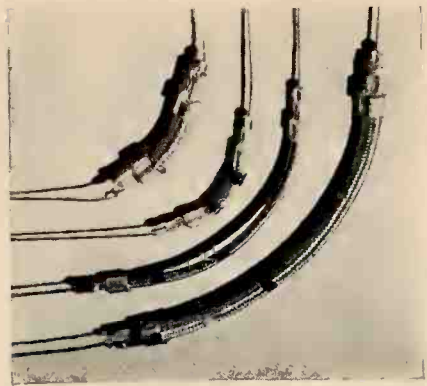


Amphenol molded socket

★ Designed to fit the new RCA all-glass miniature tubes. Black bakelite; 7 contacts arranged in 3/8 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., 285 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.

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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

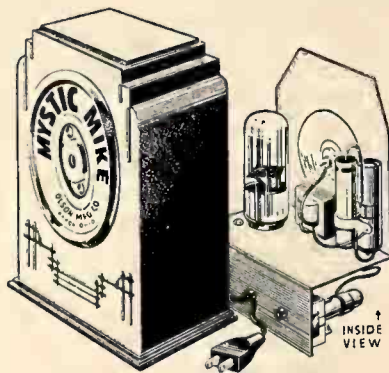
Export Div.: Rocke Int. Elec. Corp., 100 Varick St., N. Y. C.
Cable: ARLAB

More New Things



Bell-Howell "Ready Rest"

★ Candid "ready rest" case for Filmo 141 16 mm. camera. Camera is screwed to a tongue, attached to the case. When in use, the body of the case forms a camera rest against the chest for greater steadiness. \$6.00. Bell & Howell Co., 1801 Larchmont Ave., Chicago, Ill.—RADIO TODAY.



Olson wireless mike

★ Two models of wireless microphones which operate through regular radio tuned to frequency of oscillator in unit. Equipped with carbon mikes. For AC or DC operation. Standard model, \$6.60 and deluxe model \$9.95 list. Olson Mfg. Co., 362 Wooster Ave., Akron, Ohio.—RADIO TODAY.

"Anodized" tripod

★ Lafayette aluminum tripod with heavy-gauge, seamless tubing, telescoping legs. Adjusts up to 62 in. Broad top aluminum surface. Handle-grip type camera-mount screw. 2-section model, \$8.49; 3-section, \$9.95. Camera division, Radio Wire Television, Inc., 100 Sixth Ave., New York.—RADIO TODAY.

C-D type FA capacitor

★ For low-voltage applications, "A" eliminators, rectifiers, and dynamic speaker installations Cornell-Dubilier offers type FA capacitor. FA-1220 provides 2,000 mfd. at 12 v. and measures 1 3/8" x 4 1/8". Aluminum cans. Screw terminals. Made for working voltages of 12, 15, 18, 25 and 35 volts; 500, 1,000 and 2,000 mfd. Cornell-Dubilier Elec. Corp., South Plainfield, N. J.—RADIO TODAY.



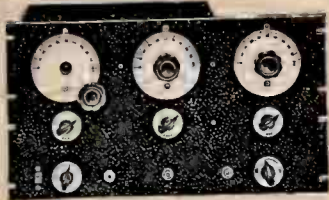
Jefferson power transformer

★ High voltage power transformer delivers 2,000 volts at 1.5 ma. for television service. Also 6.3 volts at 0.6 ma. and 2.5 volts at 2.1 amps. For use on 5-inch cathode ray tubes and monoscope tubes. Free from corona disturbance. List price, \$6. Jefferson Electric Co., Bellwood, Ill.—RADIO TODAY.



Arcturus tubes

★ Three new tube types. 3A8GT, Diode-Triode detector, amplifier. Filaments may be operated in series at 2.8 v., or in parallel, 1.4 v. 117Z6GT, midget high vacuum full-wave rectifier; uses 7-pin octal base. Type 117L7GT, midget rectifier-beam power amplifier for output-half wave rectifier service in AC-DC battery receiver combinations. Arcturus Radio Tube Co., 720 Frelinghuysen Ave., Newark, N. J.—RADIO TODAY.



Browning e.c. exciter kit

★ New three tube RF exciter delivers 35 watts in any part of amateur bands from 10 meters to and including 160 meters. Circuit may also be crystal controlled. ECO stability comparable to X-cut crystal. Band switching. Browning Labs., Inc., 750 Main St., Winchester, Mass.—RADIO TODAY.



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.

Ken-Rad tube

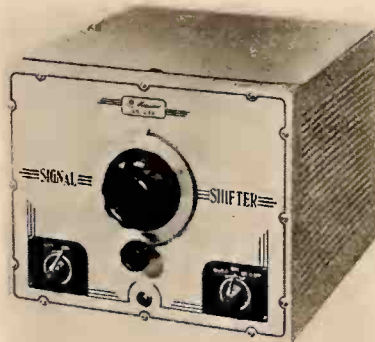
★ Addition to line is 3Q5GT, a split filament tube for operation on 1.4 or 2.8 volts. Beam-power output tube with T9 bulb, octal base. Ken-Rad Tube and Lamp Co., Owensboro, Ky.—RADIO TODAY.

Wabash Photolamp

★ Safety film covering prevents shattering of glass. Colored spot on top of bulb gives check on condition before using. Hydronalium wire held in proper position by asbestos disk. Wabash Photolamp Corp., 335 Carroll St., Brooklyn, N. Y.—RADIO TODAY.

Radio City service instrument

★ Model 801 combines tube tester, and multi-meter into single 12 x 12½ 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.



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.

A World Famed Name

DEWALD

Proven Quality Since 1921

unveils
its **1940**
LEADERS



Foremost in a brilliant array is the standout model 538L pictured above. Like all DeWALD radios it has style in abundance . . . tone and performance are unsurpassed, even in much higher-priced radios. Features are—Superheterodyne AC-DC Bantam, Five tubes, Low current consumption, Vernier tuning, illuminated dial; Has LOOPTENNA, Needs no aerial or ground. Range: (170-555 Meters.) Plastic cabinet. Width: 7¾", in Walnut and Ivory. Also available with short wave.



Model C500—Special features are: Superheterodyne AC-DC-Slide rule dial; Push button AUTOMATIC TUNING; Automatic volume control; 5" P.M. dynamic speaker; LOOPTENNA. Needs no aerial or ground. Hand-rubbed cabinet. Width: 13". Range: (170 to 555 Meters.)



Model 704—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.)

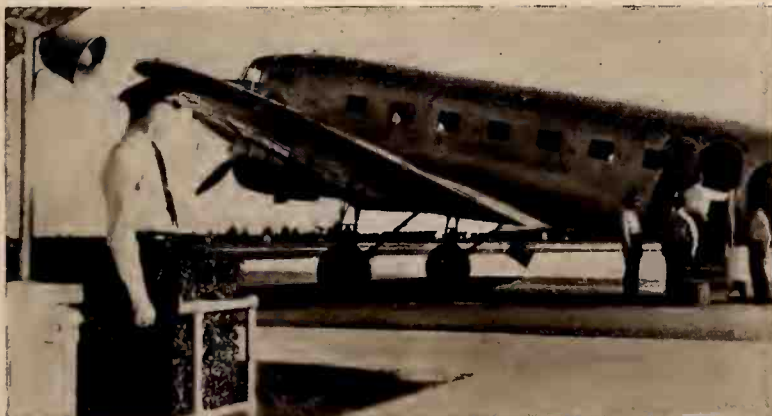
DeWALD, in 1940, will have a larger consumer acceptance than ever . . . it is a larger, more versatile line even than in the past . . . and in its models we have incorporated VALUE—STYLE—PERFORMANCE and STABILITY. . . . Write for complete catalog.

DEWALD RADIO MFG. CO.

440 LAFAYETTE STREET, NEW YORK, U. S. A.

Licensed by RCA, Hazeltine, etc.

Cable Address: DAWWALD 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.

LET'S LOOK AT

The Record

Developments in this field make the dealer's record counter a place for customers to flock.

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 Royale 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 brisk platters such as "Billy" by Lang Thompson and his orchestra (8109) and "She Really Meant to Keep It" by Johnny Messner 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 P-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 2823.

CHICK BULLOCK and his Levee Loungers playing Are You Havin' Any Fun, with vocal by Mr. Bullock—Vocalion 5125.

HORACE HEIDT and his Musical Knights playing Piggy Wiggy Woo, with complete vocal chorus—Columbia 35290.

BLUE BARRON and orchestra playing It's a Whole New Thing, with vocal by Charlie Fliher—Bluebird B10487.

BOB CROSBY'S Bob Cats playing The Love Nest—Decca 2825.

KAY KYSER and orchestra playing Happy Birthday to Love, with vocal by Ginny Simms and Harry Babbitt—Columbia 35238.

BOB ZURKE and his Delta Rhythm Band playing Cuban Boogie Woogie—Victor 26411.

OZZIE NELSON and orchestra playing Three Foot Skipper Jones, with vocals by Harriet Hilliard and Mr. Nelson—Bluebird B10499.

MATTY MALNECK and orchestra playing Carnival of Venice—Columbia 35299.

BRUNSWICK SALON ORCHESTRA playing Strauss waltzes Artist's Life and Emperor Waltz—Brunswick 8474.

sized by Victor. One of them concerns the new Victor Herbert records by Allan Jones, which fits in with the current interest in the musical movie, "The Great Victor Herbert." It's a Paramount movie, and the film com-

pany is helping its theater managers to work with record dealers on the tie-up.

Another 3-ply promotion is under way between the RKO movie, "Abe Lincoln in Illinois," the road company which is touring the country with the play version, and the Victor recordings of Raymond Massey's highlight passages.

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 Caresser," "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 Five 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.

The RECORD BAR you've been waiting for!

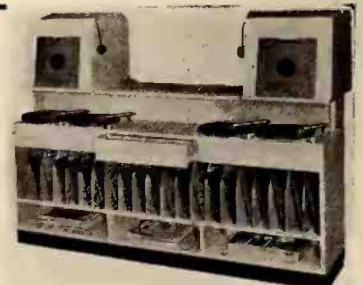
THE COMPLETE RECORD DEPT. IN THE SPACE REQUIRED BY AN ORDINARY COUNTER AT A COST OF 25% OF THE USUAL RECORD DEPT.

← FRONT VIEW BACK VIEW →

- 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.
- Provided with record bins to hold 500—either 10" or 12" records and albums.
- Four listening stations with separate turntables and amplifiers. Two earphones and two speakers. (Available with or without EQUIPMENT.)
- Enclosed glass showcase for display of albums, accessories.
- Provided with needle and accessories drawer; space for wrapping material.
- Latest releases under glass in each listening station.
- Standardized design. Add-a-unit when necessary. Retain original intact.

A. BITTER CONSTRUCTION CO., 2701 Bridge Plaza No., Long Island City, N. Y.
EST. 1920

Send for Free Folder





Pictured above is the new record merchandiser, designed by RADIO TODAY 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 13 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 I. 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. Koon, Ph.D., who has joined the staff of Universal Microphone Co., Inglewood, Calif., for that purpose. Dr. Koon, 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



Model AB-8

New advanced design incorporating such important features as Spring-Axial Cushioning, Astatic's famous Type B (bakelite encased) Cartridge with new internal damping to assure permanence, a Bender Crystal element with "Ebonite" water-proof coating, and last but not least, a massive new die-cast arm. Accommodates 10" and 12" records. Convenient threaded stud base. Eight-inch mounting centers. Standard finish, statuary bronze with chrome trim. Complete with 4-ft. cable and arm rest. List price..... **\$10**

See Astatic Jobber
or Write for Catalog No. 12

**ASTATIC MICROPHONE
LABORATORY, INC.**

Youngstown, Ohio
*Astatic Crystal Products Licensed Under
Brush Development Co. Patents*

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

RECOTON

CORPORATION

Export Division

178 Prince Street, N. Y., U. S. A.

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

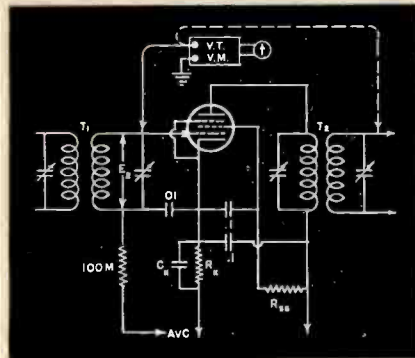


Fig. 1—Typical IF stage with all necessary components. Stage gain is checked by measuring the IF voltage before and after the stage. DC bias voltage must be blocked out of VTVM.

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, T_1 . 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 f_0 , the transformer will also indicate peaks at f_1 and f_2 . 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, f_1 and f_2 , 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

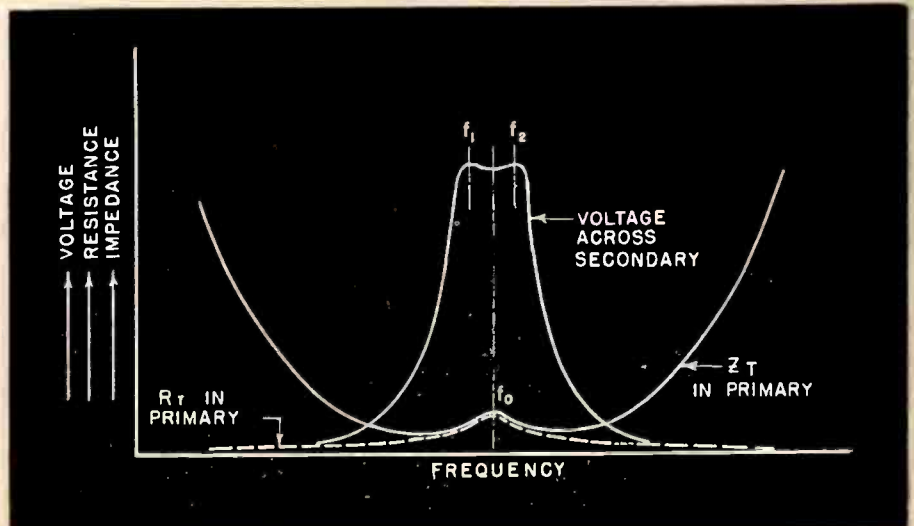


Fig. 2—Characteristic curves for double tuned IF transformers. The impedance in the primary is resistance at resonance, usually about 50M ohms. Difference between f_1 and f_2 depends upon degree of coupling. Mistuned primary or secondary makes peaks different heights.

that includes the frequency, factor of coupling, and the impedance of the secondary. With very close coupling, a small resistance in the secondary will reflect several hundred times that 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 addition of a third winding to the transformer. This winding is grounded electrically or left floating. Such tertiary windings make it possible to couple the primary and secondary closer 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 of it 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 separated.

The first step in testing a faulty IF stage is a 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 being used. In case 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 transformer windings that are partially shorted or open. This crackling 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 than the air core type, and broad-band high fidelity transformers will have a lower gain than the usual types.

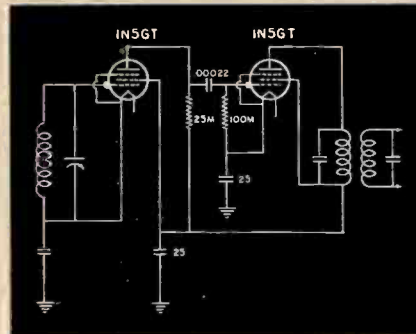


Fig. 3—Resistance coupling used in Emerson portable DF-302-306 IF stages.

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 and 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 a 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 voltage 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 trimers, the curves may be made to coincide and "straddle" the fundamental IF frequency.

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. In 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 1852-1853 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 sets, 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.

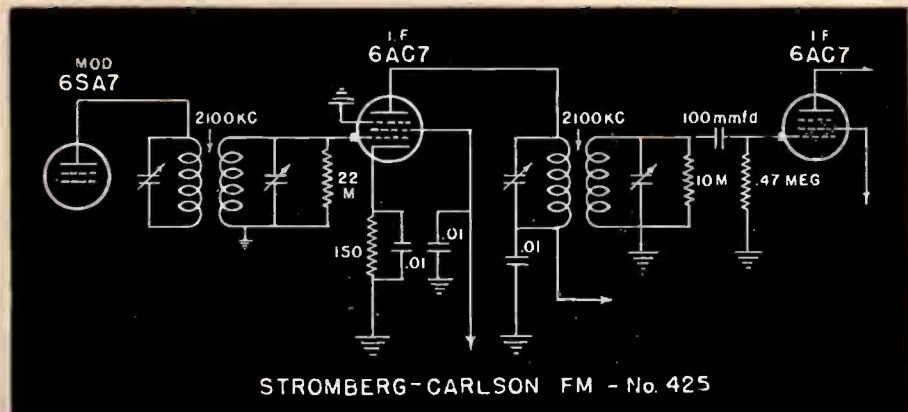
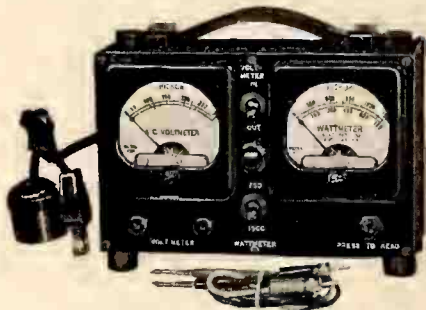


Fig. 4—Wide band IF amplifiers used in frequency modulation receiver. 22M and 10M resistors broaden the characteristic to pass ± 100 kc. High intermediate frequency of 2.1 mc permits selectivity with the wide band-pass.

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 electro-dynamometer 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., 10514 Dupont Ave., Cleveland, Ohio.—RADIO TODAY.

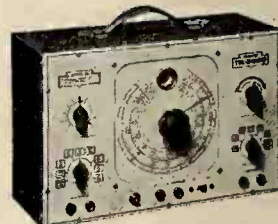
Simpson signal generator

★ Model 310 signal generator employs stable electron coupled circuit with RF output from ½ micro-volt 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 cover the range from 75 kc. to 30 mc. Coils are wound on ceramic forms 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 megs; 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.

Take along a
"LAB"
and sell
MORE service



MODEL 1604 SET TESTER

● You are "ready for anything" when you back up your service with this Super Set-Tester. Look it over and see for yourself that the sure way to better service profits is through more service.

Model 1604 features twelve AC and DC voltage ranges; 0-10-50-250-500-1000-2500 (DC at 25,000 ohms per volt; AC at 1000 ohms per volt); 0-50 DC Microamperes; 0-1-10-50-250-500 DC Milliampere; 0-1-2-20 DC Amperes; 0-500 Low Ohms; 0-20,000, 0-200,000 ohms, 2 and 20 megohms. Complete Free Point Tester makes all series and parallel meter connections through seven sockets, including Loctal and Bantam Jr. types; Condenser tester and provisions for Decibel readings. . . . Exclusive Resistance Measurements Circuit (Patented), with only one adjustment for all resistance ranges. Dealer Net Price.....\$49.84

WRITE FOR CATALOG!
Section 1911, Harmon Avenue

THE TRIPLET ELECTRICAL INSTRUMENT CO.
Bluffton, Ohio



Has
RED • DOT
Lifetime
Guaranteed
Indicating
Instrument

ONLY
\$49.84

Dealer
Net Price

MODEL 1200-A

Volt - Ohm - Milliammeter with 2000 ohms per volt D.C. Voltage ranges. Dealer Net Price.....\$23.84

MODEL 1200-E

Volt-Ohm-Milliammeter with 25,000 ohms per volt D.C. voltage ranges; D.C. Current, A.C. volts and ohms readings. Dealer Net Price..\$31.17

Hexacon soldering irons

★ Hexacon electric soldering irons, 3 sizes, 60, 120 and 170 w. Screw type tip. Nickle-chromium resistance wire and mica used in element construction, housed in damage-proof solid hexagon steel barrel. \$5.50 \$7.00, and \$9.25. Hexacon Elec. Appl. Corp., 161 W. Clay Ave., Roselle Park, N. J.—RADIO TODAY.



Radio City multi-tester

★ Model 445 AC-DC tester measures DC voltages to 2,500, AC voltages to 1,000, DC mills to 1,000 and amps to 10, resistance to 1 meg, DB from —8 to plus 55. Self-contained in 3 x 8½ 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

★ Type 013 vibrator tester checks all types of synchronous and non-synchronous vibrators. Two pilot lights flicker with equal brilliancy for the non-synchronous types and four lights appear for the synchronous types. A complete instruction sheet lists all makes and models of auto radio receivers and vibrators. Philco Radio and Television Co., Tioga and C Sts., Philadelphia, Pa.—**RADIO TODAY.**

Durakool mercury switch

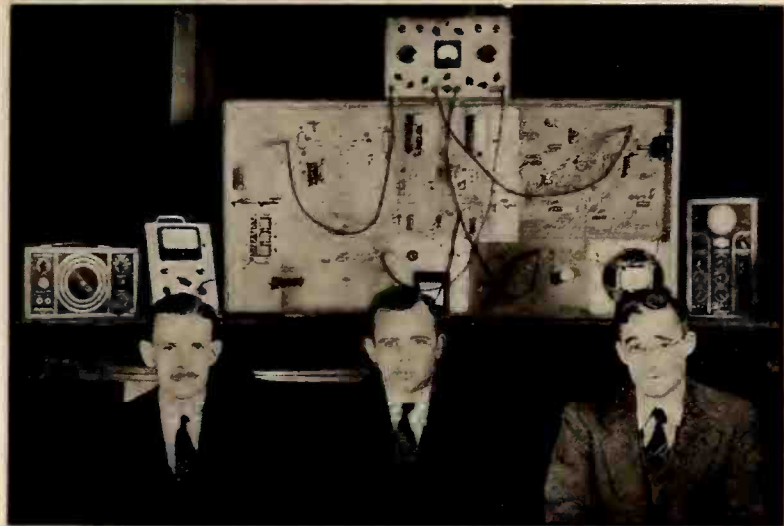
★ Silent, unbreakable, non-inflammable metal mercury switch with two double reduction agents, which increase its efficiency and reliability. 40 to 200 amperes. Operates with small tilt with little energy. Allows many new applications from wall switching to motor starting. Durakool, Inc., Elkhart, Ind.—**RADIO TODAY.**

Lectrohm soldering pots

★ Two electrically heated solder pots for tinning small electric wires. Single heat units. 110 v.,



AC-DC. Cast iron pot (1¾ 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 voltohmmeter, 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**

UNI-DIRECTIONAL COMPENSATOR UP

BI-DIRECTIONAL COMPENSATOR DOWN

PUSH UP TO INCREASE HIGHS, PUSH DOWN TO INCREASE LOWS

- (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: RBHk (hi-imp); RBMk (200 ohms), chrome or gunmetal, LIST \$42.00 . . . RSHk (hi-imp), RBSk (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 Co. 561 BROADWAY, N. Y., U. S. A.

CABLE ADDRESS
ALKEM, NEW YORK

AMPERITE MICROPHONES

Service Notes

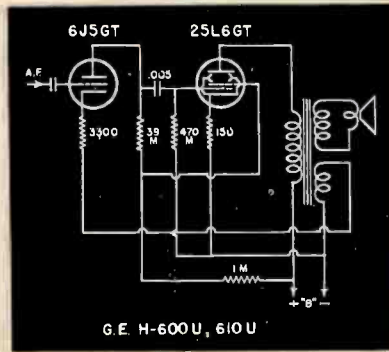
Stewart-Warner Models O3-5C and O1-5D

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 IF 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 455 kc and adjust 2nd transformer first for maximum response. Align first IF transformer. Adjust 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.

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 5½ x 13¼ inches. Thirteen major headings and more than forty sub-heads completely check the condition of any radio receiver.

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 90 types of tubes. Of these 90 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 radio 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.

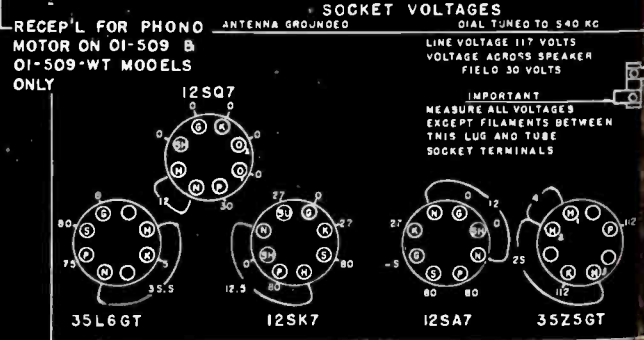
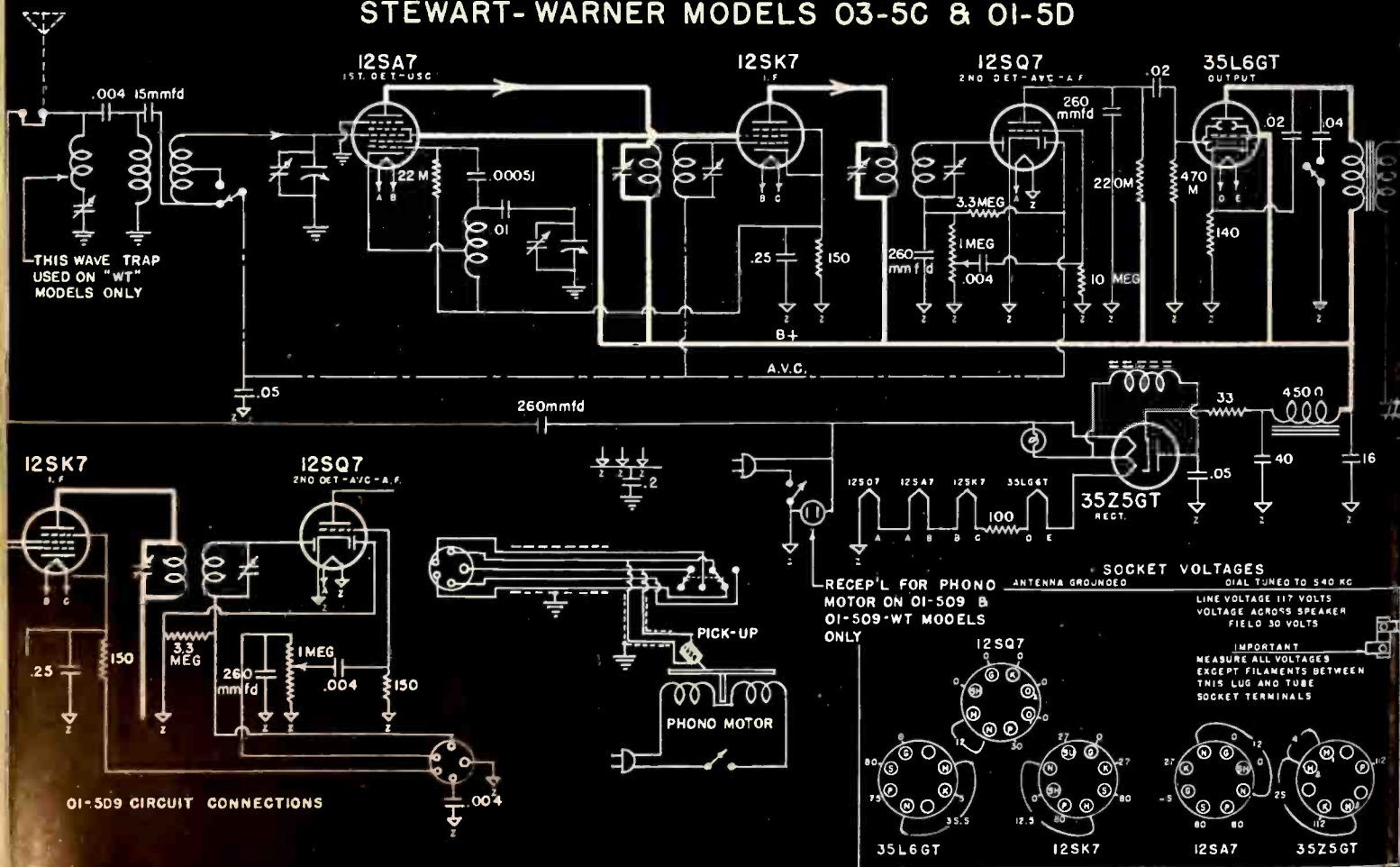
METAL

(6.3v)	(12.6v)
6H6	12SA7
6J5	12SC7
6SA7	12SJ7
6SC7	12SK7
6SF5	12SQ7
6SJ7	12C8
6SK7	
6SQ7	

GLASS

Non-octal GT (6.3-50v)	GT & G (1.4v)	G
2A3	6J5-GT	1A7-GT
6U5/6G5	6K6-GT	1D8-GT
	35L6-GT	1G4-G
	35Z5-GT	1G6-G
	50L6-GT	1H5-GT
		1N5-GT
		3Q5-GT
		5U4-G
		5Y3-G
		6BB-G
		6F6-G
		6N7-G
		6R7-G
		6V6-G
		6X5-G

STEWART-WARNER MODELS O3-5C & O1-5D



REAR OF CHASSIS

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 twice the capacity of the tuning condenser, and would therefore be used at the low frequency end, where 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 of necessity 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.

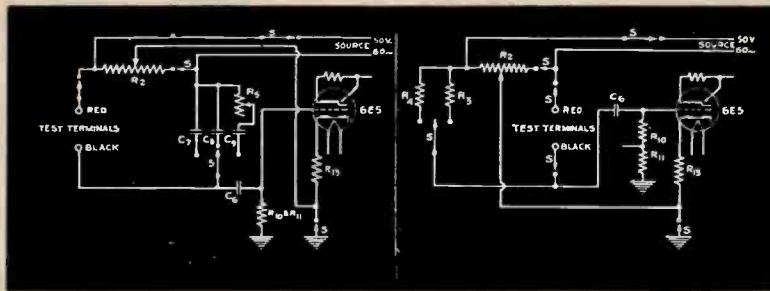
Capacity is measured with this instrument in a Wein bridge circuit. Six direct reading ranges provide measurement from 10 mmfd to 2000mfd. The portion of the Exam-eter employed in the capacity bridge is shown in the left hand of the diagram. A source of 50 volts AC is applied across the calibrated potentiometer R_2 , which is paralleled by the standard capacity C_7 , C_8 , or C_9 , in series with the test capacity. The 6E5 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_2 are equal, the eye will open and indicate a balance. Capacity is read directly from the dial. The resistor R_4 is a power factor balance used for electrolytic capacitors only. It is calibrated in power factor up 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 megs in two steps.

Capacitor leakage is indicated on the 6E5 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 a 6H6 rectifier mounted in a test prod, a balance bridge, and the 6E5 indicator.



Capacity and resistance Wein bridge circuits used in the Solar component analyzer. Electronic eye indicates balance.

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!



YOU BUY THIS

YOU ALREADY HAVE THESE

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 2,000 mfd.

Measures resistance from 0.5 ohms to 5 meg.

Analyzes ALL condenser types at exact working voltages.

SPRAGUE TEL-OHMIKE

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.

SPRAGUE

A NEW PRODUCT BY THE MAKERS OF FAMOUS SPRAGUE CONDENSERS AND KOOLOHM RESISTORS

JIM QUAM Says



They had us in quite a stew last month. We almost had to call a meeting of the family board of directors. But we finally compromised—and ate turkey on both days.

This month it's different. December 25th is one date that no one can change, and one holiday that is celebrated on the same day in every land.

And so, as that day rolls around, just imagine the whole Quam-Nichols family, shouting in unison, the same old, heart-warming greeting to all our friends—

Merry Christmas and a Prosperous New Year

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



MUSICAL TOWERS

More business . . . Handsome Profits

If you specialize in sound installations . . . can handle a new idea in a virgin and unworked field you'll click with the **SUNCO MUSICAL TOWERS**. Get the facts on how to sell and service this complete amplifying system for tower and belfry chime installations.



The Sunco "MASTER" is a custom-built, quality instrument! Broadcasts chimes, organ recordings. Powered up to 12-mile diameter coverage. Also used as a P.A. unit. Automatic record changer. Plays 10" or 12" records mixed. We furnish everything—speakers, accessories, installation and service directions. Sales Help! New low-noise acetate discs for church services. Protected territory for those that qualify. This is a money-making OPPORTUNITY. Write or wire today.

SUNDT ENGINEERING COMPANY
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Sell & Use LITTELFUSES



Write for Catalog



See your parts jobber or write today for new Littelfuse catalog. Complete line of Littelfuses for radio, instruments, meters, transmitters, rectifiers, etc. All kinds of FUSE MOUNTINGS. Littelfuses are your best bet. Write today.

LITTELFUSE INC.
4763 RAVENSWOOD AVE. CHICAGO, ILL.



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 over 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-290 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 vol-

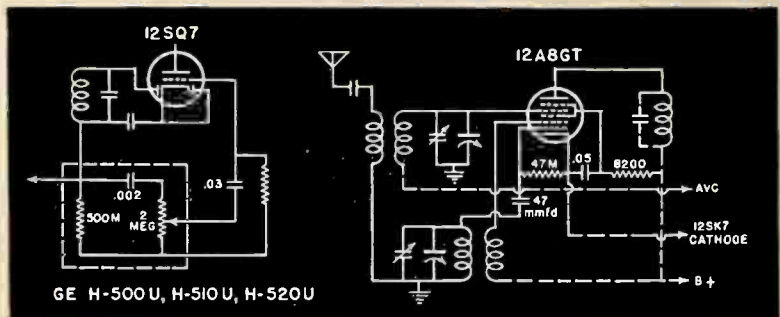
ume control from the AVC voltage with a 0.002 capacitor. The remainder of the circuit is the same for all sets.

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 Photo Log for 1940. The 5½ x 8¼ 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 \$2.90 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 accented in new placards issued by Stromberg-Carlson to be displayed along with Labrynth 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



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 dress 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!

TYPICAL PAGES FROM THE C-D MANUAL

NO STRINGS TO THIS OFFER



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ELECTRIC CORPORATION

1022 Hamilton Boulevard, South Plainfield, New Jersey
Cable Address: "CORDU"



30 ohms list
\$60.00
200-500 hms-listo
\$68.50

... because it has the looks and the QUALITY. Shown above, dynamic No. 702-D, with an exclusive CARRIER "Acoustic Equalizer" that insures amazingly wide range; Hepco locking type cable connector; magnetic shielding; sealed; response $\pm 2\frac{1}{2}$ db 30 to 10,000 cycles; output level —60 db.

Other models, professional in looks and performance, widely preferred by veterans in broadcasting, recording, re-inforcing. Truly, any CARRIER model's

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Send for complete Catalog 10-B
CARRIER MICROPHONE CO.
39 S. LaBrea Ave., Inglewood, Cal.
15 East. 26 St., N. Y. City

"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 Lindborg, 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."

Philco Radio Service Campaign Organized

Plans for a comprehensive radio service campaign have just been completed by the Radio Manufacturers' Service of the Philco Radio Corp. The two major features of the plan include an educational campaign consisting of service meeting where those attending get real facts to help them in their daily work. The second feature of the campaign consists of a nation-wide 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 stunt 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."

BRACH AUTO AERIALS



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.

**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 3,500 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 Hurley-Tobin 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 selling high quality Arcturus Tubes. 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-26
Without cost or obligation, send my copy of the ARCTURUS DEALER HELPS Folder and details of the ARCTURUS EQUIPMENT DEAL.

Name.....
Street.....
City.....State.....
 I am a dealer I am a serviceman. My
jobber is.....
Address.....
(Offer good in U. S. A. only)

**ALL YOUR
RADIO NEEDS**

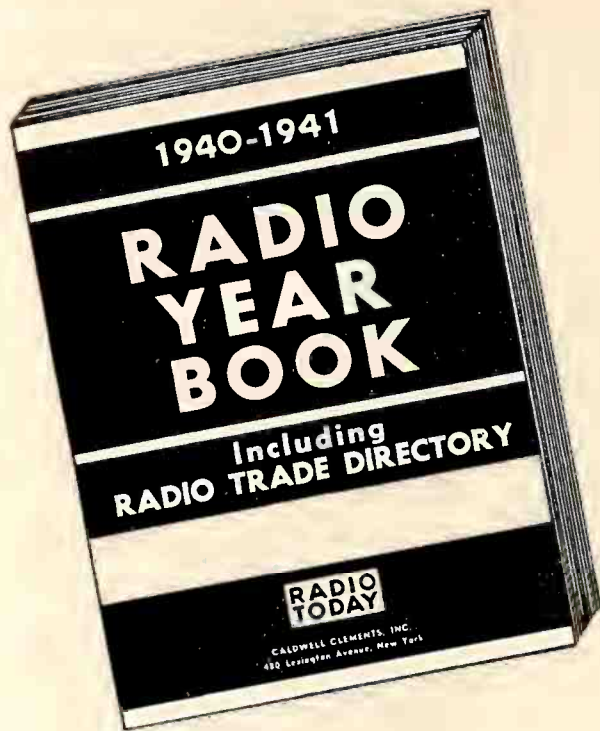
Here in this one big book you will find everything you need in radio including radio sets, parts and supplies... newest public address systems... latest amateur equipment... testers and kits... your nationally known favorites at lowest possible prices. Best of all, our service is better than ever. Most 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 B. A.

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SERVICING
EQUIPMENT
RADIO, PARTS
AND SUPPLIES
PUBLIC ADDRESS
SYSTEMS**

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You'll Like Our
Prompt Service

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RADIO'S GREATEST SALESMAN

PUT IT IN YOUR
ADVERTISING BUDGET

*You will surely want
to be represented in*

RADIO'S ONLY COMPLETE
TRADE DIRECTORY AND
YEAR-ROUND BUYERS' GUIDE

*Published as a Section of the
MARCH Issue of RADIO TODAY*

In the near future, you will receive complete details of
the 1940-41 edition of the RADIO YEAR BOOK
and RADIO TRADE DIRECTORY.

This advance notice is to remind you of TWO things
to do NOW:

- 1** Provide for it in your advertising budget.
- 2** Make sure of getting one of the valuable positions opposite the main listing of your company in the directory. These positions are assigned in the order of their receipt by us. Therefore, make your reservation early. If possible, make it NOW.

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



RADIO TODAY



Radio executive Gordon Volkenant of Marshall Wells has a successful duck-hunt in company of a new Admiral portable.

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., Evanston, Ill. 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.

Stromberg's 45th Birthday Is Trade Event

With a series of special merchandising events for dealers, Stromberg-Carlson continues celebration of its 45th anniversary. A long list of engineering and design accomplishments are being reviewed by the company, recalling that it has been 45 years since Alfred Stromberg and Androv Carlson got together \$1,000 to start manufacturing telephone apparatus.

The long and successful experience enjoyed by the firm in its development of telephone equipment is cited an invaluable in the development of the finer tonal ability of modern radio receivers. Announcements say that "it was Stromberg Carlson who introduced total shielding, linear power detection, screen grid tubes, 'chassis' type construction, the bi-resonator circuit, the phonograph jack, and the telephone switchboard type cabling."

Stewart Opens Branch

The new West Coast factory branch of the F. W. Stewart Mfg. Corp., Chicago, has been opened at 431 Venice Blvd., Los Angeles.



Cut down your inventory with
OPERADIO

Replacement Speakers

When you buy Operadio Replacement Speakers, you buy the type of Speakers MOST set manufacturers buy. More than a million O.P. Speakers are sold yearly, to makers of the finest radios and to dealers and servicemen who have learned that O.P. Replacement Speakers give that good as new reproduction—with less speakers to be stocked because of the Unimatch Transformer which can be used with as many as six different O.P. Speakers.

Write today to Dept. RT12 for Speaker Replacement Catalog

Export Division

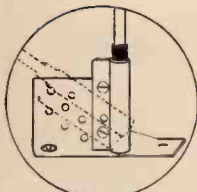
145 West 45th St., New York

OPERADIO

MANUFACTURING COMPANY
ST. CHARLES ILLINOIS

*The Outstanding Name
in Speakers, Public Address
Equipment and Intercommu-
nicating Systems*

All Operadio Sound Systems are licensed by Electrical Research Products, Inc., under U. S. patents of American Telephone and Telegraph Company and Western Electric Company, Incorporated.



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.

Single Universal Bracket for 12 Foot Antennas



Window Vent Pipe Chimney Eaves

JFD NEW 1940 VERTICAL Non-Directional HOME ANTENNAS

With Improved Adjustable Brackets Easily and Quickly Attached Anywhere

Flat roof, ventpipe, chimney, wall, eaves, window, ridge pole, parapet or anywhere.

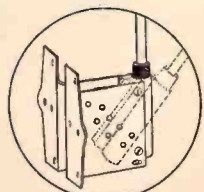
Vertical antennas now used by all principal broadcasting stations—Non-directional—Improve short wave and broadcast reception on new or old model sets—4 sections—12 ft. and 5 sections 16 ft. 4 in. extended.

The natural impedance of the 16 ft. 4 in. being nearer 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

More efficient than 100 feet of horizontal wire.

Less space—no obstructions on the roof and less trouble to install.



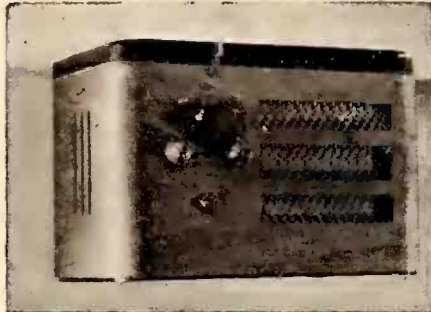
Double Universal Bracket for 16 foot — 4 Inch Antennas



Flat Roof Ridge Pole Parapet

J. F. D. MFG. CO., 4111 Ft. Hamilton Pkwy., Brooklyn, N. Y., Export Dept., 116 Broad St., New York, N.Y., U.S.A.—Cable MINTHORNE

**BEST BUY in Wireless
INTERCOMMUNICATING
Systems**



CROSLY CHATABOX

\$24.50 per pair, consisting of
TWO COMPLETE
F. O. B. N. Y. **MASTER STATIONS.**

Complete two-way wireless loud speaking system. Perfect performance. Plug into any 110 volt socket, AC or DC. Equipped with CALL-LISTEN-TALK switch and volume control. Write for information or catalogue.

SOLD ON 10-DAY TRIAL WITH MONEY-BACK GUARANTEE. ORDER TODAY.
JOBBER, DEALERS AND DISTRIBUTORS
WRITE FOR SPECIAL QUANTITY
DISCOUNTS.

AMPLIFIERS-DISTRIBUTORS CORP.
DEPT. R. T., CHRYSLER BLDG., NEW YORK

Cable Address: DEBACK, N. Y.
Sole Distributors of the

CROSLY CHATABOX



*The
New
Model
245*

**Tests all dry batteries the
right way — UNDER LOAD**

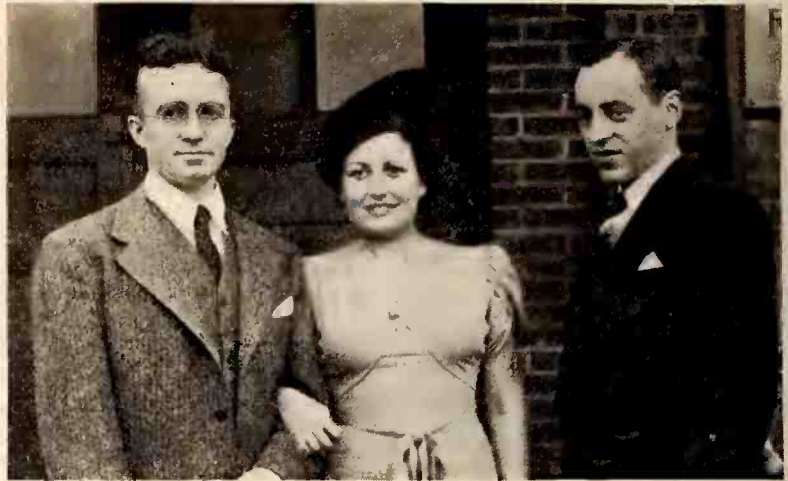
• This latest addition to the broad Simpson line fulfills a vital need supremely well. It measures only 5½" x 2¾" x 1¾", and weighs only a pound, but it incorporates a means of introducing a load into the circuit, so that the battery can be tested under actual working conditions—the only correct way. Ranges have been selected so that the useful limits of all "A" batteries fall within a green sector of the top arc and the useful limits of "B" batteries fall within a green sector of the lower arc. Readings are highly legible.

Also a sensitive voltmeter

The load is thrown on and off with a convenient toggle switch. When off, the tester becomes an accurate voltmeter with ranges of 0-2, 0-4, 0-8, 0-50, 0-100, and 0-150 volts having a sensitivity of 1,000 ohms per volt. Here is Simpson quality, accuracy, and beauty at the remarkably low price of... **\$7.85**
(Net price to dealers and service men)

SIMPSON ELECTRIC COMPANY
5216-18 Kinzie Street, Chicago, Ill.

SIMPSON
INSTRUMENTS THAT STAY ACCURATE



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 questionnaire on retail operating costs, which means that these experts are again conducting a nation-wide research on this subject after 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 set of figures based on new 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 Segel, 235 Pine St., Gardner, Mass.; Royal Stemm, 21 E. Van Buren St., Chicago; Royal Smith, 912 Commerce St., Dallas, Tex.; Byron Moore, 191 Starin Ave., Buffalo, N. Y.; and Don Wallace, 4214 Country Club Drive, Long Beach, Calif.

**Philco Ad Drive
Under Way**

Currently running in leading national magazines such as *Life*, *Saturday Evening Post*, and *Collier's* are a series of Philco ads which are described by the company's advertising

manager, Ernest B. Loveman, as "the most ambitious Christmas advertising and merchandising campaign in our history." The No. 1 splash is a 2-page color ad in *Life* featuring Philco phono-radios.

Reproductions of the *Life* ad, for store display use, are being distributed by Philco as part of a new sales kit which includes an open letter from Philco general sales manager T. A. Kennally, a new display using five figures of Santa Claus, Christmas price tags, and a new wall chart on phono-radios.

**Trio of New Chapters
for RSA**

RSA has announced the addition of three new chapters to the organization in Amsterdam, N. Y.; Marinette, Wis., and Minneapolis, Minn.

The Amsterdam officers are Joseph Tallman, president; Samuel English, secretary; A. R. Kindl, treasurer. Marinette has elected A. E. Meissner, president; Ed. J. Kehoe, secretary. Minneapolis officials are Orville C. Mason, president; Arthur Lane, vice president; Sears Milnor, secretary-treasurer.

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 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 Devenport St., Taunton, Mass. The Perron services are offered to distributors, manufacturers, industrials, utilities, broadcast stations, universities, laboratories, etc.



Take a look at the trim interior of a big radio parts house—Radiolab, of Kansas City, Mo. And, left to right, F. J. Kysela, Thordarson representative; Douglas Fortune, Thordarson broadcast engineer; Guy Wilson, Radiolab purchasing agent; A. O. Grey, Radiolab salesman; Robert Smith, Radiolab owner; and E. J. Rehfeldt, Thordarson ad manager.

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.

The guests included David Sarnoff, James Skinner, Elmer Cunningham, A. Atwater Kent, Powell Crosley, Jr., Larry Gubb, George Throckmorton, George Mason, Arthur Murray, Benjamin Abrams, E. G. Biechler, F. M. Merrick, Charles Wilson, Westley M. Angle, I. Goldberg, Frank Hiter, H. M. Stein, and many others.

Times Appliance Expands

Times Appliance Co., Inc., the prominent New York jobber house where E. B. Ingraham is president, have moved into larger quarters at 353 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, Vocalton 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 Bryd 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 Rubín

The appointment of J. W. Rubín as the new advertising manager for Allied Radio Corp., Chicago, has been announced by Allied president A. D. Davis. Mr. Rubín started some years ago as a shipping clerk for the company, and steadily worked himself up to his present executive post.

A GOOD NAME GOES A LONG WAY



The good name of Ken-Rad Radio Tubes is the result of expert engineering, tested materials and constant checking to maintain the highest standards.

KEN-RAD TUBE & LAMP CORP.
OWENSBORO, KY.
Export Dept.
116 Broad St., New York, U.S.A.
Cable Address: Minthorn, New York.

KEN-RAD

DEPENDABLE RADIO TUBES

OXFORD

SPEAKERS THAT VITALIZE SOUND



Public Address • Replacement Speakers

★ Permag Dynamic—Electro Dynamic—From 2" to 14"

Improved in construction—now more sensitive and more profitable than ever before. Available—from the astonishing 2" Permag up to the 14" Permag or Electro Dynamic Unit. Order Oxford Today!

MAIL THIS COUPON NOW

Please Send Catalog Price List at Once

Name

Address

City Dept. Y

OXFORD-TARTAN

RADIO CORPORATION
115 W. VAN BUREN ST. • CHICAGO, U.S.A.

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, Colombia.

Albert A. Bombe, formerly with the International General Electric Co., was

Gale in Kentucky

An example of the business tempo at Gale Products, Galesburg, Ill., is furnished by a brisk incident at the plant last month. C. P. Rossberg, Gale executive, got word from Louisville, Ky., that an important business contract was to be discussed with Joe Fleischaker of Will 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.

assigned to South and Central American sales of Philco radios and refrigerators.

Lund for Ward Leonard

Ward Leonard Electric Co., Mt. Vernon, N. Y., have named R. O. Lund as their representative for the sale of Ward Leonard radio products in Indiana, Wisconsin, Illinois, (north of Decatur) and Kentucky (north of Lexington and Louisville). Mr. Lund's headquarters are at 1720 N. Damen Ave., Chicago.

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, announces that a console type recorder, complete with radio, will be brought out later.



YOU MAY NOT WORK UNDER these conditions BUT...

... even if you did, TROPEX transformers would give you complete protection against moisture, high humidity and salt air. The TROPEX process was invented by THORDARSON for just that purpose. It thoroughly impregnates the coil against the corrosive effects of adverse weather conditions. If you are troubled with excessive transformer failures, switch to TROPEX and forget them. Your Parts Distributor sells them. See your Distributor or write the factory for the new "Replacement Transformer Encyclopedia and Service Guide." Ask for Catalog 352-E. Thordarson Elec. Mfg. Co., 500 W. Huron St., Chicago.

THORDARSON TROPEX TRANSFORMERS

SUPERIOR PRODUCTS IN TUBING



SEAMLESS
 CARBON STEELS
 ALLOY STEELS & TOOL STEELS
 STAINLESS STEELS
 COPPER
 MONEL
 NICKEL
 INCONEL

BRAWN*
 MONEL
 INCONEL

WELDRAWN
 18-8 AND OTHER STAINLESS GRADES
 CARBON STEELS

SUPERIOR is the largest American producer of pure nickel cathode sleeves in SEAMLESS & LOCK-SEAM.**

*Registered U.S. Trademark. **U.S. Patented.

Cable Address: Supertube

SUPERIOR TUBE COMPANY
 NORRISTOWN, PENNSYLVANIA

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

New Booklets

Football Chart-A-Game is title of new booklet available from Philco dealers. Philco Radio and Tele. Co., Tioga & C Sts., Philadelphia, Pa.

High voltage tank condensers, coils, insulators and sockets are described in new booklet by E. F. Johnson Co., Waseca, Minn.

Descriptive leaflet of replacement dial belts for all model receivers. J. F. D. Mfg. Co., Brooklyn, N. Y., 4111 Ft. Hamilton Parkway.

Emerson presents a new price list catalog 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 mikes are furnished in a pamphlet by Shure Bros., 225 W. Huron St., Chicago, Ill.

Two circulars on the new Carter super genemotors for heavy duty use. Carter Motor Co., 1608 Milwaukee Ave., 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 photographic 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 HF-100 and HF-200 fluorescent lighting units. Supplied upon request.

An illustrated catalog giving description and price of 1939-40 radio parts. James Millen Mfg. Co., Inc., Malden, Mass.



Quality Plus Economy!

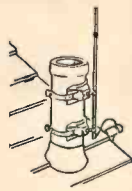
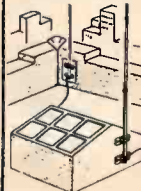
Manufactured by
DUMONT ELECTRIC CO., Inc.
514 Broadway, New York

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**

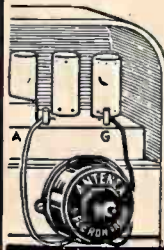
FLERON POLE AERIAL

Most easily installed modern aerial. Needed for best results. Made of finest materials. New safety insulators and safety block. Non-directional.



MODERNIZE OLD SETS with ANTENEX

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 R663

M. M. FLERON & SON, Inc., Trenton, N. J.



Spokane Radio Co. of Washington is host to microphone manufacturer. Left to right, Les Virden and Morris Willis of Spokane Radio; S. N. Shure of Shure Bros., the guest; R. C. James, Jr., Shure representative.

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 issues this month an initial dividend of 25¢ 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 35¼ 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..... 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.)

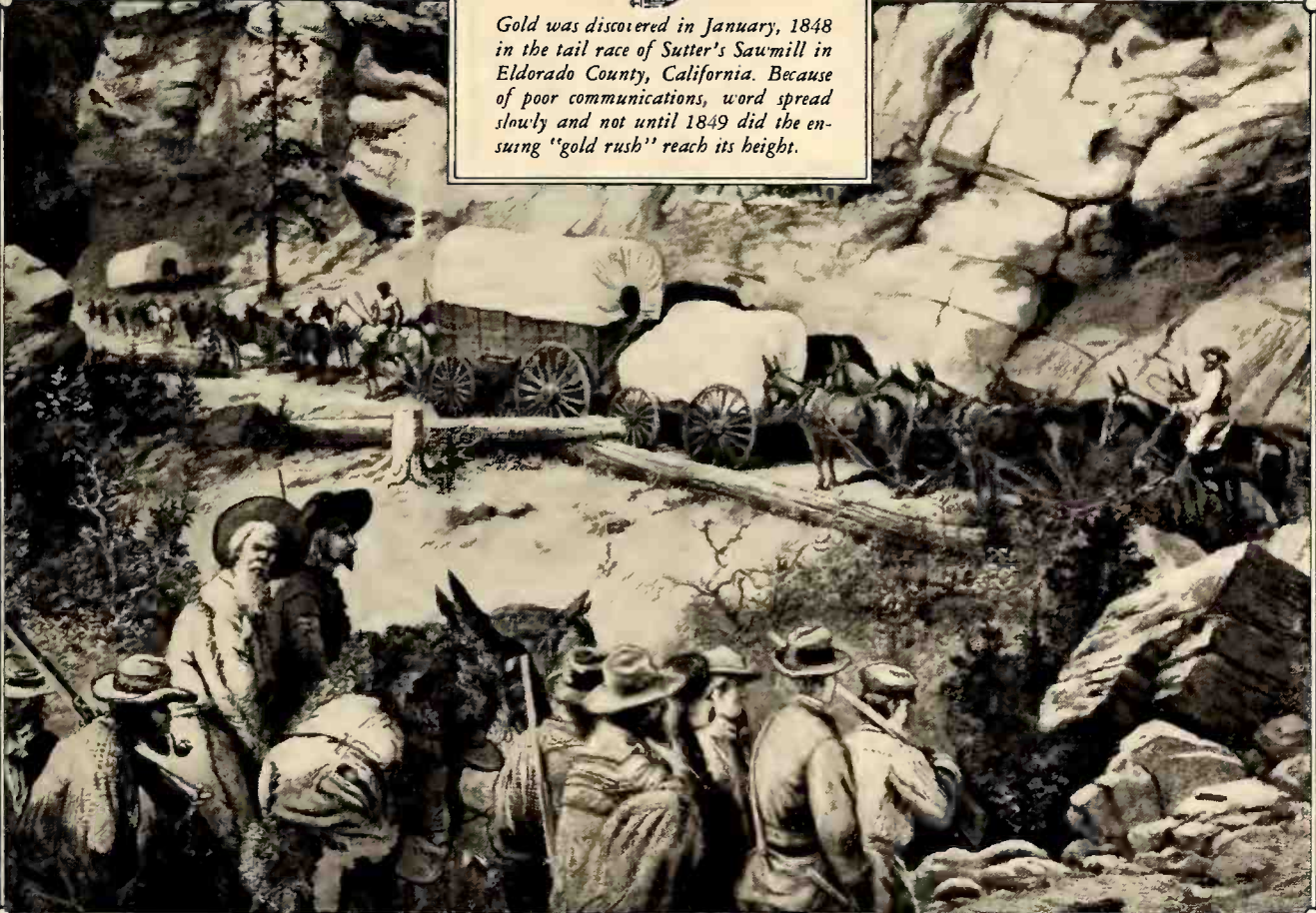
RT-1239

1940

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.



HOW THE FAMILY OF RCA WOULD SPEED UP THE GOLD RUSH

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.

. . .

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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 **\$24.95** it's "hot." It moves swiftly at



YOU'RE there with a CROSLEY

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 6¼ x 5¾ inches. Air-plane 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 Home of "the Nation's Station"—WLW—70 on your dial
POWEL CROSLEY, Jr., President