

RADIO RETAILING

25 CENTS PER COPY

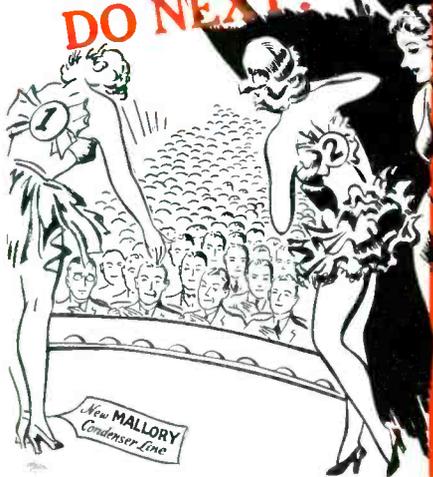
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MARCH - 1938

IN THIS ISSUE : SOUND DISTRIEUTION
SURVEY... HOW TO GET STARTED... SONGS FOR
YOUR SOUND TRUCK... NEW EQUIPMENT...
INSTALLATION IDEAS... OPERATING AMPLIFIERS

What will
P. R. MALLORY & CO. Inc.
**MALLORY
 YAXLEY**
 DO NEXT?



HERE'S ANSWER NO. 2

A complete new line of

P. R. MALLORY & CO. Inc.
**MALLORY
 YAXLEY**

MIDGET

UNIVERSAL REPLACEMENT

VOLUME CONTROLS

with **PLUG-IN SHAFTS**

(Pat. Applied For)

NOW 56 New Volume Controls give you the range of over 1000 exact replacements

Now—your problem of how to make a wide range of volume control replacements quickly and economically is definitely solved.

No large stocks to carry. No more delays that lose business and customer good-will! No more sending away for "exact replacement" controls you don't have when you need them.

Through the development of the new Yaxley Midget Volume Controls and the introduction of the new Yaxley Plug-In Shaft, Mallory-Yaxley offers the greatest advance in volume control servicing ever known in radio history.

Yaxley Midget Volume Controls—plain, single tap, double tap and duals—are available in resistance values from 5,000 ohms to 3 megohms inclusive and in all necessary tapers. They have flexibility—adaptability—universality—and snap-on switches! But—overshadowing all these advantages is the Yaxley Plug-In Shaft!

A single set of Yaxley Plug-In Shafts multiplies

the usefulness of any one of these controls by 17—or more.

For Example—10 new Yaxley Midget Controls plus 17 shafts give you the servicing equality of 170 ordinary Exact Replacement Controls with fixed shafts.

Now—let's go a step further! Multiply seventeen or more exact replacement possibilities by the fifty-six known basic type controls. To cover such a service range with fixed shafts (so-called "specials") would mean you would need *one* each of 952 individual controls. Yaxley Midget Volume Controls with Yaxley Plug-In Shafts provide the same service stock with only 56 controls and 17 Plug-In Shafts. And—the fact of the matter is that 90% of your replacements will be covered by about 12 of these 56 types of controls plus 6 or more of the 17 Yaxley Plug-In Shafts!

Now you can replace controls *exactly, easily and quickly* because Yaxley Plug-In Shafts reduce the required investment and multiply the usefulness of *every control* 17 (or more) times.

Order Yaxley Midget Volume Controls—and Yaxley Plug-In Shafts—from your distributor today!

● WHAT WILL MALLORY-YAXLEY DO NEXT?

Watch for further important announcements!

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

RADIO RETAILING

MARCH, 1938

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 W. MacDONALD Managing Editor
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HOWARD EHRLICH
 Executive Vice-President

H. W. MATEER
 Manager

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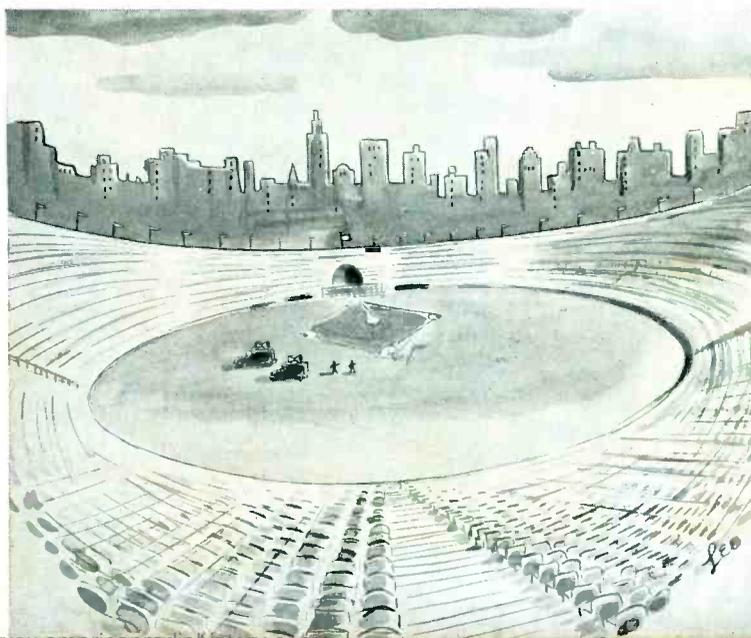
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SALES STATIC . . . "Quote me on a three tube system"





Men - we're Switching
to Stromberg-Carlson!



No. 245-M Labyrinth,
Electric Flash Tuning

Right now is the time to pick the radio line you want for 1938-39. And it is significant that so many dealers and distributors have already signed up with Stromberg-Carlson.

Each year, for 14 years, Stromberg-Carlson has given the trade fine merchandise that sold at a real *net* profit. Each year Stromberg-Carlson has introduced features that set performance standards for the whole industry. Each year Stromberg-Carlson has presented new cabinet styles that set the mode for all.

Look at the record. Total Shielding was a Stromberg-Carlson development. Remote Control Tuning was pioneered by Stromberg-Carlson in 1930. The Labyrinth, admitted by all to be the greatest tonal advance in radio history, is an exclusive Stromberg-Carlson feature. Electric *Flash* Tuning, considered by consumer and service man to be the most efficient tuning system on the market, is found only on the new Stromberg-Carlsons.

A new season is coming. It will prove again that "There is nothing finer than a Stromberg-Carlson."



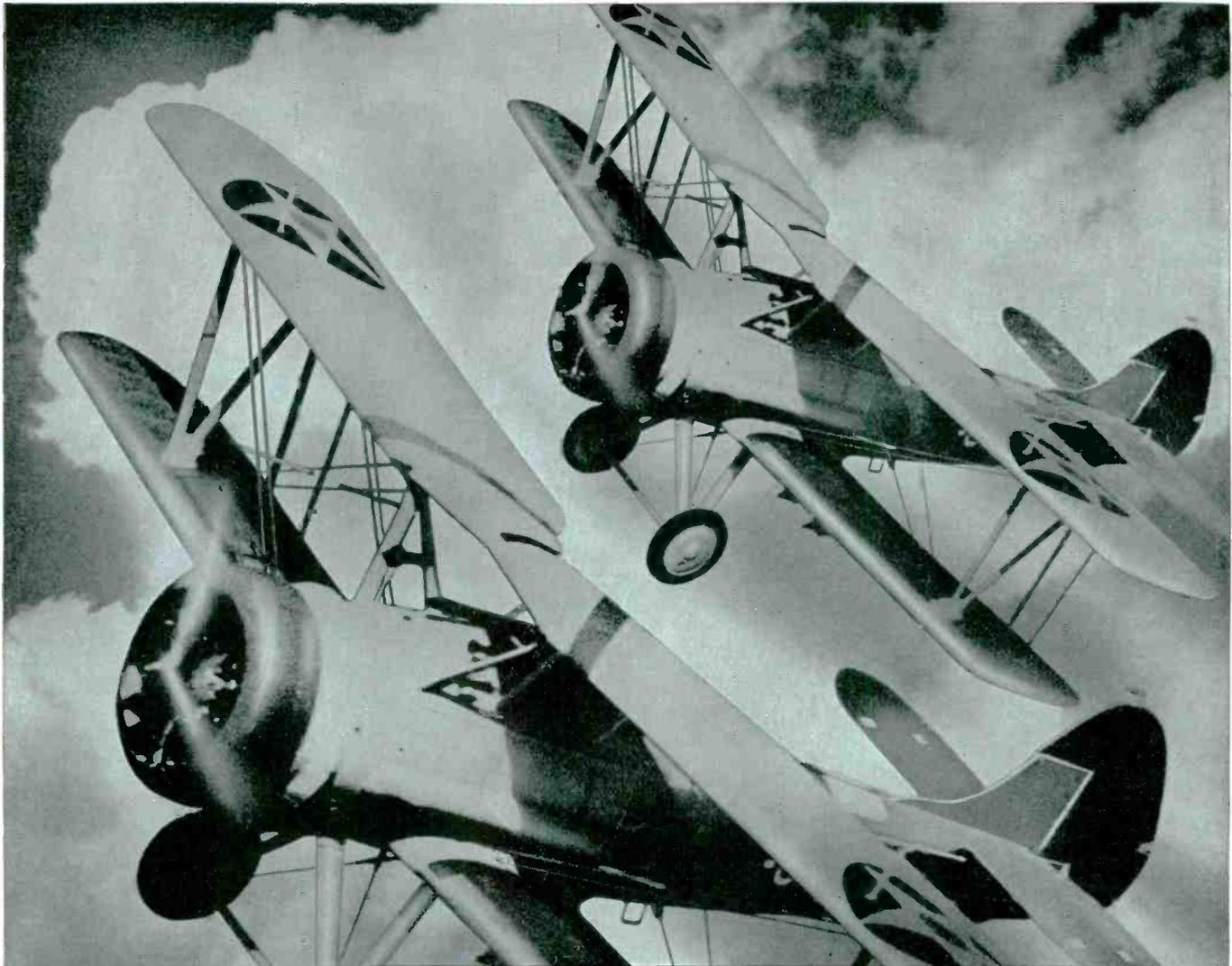
THE ACOUSTICAL LABYRINTH, which no one can duplicate without infringing many patents, does away with faults of ordinary radio reproduction. It gives tone which is pure and natural... *ear-conditioned*.



ELECTRIC FLASH TUNING. Touch a button and the station you want comes in, perfectly tuned, without a second's delay. The pre-selected stations are clearly indicated. Station is kept exactly in tune by the perfected Automatic Frequency Control.

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

There is nothing finer than a **Stromberg-Carlson**



**IN THE U. S. AIR CORPS, TOO,
RAYTHEONS
DO THEIR "BIT"!**

Zooming through the air at breath-taking speed with machine guns barking, communications between the U. S. air fleets, and ground headquarters *must* go through! To weather such gruelling tests a tube *must* be sturdy... *must* be designed and tested to perform consistently and smoothly under all circuit conditions! This is the punishment Raytheons take *every* day in the U.S. Aviation service—and still render efficient and dependable performance!

These potent reasons helped convince engineers of many leading licensed set manufacturers that these same Raytheon tubes are *the* best for *their* sets. Profit from the combined experience of these men who know.

Choose Raytheons for *your* replacements and enjoy greater permanent tube profits!



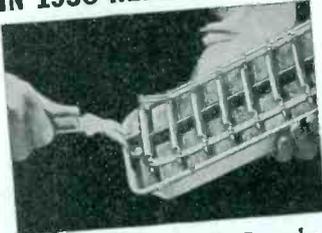
RAYTHEON

CHICAGO SAN FRANCISCO NEW YORK
ATLANTA NEWTON, MASS.

"WORLD'S LARGEST EXCLUSIVE RADIO TUBE MANUFACTURERS"

Pop-Ice Tray

**MOST DRAMATIC
CONVENIENCE FEATURE
IN 1938 REFRIGERATORS**



ICE CUBE RELEASE—Ice cubes popped loose 2 at a time, leaving others undisturbed. Eliminates cube waste and struggle forever.



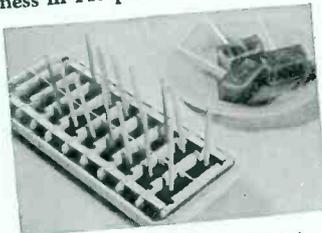
ICED TEA CUBES—Freezes tea cubes to cool iced tea, without dilution of flavor. One of many unique uses of new Pop-Ice Tray.



ICED COFFEE CUBES—Dramatic to demonstrate. Show prospects how easily—simply—coffee cubes for iced coffee can be frozen.



CHILLING FUDGE—Neat squares of fudge can be ejected 2 at a time when hardened to delicious goodness in Hotpoint Pop-Ice Tray.



FROZEN SUCKERS—Children will love frozen suckers, prepared with minimum of trouble and time in this amazing new Pop-Ice Tray.

NEW CIRCUILAIRE 20% FASTER FREEZING

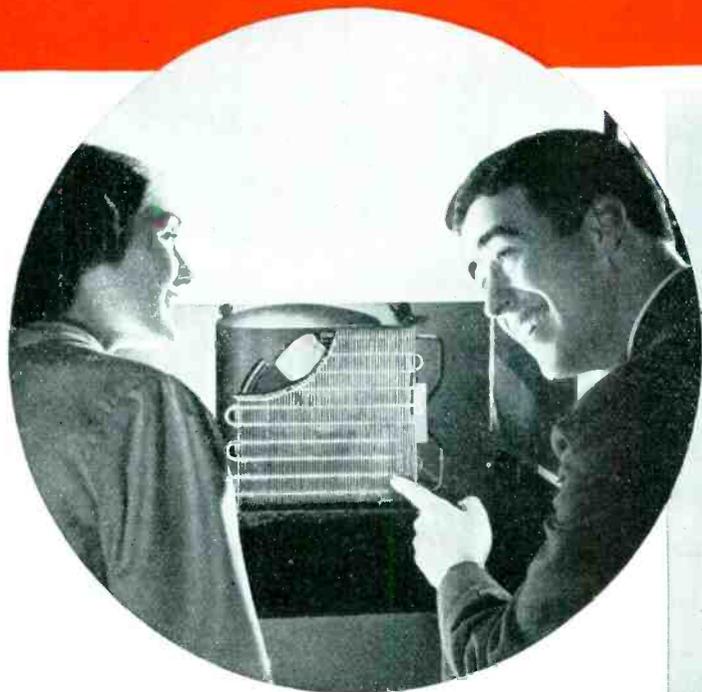


Here are refrigerator features that win instantly the woman who is buying her second refrigerator, as well as the bride shopping for her first. Ice cubes frozen in approximately 60 minutes! Delicious desserts prepared in less time than it takes to bake a cake! Pop-Ice Trays. Five Zones of Cold. Flexible Interiors. Gliding Shelves. Plus

the amazing economy and thrilling speed of Hotpoint's new, improved Speed Freezer, powered by the famous Hotpoint Thriftmaster. Experience has taught people to look for these features in replacing old-fashioned refrigeration. This year, cash in on this big replacement market. Stock—and sell—the brilliant new Hotpoint line.

EDISON GENERAL ELECTRIC APPLIANCE CO., Inc.
5680 West Taylor Street, Chicago, Illinois

COOLING - Gives Hotpoint Refrigerators - AT LOWER OPERATING COST!



WHY HOTPOINT FREEZES 20% FASTER

Hotpoint offers you the most dramatic achievement of the year in electric refrigeration — Circulaire Cooling — which forces cool air over and around Hotpoint's sealed mechanism, reduces operating temperatures, and increases efficiency more than 20%. Replacement buyers know refrigerators. They respond to the story of Hotpoint's sealed mechanism, and its economy. Tell them about Circulaire Cooling — demonstrate it — for volume sales and profits this year. Call your nearest Hotpoint distributor now.

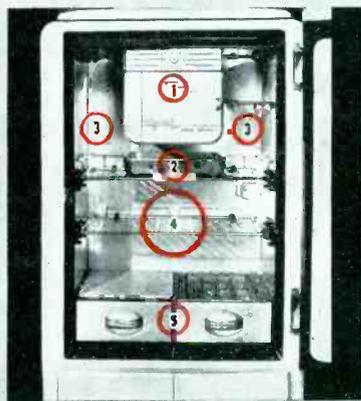
5 YEARS' PROTECTION. Hotpoint protects refrigerator owners for five years against extra service expense due to failure of sealed mechanism.



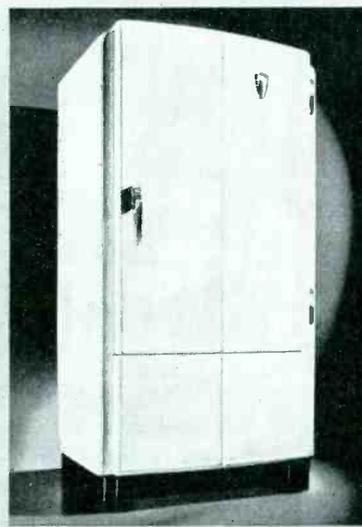
FLEXIBLE INTERIOR — Generous extra space for unusual storage demands. Watermelon, large fowl and other bulky extra size foods fit easily into Hotpoint's adjustable interior.



OIL COOLED MECHANISM — Every moving part is bathed in a cooling oil bath. Long life and record low-cost operation are assured, year after year.



5 ZONES OF COLD — 1. Speed Freezing Zone. 2. Additional Cold Storage Zone. 3. Cold Beverage Zone. 4. Food Protection Zone. 5. Conditioned Fruit and Vegetable Zone. Exactly the right temperature for every refrigerator storage need.



3 COMPLETE LINES — Standard line offers four smart models at attractive low prices. Deluxe models are available in a choice of five sizes; Imperial models in six smart sizes, finished in enduring porcelain enamel. The finest refrigerators you can sell.

Hotpoint

**ELECTRIC
REFRIGERATORS**



ELECTRIC RANGES • WATER HEATERS • DISHWASHER-SINKS • WASHERS AND IRONERS

The Mark of a
Dependable Dealer

THE MARCH OF TIME

Radio's Outstanding Dramatic Show

GOES TO WORK
AGAIN FOR
SERVEL
ELECTROLUX
AND FOR YOU



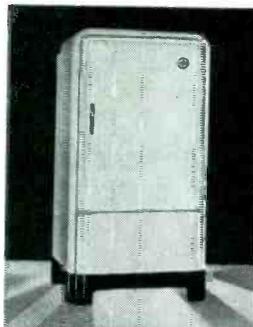
This different refrigerator runs on gas, kerosene, or bottled gas. Any family anywhere is a prospect

BEGINNING April 7th, prospects in your territory will be hearing even *more* about Servel Electrolux. For then The March of Time—radio's lively, timely, prestige-building program—will commence broadcasting under Servel's sponsorship, will become an important part of Servel's mammoth 1938 advertising program.

This means bigger opportunities for you. Every week, millions of listeners—your prospects among them—will learn about this different refrigerator. They will learn about its no-moving-parts freezing system. They will be intrigued by its exclusive benefits of permanent silence, continued low running cost, and savings that pay for it.

Remember—you can sell this famous refrigerator, no matter where your prospects are located. Because Servel Electrolux runs on either gas, kerosene, or bottled gas. In

1938, Servel Electrolux dealers will receive the greatest advertising support ever put behind this product. So write today for information about available franchises. Servel, Inc., Servel Electrolux Sales Division, Evansville, Indiana.



AND ANOTHER BIG RADIO ATTRACTION!

Servel Electrolux will also be featured, during May and June, on Procter and Gamble's Guiding Light Program. Watch for details.

- PERMANENT SILENCE
- NO MOVING PARTS
- CONTINUED LOW RUNNING COST
- NEW, MODERN CONVENIENCES

Sell the Refrigerator **THEY HEAR ABOUT
BUT NEVER HEAR**

NEW LOW-PRICED ARVIN CAR RADIO WITH Push-Button Tuning

MODEL 6 • COMPLETE

\$24.95
LIST



SIX-STATION DIRECT
CONTROL BOARD
WITH AUTOMATIC
PUSH-BUTTON TUNING

STATION
VARIATOR
EXPANDS TUNING
RANGE

**No Dial to Watch
... No Need to Take
Eyes Off Road... It's
All Tuned by Touch**

Just push a button and tune in
any one of 6 favorite stations
automatically...

Station settings are easy to make or
change for any locality. Simply remove
front panel plate and set condenser
screws for peak reception of stations.

A slight turn of this knob, to left
or right, gets two to four addi-
tional stations at each push-but-
ton setting, when driving within
their receiving range.

Example: automatic setting, WLW,
700 kc. Turn left: WOR, 710 kc.;
WGN, 720 kc. Turn right: CFRB,
690 kc.; WPTF, 680 kc.

● This new Arvin Model 6 is a powerful car radio with 5 tubes that do the
work of 7. It has exceptional station-getting ability and fine selectivity. In fact,
its all-over performance is equal to or better than many higher-priced sets
with an extra tube and dial tuning. This is all due to the Arvin fixed condenser
circuit which permits each push-button setting to be balanced perfectly for
maximum station reception. Dynamic speaker in specially designed radio
case provides fine tone quality. Sloping direct control board is at convenient
angle under instrument panel. Easy installation in car. Special aerial, \$2.50 list.
Order from your jobber. Noblitt-Sparks Industries, Inc., Columbus, Indiana.

**THE CONVENIENCE AND SAFETY OF PUSH-BUTTON TUNING PLUS
THE FLEXIBILITY OF DIAL TUNING... ALL DONE BY TOUCH**



HARRY BOYD BROWN
National Merchandising
Manager of Philco

NO MERCHANDISE IS REALLY SOLD UNTIL IT'S SOLD AT RETAIL

THE world's greatest salesman—the most important link in the entire merchandising chain—is *the man who sells at retail*. And why do I call the good retail salesman the greatest salesman on earth? Because he is the first salesman who really makes a sale. Because merchandise is never truly sold until he sells it.

The fellows ahead of him in the selling procession have made what we call sales, and have probably had a tough time making them in many cases. But when the manufacturer's salesman gets his order from a wholesaler, that wholesaler is buying something on which he expects to make a profit. And when the jobber's salesman makes his sale to a store executive, the store executive also counts on turning over the merchandise at a profitable figure.

But when it comes to the retail salesman's turn . . . he's selling and nothing else but! Because no matter what he has for sale, everybody in the world is his competitor. He is selling his article—whatever it is, *even if it is a Philco*—against the competition of the grocery man, the butcher, the landlord, the gas company and the tax collector.

He is selling to the men and women who expect to get only pleasure or service or comfort out of what they're buying . . . and who must consider and balance the cost against the bills coming in on the first of the month—bills from a dozen unrelated sources but representing the very necessities of life.

And it's meeting and beating this and all other competition that makes the good retail salesman head man in the field of selling. Again we say, no merchandise is really sold until he sells it. The whole manufacturing, distributing, merchandising structure is built on his selling efforts . . . on what he does and says when a customer walks into the store. *And no one recognizes this fact more than Philco—and Philco Wholesale Salesmen.*

Harry Boyd Brown

PHILCO

The RADIO MONTH

MARCH

1938

Sound Effects A well known steel company puts intercommunicators in service throughout its offices. A famous steamship line is installing shipwide sound systems on its fleet of recently built liners. The fire department of a large Eastern city supplements its regular alarm equipment with spoken alarms to all fire houses.

These and hundreds of other instances are evidence that slowly but surely the surface of the sound business is being tenderly scratched, by a comparatively few brave pioneers who feel it in their bones that "There is gold in them there hills" and who are willing to dig deep and long to get it. Up to now the why, where, who and how of the sound business has never been charted.

With this issue we begin to report the results of the first and most comprehensive survey of the sound field ever undertaken. We are not dealing with conjectures and meaningless guesses but presenting cold facts—all in the hope that by so doing the sound business will have a chance to develop faster and along sounder lines.

Sackcloth And Ashes Organized in New York and rapidly receiving nationwide support, the National Association for Prevention of Radio Interference is once again focussing attention upon an important subject. Already troublesome because so many new receivers have higher fidelity, are equipped to tune in shortwaves, electrical noise is certain to become even more so as police communication systems shift to the ultra-high frequencies and television programs begin on a regular program basis.

In all fairness to makers of electrical appliances and equipment creating much of the noise, manufacturers of automobiles with radiating ignition systems, utilities, it must be pointed out that the skirts of the radio industry itself are by no means clean. For, in order to permit production of extremely low-priced superheterodynes, needed

r.f. and i.f. stages have frequently been dispensed with. And in the course of mass production many sets have been shipped without proper alignment. These things make sets unnecessarily broad, especially susceptible to noise pickup, easily cross-modulated by strong local signals.

Not *all* noise is the fault of the "man on the other side of the fence". Some of it is of our own making.

Trade-in Drive Automobile dealers have not been buying new cars in satisfactory volume, because most of them are tied up financially and otherwise with too many trade-ins. The country's used-car lots are jammed.

Manufacturers propose to break the jam through a nationwide campaign that will cost over 1½ million dollars. In newspapers, magazines and over 400 radio stations the public will be urged to buy used cars. Results are expected to justify the effort.

While the peculiar conditions in the radio industry preclude all possibility of staging a similar nationwide campaign, there is no reason why dealers in local trading areas cannot cooperate in a sales drive to move trade-ins.

In cities dealer groups might even operate a clearing house on a cooperative basis. This should handle trade-ins exclusively, advertise them as "CERTIFIED" or "GUARANTEED", sell as far as possible only for cash, pay dealers weekly for all sets sold less a fixed percentage to cover overhead of the operation.

Fair Trade That big New York department store which has for many years defended its assumed right to disregard the established policies of manufacturers has been sued for price cutting of radio sets that are sold in New York State only under fair trade contracts.

The Supreme Court Justice hearing the case granted a motion to strike out certain defenses of the big store, classi-

fied part of them as "frivolous, sham and irrelevant" and observed: "the constitutionality of the act (the N.Y. Fair Trade Act) can no longer be questioned. . . . This may now be accepted as law even though the party doing the actual selling and sought to be enjoined *is not a party to such contract.*"

Big words indeed, that if sustained by the highest court will spell the doom of destructive price cutters. Only the industry still will have to achieve some standard code of practice on trade-in allowances.

Inventories Slowly the outlook is clearing and through a multitude of sales promoting devices—some good—some bad—surplus stocks of sets are moving into the hands of the consumer.

If those mid-season models that are being brought out "to sweeten the line" will not turn boomerang and sour part of the public to future sales appeal there is a good chance that by the time the 1938-39 lines are ready, the market will be cleared far better than was thought possible three months ago.

Certain is, that everybody in the industry will approach the problem of new-season commitments more soberly than ever before and if the lesson of the last 6 months is not forgotten, we may have the new season bring more healthy and perhaps more profitable business than we now expect.

In its April issue *Radio Retailing* will announce a new service that is designed to aid in stabilizing the field.



EDITOR

Sell Where the Money Is..

That's to the Farmer!

With every factor most favorable, Rural America promises greatly increased sales of power washers in the spring of 1938 . . . That's where the money is—a better market today than most metropolitan and industrial centers. The big farm income of last year, largest since 1929, is now ready to be spent.

That's where the saturation point is lowest — where competition is not so keen — where there is the desire to purchase — where the need is the greatest.

A POWER WASHER FIRST

This spring, farm women will have a greater share of this increased income, to buy what they want for their homes — and a power washer is one of the first items on their lists.

5 out of 6 U. S. farms are without electricity — with hi-lines coming slowly, and little probability that there will be much change in this percentage for many years. These homes need power washers.

TIRED OF WAITING

Most farm women are tired of waiting for a hi-line. There is nothing to gain by waiting. There really is no difference between gas and electric washers. One starts as quickly as the other — they have the same features, advantages and economies — each relieves the user of the same amount of hard work — washing results are the same.

The gas washer, purchased now, can always be made over later into an electric model, easily, and at very little expense—by adding an electric motor. Here's a big market. The 5 out of 6 farms without electricity are prospects for gas models, with over 5,500,000 of such farms in the United States.

BRIGGS & STRATTON CORP., Milwaukee, Wis., U. S. A.

Most dealers know that equipment "Powered by Briggs & Stratton" is easier to sell — not only power washers, but also lighting plants, pumps and water systems, lawn mowers, small tractors — and many other farm tools and equipment.

EASIER TO SELL

It will be easier to sell the 5 out of 6 without electricity if the gas washer you sell is powered by a Briggs & Stratton 4-cycle gasoline motor. It is built for women to use. More than a million in farm use testify to its dependable, trouble-free service, quick starting and economy. This record has placed Briggs & Stratton gasoline motors in first place with farmers today.

Many purchasers will prefer the new washer models powered by a Briggs & Stratton Start-Charger—with the added feature of cranking motor electrically — and charging radio and other batteries while doing the wash.

NOW IS THE TIME

Now is the time to make farm sales — while all factors are in the dealer's favor. Now, while the farmer has ample time to talk to you.

And now, too, is the time when Briggs & Stratton is helping to make sales the easier with its great spring advertising campaign in 28 farm papers.

See the representative of your washer manufacturer at once for more detailed information on this farm market — and how to make these sales. Display and push gasoline washers that are powered by Briggs & Stratton. Go after farm sales now — while every factor is in your favor.

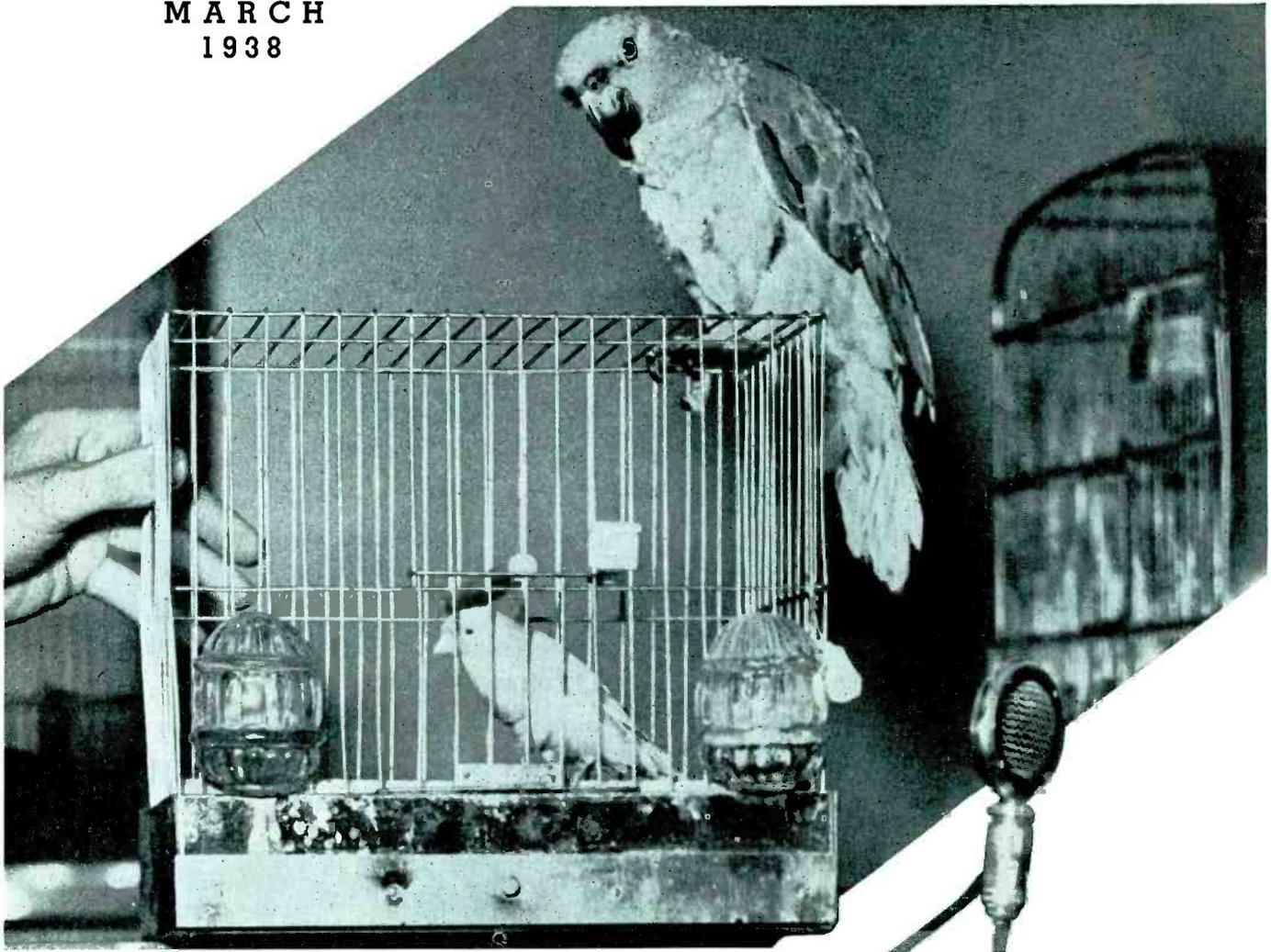


DON'T LET HI-LINE TALK STOP YOU

Explain these four points to your farm prospects who are waiting for a hi-line:
1. That there is nothing to be gained by waiting. 2. Gas Washers can be made over to electric drive, at any time, easily, quickly, at very little expense. 3. Gas and electric washers have the same features, advantages and economies. 4. Farm women want power washers now, to save on clothing, to save time, to eliminate unnecessary hard work, and to protect their health.

RADIO RETAILING

MARCH
1938



Every BIRD a BARKER



MANY a man has been legislated off to the booby-hatch because he heard mysterious bird-calls inaudible to the rest of the world. So this spring passersby on Chicago's busy, bustling Randolph Street will wonder if their heads are screwed on tight. Coming sweet and clear from apparently nowhere, will be mating calls and elfin serenades. For Vaughan's Seed Store,

in the Loop, has discovered another use for Sound.

Says enthusiastic E. Grouf: "For years buyers of seeds and bulbs never knew we had a second floor bird department. The birds' singing made no more impression than beating a fur cap with a lamb's tail. Then M & S Sound System Laboratory installed a microphone high up near the cages,

put in an amplifier designed to augment high, twittering notes and subdue low, rumbling store noise, placed a speaker outside on the fire-escape over our window. This system has hopped up bird business tremendously by making them audible across the street. Curiously, bird song seems welcome where music would be out. It attracts customers without offending them."



MOVED THE SHOP UPSTAIRS . . . THEN PUT IT BACK DOWN

Interesting experiment in the placement of a service department is reported by Vern L. Wenger of Portland, Oregon, who moved his shop upstairs (picture at left) for six months, placed it back of a counter visible from the street. Store traffic

increased threefold, tube sales doubled, service sales upped slightly, set and appliance sales fell off. Wenger put his shop back in the basement (right), says this arrangement's best for small stores



SLOW DOWN, BUD

Through Miami's streets rolls this safety car used by the police department's accident prevention bureau. A Webster-Chicago sound installation permits Lt. Dan Reynolds to warn violators of traffic rules. Lt. Ben Demby (civilian clothes) is the department's radio communications expert

SWAPS RADIOS FOR COTTON

To Texans, through his dealers, distributor Tom Merrick of Adleta Show Case & Fixture, Dallas, offers 10 per cent more for cotton than local buyers bid . . . if the proceeds are immediately applied against the purchase of a new receiver

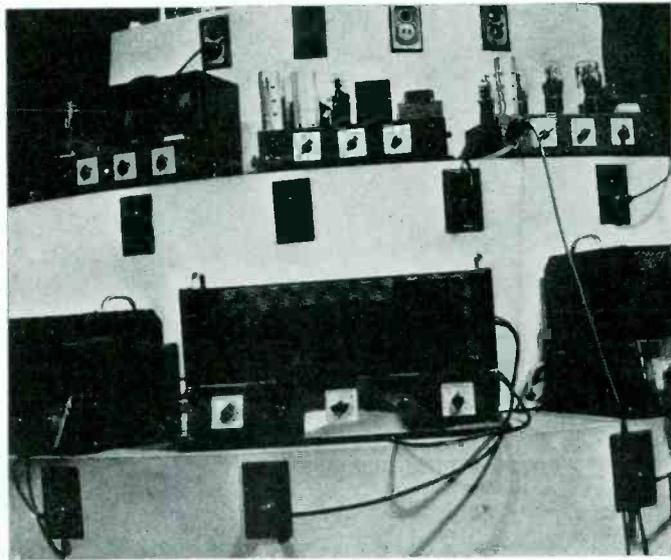


SOUND IN THE DOORWAY

Spanish architecture provides an ideal mount for two trumpets over the main entrance of Graham Furniture's store in Englewood, Colorado. Over these speakers go carols at Christmas, appropriate music for other holidays. Advertising is avoided and level kept down.

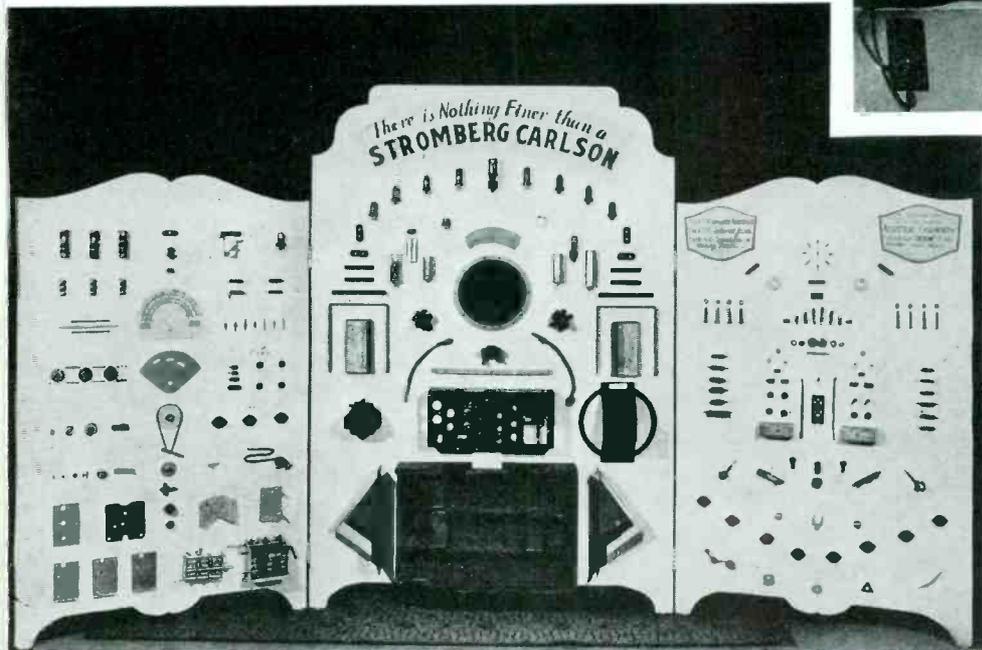
EACH ONE LABELLED, TOO

Calling attention to the way in which receivers featured are built, Jenkins Music made up this window display using Stromberg-Carlson 240-M parts, featured it in stores at Kansas City, Wichita, Tulsa, Oklahoma City



P.A. ON PARADE

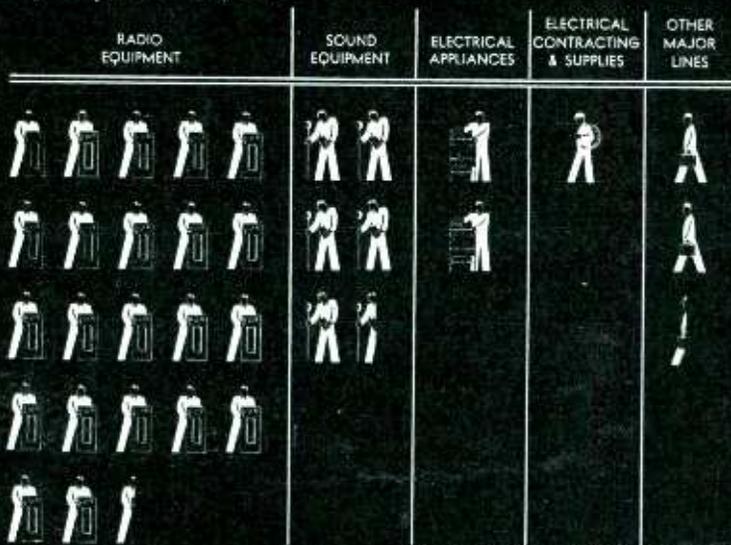
Amplifiers go faster when easily compared, according to M. N. Beitman of Chicago. He has built this display stand, equipping it with a switch-panel, plugs, jacks, which permit any unit to be instantly compared with any other



SOUND . . .

a study in distribution

By Major Lines



EACH FIGURE REPRESENTS THREE PER CENT OF ALL SOUND EQUIPMENT DISTRIBUTORS.

By Sound Equipment Volume



EACH UNIT REPRESENTS THREE PER CENT OF SOUND EQUIPMENT SALES BY DISTRIBUTORS.

WHO SOUND DISTRIBUTORS ARE

PICTURE a thirsty man adrift on the ocean. If he does not drink he suffers. If he does drink his thirst is quenched, at first. Then the salt accentuates it and he is thirstier than ever unless relief comes during the brief respite.

This is the precise position of the average Sound Equipment manufacturer today. He is afloat on a stormy sea, a new business. His overhead is equivalent to a wholly human thirst and he can slake it temporarily by extending wholesale discounts to men ordinarily considered retailers.

To a thirsty man water is water.

And maybe help will come in the

form of real volume from distributors before by-passing robs the product of needed promotional effort. Perhaps Sound will eventually be sold without middlemen, or possibly salt, in this instance, will not aggravate thirst.

Just whom do Sound Equipment manufacturers today sell on a wholesale basis? This sea needs charting. And you can't make a chart without facts.

So, from 14 manufacturers of Sound Equipment, including 5 nationally known makers of complete lines, 2 concerns turning out inter-communicators alone, 2 companies

making sound specialties, 4 manufacturers of microphones whose brands are seen from coast to coast and 1 builder of speakers widely used in the Sound field, we obtained lists. The total number of names supplied by these cooperating companies (with the understanding that they would be held confidential, used solely for purposes of study by the editors) was approximately 9,500. Cross-checking for duplication eliminated all but 2,966. And to these 2,966 we sent questionnaires. Twenty-six were returned because of incomplete or incorrect address, making a net mailing of 2,940.

TO ULTIMATE CONSUMERS



\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$

TO SOUND SPECIALISTS



\$\$\$\$!

TO RADIO SERVICEMEN



\$\$\$!

TO RADIO DEALERS



\$\$\$!

TO ELECTRICAL CONTRACTORS



\$\$

TO FURNITURE STORES



\$!

TO OTHER RETAILERS

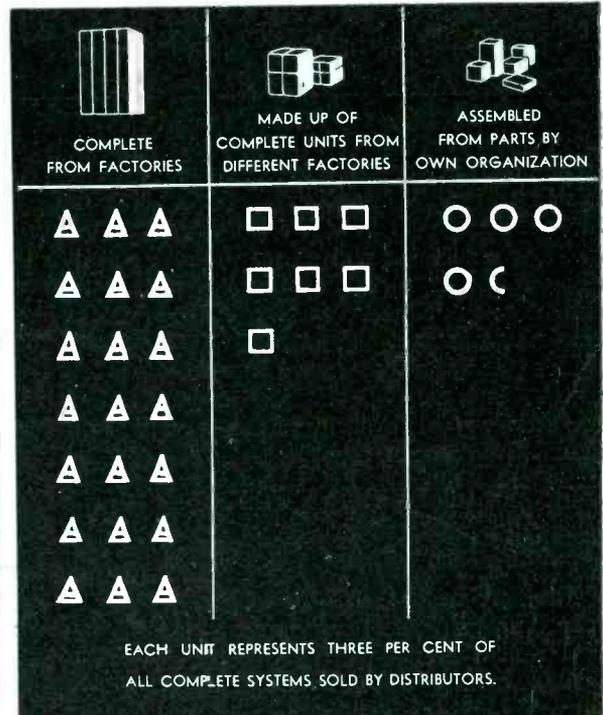


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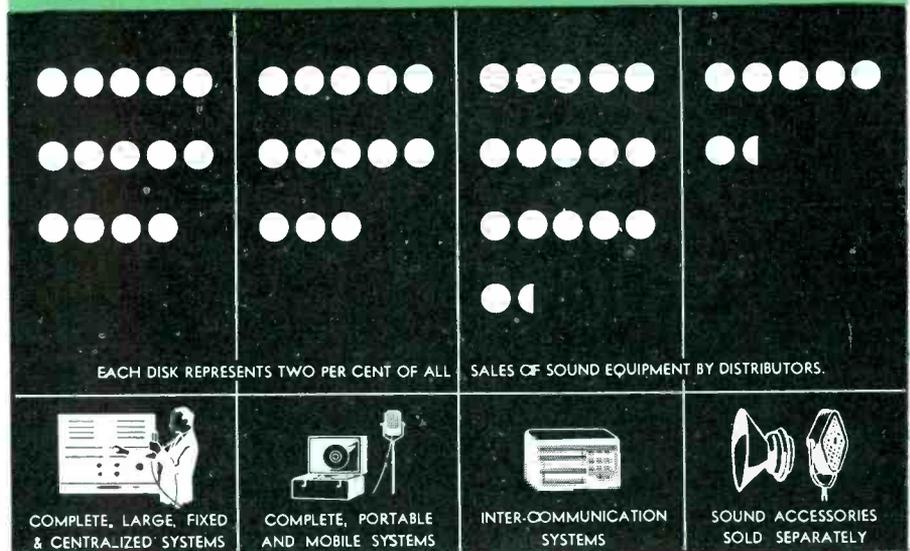
EACH UNIT REPRESENTS THREE PER CENT OF ALL DISTRIBUTOR SALES OF SOUND EQUIPMENT.

WHERE SOUND DISTRIBUTORS SELL

By
W. MacDONALD



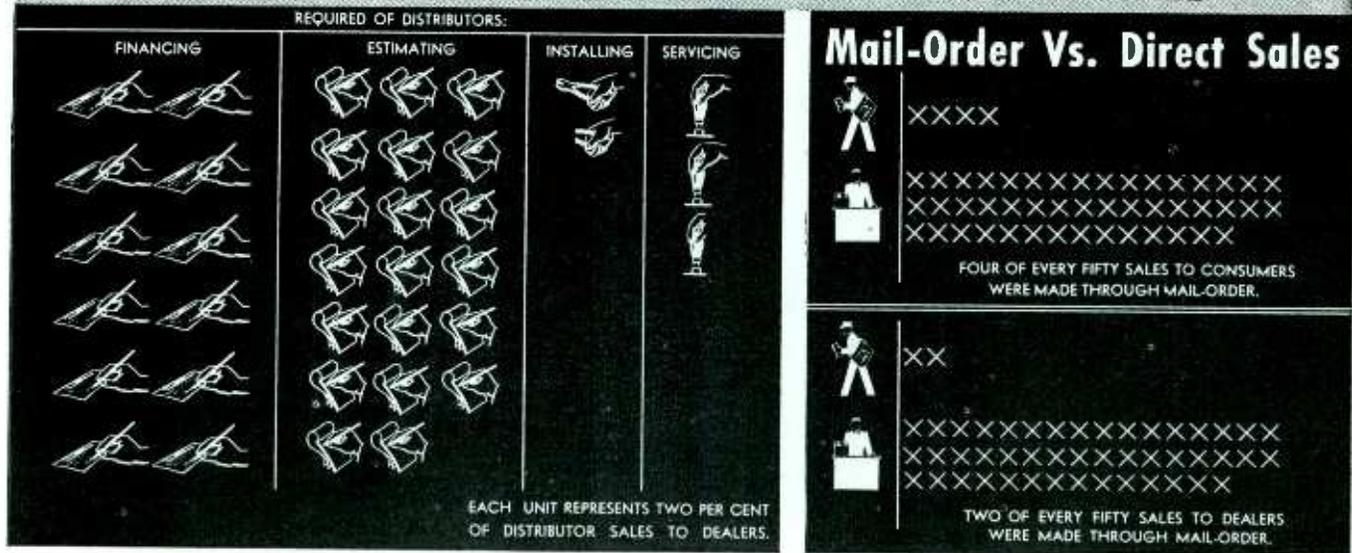
WHAT SOUND DISTRIBUTORS SELL



To date, 255 replies useable for tabulating purposes have been received. Seventy-two respondents (28.24 per cent) tell us they do not buy any Sound Equipment whatsoever despite the fact that they are on manufacturers' wholesale lists. The remaining 183 replies from men buying Sound Equipment on a wholesale basis direct from some manufacturer covers 40 states and the District of Columbia.

At first glance this number might seem a small total upon which to base even a preliminary survey. Consider, however, that these are accounts purchasing as distributors. We feel that

HOW SOUND EQUIPMENT DISTRIBUTORS SELL



they constitute a satisfactory cross-section and believe, further, that in this first of several studies scheduled for publication in *Radio Retailing** will be found facts and figures liberally guessed at for years but never until now actually laid "right on the line" for analysis.

Here, as accurately as we can present it, is a detailed study covering the activities of 183 men who buy Sound Equipment at wholesale directly from manufacturers, and who sold \$1,964,088 worth of it in 1937.

Who They Are

First, we analyzed these outlets to determine just what their major line of business was. After eliminating, for purposes of tabulating this data, the 28 companies whose replies showed they were straight retailers, we found (see illustration titled "Who Sound Distributors Are") that 67.34 per cent of them, judging by breakdown of reported dollar volume, were primarily distributors of radio sets, parts and accessories; 15.65 per cent were primarily distributors of Sound Equipment; 6.13 per cent were primarily distributors of electrical appliances; 2.72 per cent were primarily electrical supply distributors and contractors; and the remaining 8.16 per cent fell into several minor classifications among which were distributors of automotive products, bicycles, toys, office supplies, and com-

* Distributor comment on the Sound business. Companion survey now in progress among 5,000 dealers.

mercial refrigerators.

These figures alone, however, do not indicate the importance of the different groups as Sound outlets, as *volume* of Sound sales per outlet must be taken into consideration as well as the *number* of outlets in each classification. So we again tabulated, arranging them in order of importance by volume of Sound sales.

In this second analysis we found that distributors majoring in the Sound Equipment business had sold 54.6 per cent of the total Sound Equipment volume reported, 23.4 per cent of the Sound trade had been done by distributors essentially in the radio business, 2.5 per cent by those primarily engaged in selling electrical appliances, .3 per cent was accounted for by electrical contractors and supply houses and the remaining 19.2 per cent went through miscellaneous distributor channels.

The average distributor had purchased Sound Equipment on a wholesale basis for slightly over four years.

Where They Sell

We asked these 183 men who purchased Sound Equipment from manufacturers at distributors' discount to *whom* they resold it. We found (see illustration, "Where Sound Distributors Sell") that 51.3 per cent went directly to the ultimate consumer, 13.9 per cent went to Sound specialists, 9.63 per cent to radio service men, 9.4 per cent to radio dealers, 4.75 per cent to electrical contractors, .78 per cent to

furniture stores and 10.24 per cent to various other retail outlets.

Why sales went through these channels to the extent shown is a question best left for a subsequent installment.

What They Sell

"What per cent of your total sound sales are in (a) complete large, fixed and centralized systems, (b) complete portable and mobile systems, (c) intercommunication systems, (d) Sound accessories sold separately?" we asked.

Answers indicated that 32.93 per cent of total volume (see illustration, "What Sound Distributors Sell") was obtained from inter-communication systems, 27.76 per cent from large, fixed and centralized systems, 26.24 per cent from portable and mobile systems, and 13.05 per cent from Sound accessories sold separately.

Further findings were that 32.88 per cent of the companies answering handled all four groupings of Sound Equipment; 13.01 per cent stocked complete portable and mobile systems and Sound accessories only; 13.01 per cent stocked complete portable and mobile systems and Sound accessories only; and 11.64 per cent stocked large, fixed and centralized systems, portable and mobile systems, and Sound accessories only.

We found, also that 63.21 per cent of all the complete Sound systems sold were purchased with all accessories from some *one* factory, 22.96

(Please turn to page 44)

Sound Amplification *IS* Big Business...

**WILL BRING
YOU
BIG PROFITS!**

RCA PRESENTS

AN AUTHORIZED DEALER PLAN FOR COMMERCIAL SOUND



This booklet contains the RCA Authorized Dealer Plan for Commercial Sound. It is chock full of ideas and plans for sales stimulation. Your RCA distributor will give you full details.

COMMERCIAL SOUND SECTION *** RCA MANUFACTURING CO., INC.
CAMDEN, N. J. U. S. A.

Again RCA gives you a large profit opportunity... offers you a well organized merchandising plan... tried and proved selling plans... sales promotion aids... engineering assistance... powerful national advertising

PLUS the Most Complete Line
of Sound Equipment in the World
—Priced in Your Interest!

Selling sound is big business! And if you're not in it you're passing up juicy profits every day! For your field of prospects is wide and varied. And the prices of RCA Commercial Sound Equipment make your every sale well worth while! Installations range in price from \$80 to \$10,000 and up.

RCA offers you a valuable franchise—another important link in the RCA All The Way chain. Take advantage of this offer! If you do nothing more, investigate the plans that have been made for your profit. You have nothing to lose—everything to gain. Your RCA distributor has full details. Get in touch with him NOW!

An Almost Limitless Field of Prospects

For your convenience, some of these are listed below

- | | |
|-------------------|-------------------|
| Night Clubs | Beer Gardens |
| Country Clubs | Department Stores |
| Churches | Auction Rooms |
| Government Depts. | Theatres |
| Hotels | Dance Halls |
| Resorts | Amusement Parks |
| Hospitals | Public Schools |
| Industrial Plants | Colleges |
| Business Offices | Airports |
| Roadside Stands | Bus Stations |



As a franchised dealer, this sign identifies your store as RCA Sound Headquarters.

RCA presents "Magic Key" every Sunday, 2 to 3 p. m., E. S. T., on the NBC Blue Network.

Any sound system sounds better equipped with RCA Radio Tubes.



Commercial Sound

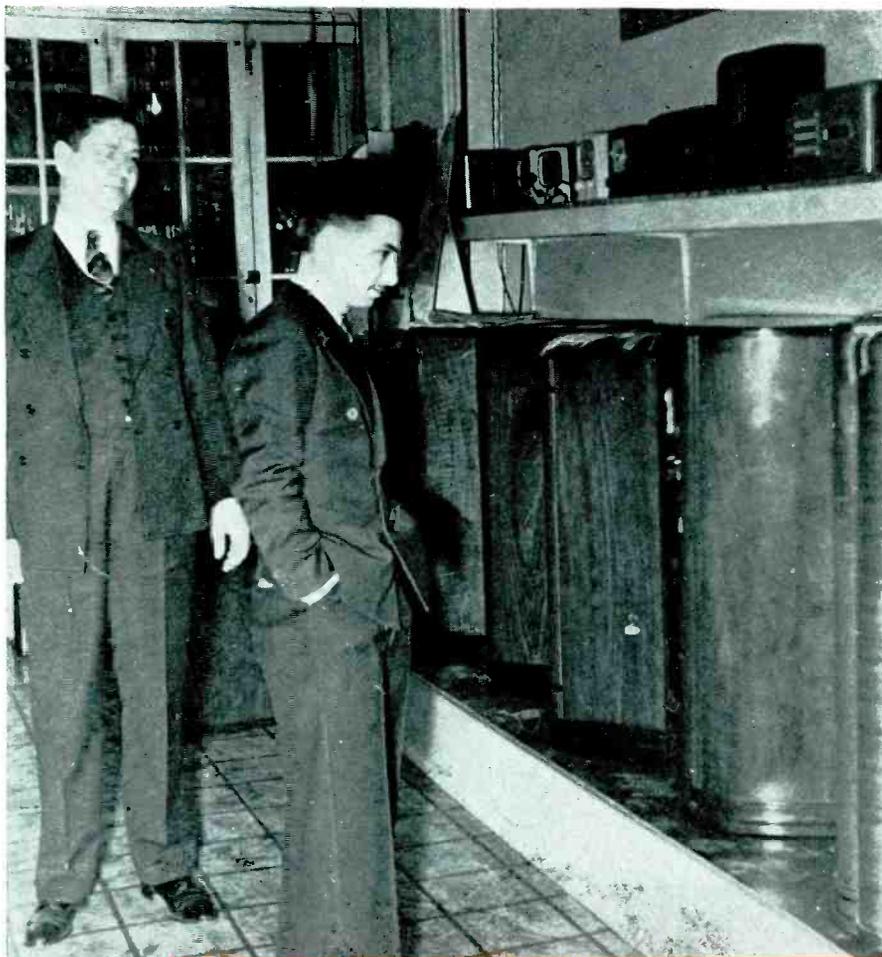
RCA MANUFACTURING COMPANY, INC. • CAMDEN, N. J.

A Service of the Radio Corporation of America



WAITING, WITHOUT WASTE—Ainslee Miller, between prospects, reads manufacturers' literature, magazines. Says the thorough knowledge of his own and competitive products gleaned in this way is the keystone of his quick closing strategy in which no time is wasted once a potential customer steps through the door

You know these **3 TYPES**



1 TIME'S A-WASTIN'—Hands in pockets, wise-guy expression on his face, this man typifies the many who kill an hour kidding salesman without any intention of buying. Show 'em the best buy in the house, and nothing else. If they don't spark let them do all the talking from then on



By
**TOM
BLACKBURN**

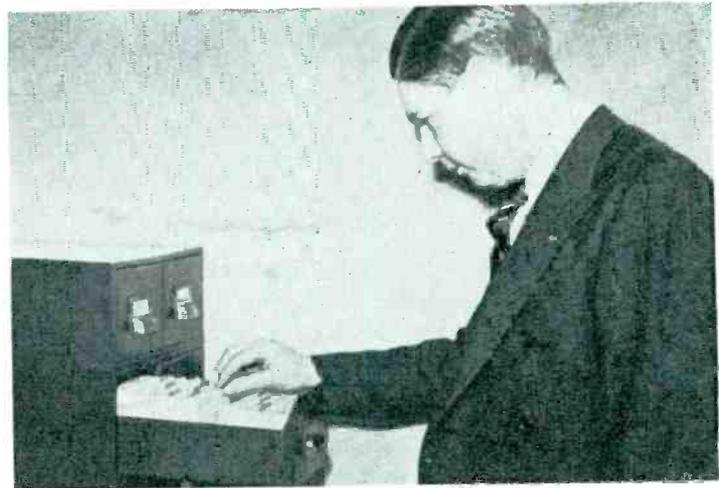
Here's how floorman Ainslee Miller sizes up shoppers in Houston, Texas, pins dead-heads down, knocks over the hot ones quickly for Star Electric and Engineering



2 HE'LL BUY WHOLESALE—To the man who writes down prices Miller gives no manufacturers' literature. Star Electric price-tags never state the model number and the salesman conveniently forgets them. Only chance of turning his one into a sale is to insidiously sell the value of the company's service guarantee



3 AHA, A HOT ONE—Characteristic tipoff is the way he walks up to a particular model, points, asks "What's the proposition?" Sincerity is evident in his expression. Here's the type for which Miller puts himself out, devoting all the time he's saved dealing quickly with less serious prospects



HIS CREDIT'S OK—Near at hand is a credit reference file on everybody Star's ever sold to. Miller checks through it in many instances right in the middle of a sale. It's done gracefully and the customer thinks the salesman is merely refreshing his memory on the set's sales features

THE LAST, LONG MILE—"What do you say, shall we go back and write it up? You're taking no chances with a radio bought from Star Electric." With these words, Miller turns abruptly, walks back to the desk. Most prospects follow. They do the talking, while Miller quietly but obtrusively fits a carbon into his book



"LOOKING FOR
GREATER VOLUME?
-talk to me!"

★ Many of your best prospects for radios are folks who have used my service before.

Because they know the convenience of my time-payment plan of buying they'll use it again in the purchase of a radio.

I have helped them buy automobiles, and automatic equipment for the kitchen and laundry. They appreciate my company's courteous collection methods and reasonable charges. When you offer them Commercial Credit Company financing, you get quick acceptance of terms.

I know how to investigate new customers and re-investigate old ones

without embarrassment or offense. I'll steer you clear of the bad risks.

Through me you can free yourself from credit and financing worries—devote 100% of your time to your real business of sales. Your job will become easier. Profits will flow in faster.

I am your local Commercial Credit Company manager. I am in more than 200 offices in principal cities of the United States and Canada. My company's great resources are not affected by temporary adverse local conditions. I can finance *all* the sales you can make. I stand ready to serve you. Call on me!



REFRIGERATORS • HEATING AND
AIR CONDITIONING EQUIPMENT
RANGES • ELECTRICAL APPLIANCES

COMMERCIAL CREDIT COMPANY

Commercial Bankers



Headquarters: Baltimore ★ Consolidated Capital and Surplus Over \$64,000,000

SERVING MANUFACTURERS, DISTRIBUTORS AND DEALERS THROUGH MORE THAN 200 OFFICES IN THE U. S. AND CANADA

SMOKE becomes FIRE

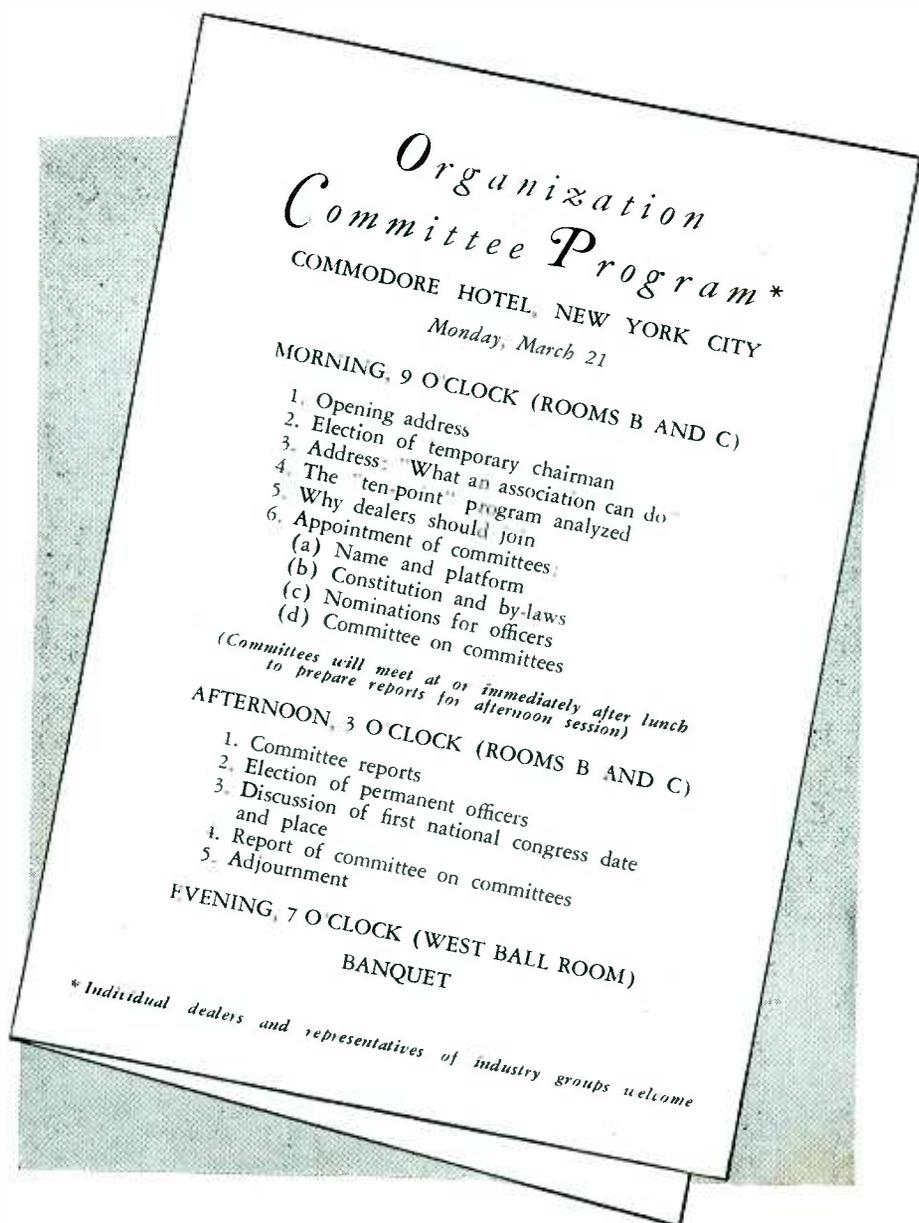
WITH the announcement of a general organization meeting at the Hotel Commodore, New York, on March 21st, 1938, recent activities toward the formation of a National Association for radio and home appliance dealers are approaching a climax.

The meeting is being sponsored by a general Committee of Organization which is made up of representatives of several now-functioning dealer organizations that had been working independently on such a project. Having consolidated their efforts in this joint committee, leading supporters predict that the forthcoming meeting will definitely call a soundly planned organization with nationwide coverage into being.

In talking to a representative of *Radio Retailing* one of the prominent sponsors of the meeting stated that "the prime movers of this effort are unanimous in the thought that responsibility and management of the new organization must be so allocated that the resulting policies and actions will at all times be wholly free from local or sectional taint and truly national in scope. No single city or state or section should be able to exert a dominating influence."

Furthermore, it is felt that the proposed organization should become as nearly as possible a federation of local groups.

It is pointed out that already there are upwards of 100 local dealer groups, clubs or electrical leagues in existence which logically could benefit all their members through affiliation with a strong and militant national or-



Long smouldering dealer desire for a national association bursts into flame

ganization. In addition, there are many cities of 50,000 population and over as well as smaller centers of trade where the number of dealers in appliances and radios is more than sufficient to maintain a local group which, through national affiliation, could function more successfully and with greater benefit to members.

Thus the leading sponsors argue that the objective for a federation set-up is well justified but they propose to suggest that ample provisions should be made for individual membership, this to be open to all established retailers who handle standard lines of radios, ranges, refrigerators, vacuum cleaners, washers, or other appliances, and who are located in communities where there is no affli-

ated local organization at present.

It has also been suggested that, if not at the outset then soon thereafter, provision should be made for separate divisions for memberships such as distributors, wholesalers, etc., so that the organization might eventually become a single cohesive group of all the different branches of the radio and appliance selling trades.

One prominent mid-western dealer reminds that the hardest part of the work has been done by the voluntary committee which has carried the thing along to a point where the forthcoming meeting could be called and that now it remains for dealers everywhere to put their shoulders to the wheel and make that meeting a

(Continued on page 48)

WHAT YOU NEED*

20 WATTS will cover 5,000 persons indoors and 20,000 sq. ft. outdoors
 30 WATTS will cover 15,000 persons indoors and 35,000 sq. ft. outdoors
 40 WATTS will cover 20,000 persons indoors and 50,000 sq. ft. outdoors
 60 WATTS will cover 25,000 persons indoors and 65,000 sq. ft. outdoors
 90 WATTS will cover 50,000 persons indoors and 150,000 sq. ft. outdoors

ELECTRICAL WATTS (Undistorted)	ROOM SIZE (Cubic ft.)
1	10,000
2	25,000
4	60,000
8	150,000
12	350,000
20	700,000
30	1,000,000
40	1,500,000

* Conservative, average requirements using properly placed 12-in. dynamic or permanent magnet speakers with directional baffle horns. Use of flat or box type speakers may reduce coverage as much as 66 per cent, depending upon design. In dance-halls or other similar high-noise level installations increase power 30 to 50%.

How to get

By
ROBERT S. NASH
Nash Company, St. Louis

SOUND—that lusty baby of the radio industry—has passed the creeper stage, is now toddling and will soon be walking rapidly before breaking into a dead sprint. Progressive radio dealers are fast recognizing the fact that good sound equipment, if merchandised and installed properly, is not only an important profit-builder in its own right but also a potential advertising medium of the first water for older lines.

Much has been written about selling sound in the past. Some of this has reflected actual experience. Much of it, however, has been “paper talk.” The time is past for mere promotional propaganda. Thus this series of articles will strive to give readers the viewpoint and actual experience of men who have been in the business since its inception, passing along suggestions proven by the trial and error method over a period of years.

First, Rentals

It is practically impossible to jump right into the sale of sound equipment without any knowledge of it other than the cost and sales price. The logical way to start, in my estimation, is with rentals, which can be quite



profitable if properly handled and will lay the groundwork for permanent installations and the intelligent selection of equipment.

Probably nothing is more important in the sound field than the proper type of equipment. It is not necessary to have equipment which rivals that of the big broadcast chains in every detail but it is cheaper in the end to make every piece the best you can afford. Equipment for rental work, especially, should be carefully chosen as the way it sounds to the audience will largely determine the future of sound equipment sales which are to come later.

The amplifier itself, being the very heart of the system, should be selected with particular care. I would suggest to newcomers, also, that all or most of the equipment, especially microphones and speakers, be coordinated or interchangeable. This will not only give flexibility and reduce the initial expenditure for equipment but will also save much time when making installations.

I would say that in an average mid-west city of medium size a good initial setup would consist of two 15-watt amplifiers, a 25 or 30-watt amplifier for medium requirements and a 60-watt amplifier for high power use.

STARTED *with* SOUND

Some dealers have two 60-watt amplifiers and others have more of the smaller types. The sound man will soon determine just what size amplifiers are most desirable in his locality by studying the type of clients he expects to reach. Dealers who desire to start with just one amplifier will find the 30-watt size a good all-purpose unit. Such an amplifier will cover 90 per cent of all ordinary applications, being more than adequate for most inside jobs and sufficient for medium size outdoor installations.

Selecting the Amplifier

Selection of the amplifier should be a careful process. Obviously, a breakdown on a rental job would mean not only a loss in actual dollars but also creation of an inestimable amount of ill-will. The latter loss is probably the most serious in the sound field as much of the future business must of necessity come from word-of-mouth advertising. A few extra dollars spent on better equipment will be more than repaid in the long run. Quality is rarely built down to a price in the sound line.

By this we do not mean to imply that only the highest price equipment is reliable. We do mean that the sound equivalent of a midget radio in a console cabinet is definitely bad business. Bargains offering "Latest 1938 super high-fidelity" at ridiculously low prices not consistent with the market price range of similar wattage amplifiers should be closely investigated before any purchase is made. Gingerbread features should not be permitted to throw a smoke-screen around weak basic design.

Distortion in the amplifier should be considered from the start. Every amplifier has some distortion in it, if it is worked hard enough. This distortion is not magnified, however, until peak power is reached, where equipment is well designed. Much talk is heard about the rating of amplifiers at peak output. Peak power for inside work is not usually practical, especially where music is to be played since the distortion at this point practically overshadows the

higher tonal range, cutting down the clarity of the system and rendering the all too familiar raspy reproduction so generally objectionable to listeners. You can frequently get away with peak power ratings, on the other hand, when working in stadia, ball parks, circus grounds, fairs, etc., where the relatively high noise level of the surroundings masks such distortion of highs in the human voice. Even here, it would not be desirable to transmit music over such a system. And it should be kept in mind that amplifiers working at peak are subject to greater risk of breakdown, especially where operated for long periods which heat the equipment.

In my estimation, the only practical basis of comparison between amplifiers, from the standpoint of output alone, is to compare them at reasonably undistorted power rating, rather than for peak power output.

1938 Amplifier Features

A glance over new amplifiers for 1938 indicates an increased production of systems from 15-watts up, using two channels for microphones and another for a pickup. Two microphones are a necessity in a majority of installations even when jobs use the smaller amplifiers.

The majority of amplifiers on the market today, having several input circuits, provide among these for high impedance microphones or pickups of about 100,000 ohms average working

COMING:

*Speakers and their placement
... Microphones, pickups, turn-
tables and tuners ... Inter-
communicators ... Service*

direct to the grid of the first tube.

Speaker outputs are being offered in a wide range, starting with 4 ohms and running up to the conventional 500. Five hundred ohm transmission lines have been preferred for some time by sound engineers as lines may be connected in parallel rather than in series. Some smaller amplifiers are designed for series connection of speakers. This has the disadvantages

of increased trouble possibility on a job. Should one speaker accidentally disconnect or open-circuit all the others go dead, much as would a Christmas tree lighting circuit. The possibility of job breakdown here is greater than in the case of paralleled circuits, where direct shorts are less common.

"Hum" is present to some extent in any amplifier. The majority of new amplifiers on the market have, however, an extremely low hum level, lower than in most radio sets with proportional power output. Some have hum level ratings as low as .1 of 1 per cent of total output, which is more than satisfactory even in such installations where the speakers are literally in the audience.

Sound Truck Considerations

Sound trucks are still another good bet for radiomen. However, this business is somewhat more complicated than the rental business recommended for initial breakin. Power supply must be provided, where in rental jobs the regular lighting lines do this work. Then, too, on the street a sound truck system must have considerably higher output than in the case of a fixed job as an amplifier of low power will mean that the advertising message transmitted will be lost too quickly as the car moves along.

Many companies now manufacture 110-volt a.c. and 6-volt d.c. combinations for operation on either type of supply. These are frequently converted by the mere flipping of a switch. Such units are especially adaptable for use in cars or sound trucks as the 6-volt power is available from the automobile's storage-battery and yet the job may be connected to the power lines when removed from the truck, or when the truck is operated near a power connection.

Generators for converting 6-volts d.c. from storage batteries to 110 volts a.c. are also available in profusion this season. There are, also, gasoline driven generators supplying 110 volts a.c., if this type of machine is preferred.

Demonstrating RECORDS

FIFTH of a SERIES

NEXT MONTH: *Raising the Record Average*

WHEN you demonstrate phonograph records don't be niggardly with your enthusiasm or reproducing equipment. A salesperson's delight in the merchandise being sold should be contagious. But, if the record isn't played on an instrument that will bring out its best features, the customer may find both the tune and the sales talk only mildly interesting. A raucous loudspeaker, a worn needle or a noisy volume control can defeat the most informed discussion. So, first of all, have your listening booths equipped with combinations or phonographs of sufficient frequency range and undistorted volume output to do justice to the really remarkable tone-quality being put into the grooves of present-day discs.

Check these record demonstrators daily as you check your radio floor models. See that fresh needles are kept handy for the customer's use, and put a new one in the pickup every time you play a record. Don't let a forgotten twist of the tone-control dull a record that should sound brightly. Use the filter slightly to get rid of any needle scratch present.

Knowing dealers study their customers' preferences beyond a taste for music. Some record buyers like to be left alone while they are playing over and selecting records. The majority, however, like to talk shop—whether it's about swing or symphony. If your attention isn't called elsewhere, stay with the customer, lead his interest, make suggestions and learn more of his musical tastes. As you hear the records first, it's up to you to pass along your endorse-



By **RICHARD GILBERT**

ments. You will be aided a great deal if you read the record reviews and amplify your own musical knowledge. Here are a few hints how:

For information on popular tunes and leading dance bands get *The Metronome* (119 West 57th street, New York) and *Down Beat* (608 S. Dearborn street, Chicago). Jitterbugs (jazz enthusiasts) go for these racy, specialized monthly journals. They contain plenty of dope about current discs and best-selling tunes. Try a few copies on your counter. Getting your customers to buy and read these will stimulate your popular disc sales no end.

The rage for swing music has been responsible for the publication of two books on the subject which every record dealer should investigate: Hugues Panassie's *Hot Jazz*

—*A Guide to Swing Music* (Witmark & Sons, New York); and Louis Armstrong's fascinating life story, *Swing That Music* (Longmans, Green & Co., New York). The first book has a long list of records by the great swing exponents, all of which are perennially in demand.

To know something about classical music—record sales of which are constantly increasing—you don't need to know how to play an instrument. A popular approach to the history of music will be found in Willem van Loon's best-seller, *The Arts* (Simon & Schuster, New York). This "Book-of-the-Month Club" choice also has an eighteen-page appendix listing a fine selection of phonograph records. Just the

(Please turn to page 44)

Emerson Radio

WORLD'S BIGGEST SELLING LITTLE RADIO

INTRODUCES 'MIRACLE AUTOMATIC TUNING'
IN A SUPERHETERODYNE TO RETAIL AT



\$19.95

- Adjustment so simple a Child can do it with a Coin.
- Sets any Station You Wish Without Opening or Touching Back of Set.

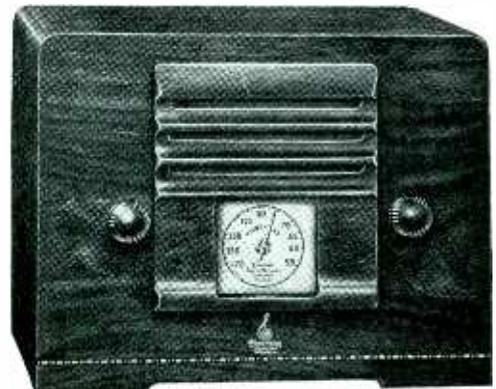


Emerson Model BE-198

5-TUBE AC SUPERHETERODYNE with the Famous **MIRACLE TONE CHAMBER**—American Broadcast and Police Calls—

6½-Inch Dynamic Speaker . . . Automatic Volume Control . . . Jewel Pilot Light . . . Acoustic Table Model, Smartly Designed in Walnut Bakelite, Size 8¼" high, 13" wide, 6¾" deep.

Tuning Range—172 to 555 Meters (540 to 1730 KC).



Emerson Model BA-201

ANOTHER GREAT EMERSON VALUE—5 TUBES —AC-DC

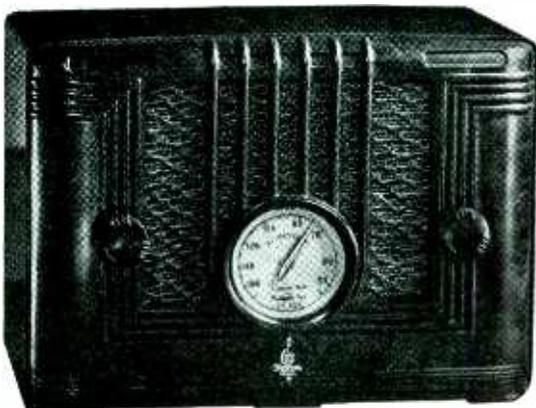
American Broadcast and Police Calls
BEAUTIFUL HAND-RUBBED WALNUT CABINET. Electro-Dynamic Speaker . . . Automatic Overload Control . . . Built-in Antenna . . . Illuminated Dial.

\$14.95

- All over the Country Sales Records are being Shattered on this Fast Moving Line. See or write your Distributor today for Complete Descriptions, Discounts, Prices.

EMERSON RADIO & PHONOGRAPH CORP.
111 Eighth Avenue New York, N. Y.
Cable Address: EMPHONOCO, NEW YORK

Don't Forget to Feature this New Emerson—the Fastest Selling Radio Set in America . . . it's the Sensational



BA-199 at

\$9.95

5 TUBES
AC-DC
American Broadcast—Police Calls

Electro-Dynamic Speaker . . . Automatic Overload Control . . . Built-in Antenna . . . Illuminated Dial . . . Walnut Bakelite Cabinet.

Radio



*RADIO GOES TO COLLEGE... published January, 1938 by CBS. We will be glad to mail you this study on request.

goes to College

TURN *where we may, investigate whom we will, radio is discovered an intimate and important and active part of daily living!*

College investigators, last Spring, at the request of the COLUMBIA BROADCASTING SYSTEM, studied the radio habits of college students. They found that over 95% of the students listen *regularly* to radio. Even more interesting is the amount of college-time spent listening to radio. The average male student reports listening 3 hours *each day*. The average woman student listens 2 hours and 52 minutes *each day*. This is remarkable when you consider what a busy person the undergraduate is! And conclusive evidence, once again, of how well radio reaches *everybody*: young and old—and class-markets as well as mass-markets.

The complete study* shows that America's million-odd undergraduates are remarkably like everyone else where radio is concerned. They are today's leaders of young people everywhere; tomorrow's leaders in business and society. And radio—*without special effort—without extra cost* reaches them *at the same time* it reaches the rest of the country. For *everybody* likes to listen!

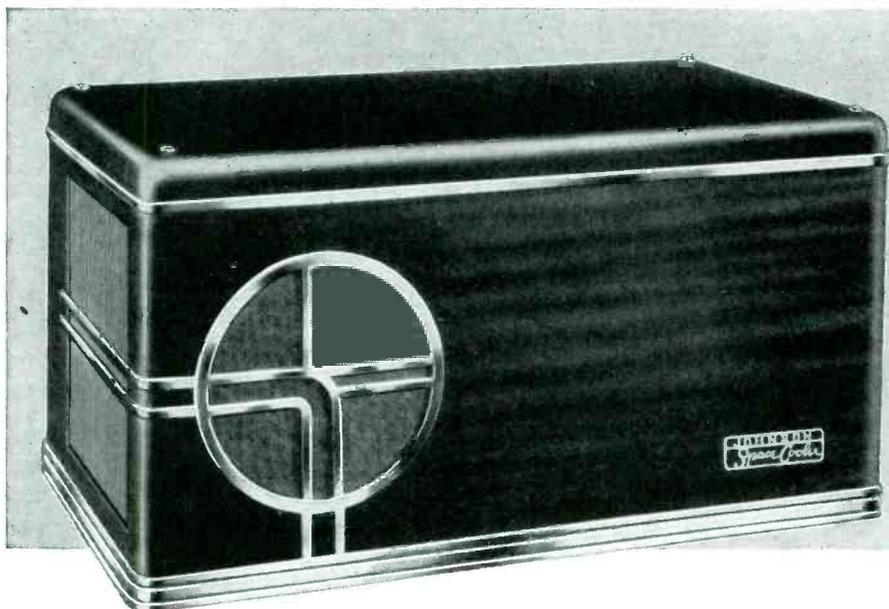
But this is no surprise. It confirms the findings of radio advertisers—and other radio research. (A year ago the CBS study of "THE VERY RICH—AND RADIO" arrived at much the same conclusion as the college-study. Like everybody else, the Very Rich also like to listen—and do!)

Yet, in the cloistered halls of learning we unearthed fresh material on a fine point. Everyone knows a few people who habitually do more than one thing at a time. Such people read while they eat, write while they telephone and—if they're at college—they study while radio-listening. But not *all* people double-up their activities. If we take the undergraduate as a guide, we find that *most* people prefer doing *one* thing at a time. Of the 2,487 college students interviewed, 61.3% stressed the fact that they do *not* listen to their radios while studying. But there's another simpler way of determining *how well* people concentrate when they listen to radio. Make a deliberate mistake of any kind on the air. Or make an offer. You will then quickly learn, from billowing bags of mail, just how intently the average listener listens when his radio is tuned-in! And *that* is a basic reason for radio's brilliant record of success.

THE COLUMBIA BROADCASTING SYSTEM

Johnson Announces

A GREAT NEW DEVELOPMENT IN SPACE COOLERS



This sensational Space Cooler meets the demand for a *simple* unit to *successfully* air-condition single rooms.

It is a highly developed, self-contained electric refrigeration plant of the twin cylinder compressor type. Air is circulated over cold coils where it is cooled, de-humidified and cleaned—then distributed throughout the room.

It offers the refreshing comfort of a mountain cabin to people in homes, in offices, in hospitals, hotels, clubs. Its popular price brings it within the reach of thousands of doctors, dentists, lawyers, sufferers from hay fever, and others who have long wanted a **DEPENDABLE** product of this type.

It is the product of Johnson Motors, builders of the world famous Sea-Horse Outboard Motors, household electric refrigerators and other products of outstanding quality. More than five years in refrigeration, with many notable developments to its credit, have given Johnson a perfect background for this latest achievement.

DISTRIBUTORS: DEALERS: The Johnson Space Cooler is going places! It will make real money for you—*this season*. Investigate! Distributors and dealers are signing up. Complete information will be sent to you immediately upon request.

JOHNSON MOTORS
REFRIGERATOR DIVISION, 1930 MONMOUTH BLVD., GALESBURG, ILL.

JOHNSON *Space Cooler*

**LOW
PRICE FOR
BIG
VOLUME**

★
**HIGHLY DEVELOPED
COMPACT
POWERFUL
SELF-CONTAINED
NO WATER PIPES
TO CONNECT
NO SPECIAL WIRING
TO INSTALL
NO EXTRA FLOOR
SPACE REQUIRED
FITS ON WINDOW SILL
PLUGS INTO NEAREST
LIGHT SOCKET
COOL, CLEAN, DE-HU-
MIDIFIED AIR**

★

SONGS for your SOUND TRUCK

Here's a list of phonograph records suitable for
"Street wear" on which the copyright has expired

V—Victor records. C—Columbia records. D—Decca records.

Abide With Me, Band, D356
Adeste Fideles, Hammond; Organ, D1550; Band, V21936
A'Hunting We Will Go, Orchestra, V22759
Aida—Ballet Suite; Grand March; Band, V35780; Orchestra, V11885
Alma Mater—Cornell (Medley), Orchestra, V24169
Aloha-Oe, Hawaiian Orch., V25031; Organ, V21121
Amaryllis-Gavotte, Orchestra, V20169
America, Band, V-20635; Mixed Chorus, V-21438
America the Beautiful, Organ, V21745
Andantino (Lamare), Organ, V35843
Angelus (Massenet), Organ, V35767
Apache Dance, Orchestra, V21055
Aquarellen—Waltz (Strauss), Orchestra, V8867
Arkansas Traveler, Instr. Trio, V40136
Arlisnna Suite (Bizet), Orchestra, C68882
At Tschalkowsky's Fountain of Music, Orch., V50041
Auld Lang Syne, Mixed Chorus, V35878
Autumn Thoughts, Russian Orchestra, V20752
Ave Maria (Bach-Gounod), Organ, V36029; Sa'on Orchestra V82
Ave Maria (Schubert), Concert Orchestra, V36029; Organ, V35923; Salon Orchestra, V82
Ay-Ay-Ay, Salon Orchestra, V20383

Badger Ballad (Wisconsin Medley), Band, V19990
Ballet Egyptien (Luigini), Orchestra, V35794/5
Barcarole (Tales of Hoffman), Orchestra, V35839
Barn Dance, Orchestra, V4
Bartered Bride: Circus March, Orchestra, C263M;
Dance of the Comedians, Orchestra, V8694;
Furiant, Orchestra, V1761; Polka, Orchestra, V8694;
Overture, Orchestra, V1555
Battle Hymn of the Republic, Band, V20013; Organ, V20745
Beautiful Dreamer, Orchestra, V9246
Beautiful Isle of Somewhere, Male Quartet; Bells, D1173
Believe Me If All Those Endearing, Band, V21938
Berceuse (Jarnefelt), Orchestra, V20374
Binge (Yale Medley), Band, V20008
Black Eyes, Orchestra, V64
Blue Danube—Waltz (Strauss), Band, V75; Orchestra, C7187; Orchestra, D1490; Orchestra, V6584
Bohemian Girl—Gems, Band, V36039
Bowerly, Orchestra, V22487
Bright College Years (Yale Medley), Band, V20009
Bugle Calls, Bugle, V21494 (Also Victor Sound Effects Records No. SE-24 and SE-25)
Bulldog March (Yale Medley), Band, V20008

Cadets—March, Band, V80748
Cameronian Rant, Bagpipes, V49
Campbells Are Coming, Bagpipes, V49
Capriccio Espagnol, Orchestra, V11827/8
Capriccio Italiano, Orchestra, V6949/50
Carmen—Selections, Band, V35841/2; March, Band, V75
Carmen—Suite, Orchestra, V1356 & V6873/4
Carnival of Venice, Barrel Organ and Cornet V93
Carry Me Back to Old Virginny, Quartet, V19887
Cavalleria Rusticana—Intermezzo, Band, D15010; Orchestra, V4303
Cavalry Trot—Galop, Orchestra, V-X16004
Chaco Boreal—March, Band, V-X16169
Chimes from Tower of Monastery, Chimes, V24552
Chimes of Normandy (Planquette), Orch. V50003
Children's Dance, Orchestra, V22171
Chinese Music, Chinese Orchestra, V-X16157
Christmas Bells, Chimes, V20993
Christmas Carols, Orchestra, V36188
Christmas Fantasy, Organ, V19816
Ciellito Lindo, Orchestra, V20384
Citronen Waltz, Orchestra, V11894
Coming Thru the Rye, Mixed Chorus, V35878
Conquering Hero Comes, Orchestra, V20620
Coppelia—Waltz and Entr'acte, Orchestra, V1743
Coronation March, Band, V35968
Cossack Dance, Orchestra, C9076M
Cucaracha, La, Mexican Orchestra, V-85602
Cumparsita, La, Salon Orchestra, V88
Cup of Sorrow—Tango, Novelty Orchestra, V24094

Damnation of Faust: Rakoczy March, Orch. V14230
Dance of the Hours, Orch., V11833; Band, D15008
Danse Macabre, Orchestra, V14162
Danse Slave (Chabrier), Orchestra, V36037
Danube Waves, Orchestra, V35826
Dead March from "Saul", Band, C7340M
Dear Grandma—Polka, Orchestra, V7
Deutschland-Lied, Military Orchestra, V80157
Dixie, Band, V20166
Dolores—Waltz, Band, V35761
Donna Diana—Overture, Orchestra, V11910
Down Where the Wurzberger Flows, Band, D542
Dragon Fly—Mazurka, Orchestra, V22513
Dream Tango, Orchestra, V20454

Eili, Eili, Trio, C257M
Electric Galop—March, Orchestra, V-X16008
Electric March, Band, V19844
Elegie (Massenet) Chimes, V36107
Emperor Waltz, Orchestra, V35919
En Tu Ausencia—Tango, Marimba Band, V-X16052
Erin Go Bragh, Orchestra, V-X16031

Ernani—Grand March, Band, D15011
España Rhapsodie, Orchestra, V4375
Estudiantina—Waltz, Orchestra, V35826
Eyes of Texas ("I've Been Working on the Railroad"), Band, V-85550

Farewell to the Forest, Band, V21936
Farandole (Bizet), Band, V21685
Fatima—Oriental Dance, Orchestra, V80067
Faust—Potpourri, Orchestra, V68906
Faust—Ballet Music, Orchestra, V96/6/7
First Noel, Chime Solo, V20993
Flatterer, The, Orchestra, C1658D
Flight of the Bumble Bee, Orchestra, V6579
Flowers of Italy—Waltz, Band, V35837
Folk Dances: German, Orchestra, C297M; Breton, French, Danish Orchestra (C299M); Moravian, North Italian, Slovak, C298M
Forge in the Forest, Band, V19879
Funeral March (Chopin), Band, V35800; Organ, V35958
Funeral March of a Marionette, Orchestra, V8661
Funiculi, Funicula, Orchestra, V20080

Garibaldi's Hymn, Band, V12167
God Be With You 'till We Meet Again, Male Quartet; Bells, D1173
Gypsy Oriental Dance, Gypsy Orchestra, V23

Hail Columbia, Band, V22013
Hail, Hail the Gang's All Here, Orchestra, V21673
Hand Me Down My Walking Cane, Orchestra, V-85049
Hansel and Gretel—Overture, Orchestra, V11929
Hark, the Herald Angels Sing, Hammond Organ, D1551
Hawaiian Moon, Hawaiian Orchestra, V20734
Hawaiian Rose—Medley Hawaiian Orchestra, V20703
Hilo Intermezzo—March, Hawaiian Orchestra, V20702
Holiday March, Orchestra, V22179
Huldigungs March (Wagner), Orchestra, V9158
Humoresque (Dvorak), Organ, V2125
Hungarian Dance No. 5, Orchestra, V4321
Hungarian Dance No. 6, Orchestra, V4321
Hungarian Dances No. 18 to 21, Orchestra, V1796
Hungarian Lustspiel—Overture, Orchestra, C7327
Hungarian Rhapsody No. 1, Orchestra, C7196/7; Orchestra, V4187/8
Hungarian Rhapsody No. 2, Orchestra, V14422
Hungarian Rhapsody No. 12, Orchestra, C7243
Hungarian Storm March, Orchestra, V11471
Hunt in the Black Forest, Band, C2442D

International Waltz Medley; La Golondrina, Black Eyes, Die Lorelei, Chanson Bohemienne, Peu d'Amour, V91
Invitation to the Waltz, Orchestra, C7198
It Came Upon a Midnight Clear, Hammond Organ, D1551
Jolly Fellow—Waltz, Band, D436

Kammenoi-Ostrow, Orchestra, V35820
Kingdom Coming, Band, V22013
Kiss Waltz (Il Bacio) Barrel Organ & Cornet, V93
Kol Nidre, Instr. Trio., C257M

Largo (Handel), Organ, V35972
Lead Kindly Light, Organ, V20780; Band, V35957
Liebestraum, Organ, V36209
Light Cavalry—Overture, Orchestra, V11837
Lohengrin—Wedding March, Organ, V20036
Lost Chord, The, Organ, V35760
Love's Old Sweet Song, Orchestra, V22051
Lucia—Sextet, Band, V35850

Madelon, Band, V46
Magic Song, Orchestra, V20750
Malaguena (Moszkowski), Orchestra, V36036
Marche Heroique, Band, V22014
Marche du ler Zouaves, Band, V5522
Marche Lorraine, Band, V22053
Marche Militaire, Orchestra, V4314
Marche Militaire Francaise, Orchestra, V5296
Marche Slave, Orchestra, V12006; Band, V26164; Band, C50288
March of the Little Lead Soldiers, Orchestra, V4314
March Religioso, Band, V35804
Marionettes, Orchestra, V20914
Marseillaise, La, Band, V22053
Martha—Overture, Orchestra, V35916
Masaniello—Overture, Orchestra, V11838
Meditation (Tschalkowsky), Orchestra, V-X16103
Melodies of Offenbach, Orchestra, V50033

Memories of Johann Strauss, Orchestra, C50332; Orchestra, V50039; Orchestra, V50047
Memories of Schubert, Organ, V-X35016
Merry Widow: Siren of the Ball—Waltz, Orchestra, V35852; Villia, Orchestra, V24728; Waltz, Orchestra, V24728; Potpourri, Orchestra, V36133
Merry Wives of Windsor—Overture, Orch., V11836
Midsummer Night's Dream—Overture and Wedding March, Orchestra, V11919/20
Mignon—Overture, Orchestra, V12038
Moldau, The, Orchestra, V11434/5
Money Musk, Old Time Dance Orchestra, V19964
Morning Journals, Orchestra, V68
Morning, Noon and Night—Overture, Orch., V36004
Musette, Orchestra, V20563
Music Box, Orchestra, V19923
My Darling Waltz (Strauss), Orchestra, V9991
My Hula Love, Hawaiian Orchestra, V21465
My Maryland, Band, V-85621
My Old Kentucky Home, Salon Grop, V9248

NATIONAL ANTHEMS:

Dom. Republic, Band and Chorus, V81361
Honduras, Orchestra, V79472
Boliva, Orchestra, and Duet, V-X16155
Cuba, Band, V80178
Guatemala, Male Chorus, V78871
Argentina, Orchestra, V79653
Brazil, Band, V81362
Chile, Band, V-X16056
Colombia, Band, V80748
Peru, Orchestra and Chorus, V78983
Mexico, Band, V79179
Panama, Band, V80186
Venezuela, Chorus, V78872
Philippines, Orchestra, V-X16170
Uruguay, Orchestra and Vocal, V79694
See also America (God Save the King); Deutschland-Lied; Erin Go Bragh; Star Spangled Banner
Nearer My God to Thee, Organ, V20129; Band, V35757
Nellie Was a Lady—Medley, Orchestra, V9247
Night in Budapest—Waltz Medley, Hungarian Orchestra, V35886
Night in Venice (Strauss), Orchestra, V36093
Night in Vienna, Hungarian Orchestra, V35886
None But the Lonely Heart, Orchestra, C256M
Norwegian Dances Nos. 1, 2, 3 and 4, Orch., C7128/9
Norwegian Mountain March, Band, V20151
Nutcracker Suite, Orchestra, Victor Set M265

O Come All Ye Faithful, Organ, V-85263; Choir, V20246
O du Lieber Augustin, Band, D541
O Holy Night, Hammond, Organ, D1549
O Little Town of Bethlehem, Hammond, Organ, D1550
Oh Susanna—Medley, Salon Group, V9247
Oh Tannenbaum—Medley, Organ, V-85263
Old Folks at Home, Orchestra, V-X35014
Old Gang, The—Tango, Orchestra, V18
Old Irish Air, Organ, V35999
Old Southern Waltz, Old Time Dance Orch., V19908
On Billows Rocking, Band, V21937
Onward Christian Soldiers, Band, D356
Oracion—Tango, Accordians, V63
Oriental One-Step, Accordians, V5
Orpheus in Hades—Overture, Orchestra, C50377
O Sole Mio, Band, V21937; Street Organ, V59; Orchestra, V20172
Over the Waves, Orchestra, D1490; Band, V19878; Old Time Dance Orchestra, V19908

Paganini—Medley, Orchestra, V20628
Pagliacci—Gems, Band, V35791
Paloma, La, Band, V19878; Orchestra, V24112; Street Organ, V59; Accordion, V20249
Peer Gynt Suite, Orchestra, V11834/5
Petersborough Sleighride—Galop, Orch., V-X16017
Perpetual Motion (Paganini), Band, D250
Perpetuum Mobile (Strauss), Orchestra, C9076; Orchestra, V4127
Poet and Peasant—Overture, Organ, D568; Orchestra, C9075; Orchestra, V11986
Polianka (Russian Dance), Orchestra, V19776
Pop Goes the Weasel, Band, V20151
Poppy, The (Lithuanian Dance), Band, V20991
Praeludium (Jarnefelt), Orchestra, V20374
Prelude (Rachmaninoff), Orchestra, V-X35009
Preludes, Les (Liszt), Orchestra, Col. set X82
Prophete—Coronation March, Orchestra, V-X35001
(Please turn to page 46)

Prevue of New

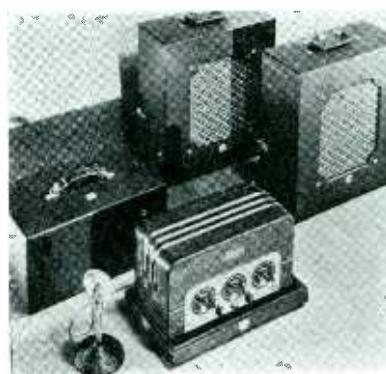
SOUND



WEBSTER

Simplified and improved hard-of-hearing aids for use in churches, auditoriums, theatres and schools have just been introduced by the Webster Co., 5622 Bloomingdale Ave., Chicago; a simple jack box and volume control system is provided so the individual may regulate the sound volume to his own needs

A streamlined portable p.a. system with the amplifier in red, blue or black, is announced by Bell Sound Systems, Inc., 61 E. Goodale St., Columbus, Ohio; 24 watts undistorted output; utilizes both bass and treble compensators; two 12 in. heavy duty dynamic speakers; crystal type mike with high frequency response



BELL SOUND



CLARION

The 30-40 watt Master system just added to the line of Clarion "Unified" sound equipment made by Transformer Corp. of America, 69 Wooster St., New York City, consists of "beam power" amplifier unit, velocity mike and floor stand, two 12 in. concert type speakers with flare baffles

A Ball Type dynamic microphone, Model MK-35, has been added to the line of the Transducer Corp., 30 Rockefeller Plaza, New York City; housed in a spherical metal case 3 in. in diameter and finished in satin black; swivel bracket so it can be used as a directional or non-directional mike



TRANSDUCER

Beam power, overall reverse feed back, phase inversion, microphone mixing and, of course, Halldorson vacuum sealed transformers are incorporated in the 35 watt amplifier kit placed on the market by the Halldorson Co., 4500 Ravenswood Ave., Chicago



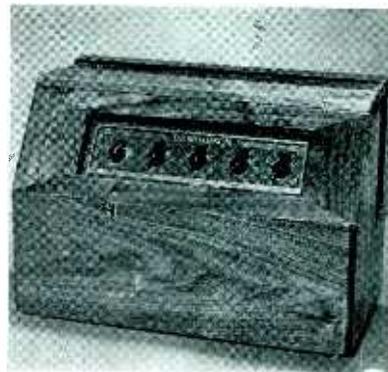
HALLDORSON

EQUIPMENT



AMERICAN

A small, light weight crystal microphone, Model B9, is announced by the American Microphone Co., Inc., 1915 South Western Ave., Los Angeles, Calif.; semi-directional; features an extended useful range in which the bass is efficiently reproduced; \$22.50; stands, \$10.50 and \$15.50



THORDARSON

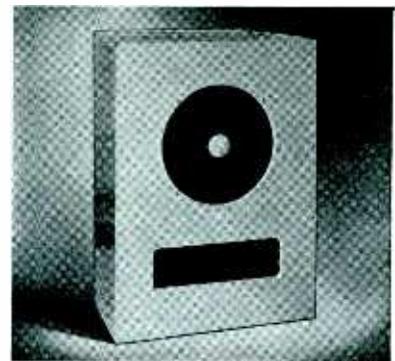
An entirely new line of amplifiers in modernly styled, solid walnut cabinets has just been announced by Thordarson Elec. Mfg. Co., 500 W. Huron St., Chicago; illuminated dials; protected controls; dual tone control; low distortion at all audible frequencies; sizes from 8 to 60 watts output covering practically every application

A Universal mobile system for 6 volt dc and 110 volt ac operation is offered by David Boggen Co. Inc., 663 Broadway, New York City; no plug-in power packs necessary; equipped with shockproof crystal pickup and removable phono assembly; 28 watts undistorted output; \$132.50; phono assembly, \$49.50

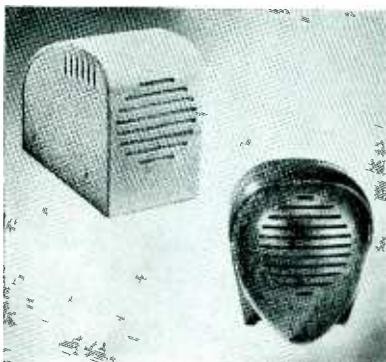


BOGEN

Bass reflex enclosures for 18 in. and auditorium speakers are offered by Jensen Radio Mfg. Co., 6601 S. Laramie Ave., Chicago; enclosures can also be used with speakers now in the field; shipped knocked down; all Jensen speakers are now offered as complete reproducers, no baffles necessary

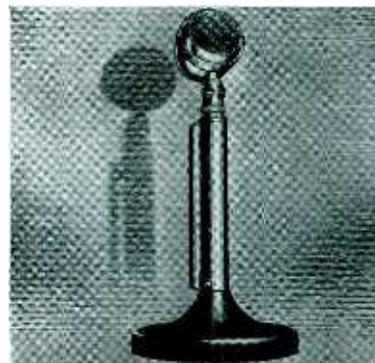


JENSEN



ZENITH

The "Radio Nurse" made by the Zenith Radio Corp., 6001 Dickens Ave., Chicago, has many uses in the home; one unit can be placed, say, in the nursery, the other at any convenient point—so the family can instantly hear the baby's cry; no wiring—just plug into nearest ac outlet



ASTATIC

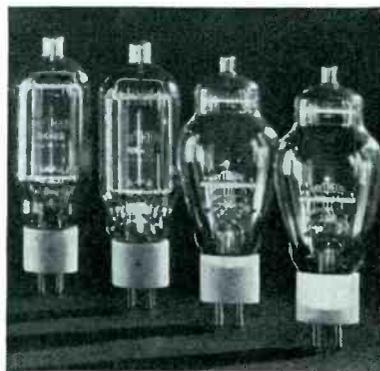
The new Type G, grip-to-talk microphone desk stand, designed for inter-office communications systems and amateur radio operators, is equipped with a bar actuated multiple contact switch and socket connector to fit any Astatic crystal microphone; Astatic Microphone Laboratory, Inc., Youngstown, Ohio

PREVIEW OF NEW RADIO MERCHANDISE



AUTOMATIC DEVICES

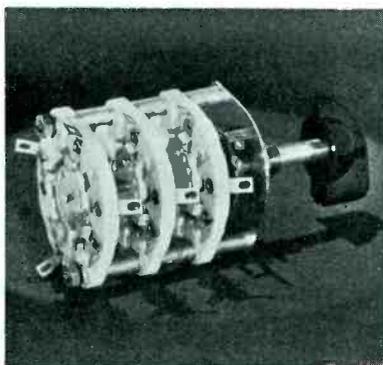
A rigidly constructed assembly of anti-capacity push button switches and specially designed variable condensers is offered by Automatic Devices Manufacturers, 4243 W. Ogden Ave., Chicago; known as the B-6 unit; easily installed; completely shielded and enclosed in a Duralac finished metal container; \$6.60 complete



RAYTHEON

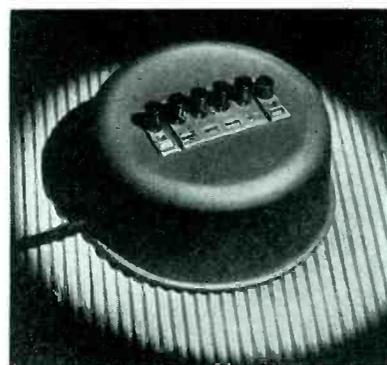
Four new RK tubes for use as power amplifiers, oscillators or frequency multipliers are offered by Raytheon Production Corp., Newton, Mass.; specifically designed for the amateur who wants low cost triodes with long life and the ability to withstand heavy surges; heavy, thoriated filaments for extra power

A complete line of selector switches assembled with Isolantite insulation is announced by Centralab, 900 E. Keefe Ave., Milwaukee, Wis.; two general classes—first is designed for radio amateurs and will operate at potentials up to 1000 volts dc; second is similar to present bakelite type but has Isolantite insulation throughout

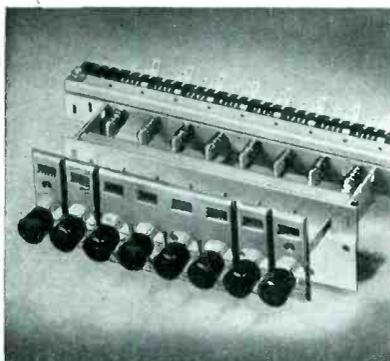


CENTRALAB

"Tunit" is an automatic remote tuning unit for any radio; soldering or rewiring is unnecessary; five stations; no motor or hum; manufactured by Setchell Carlson, Inc., 2233 University Ave., St. Paul, Minn.



SETCHELL CARLSON



MALLORY

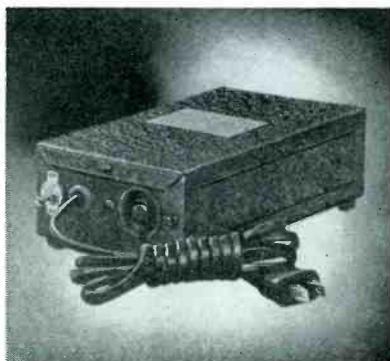
Multiple push button switches for use in automatic station selector tuning, inter-office communicators, set analyzers and other applications requiring a device for making, breaking or transferring multiple circuits in any desired sequence have just been brought out by P. R. Mallory & Co. Inc., Indianapolis, Ind.



CLAROSTAT

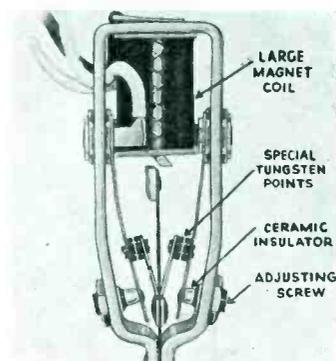
Precision plug-in resistors which provide maximum flexibility as to resistance values and range and offer a rapid method of building up any desired sequence of values together with low contact resistance may be obtained from the Clarostat Mfg. Co., 285 N. Sixth St., Brooklyn, N. Y.

A polarity changer for dc to ac conversion has been brought out by Electronic Labs., 122 W. New York St., Indianapolis, Ind.; input, 110 v. dc; output 105 v. ac; maximum capacity, 350 watts; efficiency is approximately 98% at full load; adjustable frequency control available; three models



ELECTRONIC

An auto-radio replacement vibrator, known as the Vibrapowr, is being made by Pauley-James Corp., 4619 Ravenswood Ave., Chicago; incorporates adjustability with a self-cleaning, wiping action of the contact points; method of procedure is practically same as that employed in automobile distributor work; nine models; \$3 to \$4.50



PAULEY-JAMES

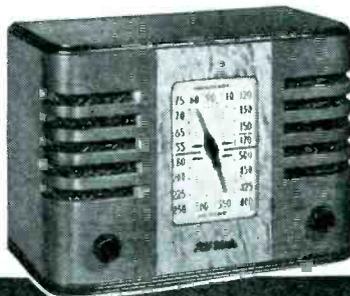
NEVER IN RCA VICTOR HISTORY HAVE SUCH VALUES BEEN OFFERED! FEATURE THESE SPECTACULAR BARGAINS AND YOU'LL SELL 'EM LIKE HOT CAKES!

*Two More SALES
SENSATIONS
from RCA Victor*

THIS RCA VICTOR TABLE MODEL IS A SALES WOW...

Model 94-X, a 4-tube AC-DC set which provides unusually fine tone. Among its splendid sales features are the clock-type dial, dynamic speaker, beam power output, built-in antenna. Has RCA Metal Tubes, receives state police calls as well as domestic programs. Yes—and its cost is amazingly low! A real price leader that'll bring in customers by the score! Get price from your distributor!

RCA presents the "Magr. Key" every Sunday, 2 to 3 p. m., E. S. T., on the NBC Blue Network



← ANOTHER OUTSTANDING RCA VICTOR VALUE

The distinctive beauty, performance and low price of this radio will bring you scores of sales. So, just imagine how many more sales you'll make when you tell prospects that RCA Victor Model 95-T has RCA Metal Tubes, Magnetite Core Transformers, clock-type dial, dynamic speaker, and other fine features. And the price—see your distributor at once!



RCA Victor

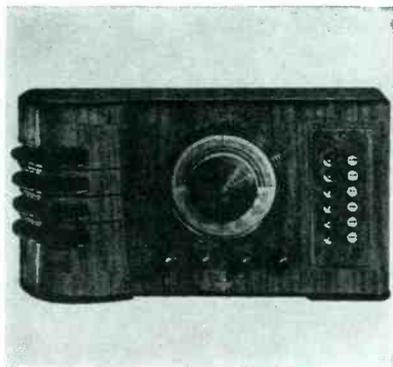
A SERVICE OF THE RADIO CORPORATION OF AMERICA

RCA MANUFACTURING
CO. INC.
CAMDEN, NEW JERSEY

Over 300 million RCA radio tubes have been purchased by radio users. In tubes, as in radio sets, it pays to go RCA ALL THE WAY

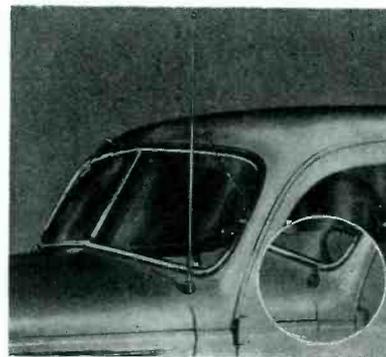
PREVIEW OF NEW RADIO MERCHANDISE

Miracle Automatic Tuning is incorporated in several new models by Emerson Radio and Phonograph Corp., 111 Eighth Ave., New York. Model BE-198 lists at \$19.95; model AZ-196 illustrated here and model AY-195 are slightly higher. Six station settings may be instantly changed by a twist of a coin in the specially slotted buttons on the front panel.



EMERSON

Pushing a button on the instrument dash raises and lowers this new automatic collapsible Col-Mar antenna designed by Pioneer Specialty Co., 521 St. Jean St., Detroit, Mich. Works on the windshield wiper principle on vacuum supplied by the car engine. Constructed of brass, triple-plated with copper, nickel and chromium



PIONEER



GOAT

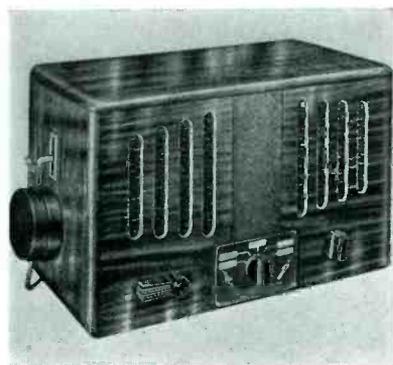
This new form-fitting tube shield by Goat Radio Tube Parts, Inc., 314 Dean St., Brooklyn, N. Y., claims better appearance, sturdier construction, improved grounding, magnetic shielding and many other important features. The new design insures maximum shielding of all glass type tubes with minimum space requirements.

Minicap tubular dry electrolytics by Solar Mfg. Corp., 599 Broadway, N. Y., claim smaller size per mfd., easy to mount, hermetically sealed in metal cans for long life. In single sections only; 23 different stock sizes cover all commonly required sizes. Voltage ranges are 100, 150, 300 and 450 volts.

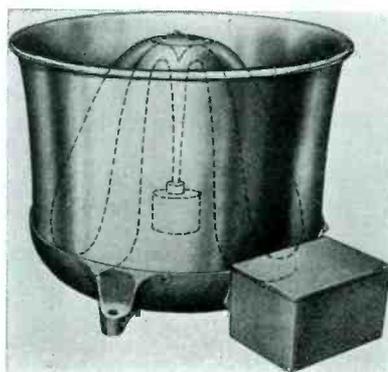


SOLAR

New wireless selector type communicator by Radiofone, Inc., 136 W. 22nd St., New York, permits two-way communication with the remote station. Up to five remote stations may be used. For confidential use each unit is equipped with an earphone that automatically silences the speaker when removed from its hook.



RADIOFONE



RACON

Compact marine type speaker by Racon Electric Co., Inc., 52 E. 19th St., New York. Heavy aluminum construction; 14 in. in diameter, 10 in. deep. Uses a driving unit of Alnico steel and Armco iron. Unaffected by any type of weather, completely waterproof.



ABC

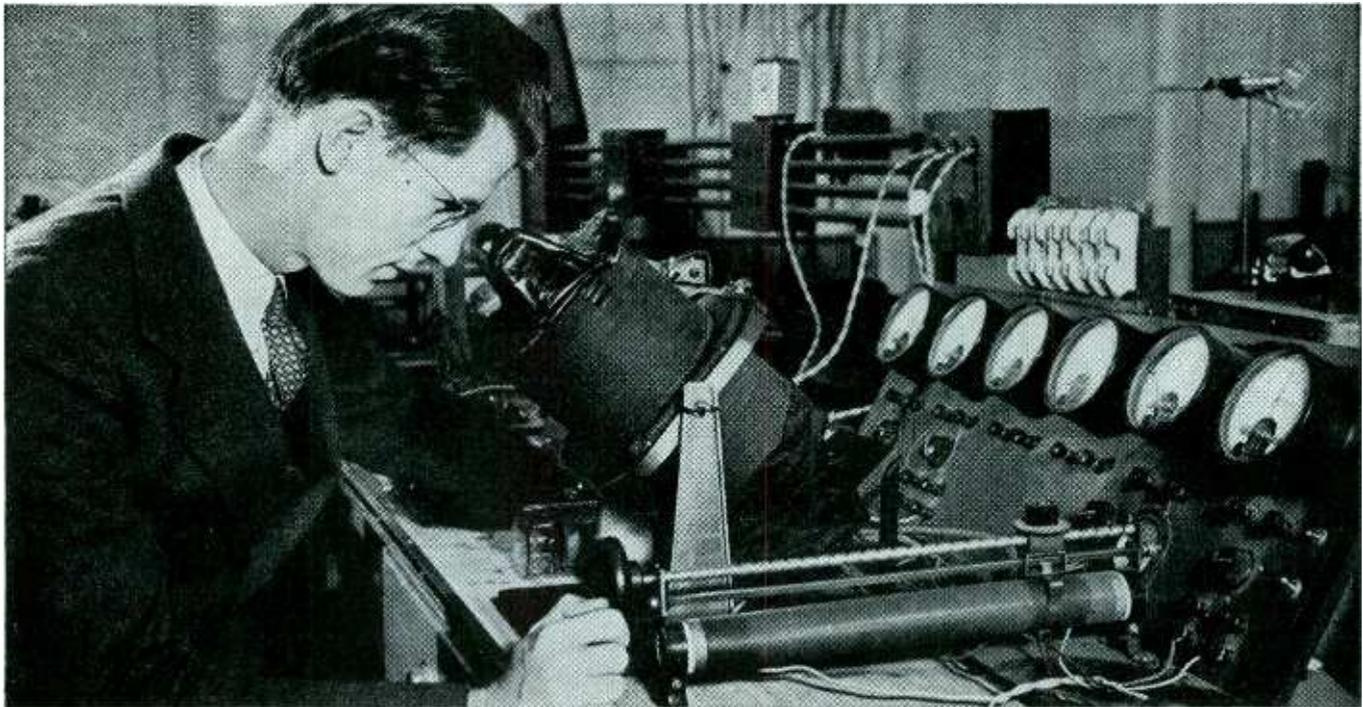
New police adaptor for auto radio has been announced by A.B.C. Radio Labs., 3334 N. New Jersey St., Indianapolis, Ind. Fixed frequency type, internally adjusted from 1500 to 2500 k.c. Two metal tubes, three tuned stages, high sensitivity; price \$15.95

The exact size illustration of Cornell-Dubilier Corp.'s (South Plainfield, N. J.) new Type BR etched foil electrolytic capacitor clearly shows the great reduction in size; fits conveniently into most confined spaces; single sections only; in capacities of 4, 8, 12, 16, 20 and 40 mfd. at 100 v. dc and up to 8 mfd., 450 v. dc.



CORNELL-DUBILIER

It wasn't a good *guess*...it was
GOOD JUDGMENT



Sixteen years ago RCA men knew radio so well that they based the development of their business on the belief some day every home in the United States would have a radio . . . Today, 26 million homes and 5 million cars have them.

FROM radio's inception RCA men have been *radio men*. They have obeyed radio's demand for unremitting research, for tireless exercise of ingenuity, for constant thinking. It is but natural that these men, through their own labors, should have acquired *good judgment* in all that pertains to radio.

Twelve years ago, when RCA founded the National Broadcasting Company, RCA men were veterans in radio communications, a youthful but already mature art. Some years earlier they had foreseen the coming of broadcasting, had realized its opportunities for service.

So it was *good judgment*, not good guessing, which enabled RCA men to predict—when radio receivers were laboratory apparatus—that virtually every home would have a radio instrument. Recent figures place the number of radio equipped homes in the United States at 26,428,797.

It is the unceasing endeavor of RCA to apply to all branches of radio, at all times, the good judgment of which its unmatched experience has made it the fortunate possessor.

Foremost of all the facts that good judgment recognizes about radio is . . . only by genuine service in the public interest can radio hold its rightful place.

**IN RADIO—AND TELEVISION
 —IT'S RCA ALL THE WAY**

Only the Radio Corporation of America is engaged in every phase of radio. Its long experience and its resources are coordinated for the advancement of Radio Communications, Broadcasting and Manufacture.

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



RADIO CORPORATION OF AMERICA
 RADIO CITY, NEW YORK

RCA MANUFACTURING CO., INC.

RCA INSTITUTES, INC.

RCA COMMUNICATIONS, INC.

NATIONAL BROADCASTING COMPANY

RADIOMARINE CORPORATION OF AMERICA



MEANS PROFIT TO YOU!

No other tube manufacturer offers you so complete a line of metal tubes for replacement use as RCA. And right now there's a potential replacement market of over 25,000,000 metal tubes for you to shoot at! That's why it will pay you to stock these tubes—plus the fact that

RCA Metal Tubes are *THE MARK OF A MODERN RADIO*



RCA Metal Tubes eliminate noises caused by external tube shielding and give finer performance because of internal shielding. They can be changed easily and quickly. They give precise performance, more stable short-wave operation, and sturdier construction makes them "vibration proof."

RCA Metal Tubes mean greater radio pleasure. That's why thousands of users hail them as "the mark of a *modern* radio"!

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

FREE!
**\$500.00 Worth of
RCA Test Equipment**

For full details and entry blanks, see the March issue of RCA Radio Service News... a local Radiotron distributor... or write to the "Modernization Contest Editor," RCA Manufacturing Co., Inc., Camden, N. J.



Radiotrons

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



OVER 325 MILLION RCA RADIO TUBES HAVE BEEN PURCHASED
by radio users... in tubes, as in radio sets, it pays to go RCA ALL THE WAY.

NEWS

Canadian Sales Rise

1937 totals surpass 1936. Stocks high, competitive market expected in Spring

OTTAWA—Radio receiving sets sold to dealers in Canada during the calendar year 1937 totaled 264,209 units valued at \$22,691,150 compared with 248,191 units valued at \$22,233,329 sold during 1936, a gain of approximately 26,000 units, and about \$455,000 in value, according to statistics made available in Canada and reported to the Department of Commerce by the office of the American Commercial Attache.

Local trade comment regarding sales of radio receiving sets in Canada was not entirely favorable, the report stated. Distributors and dealers were believed to be fairly well stocked and a rather competitive market was anticipated during the Spring, although serious price reductions were not expected.

A complete inquiry into the production, distribution, and sale of radio receiving sets, tubes, and component parts is being conducted in Canada by the Canadian Tariff Board, under instructions from the Minister of Finance. The Board was asked to review in general the bearing of



WITH WEBSTER-CHICAGO—Absent from the industry for some time because of ill health, *Fred Wessner*, at one time sales manager for National Union, has joined Webster-Chicago as sales promotion manager



TABLE-TYPE FACSIMILE—Obviously approaching marketable appearance and performance though yet labelled "experimental" is this facsimile receiver designed by Charles J. Young of the RCA Victor research labs. Uses 8½ by 12-inch pages of ordinary newsprint paper (plus carbon) on a continuous roll turned out at the rate of three feet per hour. Controls are concealed and an automatic time-clock switch included

the patent law upon the manufacture, use and importation, cost, and use of radios.

New Vibrator Maker

Pauley-James enters replacement field with adjustable design

CHICAGO—The Pauley-James Corporation of 4619 Ravenswood Ave. has been formed for the purpose of manufacturing and distributing a new auto-radio replacement vibrator. Trade name of the device is "Vibrapowr" and its manufacturer claims many outstanding improvements in design, quality and electrical and mechanical characteristics. Chief among these is a self-cleaning, wiping contact point action plus provision for adjustment by servicemen without the use of oscillographs, meters or gauges.

Sales manager of the new concern is Hal M. Pauley who was general service manager for Grigsby-Grunow from 1928 until 1933, later with Stewart-Warner. Stephen F. James, formerly with Grigsby-Grunow and experienced in both radio and vibrator

design and research fields, is chief engineer and a director of the corporation.

Production of Vibrapowr units is already under way, with 9 different types suitable for use in over four hundred different receiver makes and models planned.



VIBRAPOWR SM — *Hal M. Pauley*, sales manager of the newly formed Pauley-James Corporation



TABULATING ON A TRUNK—Toying with some very agreeable figures following RCA's eastern wholesaler's meeting is vice-president *Vance Woodcox*. Boston district office manager *Joseph B. Elliott* looks pleased, too



SEE LOW-PRICED RCA'S—At the late January RCA-Victor showing in Philadelphia's Warwick Hotel: (Left to right) *J. Goldstein*, Bruno-N.Y.; *Alan Steinert*, The Eastern Company; *B. D. Levin*, Hamburg Brothers; *Max Krich*, Krich-Radisco and *Charles Sonfield*, Bruno-N.Y.

RCA Springs New Sound Sales Plan

Selected, limited dealers to be given rigid territorial protection. Sales helps provided

CAMDEN—From RCA's Commercial Sound Section comes announcement of a new authorized dealer plan under which a selected, limited list of dealers is not only to be given rigid territorial protection but also distributor cooperation in excess of that available heretofore.

Included in the planbook now going for-

ward to company men in the field for presentation to selected dealers is a complete list of potential sound equipment applications, charts indicating the correct RCA sound equipment for each type of job, franchise forms and promotional material of every conceivable variety. Under the heading of promotional material is included sample letters which dealers may use to solicit business from hotel managers, architects, school principals.

Elaborately illustrated booklets picturing, describing and pricing the entire RCA line of sound equipment in a manner suitable for direct presentation to prospects are rapidly being made available.

Noise Target Of 4 Laws

Three states, one territory, fight unnecessary electrical racket

EAST ROCKAWAY, N. Y.—From Frank Carter of the National Association for the Prevention of Radio Interference come the following transcripts of laws and ordinances against unnecessary electrical noise affecting radio, at present in effect in three states and one American territory:

HAWAII

"Section 2210E. Creating radio interference unlawful. It shall be unlawful for any person, firm or corporation wilfully and knowingly to operate in the Territory of Hawaii any machine, appliance, device equipment or apparatus of any kind which produces unnecessary and reasonably preventable radio interference to the extent that the same interferes with, in any substantial degree, the transmitting or reception of radio broadcast. Provided, however, that the terms of this chapter shall not apply to any broadcast, commercial or amateur radio station which has a license or permit for operation, issued by the government of the United States or any of its duly authorized branches or departments, agencies or boards, and/or which is regularly engaged in interstate or international communication; or which is otherwise beyond the regulatory power of the Territory of Hawaii.

"Section 2210F. Complaints; summons; hearings; appeals. Whenever information shall come to any member of the commission that any person, firm or corporation is operating any apparatus coming within the purview of Section 2210E, it shall be the duty of such member to submit the facts in writing to the commission and the commission shall thereupon serve upon the alleged offender a copy of the complaint, together with a notice citing such person to appear at a time and place therein stated before the commission for investigation of such complaint. No further pleadings shall be necessary. If on such hearing or investigation the commission shall find that the alleged offender is operating apparatus which causes reasonably preventable radio interference to the degree forbidden by Section 2210E, the commission shall issue a written order notifying such person of its finding, setting forth the means by which such interference can be reasonably prevented or minimized, and ordering him within a certain reasonable period, to be stated in such order, either to desist from using such apparatus or to remedy such interference in the manner prescribed or in any other equally effective manner. Such person may appeal from such order to any circuit court of the Territory, provided he shall perfect the same by written notice duly filed, together with a copy of the written order appealed from, within ten days from the date of entry of such order, and such court shall have power to make such order as may be necessary or proper for the final disposition of the case and, if the order of the commission is sustained in whole or in part, shall fix a reasonable time within which the appellant must comply with such order. All such appeals shall be heard as upon appeal from district courts.

"If such person shall, after the period so fixed by the commission, or under appeal, use such apparatus without having so remedied such interference, he shall be deemed guilty of a misdemeanor.

STATE OF WASHINGTON

AN ACT

Prohibiting electrical interference with radio reception, and providing penalties. Be it enacted by the Legislature of the State of Washington:

Section 1. That it shall be unlawful for any person, firm, copartnership, association, or corporation knowingly or wantonly to operate or cause to be operated, any machine, device, apparatus, or instrument of any kind whatsoever within the corporate limits of any city or town of the State of Washington between the hours of six (6) o'clock P. M. and twelve (12) o'clock midnight, the operation of which shall cause reasonably preventable electrical interference with radio reception, within the corporate limits of such city or towns: PROVIDED, HOWEVER, That

x-ray pictures, examinations, or treatments may be made at any time if the machines or apparatus used therefor are properly equipped to avoid all unnecessary or reasonably preventable interference with radio reception and are not negligently operated.

Section 2. That this ordinance shall not be held or construed to embrace or cover the regulation of any transmitting, broadcasting, or receiving instrument, apparatus, or device used or useful in interstate commerce or the operation of which instrument, apparatus, or device is licensed or authorized by or under the provisions of any act of the Congress of the United States.

Section 3. That every person, copartnership, association, firm, or corporation violating any of the provisions of this act shall be guilty of a misdemeanor, and each day during which such violation continues shall constitute a separate offense.

VERMONT

(Vermont Laws, 1931, Act 54, p. 88.) An Act permitting municipalities to regulate radio interference. Approved April 1, 1931.

It is hereby enacted by the General Assembly of the State of Vermont:

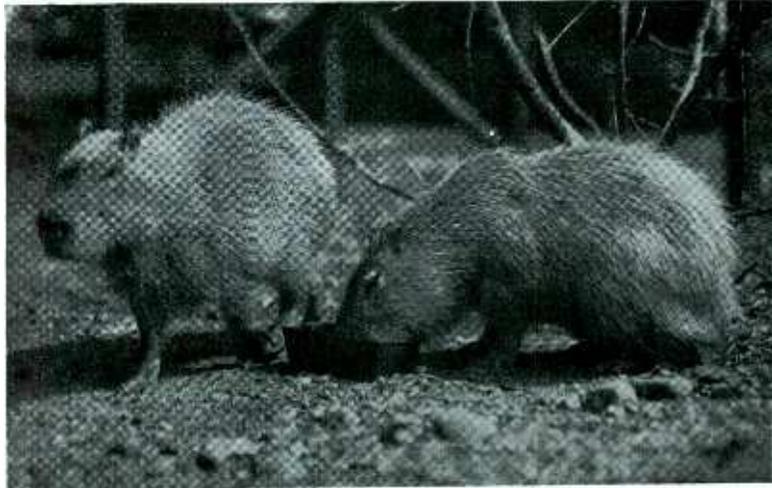
Section 1. Complaint; investigation; notice. Upon complaint to the selectmen of a town, the trustees of an incorporated village or the city council of a city, that some person, firm or corporation is unreasonably and unnecessarily disturbing or interfering with the reception of radio waves used for radio telephony, said selectmen, trustees or city council, after notice to such person, firm or corporation, may investigate or cause to be investigated such complaint. If, upon such investigation, the source and cause of such alleged disturbance or interference is determined, and it is found that such cause is reasonably subject to correction at an expense not to exceed fifteen dollars, said selectmen, trustees or city council shall give notice in writing to the person, firm or corporation responsible therefor to correct or eliminate the cause of such unnecessary or unreasonable disturbance or interference, within a reasonable time thereafter to be stated in such notice.

Section 2. Penalty. A person, firm or corporation who, within the time fixed in such notice, refuses and neglects to correct or eliminate the cause of such unreasonable disturbance, provided the same is reasonably subject to correction at a cost not to exceed the amount hereinabove stated, and who, after such time, knowingly, wilfully or maliciously on account of such cause continues to unreasonably or unnecessarily disturb the reception of such radio waves, shall be fined not more than fifty dollars.

Section 3. This act shall take effect from its passage.

OREGON

(Oregon Laws, 1931, C. 245 p. 392.) An Act (S.B. 241) prohibiting electrical interference with radio reception; providing that violation of the provisions of this act shall constitute a misdemeanor, and providing a



MEET MR. AND MRS. CARPINCHOE—We've wondered what these little South American rodents looked like ever since we learned that little pieces of their pliant hide was used to suspend Stromberg-Carlson speaker cones. Sales manager Lloyd Spencer, who says his company has just obtained a patent covering use of their skin for cone suspension, informs us that their nearest American counterpart is the woodchuck

penalty therefor. Approved Mar. 6, 1931.

Section 1. Any person or persons who shall maliciously or wantonly operate, or cause to be operated, any machine, device, apparatus or instrument of any kind whatsoever, the operation of which shall cause reasonable preventable electrical interference with radio reception within the corporate limits of any city or town within the State of Oregon between the hours of 6 o'clock p.m. and 12 o'clock p.m., shall be guilty of a misdemeanor; provided, that the provisions of this act shall not apply to the taking of X-ray pictures, the making of X-ray examinations or the giving of X-ray treatments; provided further, that said X-ray machine, or apparatus used therefor, is properly equipped so as to avoid all unnecessary or reasonably preventable interference with radio reception and is not negligently operated.

Section 2. No provision of this act shall be construed to embrace or cover the regulation of any transmitting, broadcasting or receiving instrument, apparatus or device used or useful in interstate commerce, or the operation of which instrument, apparatus or device is licensed or authorized by, or is under the provisions of any act of the Congress of the United States of America, nor to any person, firm or corporation whose business is regulated by the public service

commission of the State of Oregon or its successor regulatory body.

Section 3. Any person who shall violate the provisions of this Act shall be guilty of a misdemeanor and upon conviction thereof, shall be fined not less than \$50, nor more than \$500.

Final Figures Show Export Rise

RMA says industry shipped 652,028 sets declared at \$6,358,643

WASHINGTON—With December figures on hand from set makers doing an export business the Radio Manufacturers Association adds twelve-month totals, says 652,028 receivers declared at \$16,358,643 were shipped for export during the year 1937.

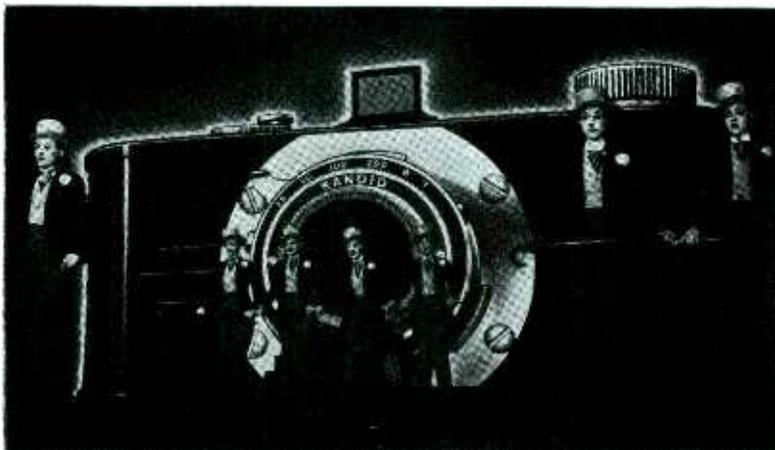
Tube exports totalled 9,682,414 valued at \$4,062,224; component shipments totalled \$7,321,668 at declared valuation, and there were 427,801 speakers valued at \$887,898.

Stewart-Warner Appoints Johnston

CHICAGO—The appointment of Fred E. Johnston as chief radio engineer has just been announced by the Stewart-Warner Corporation. Mr. Johnston comes to Stewart-Warner from the Crosley Corporation, where he held the position of chief engineer. Other early connections were with RCA as receiving engineer, with Hazeltine as radio development engineer, with Amrad as chief engineer.

Bonelli With Andrea

NEW YORK—James Bonelli has joined the engineering staff of Andrea Radio. Bonelli was associated with Frank A. D. Andrea as research engineer between 1928 and 1934.



CANDID CAMERA SNAPS KANDID CAMERA—On the stage at the Roxy Theatre in New York the Gae Foster gals do a number before a giant but exact replica of the clever "Argus" camera. International's sold over 200,000 to date

Eyeful As Well As Earful

Thordarson flashes new amplifier with walnut cabinet, illuminated controls

CHICAGO—Sometime after the witching hour of midnight, around 3 a.m., Charlie Cushway of Thordarson Electric Mfg. Co., Chicago, always has his best ideas.

"The amplifier has always been like Topsy," he said to himself one night last year. "It has just grown. I wonder how it would be to transform it to the Cinderella class—to doll it all up."

So started the chain of events which led Thordarson to present a smartly styled amplifier to the trade, March 7, which was as snappy as a preacher's cutaway, a head waiter's gardenia or a politician's silk hat. In short, Thordarson engineers presented an amplifier in a walnut cabinet, with illuminated controls, and a chassis which departed from orthodoxy in many respects.

Groups of from 25 to 100 distributors and public address men listened in on the Thordarson long distance convention via telephone lines to Boston, Buffalo, New York, Philadelphia, Washington, Detroit, Atlanta, New Orleans, St. Louis, Dallas, Tulsa, Salt Lake City, Portland, Los Angeles, San Francisco, Kansas City and Minneapolis.

"Featured in the electrical circuit is a



WINCHARGERMEN AT WORK—*W. W. Watts*, v-p and g-m, head down, works on the concern's new distributor merchandising plan. Adman *Mort Duff* smilingly dictates replies to trade inquiries.



EMERSON DEALER GET-TOGETHER—Emerson-New York, Inc. and Emerson-New Jersey, Inc. threw a party recently at the Hotel New Yorker for metropolitan dealers. Here (top) is one view of the turnout. *M. Abrams*, Emerson's treasurer (below, center) talks with a group of Gimbel Brothers buyers.

novel arrangement of inverse feedback. All models provide multiple inputs with individual controls. The provision for matching output impedance is, in our opinion, more universal than anything now on the market and incorporates the convenient "plug in" connector which has proven so popular and practical in Thordarson C.H.T. transformer line. Speaker field supply is provided on all models"—thus spake Charlie Cushway.

Five models were offered, 8 watt at \$39.50 (less tubes), 15 watt at \$79.50, 25 watt at \$110, and 40 watt at \$140.

UNIVERSAL—Gambill Distributing of Nashville has the line of ranges, vacuum cleaners and small appliances made by this company, does not distribute Universal refrigerators.

DuMONT—Vernon C. McNabb of 5105 N. Capital Ave., Indianapolis is the Upper Montclair, New Jersey manufacturer's rep for the Indiana and adjacent territory.

CLAROSTAT—Ohio and adjacent terri-

tory goes to C. A. Stall of 139 Alton Ave., Dayton, new rep replacing W. W. Boes.

TACO—Albert M. Baehr of Cleveland has this line with Harry B. Segar of Buffalo, these men serving Ohio and Kentucky.

KELVINATOR—Braid Electric has just been appointed distributor of Kelvinator's domestic appliance line for Middle Tennessee.

RADIOFONE—*General Electric Supply Co.*, New York City, will handle this line of wireless intercommunicators in Metropolitan New York and eastern New York state.

HOWARD—Has appointed *Goshorn Hardware Co.*, Charleston, W. Va., as exclusive distributor in central and southern W. Va. territory.

MEISSNER—Bill Carduner is now representative for *Meissner* in lower New York state, including Albany; New Jersey, Maryland, Delaware, eastern Pennsylvania and Washington, D. C. He is located at 17 Warren St., New York City, where he has a complete stock for filling emergency orders.

They're "TOPS" in Quality

— thanks to Sylvania's strict "no repair" policy.



Every tube that leaves the Sylvania factory is "tops" in quality—you can be sure of that.

For Sylvania's famous "no repair" policy—in-
augurated a few years ago—
calls for the *complete de-
struction* of every tube
that does not satisfactorily
pass scores of tests for
quality and performance.

This policy — unique
with Sylvania—is our posi-
tive insurance of top-
quality tubes. It's *your*
guarantee of pleased tube
customers, repeat sales.

SYLVANIA

SET-TESTED RADIO TUBES

HYGRADE SYLVANIA CORPORATION ALSO MANUFACTURES THE FAMOUS HYGRADE LAMP BULBS.

LATEST DEALER HELPS

REPLACEMENT TRANSFORMERS

—Free to men who already own a copy of Thordarson's Replacement Transformer Encyclopedia number 243 goes supplement number 243-S, containing seven additional pages of data based, like the original, on authoritative information from Rider's Manuals. Information in Encyclopedia 243 and in supplement 243-S is eventually to be combined in one book, when revised and re-issued.

SERVICING DATA—The makes and types of sets served, as well as the function and list price of some 1,200 exact duplicate controls numerically listed, are indicated at a glance in the new 9-pg. bulletin offered by *Clarostat Mfg. Co., Inc.*, 285 N. 6th St., Brooklyn, N. Y.

TIME PAYMENTS—This resume of the commercial banking services offered by *Commercial Credit Co.*, Baltimore, Md., is a distinctly valuable and enlightening booklet on the subject of time payments.

WINDOW DISPLAY—An attractive lithographed display consisting of a window streamer and 5 discs is offered by *Ken-Rad Corp.*, Owensboro, Ky. Features radio set service through tube testing.

RESISTORS—Bulletin 108 of *Ohmite Mfg. Co.*, 4835 W. Flournoy St., Chicago, contains handy engineering information and a complete tabular listing of stock sizes of its Riteohm 71 and 81 resistors.

SCHOOL SYSTEMS—Custom built equipment for schools, hotels and hospitals made by *David Bogen Co. Inc.*, 663 Broadway, New York, is fully described and illustrated in a 4 page folder.

REFRIGERATORS—Every Sav-A-Step feature of the new line of refrigerators made by *Stewart Warner Corp.*, 1826 Diversey Blvd., Chicago, is pictorially shown in a consumer brochure now ready.

SOUND RECORDER—Clever drawings graphically show the many and varied uses of the Junior sound recorder offered by *Presto Recording Corp.*, 139 W. 19th St., New York. Makes a good direct mail piece.

ACTION WINDOW—A giant action display dramatizing Touch Tuning has been made up by *General Electric Co.*, Bridgeport, Conn.

PORTFOLIO—A jobber salesman's portfolio outlining two attractive sales plans for electric washers and ironers has been release by the *Westinghouse Elec. & Mfg. Co.*, Mansfield, Ohio.



WINGED HORSE AND SOUND—Socony-Vacuum Oil's flying horse trademark can't be missed atop this promotion car sent to fairs, parades, celebrations. And beneath the horse is a neat housing for two Operadio speakers. In the rear compartment of the car is an Operadio mobile amplifier, complete with a gas-powered generator. Controls for the sound system are on the dash.



HERE'S HOW IT WORKS—Vic Mueller of Clarostat waxed enthusiastic about his new midget control with H. L. Dalis (left) and Adolph Langer, distributors, lending a willing ear.



BANQUET AT ALBANY—Left to right: Frank Dewey, Frank S. Gibson, Jr., John L. Stephens, all of the Gibson Electric Refrigerator Corp., Charles A. D'Elia and Edward E. Lewis, distributors and Roy Rosenfeld of Emerson Radio. Occasion: Introduction of Gibson Freez'r Shelf line.

**6 VOLT D.C.
110 VOLT A.C.**

25-35 WATTS



**RUGGED • COMPACT • TYPE 132
MOBILE
P.A. SYSTEM**

Uses Beam Power Tubes . . . Electronically mixes one Microphone and one Phonograph . . . Includes Dual Diaphragm Crystal Microphone Hand Type . . . Two 12" Heavy Duty Permanent Magnet Speakers . . . Interchangeable Power Packs . . . can be used in conjunction with Radio Set by using a Model A-3960 Radio Matching Unit.



Model 124-W
22-40 Watt Portable Unit
Price complete with Model 822-P Amplifier, crystal microphone with floor stand, 2 speakers compactly mounted in leatherette covered carrying case.

● Extremely rugged, compact and ready to go in every case where a temporary installation is required. A simple change of parts and it's ready for 110 Volt A. C. or 6 Volt D. C. Beautifully finished in baked black stipple, this unit never falls down on the job expected of it.

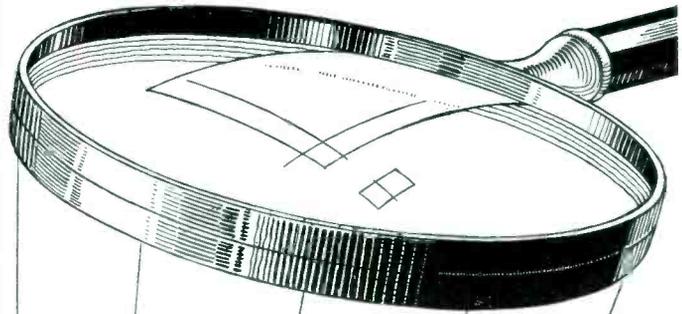
The Most COMPLETE Line of Intercommunicating Systems, P. A. EQUIPMENT, P. A. SPEAKERS AND RADIO REPLACEMENT SPEAKERS THE MARKET AFFORDS. EASY TIME PAYMENT PLAN.

**THE PRICED RIGHT LINE . . . THE LIBERAL
DISCOUNT LINE . . . THE 1938 PROFIT LINE**

For New ILLUSTRATED CATALOG
Address Dept. R3R

**OPERADIO
MANUFACTURING COMPANY
ST. CHARLES • • • ILLINOIS**

**GIBSON'S NATIONAL ADVERTISING
— LOCALIZED FOR DEALER BENEFIT**



**IT'S ALL YOURS—FOCUSED
ON YOUR AREA—CARRYING
THE NAMES OF AGGRESSIVE
GIBSON DEALERS**

Gibson's bid for 1938 profit leadership is a 3-point market attack of carefully applied power: (1) National coast-to-coast newspaper campaign. (2) The sales-compelling Gibson advantage of MORE ice cubes, MORE food capacity, MORE refrigerator in the same space, with Gibson's Exclusive Freez'r Shelf. (3) Prices in line with the market despite Gibson's greater value! . . . With Gibson's profit record, exclusive sales features, and this concentrated localized advertising, Gibson dealers and distributors can confidently expect 1938 to yield the all-time high in refrigerator profit! Investigate! . . . GIBSON ELECTRIC REFRIGERATOR CORPORATION, Greenville, Michigan. CHICAGO: American Furniture Mart. Export Sales Dept.: 201 North Wells St., Chicago, U. S. A. Cable Address: Gibselco, Bentley Code.

YOU

GIBSON

THE FREEZ'R SHELF REFRIGERATOR

Means

MORE

ICE CUBES—FOOD CAPACITY

WHAT'S THE ANSWER To Radio's "Off Season" ?

SMART retailers are "taking up the slack" in radio business by featuring the movie outfit everybody wants...the only one everybody can afford! There's no question about it! UniveX is the answer to the radio man's prayer!

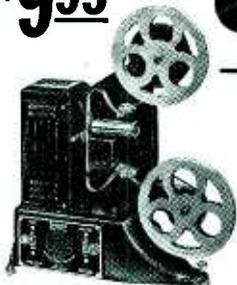
How well you bridge the gap until next season depends on how thoroughly you promote UniveX—NOW! And remember, every time a UniveX customer comes back for accessories you have a chance to sell him other products.

Let your customers know your store is UniveX headquarters—and make your "off" season the biggest you ever had!

FAIR TRADE PROTECTED IN 42 STATES

**LIFETIME
MOVIE
CAMERA**

\$995



**LOWEST
PRICED
8MM.
PROJECTOR
\$1495**

TESTED SELLING IDEAS

Universal Camera Corp.
32 West 23rd Street, New York City

Will you send me tested selling ideas which have produced volume sales and profits for other radio dealers. I understand there is no obligation.

Name _____

Address _____

City _____ State _____

SOUND DISTRIBUTION

(Continued from page 16)

per cent were made up of assembled units purchased from several different manufacturers. The remaining 13.81 per cent of all complete Sound systems sold were constructed from parts by the wholesalers themselves.

The average wholesaler, by the way, patronized 4,094 manufacturers of Sound Equipment.

The nature of the average Sound Equipment inventory maintained by these distributors as of March 1, 1938 has a direct bearing on their importance to the industry, so we pass it along. The average wholesaler surveyed had \$1543 invested on that date. He expected to realize \$2456 in gross sales on this stock. His Sound Equipment turned over slightly more than 4 times in 1937.

How They Sell

Rivaled in interest only by the character of Sound Equipment wholesalers and their chief source of income, is information regarding their methods of moving their Sound stocks.

We asked them what assistance they gave dealers to whom Sound was sold at trade discounts, found that 24.27 per cent of all such sales required direct or indirect financing by the wholesaler, 40.09 per cent required original estimating by the wholesaler, 3.36 per cent required installations by the wholesaler, and 4.48 per cent required subsequent servicing by him. This question has been much discussed in the past with very little fact upon which to base an opinion. Here, finally, is an accurate answer (see illustration, "How Sound Distributors Sell").

Further analyzing the selling methods of these 183 men whose names were submitted to us by manufacturers as Sound Equipment wholesalers we find that of the equipment re-sold to dealers 2.42 per cent was sold by mail-order and study in distribution is probably all re-sold direct to the ultimate consumer by these men buying at wholesale discounts was moved in this manner. (In this one instance the editors do not claim that figures are necessarily applicable to the nation's total Sound business as mail-order houses distributing catalogs nationally do a business sufficiently large to distort any picture based on reports from typical, territorial Sound Equipment wholesalers.)

We find, also that 31 per cent of the men answering our questionnaire maintain entirely separate Sound Equipment sales organizations.

And have you speculated about the size of the territory a Soundman must cover by comparison with his coverage in behalf of the other lines? We find that the average spreads out 1½ times as far to bring in Sound Equipment volume necessary to make the business go. While it is impossible to state the average number of square miles in which Sound sales are solicited, some inkling of the footwork required may be gleaned from our estimate that the average of these 183 men questioned covers 276 square miles for every \$1000 he records in Sound Equipment sales.

This much regarding Sound, a study in distribution, is probably all the thirsty man adrift on the ocean, to whom we alluded in the opening paragraphs, can swallow in one gulp.

So we shake this mass of figures out of our head, go out and get us a drink, closing with the label: "to be continued."

DEMONSTRATING RECORDS

(Continued from page 24)

thing you need to help customers build a record library. Von Loon's engaging and discursive style makes interesting reading. The book is as painless an introduction to the music of the great masters as any I know of, and I recommend it to every record dealer and salesperson in the country.

And, of course, there are the indispensable *Victor Book of the Opera* and *Victor Book of the Symphony*. And, last but not least, the very useful *Encyclopedia of Recorded Music*, published by the enterprising Gramophone Shop, New York. This 588-page reference volume lists publications of every important company in the world up to the summer of 1936.

For reviews of classical records read *The American Music Lover* (12 East 22nd street, New York) which is published monthly and covers all domestic releases. As a large number of Victor, Columbia and Decca records emanate from European studios, it is well to keep posted on activities abroad by reading *The Gramophone* (10A Soho

(Continued on page 46)

MAKING AIR CONDITIONING HISTORY!

WITH A FULL-SIZED UNIT THAT SELLS FOR **\$175**



Your customers don't want inefficient air-conditioning. Better not sell any unit than sell an unsatisfactory one. Because Koolroom is a 5-purpose air conditioner it should be your choice to build your air conditioning business. For in one complete unit we give you an air conditioner that is plus powered... to cool, to dehumidify, to ventilate, to clean and to circulate air. There are nine models in the

Koolroom line from a 1/3 ton capacity model at \$175.00 to a 5-ton capacity model at \$1350.00 (prices slightly higher west of Rockies). Wire today for the Koolroom franchise in your community.

KOOLROOM DIVISION
of INDIAN PRODUCTS CORPORATION

2340-C Indiana Ave.

Cable "Trailco Chicago"

McGraw-Hill

DIRECT MAIL



As publishers of Radio Retailing for twelve years, McGraw-Hill is uniquely equipped to offer complete, authoritative Direct Mail coverage of the Radio Trade. Extreme accuracy (guaranteed 98%) is maintained on a daily corrected basis and the widest possible selections are available. Send for folder entitled "Hundreds of Thousands of Reasons Why" which describes how McGraw-Hill lists are built and maintained.

What Selection Do You Want to Reach?

- Radio Wholesalers
- Radio Dealers
 - Larger Dealers
 - Smaller Dealers
- Occupational Groups
- Automotive Stores
- Central Station Stores
- Hardware Stores
- Etc.

- Radio Service Dealers and Service Men
- Geographical Selections
- Population Groups

Write for folder "Radio Trade Outlets" giving details on selections, state counts, prices, etc. . . . or ask any representative.

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For the First Time **Vertical STEEL ANTENNA**

Especially Designed

FOR USE WITH RCA MAGIC WAVE ANTENNA

A PREMAX PRODUCT

Latest Development In Modern Aerial Design—Easy to Erect In Small Space—No Overhead Or Guy Wires—Stronger Signals



Premax Locking Device permits easy and secure erection.



Insulator showing RCA Antenna Coupling Unit attached.

The new All-Steel Vertical Antenna—easy to erect—gives world-wide reception. Constructed of tubular steel which telescopes to 6' length. Premax Safety lock permits erection to any height up to 24'. Comes complete, ready to install, with 4-section mast, steel ground post and insulator unit. Just what is demanded for slightly, efficient antenna erection.

Ask your jobber or write today for complete bulletin and prices.

Premax Products
Division of Chishalm-Ryder Co., Inc. 3842 HIGHLAND AVE., NIAGARA FALLS, N.Y.

HORTON . first every time

IN 1871 Horton built America's first successful home washing machine. This is an old organization with young ideas. . . . A group of energetic, keen-minded folks pledged to maintain a front rank position for the industry's pioneer name—that's Horton.

The 1938 model Horton washers and ironers reflect this leadership. Ask your authorized distributor or write the factory for complete information.

finest every way . **HORTON**
HORTON MANUFACTURING CO., FORT WAYNE, INDIANA

DEMONSTRATING RECORDS

(Continued from page 44)

Square, London, W. 1, England). This outstanding journal is of inestimable value to the dealer, no matter how small.

Read the above publications as well as other record news and reviews appearing in newspapers and magazines. Among the latter, *The New Yorker*, *Stage* and *Scribner's* feature disc departments. Call these reviews to the attention of your customers. Pin a few of the most ecstatic ones to the walls of your booths where they will be seen by listeners.

Demonstrating records is enjoyable when you're a party to the pleasures of listening. Sometimes, the best thing is to let the music do the talking. But get your customers to depend upon your advice. You'll find the sources mentioned above highly informative and non-technical; as soon as you begin talking the language, you'll find you know a lot of things about music and records your customers would like passed along to them. Such knowledge is profitable and helps greatly to make the record business a fascinating one.

SONGS FOR YOUR SOUND TRUCK

(Continued from page 29)

Quack, Quack—Tango, Orchestra, V18
Queen of Sheba—Cortege, V35763

Rakoczy March (Strauss), Orchestra, V4127
Raymond Overture, Orchestra, V35924
Regiment of Sabre and Meuse, Band, V21456
Roman Carnival—Overture, Orchestra, V12135
Romance (Rubenstein), Orchestra, V22508
Rosamund—Ballet Music Orchestra, V14119
Roses from the South—Waltz, Orchestra, C9081
Royal March, Band, V-V12167

Sailing, Sailing, Orchestra, V20080
Sakuntala (Goldmark), Orchestra, V22535/6
Salut d'Amour, Orchestra, V22599
Santa Lucia, Orchestra, V20080
Scarf Dance, Orchestra, C1658
Schnitzelbank, Band, D541; Orchestra, V78490
Schoenbrunner Waltz, Orchestra, C260M
Seaside Polka, Old Time Dance Orchestra, V19909
Semiramide—Overture, Band, V35827
Serenade (Schubert), Organ, V21207; Orch., V21253
Serenade (Drigo), Band, V35837
Serenade (Tihl), Orchestra, C50313
Serenata, La, Orchestra, V20079
Shining Moon (Russian), Orchestra, V19960
Silent Night, Holy Night, Hammond, Organ, D1549
Siren of the Ball, Orchestra, V35852
Skaters' Waltz, Orch., C260M; Orch., V35798; Band, V21936

Slavonic Dances (Dvorak), Orchestra, Victor sets Nos. M310; M345
Sleeping Beauty Ballet—Waltz, Orchestra, V11932; Orchestra, V36132
Soldiers' Chorus (Verdi), Band, V35804
Song of India, Orchestra, V4303
Song of India—Foxtrot, Orchestra, V20200
Song of the Volga Boatman, Band, V22456
Southern Roses, Band, V35799
Spanish Dance (Moszkowski), Orchestra, V20521; Orchestra, V22769
Spanish Dances (Granados), Orchestra, V35977/8
Spielerei, Orchestra, V1759
Spring Song (Mendelssohn), Orchestra, C1179D
Square Dance, Barn Dance Orchestra, V-85215
Stabat Mater, Organ, V19967; Band, V35820
Star Spangled Banner, Band, C1912; Orches., V20635
Storm Music (Ivan, the Terrible), Orchestra, V11451
St. Patrick's Day—Jig, Irish Orchestra, V21479

Stradella Overture, Orchestra, V21597
Strolling Through the Park, Novelty Orch., V22228
Suite Oriental, Orchestra, V50022
Summer Evening—Waltz, Orchestra, V24354
Sutor's Waltz, Orchestra, V4
Swan, The, Organ and Piano, V24102; Vibra Harp and Chimes, V36107; Orchestra, C50313
Swan Lake—Ballet Suite, Orchestra, V11666/7
Swanee River—Medley, Novelty Orchestra, V22288
Sweet and Low—Medley, Orchestra, V20174
Sweet Adeline, Band, D542
Sweetheart Waltz, Orchestra, V-X35001
Syncopation, Band, V35759

Tales from the Vienna Woods, Orchestra, C69029
Tap Dance Medley, Orchestra, V22228
Tarentella (Mendelssohn), Orchestra, V20079
Texas Taps, Band, V-B5550
Three Norwegian Melodies, Organ, V35885
Thousand and One Nights—Waltz, Orchestra, C7246M; Orchestra, V11910
Thunder and Lightning, Orchestra, V4319
Tramp, Tramp, Tramp, Band, V22013
Taumerei, Organ, V35843; Orchestra, V8285
Traviatta, La—Prelude, Band, V35938
Triana, Orchestra, V35978
Triumphal March (Grieg), Orchestra, V35763
Turkey in the Straw, Orchestra, V22131
Two Elegiac Melodies (Grieg), Orchestra, C68024
Two Guitars, Orchestra, D197

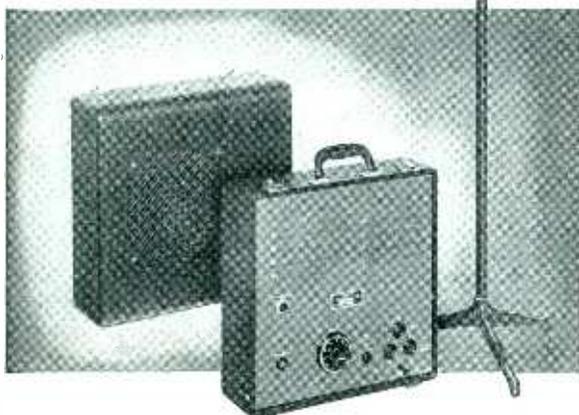
Under the Double Eagle, Band, V19871

Veronica—Waltz, Orchestra, V7
Vienna Waltzes, Orchestra, V9307
Virginia Reels—Medley, Orchestra, V20447
Voices of Spring—Waltz, Orchestra, C7241M

Wacht Am Rhein, Die—March, Band, V-V6196
Waltz Dreams (Strauss), Orchestra, V68789
Waltzes of the World, Orchestra, V-V50036
Waltzing Doll, Orchestra, V20668
Wanda—Tango, Orchestra, V-V54
War March of the Priests, Band, V35967
Washerwoman—Irish Jig, Irish Orchestra, V21479
Waves of Troy, Band, V20991

(Continued on page 48)

REMLER



Quality P.A. and Inter-Communications Systems • Profitable • Territories Open

Build a permanent and worthwhile business with reliable Remler equipment—famous for quality since 1918. Modern inter-communication systems flexibly designed to meet every requirement. Portable P. A. and units for permanent installations. Dealers and distributors given fullest cooperation. Territories open. Write for complete details.

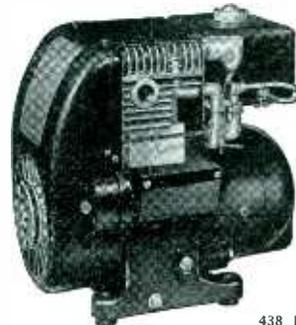
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COMPLETE ELECTRIC PLANTS

NEW 1938 MODELS



OPERATE A.C. RADIO, PUBLIC ADDRESS, SOUND CAR, MOTION PICTURE EQUIPMENT AND RADIO TRANSMITTERS.

Also furnish power for lights, Water Systems, all Household Appliances, for Camps, Farms, Lake Homes, or Standby Service. For use anywhere power is not available.

350 to 5000 Watts

110 volt A.C., 6, 12, 32 and 110 volt D.C., and Combination AC-DC Units. Anyone can Operate. Complete, ready to run.

Write for Details and Territory

D. W. ONAN & SONS

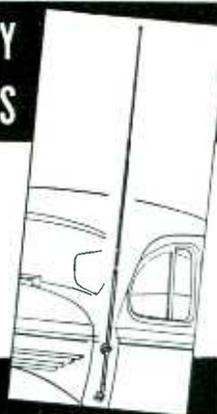
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MAKE MORE MONEY WITH WARD AERIALS

There's big money in selling car aerials — when you sell the WARD line. That's because this "easy-to-sell," "easy-to-install" line is *complete*, with models at prices to suit every prospect.

FREE! Send today for free catalog showing WARD'S complete line of car and home aerials, with new reduced prices made effective March 1st.

The WARD PRODUCTS Corp.
WARD BUILDING CLEVELAND, OHIO





Originators and Manufacturers of the famous

KADETTE RADIO

Original
AC-DC
Compact

Complete line of compact, console, chairside and plastic models. Get in touch with your distributor today or write or wire us for full information.

INTERNATIONAL RADIO CORPORATION
570 Williams St. Ann Arbor, Mich.



NEW

MUELLER RADIO CLIP KIT!

A complete and handy outfit for the radio shop at a bargain price.—See it at your Jobber's or write factory for details.

ASK US FOR NEW
1938 CATALOG 701

Mueller Electric Co.
1584 E. 31st St.
CLEVELAND, OHIO

A GOOD NAME GOES A LONG WAY



Ken-Rad means perfect radio performance to the user. It means increased business for the dealer. It pays to tie in with Ken-Rad.

Ken-Rad Tube & Lamp Corp.
Owensboro, Ky.

KEN-RAD

DEPENDABLE RADIO TUBES

Janette Rotary Converters



The original D.C. to A.C. converters with all wave filters developed exclusively for radio and sound apparatus.

CAPACITIES: 35 to 3250 watts.
6, 12, 32, 115 and 230 volts
D.C. to 110 or 220 volts, 1 phase,
60 cycle A.C.

Insist on a Janette
Ask For Bulletin No. 13-25

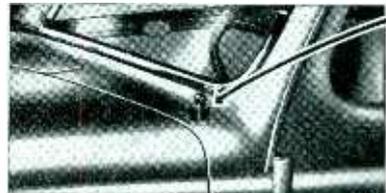
Janette Manufacturing Company
556-558 West Monroe Street Chicago, Ill. U. S. A.
BOSTON - NEW YORK - PHILADELPHIA - CLEVELAND - MILWAUKEE - LOS ANGELES
DETROIT - SEATTLE

Car Owners Ask Just One Question.

*"How Soon Can
You Install One
On My Car?"*



COL-MAR OPERATIVE AERIAL



Conceals in Cowl
A HANDSOME
ORNAMENT
*Most Efficient
in Receptivity*

Dash Controlled



The COL-MAR Operative Aerial SELLS ON SIGHT. Concealed when not in use—attractive when in use—brings in the stations in a way you never experienced before in an auto radio.

Highest quality materials throughout, made by a firm long experienced in accessory manufacturing, guaranteed.

High quality advertising matter supplied—store displays, consumer circulars.

Simple installation instructions enable you to install in 30 minutes.

Write us for distribution proposition. Get this marvelous aerial FIRST in your locality! It's already selling by thousands. Get your order in for prompt supply.

PIONEER SPECIALTY CO.

523 St. JEAN STREET, DETROIT, MICH.

SONGS FOR YOUR SOUND TRUCK

(Continued from page 46)

We Are the Imperial Sharpshooters—March, German Band, V-6159
 Wedding March (Mendelssohn), Organ V20036
 Wedding of the Rose, Orchestra, D495
 When Johnny Comes Marching Home, Band, V22013
 Whisperings of Love, Orchestra, V-X16059
 Wiener Blut—Waltz (Strauss), Orchestra V68811
 William Tell—Overture, Orchestra Col. set No. X60
 Fantasia, Band D15007
 Will O' the Wisp, Orchestra V22166
 Wine, Women and Song, Orchestra V68904; Orchestra, V6647

Yankee Doodle—Medley, Band V20166

Zacatecas—Mexican March, Band V79179
 1812 Overture (Tschaikowsky), Orchestra V7499/7500

6. Control of Production.
7. Fair Trade Law Enforcement.
8. Legislative Problems.
9. Advertising and Trade-in Allowances.
10. Clearing House for Trade Information.

Russell A. Atkinson, formerly president of the Brooklyn, N. Y. Appliance Dealers Association, Chairman of the Committee on Organization, and Homer C. Davis, president of the Home Appliance Dealers Association of Philadelphia, a member of the committee have authorized *Radio Retailing* to say that every dealer is cordially invited to attend the forth-

coming meeting and they particularly request local dealer groups to send a duly authorized representative either with full power to vote or as an official observer.

From the temporary headquarters of the organizing committee comes word that local organizations from the following cities are among those that accepted the invitation and expect to send representatives to the meeting: Chicago, Ill.; Kansas City, Mo.; Roanoke, Va.; Washington, D. C.; Utica, N. Y.; Newark, N. J.; Greensboro, N. C.; Cleveland, O.; Richmond, Va.

SMOKE BECOMES FIRE

(Continued from page 21)

success by personal attendance or through telegraphic or written pledges of support.

It has been announced that, aside from settling the problems of getting the organization formally organized a ten-point program of activities will be proposed to the assembly for consideration.

The ten points to be discussed are:

1. Price Structures.
2. Industrial Selling by Jobbers.
3. Discounts and Courtesy Cards.
4. Cooperative Buying Groups.
5. Cruises and Spiffs.



7-tube Auto Set with external 8" electro dynamic speaker . . . Model 711 . . . Price **\$59.95**
 7-tube Auto Set, self-contained 6 1/2" electro dynamic speaker, Model 710. Price **\$49.95**

AUTO RADIOS For 1938 BY TRAV-LER

These new 7-Tube Trav-ler models have full 8 watts power output. Sensitivity is 1.5 microvolts at one watt output. Has full A.V.C. and three-gang variable condenser. Has the very latest features including iron core coils.

TRAV-LER RADIO

The Trav-Ler Electric Automatic Tuning Unit, adaptable to either model, is simple and accurate. No drift or backlash—Instantly setup from drivers seat without tools—any station on any button—6 buttons—motor driven. Mounting holes provided for easy installation. Price **\$17.95**

TRAV-LER RADIO & TELEVISION CORP. 1938

1921

1036 WEST VAN BUREN STREET, CHICAGO, ILL.

AC & AC-DC Home Sets

Auto Sets

Battery Sets

Listen RADIO SERVICEMEN

For a long time there had been a real need for a Radio Servicemen's Organization that could band together the competent radio servicemen in a democratic, self-governing association without subsidy from or control by any other division of the radio industry. Radio Servicemen of America, Inc., has this as its prime objective. But to achieve this end and win a place for the service group as a recognized factor in this complex industry, four things are necessary:

- A. The selection of only qualified members.
- B. A direct voice in the affairs of the association by every individual through elected, regional representatives.
- C. The insistence upon rigid ethical professional standards that will earn a right to the confidence and cooperation of manufacturers and publishers.
- D. A quality of service that will earn the respect and patronage of the public.

These objectives are assured in the newly completed plan of Radio Servicemen of America, Inc. **HERE'S WHY!**

1. There are 20 districts, each of which is represented by elected representatives, for all the affiliated chapters in that district.
2. Qualifications for membership are determined by local chapters.
3. Local membership in a local chapter where such local chapters exist, is necessary to full membership in the national organization.
4. Quality, *not* quantity is the membership aim.

But Service to Its Own Membership Is a Big Personal Reason Why You Should Have a Membership in Radio Servicemen of America, Inc.

Regular mailings of advance information on new circuits. . . A monthly house organ, exclusively for members. . . A publicity program in newspapers, trade publications and on the air. . . Free, expert technical information. . . A National Speakers' Bureau to provide authoritative speakers for local chapters. . . An educational program in the interest of better servicing. . . Membership costs only \$2.00 A YEAR for national dues for 1938.

Don't Wait! Fill out the application. We will send you full details of the organization, more application blanks. . . everything you need to join this new and important effort to organize servicemen for better servicing and more profit. Mail the blank today with your check to

RADIO SERVICEMEN of AMERICA, INC.
 Joe Marty, Jr., Executive Secretary 304 S. Dearborn St., Chicago

Sponsored by RMA and Sales Managers Clubs

Radio Servicemen of America, Inc.

(Incorporated Not for Profit)

304 South Dearborn St., Chicago, Ill.

APPLICATION FOR MEMBERSHIP

Gentlemen: I hereby make application for membership in the Radio Servicemen of America, Inc.

Affiliated with Local Chapter in

Personal Name

Home Address

City State

Firm Name

Address

Telephone (home) (firm)

Years Experience Age

Membership in other Associations

Whole or Part time Radio Serviceman

If Part Time, what portion is devoted to Radio Servicing (1/4, 1/2, 2/3, etc.)

What are your other duties

Education other than Radio

Radio Training or Courses

Testing Equipment

.

.

It is my sincere desire to become a member and adhere to your principles of fair competition and ethics and if accepted do solemnly swear (or affirm) that I will faithfully fulfill my obligation as a member of the Radio Servicemen of America, Inc.

Signed Applicant

Approved: Chapter Secretary

Executive Secretary

Enclosed Check M.O. Cash

REPEAL THE TAX ON RADIO!

Write Your U. S. Senators and Congressmen!

YOUR action, *now*, is needed in the immediate effort before Congress by the entire radio industry—manufacturers, dealers, distributors, and also broadcasters—to relieve radio from the 5 percent federal excise tax on receiving sets, etc.

YOU ARE EARNESTLY REQUESTED TO WRITE LETTERS TO YOUR TWO U. S. SENATORS AND ALSO YOUR CONGRESSMEN, AND *IMMEDIATELY*, URGING REPEAL OF THE RADIO TAX, or at least its substantial reduction. If the whole industry acts vigorously, results will benefit everybody in radio and also the consuming public.

The Radio Manufacturers Association has opened a vigorous campaign in Congress to completely repeal the 5 percent radio excise tax (or, if repeal is not now possible, to at least reduce the rate to $2\frac{1}{2}$ or 3 percent), for the following major reasons.

(1) Radio, because of its universal public service and use, should, like the press, be free of any tax burden.

(2) Radio is a greater medium of mass communication than the press, and the radio tax burdens this great public agency and service, which should be tax exempt, to develop its maximum public usefulness.

(3) Radio today is a universal **necessity** in modern American life, 45,000,000 in use, many millions more than automobiles (taxed at only 3%), or telephones.

(4) What might have been deemed a semi-luxury a few years ago is today the most universally used necessity, in peace or war or nationwide importance; for public information, education, entertainment, culture, religion, civic, political, and enlightened citizenship.

(5) Repeal of excise taxes, of \$25,000,000, is proposed by the House Committee and Treasury Department in the pending tax revision bill—and on unquestionable luxuries, including furs, sporting goods, chewing gum, cameras, and cosmetics—several entailing more revenue loss than the annual radio tax of about \$6,400,000.

(6) Repeal of the radio tax should be given **first** consideration in the excise tax revision of Congress—and prior to **any** luxuries.

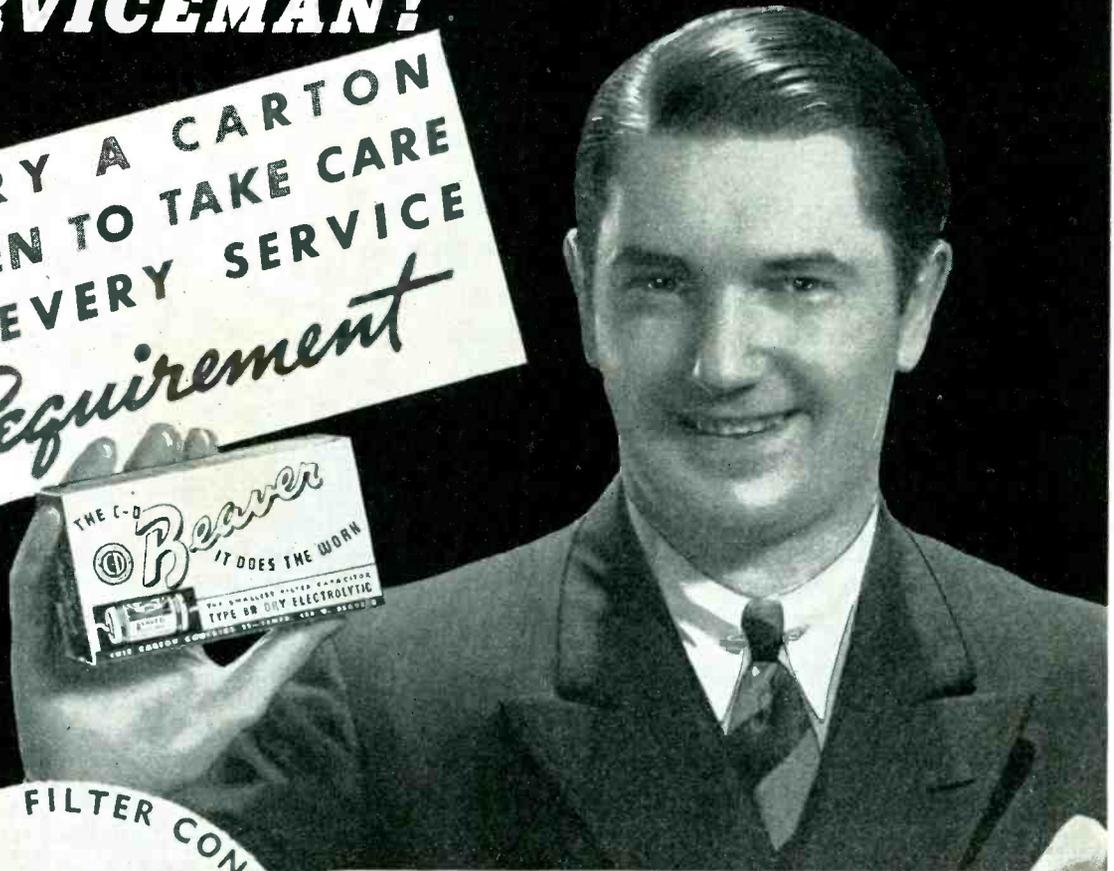
(7) The radio tax is a special, selective, discriminatory "nuisance" tax. Its repeal would take a burden off radio's service to the consuming public, increase sales of dealers and distributors, as well as manufacturers, increase broadcast listeners, and provide an immediate needed business stimulus.

The House tax revision bill soon will come before the House and later the Senate. You are earnestly urged to write letters *immediately* to your U.S. Senators and Congressmen of your district and State, to assist the entire radio industry in its effort to make radio tax free. Your cooperation will be appreciated.

RADIO MANUFACTURERS ASSOCIATION
1317 F STREET, N. W. WASHINGTON, D. C.

THE SWEETEST CONDENSER EVER DEVELOPED FOR THE SERVICEMAN!

CARRY A CARTON
OF TEN TO TAKE CARE
OF EVERY SERVICE
Requirement



THE C-D
⁶⁶ *Beaver* ⁹⁹
TYPE BR ETCHED
FOIL ELECTROLYTICS

Type BR etched foil electrolytic capacitor is the smallest... and just about the "sweetest"... filter condenser ever developed. Study these features and see if you don't agree that the smart thing to do is to carry a stock of ten "Beavers" with you.

- 1 SMALL... one-fifth the size of corresponding types for similar capacity and voltage range. Will easily fit into most confined space.
- 2 A cinch to hook-up. No mounting brackets, no pal nuts, riveting or similar assembly operations. Just wire in... as you would a tubular condenser. Avoid headaches, delays, and eliminate exact duplicates.
- 3 Both terminals carefully insulated; protective cardboard sleeve supplied with unit. Polarity clearly indicated. Hermetic seal assures long life.
- 4 Available in single capacity units only. Capacities 4, 8, 12, 16, 20 and 40 mfd., 150 volts, D.C., and up to 8 mfd., at 450 volts, D.C.

Demand the condenser with the C-D emblem... hallmark of quality for twenty-eight years.

Ask your local C-D distributor to show you a handy carton of ten "Beavers."

Get set for maximum profits... Stock up with Type BR.

Cable Address: "CORDU"

CORNELL  DUBILIER

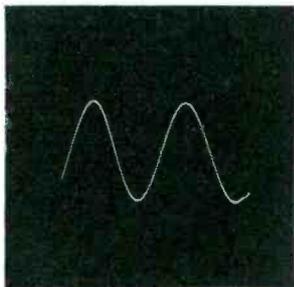
ELECTRIC CORPORATION

1010 Hamilton Blvd., So. Plainfield, N. J.

TECHNICAL TOPICS

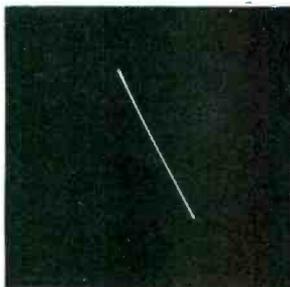
SERVICE • SOUND • CIRCUITS • INSTALLATION • PARTS

CONNECTION 1

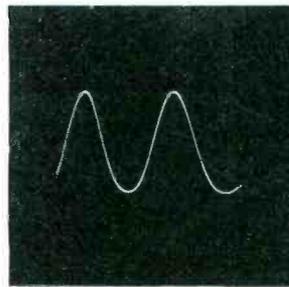


Pure 400 cycle sine wave as shown, left, gives straight line with number 2 connection.

CONNECTION 2

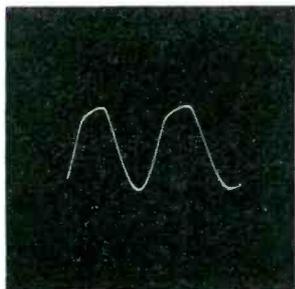
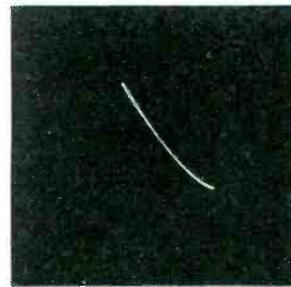


CONNECTION 1

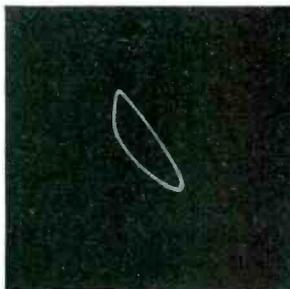


Wave distorted; plate loading resistance too low. Rounded negative (left photo) shows up as curved portion of line with number 2 connection.

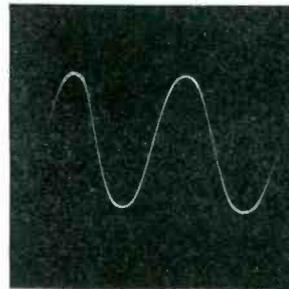
CONNECTION 2



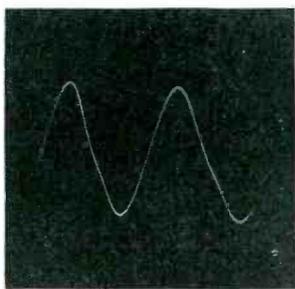
Distortion caused by grid overload. Note chopped positive peaks due to grids drawing current. To remedy: decrease excitation or increase bias.



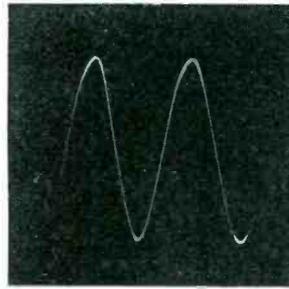
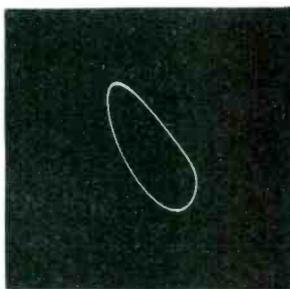
From Actual Photographs



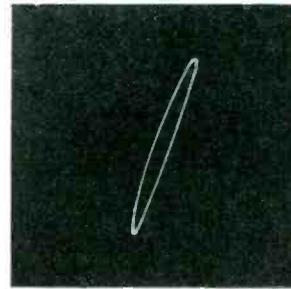
Same as above but with pushpull stage. Plate load resistance too low, decreasing both positive and negative peaks.



Wave distortion due to iron core saturation, too much d.c. in transformer. Note dissimilarity between positive and negative peaks.



Same as left, but with pushpull connection. Unbalanced d.c. in transformer. Only slight difference between positive and negative peaks.



HOW to check amplifier distortion with an oscillograph: As shown in the photos, two types of oscillograph connection may be used. This is indicated above each column as, number 1 connection (left photo of each group) and number 2 connection (right photo).

Connection 1 is the more common; it is accomplished by feeding the amplifier output into the vertical deflecting posts. Horizontal deflection is furnished by the

time axis oscillator. This results in the familiar wave form patterns.

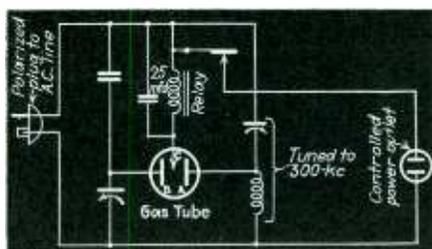
With number 2 connection, the vertical posts are left connected as above; the horizontal posts connected to the amplifier input, supplying horizontal deflection. Thus when no distortion is present, both input and output voltages are sine waves; the resulting pattern is usually a straight line. It may, however, depending on the phase relation of the two voltages, be a

simple ellipse or circle. In this case, improper operation is indicated by an uneven shape of the ellipse or circle. The amount of phase-difference between these voltages differs with various amplifiers. It may be increased or decreased slightly by inserting a small condenser in series with the high lead to the horizontal posts.

All oscillograms are actual photographs. With number 1 connection, the time axis oscillator was set at 200 cycles.

● OSCILLOGRAMS SHOW SOUND DISTORTION ●

CIRCUITS



Electronic Remote Control

Popularity in remote tuning is the incentive for the remote controlled power switch shown herewith. Developed by RCA, the unit permits a set to be turned on from a remote point without the use of the normal interconnecting wires. Control of the set is accomplished through the power line. The advantage of this method over other power line control devices is that no power is used when the unit is inoperative.

The controlling factor of the system is a 300 kc. oscillator at the remote point. Energy from this oscillator feeds into the power line and enters the control unit through the polarized plug shown at the left. Here it feeds a tuned circuit which applies the voltage to the elements of a gas tube of the "cold" type. (similar to B-H rectifier)

The voltage applied to the tube elements in this manner is not large enough to ionize the tube by itself. However, since the tube is across the line voltage the additional r.f. voltage adds to the line potential, raising it sufficiently to cause ionization. The particular tube used in the case required a 200 volt breakdown potential. However, if a volt or two of radio frequency energy from the remote point is present across the power line it may be increased in amplitude by the resonant rise in the 300 kc. tuned circuit. It then becomes approximately 70 volts, which will cause gap A-B to ionize. This causes gap C to ionize and consequently current flows through the relay, closing the circuit.

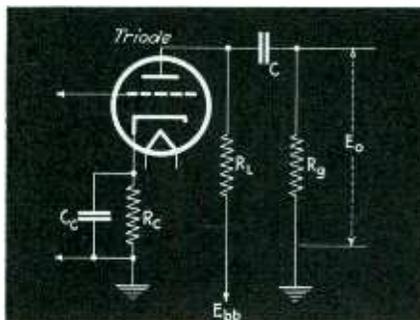
Resistance-Coupling Data

As new tubes continue to be announced the choosing of circuit constants for a particular tube becomes more and more difficult. A bulletin by RCA supplies the detailed information on the operation of the 6L5G, 6T7G, and 6S7G as resistance-coupled audio amplifiers.

In the construction of amplifiers, the use of series resistors in the screen and cathode circuits offers several advantages over fixed-voltage operation. The

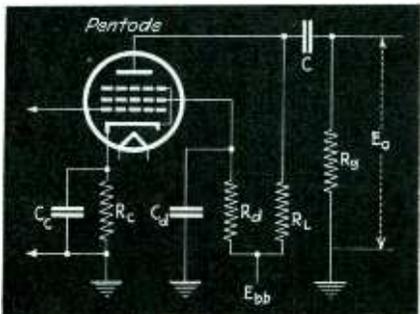
effects of possible tube difference are minimized; operation over a wide range of plate supply voltages without appreciable change in gain is feasible; and the low frequency at which the amplifier cuts-off can be easily changed. Fixed bias or fixed screen voltage operation increased the tendency of an amplifier to motor boat.

Referring to the diagrams and chart,



the values of the coupling condenser c and cathode by-pass C_c for the 6L5G and 6T7G triodes were chosen for an output voltage at 100 cycles of 0.8 the value at 420 cycles.

In the case of the pentode 6S7G, the



values C , C_c and C_d were chosen for an output at 100 cycles of 0.7 the value at 420 cycles.

The output voltages listed in the chart were obtained for operation at grid current points. Distortion at max-

imum output is approximately 5 per cent for all three types mentioned.

6L5-G									
300					0.25				
0.10	0.1	0.25	0.1	0.25	0.5	0.5	1.0	1.0	E_{bb}
7.40	31.0	26.00	3070	4140	4700	8400	9700	10750	Rg
0.41	2.18	1.87	3.84	1.1	0.81	3.57	2.66	0.4	Cc
0.36	0.332	0.018	0.032	0.014	0.0073	0.013	0.00718	0.005	Cg
5.0	0.8	7.5	30	7.5	0.9	4.4	8.0	0.1	Eo
10.0	21.6	11.8	121	131	12.8	13	12.9	12.0	V.G.

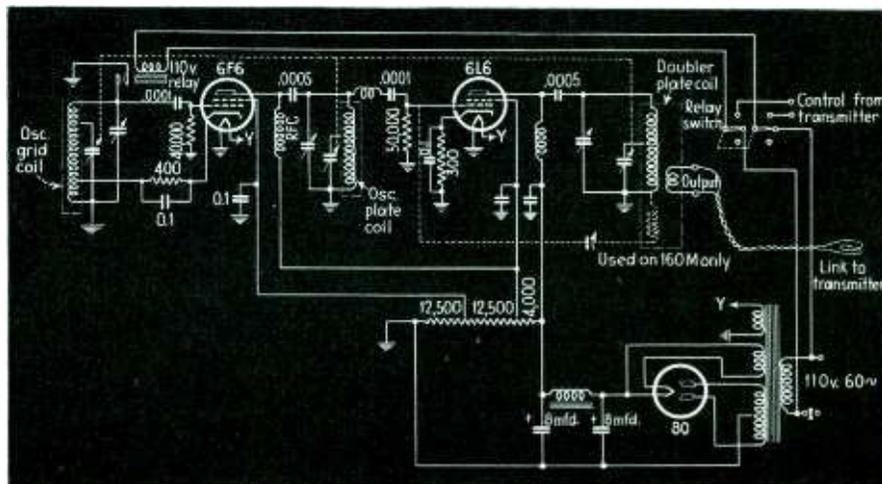
6T7-G									
300					0.5				
0.1	0.1	0.5	0.25	0.5	1.0	1.0	2.0	2.0	E_{bb}
1.950	3400	2640	3760	4580	5270	6570	8200	9620	Rg
0.0248	0.135	0.018	0.012	0.0118	0.0073	0.008	0.0065	0.004	Cc
43.1	5.0	6.4	5.7	6.9	6.0	6.7	7.55	0.55	Eo
2.85	31.9	21.1	30.6	4.0	4.1	4.15	4.33	4.6	V.G.

6S7-G									
300					0.5				
0.1	0.25	0.5	0.25	0.5	1.0	1.0	2.0	2.0	E_{bb}
1.15	0.7	0.75	1.7	1.80	2.1	3.6	3.0	4.5	Rg
4.30	4.00	4.60	6.20	6.30	7.00	10.00	10.00	11.00	Cc
0.077	0.071	0.071	0.058	0.057	0.055	0.04	0.04	0.048	Cg
8.5	8	8	4	5.5	5.7	4.1	3.5	3.8	Eo
0.0181	0.01	0.0066	0.0071	0.005	0.0038	0.0017	0.0019	0.0023	Cd
3.7	7.5	8.0	5.4	6.0	7.6	5.2	6.4	7.3	Eo
5.7	7.0	0.8	9.0	12.2	13.6	13.0	14.0	17.4	V.G.

Variable Frequency Control System

A complete oscillator and buffer stage, that may be attached to any amateur transmitter, is shown above. Designed by Meissner, the frequency of the unit may be changed at will, allowing the transmitter to QSY to any part of the band. Operating tests, according to the maker, show the frequency drift to be .008 per cent, about 300 cycles on 75 meters.

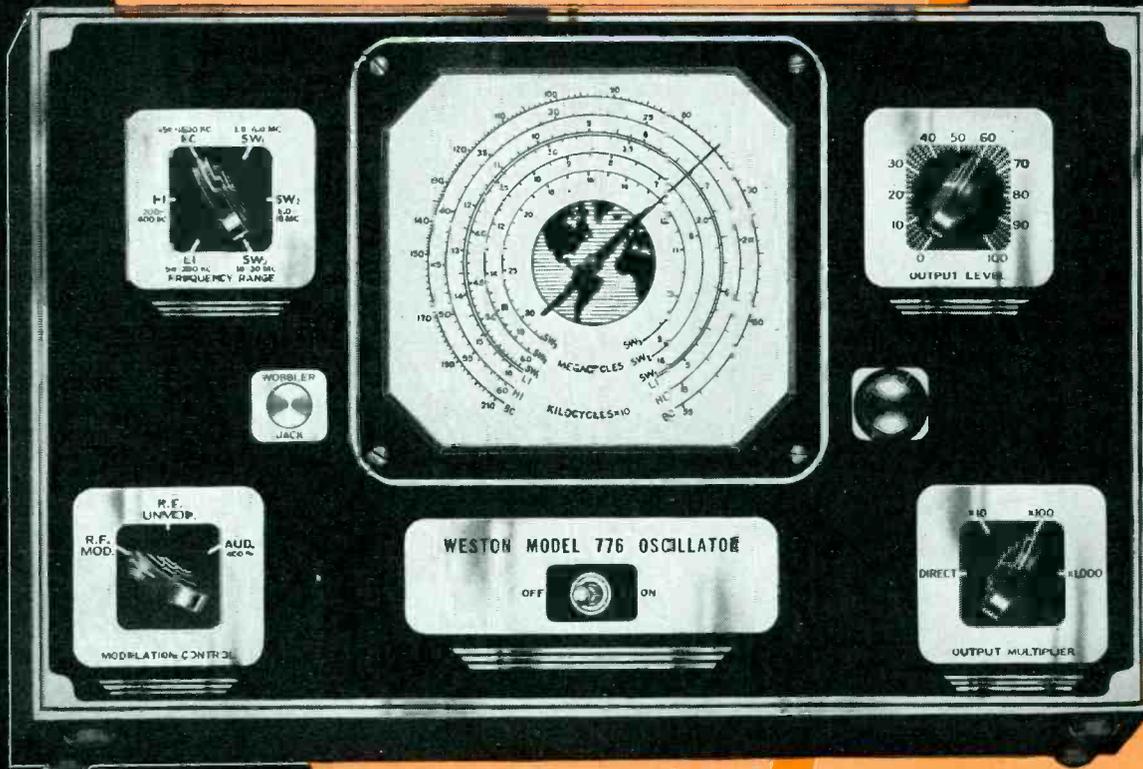
The unit consists of a High "C" 6F6 electron-coupled oscillator, shunt fed to a 6L6 buffer-doubler. The output of the 6L6 is link coupled to one of the low power stages in the transmitter. The available power is sufficient to drive an RK-20, 802, or 807's. The oscillator and 6L6 double in their plate circuits on all bands but 160. This is to minimize the effects of load variation on the oscillator frequency.



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Fig. 1. STAGE SET UP of the auditorium described. Note speaker box directly to the right of "on the air" sign. Another speaker similarly placed, is at the left of the stage.



By
J. R. POPPELE
Chief Engineer of WOR

SURVEYING

An Auditorium for SOUND

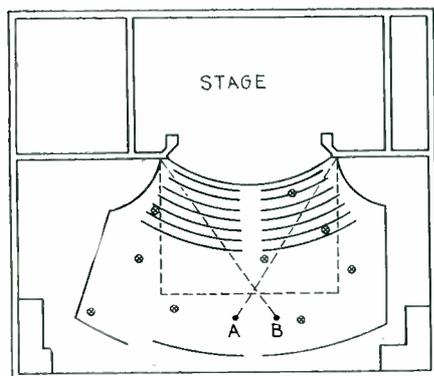


Fig. 2. FLOOR PLAN of the orchestra section. Satisfactory sound coverage is obtained when speakers are directed at points A and B.

TODAY many prospective purchasers of sound equipment quite naturally take for granted the results which can be obtained by the proper use of sound reinforcement, but they are not aware of the engineering skill which is required for the proper enhancement of the natural acoustics of an auditorium, or the corrective factors which become necessary in most auditoriums which are designed to conform to a particular decorative scheme with little consideration for the art of acoustic engineering. It is a rather common fault also, that most of the materials which adapt themselves so readily to architectural beauty are not well suited from an acoustic standpoint and tax

the skill of the engineer to the utmost in applying the proper corrective measures. Fortunately many progressive architects today are giving a greater degree of consideration to these matters in the design of auditoriums.

We recently encountered a very interesting case of sound reinforcement and acoustics in our own WOR-Mutual Radio Playhouse, located just off Times Square in New York City. From this point many outstanding musical radio performances originate and it is extremely important, therefore, to secure sound reinforcement which will enable the attending audience to hear announcements and vocal solos without having the air audience aware that any form of reinforcement is being used. The accomplishment of this feat has in many instances been regarded as impossible and the proper distribution of sound has been neglected, since it was felt that the broadcast quality must not be impaired to the millions of potential listeners for the sake of a few hundred persons witnessing the performance. Experience in the field of sound work led our engineers to believe that this problem was not insurmountable, and that there must be some practical solution which would permit the persons in the audience to hear the announcements and vocals with orchestral accompaniment, at the same time not impair the broadcast quality; particularly since most of the programs received distribution not only

over one of the nation's largest broadcasting stations, but in most cases over a network of from sixty to seventy-five stations.

Examine Acoustic Conditions

Figure 1 shows a view of the stage and a portion of the orchestra seating arrangement in this playhouse. The combined seating capacity of the orchestra, balcony and boxes is approximately 800. The sound system utilizes one loud speaker placed under each upper box for coverage of the orchestra section and two loudspeakers mounted on the top of the proscenium arch and spaced equidistant from the midpoint for coverage of the balcony and upper boxes.

Before any attempt was made to utilize sound reinforcement or to apply corrective acoustic measures, it was first necessary to make an extended study of the actual conditions with which we had to deal. The method employed for measurement consisted of an audio oscillator feeding through suitable amplifying equipment to loud speakers placed at arbitrarily selected positions. The response characteristic of the loud speakers had been previously determined in order that proper correction could be applied. The floor area in the orchestra seating space was divided into a number of sections, the number determined by the extent and scope of the measurements, which was considered necessary to present a representative picture of the acoustic conditions. A microphone connected to suitable ampli-

fying equipment was placed at various points on the floor and readings of sound energy at various frequencies as picked up by the microphone were noted on the level measuring device connected at the output of the "mike" amplifier. The level of the tone fed into the sound system was maintained constant at all frequencies and the response characteristic of the microphone and associated amplifier were known quantities. Readings were taken at a number of frequencies throughout the range from 80 cycles to 7000 cycles and enough data obtained to indicate the portions of the floor area which were weak for a certain frequency range, frequencies at which the auditorium indicated a resonant condition and other essential facts.

Figure 2 shows the floor plan of the orchestra section and indicates the points at which measurements were made. At several points it was noted that the response over most of the desired frequency range was rather poor indicating that these points required more sound energy for satisfactory coverage. The most salient fact observed, however, was a resonant condition below 200 cycles which proved to be somewhat troublesome. This acoustic condition did not exist on the stage and, therefore, did not materially affect the broadcast conditions and the quality of transmission, but was only apparent when sound reinforcement delivering a satisfactory response below the 300 cycle point was directed into the seating space at a fairly high level. The effect to the audience was a tendency for vocal selections with orchestral accompaniment to be lost in the lower tones of the music, with the result that it was impossible to distinguish the singers words although the proper balance between voice and orchestra was easily maintained on the program material which was transmitted from the stage for broadcast. It was found that a very satisfactory effect could be obtained by using loud speaker units which had a natural cut-off below the 200 cycle point. These speakers are capable of delivering adequate reinforcement of sound over the required range, since we are dealing primarily with speech frequencies and the orchestral music needs no reinforcement for adequate coverage of the entire auditorium. In other words we were able to take advantage of the natural acoustics of the auditorium for sound transmission in the low frequency range.

Reverberation

In addition to these relatively simple measurements a more complete acoustical survey was made using a high speed level recorder for reverberation measurements throughout the auditorium as well as on the stage. Since the

measurements on the stage proper refer specifically to broadcast quality and not in any great degree to the sound reinforcement problem, we shall discuss only the portion which applies to the auditorium and shall attempt to outline briefly the method used for the survey as well as an analysis of the results and the corrective measures applied. The auditorium was divided into five zones as indicated in Figure 3.

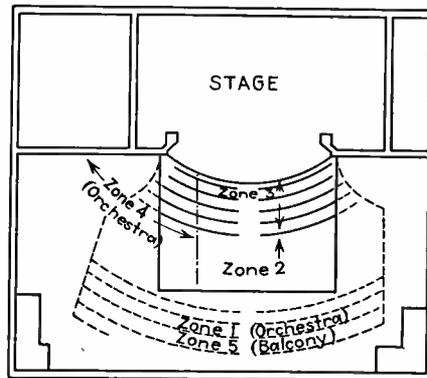


Fig. 3. ZONING the auditorium to determine reverberation qualities. Frequency measurements are taken by three microphones in each zone.

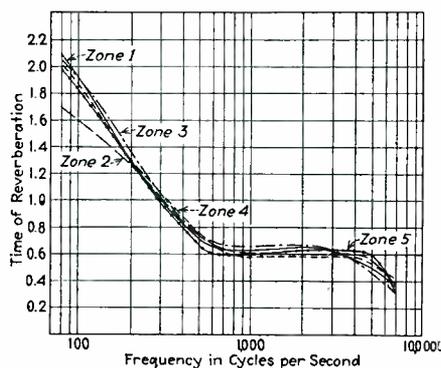


Fig. 4. RESULTS of reverberation tests. Low frequency reverberation is least in Zone 2 since it is further removed from walls and other reflecting surfaces.

Three microphone positions were used in each zone and readings taken at the essential frequencies over the desired range in each zone. The results are shown on the graph in Figure 4.

Since the reverberation time of a room or auditorium gives us an index to the acoustic characteristic, it is probably fitting that we define this term. The most common definition is the time required for the average sound energy to drop to one-millionth of its original value after the source of sound has been shut off. This means the time required for the sound waves leaving the source and reflected many times by the walls and other surfaces to be finally reduced by gradual absorption to a point which for all practical purposes is equal to zero. A study of the curves in Figure 4 show the somewhat rapid increase in reverberation times below

500 cycles for all of the zones measured, with particular emphasis on the portion of the curves below 100 cycles which show times from 1.7 seconds for Zone 2 to 2.1 seconds for Zone 1 at 80 cycles. It will be noted that Zone 2 which is in the center of the auditorium shows a somewhat shorter reverberation time for the lower frequencies, but this condition is not unusual, since this zone considered overall is farthest removed from the combined reflecting walls and surfaces.

Avoid Flutter Effect

A series of measurements were also made to determine the "flutter effect" which results from multiple reflections between the ceiling and floor, of sound which is directed toward the ceiling of the auditorium. Several very pronounced peaks were observed which indicated that it was advisable to project as little sound energy as possible in this direction and thus avoid this undesirable effect without the necessity of installing an absorbent material on the ceiling at considerable expense. Since the most pronounced peaks were in the upper range at approximately 3000, 4000 and 6000 cycles, it was concluded that satisfactory results could be obtained by using loud speakers which were quite directional and which would be set at an angle to project the sound energy to the desired areas with very little energy reaching the ceiling directly.

With the foregoing facts with regard to reverberation times and observations made on certain points in the auditorium which require considerably more sound energy, we can proceed to intelligently place loud speakers for sound projection to deliver sound coverage in the correct proportion over the respective areas. It was first determined that an amplifier capable of delivering approximately 15 watts of audio power was required to feed the several speakers and operate at a gain setting which was sufficiently below the maximum output capacity to avoid overloading and distortion. This amplifier is fed at the proper level from the broadcast speech equipment, thus avoiding the necessity for using separate microphones and enabling the broadcast control operator by means of a predetermined setting to automatically maintain proper level on the sound system without the use of a separate control during the course of the broadcast.

Since the sound reinforcement must be accomplished without its presence being apparent to the air audience it was obvious that extreme care must be used in the placement of the speakers to fulfill this requirement and at the same time to enable persons attending the broadcasts to hear properly. By using four loudspeakers at the locations

(Continued on page 62)

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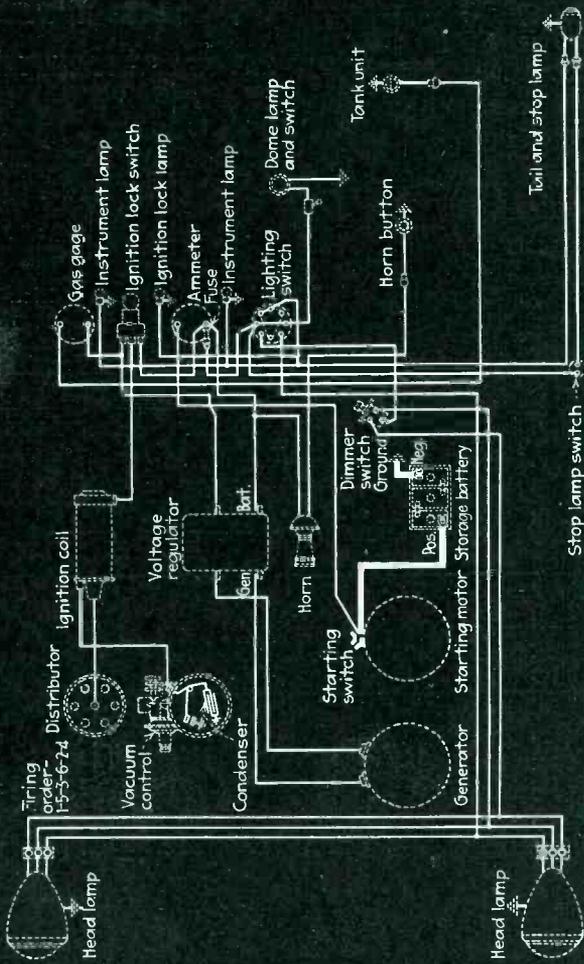
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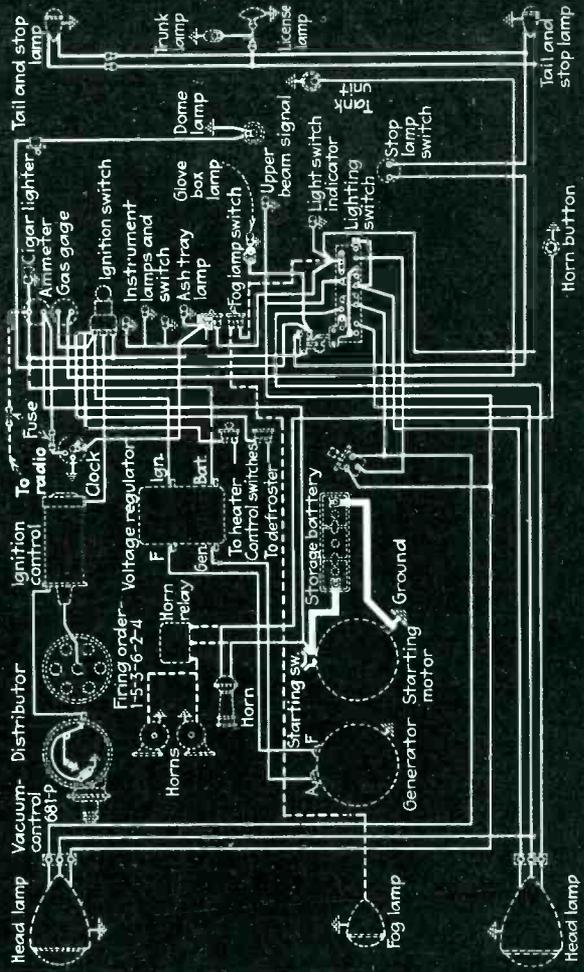
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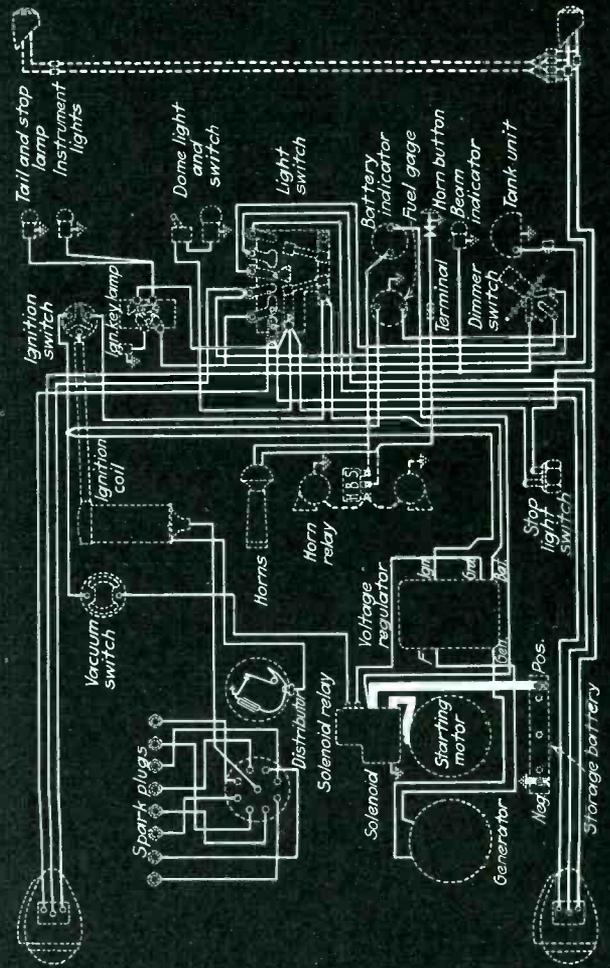


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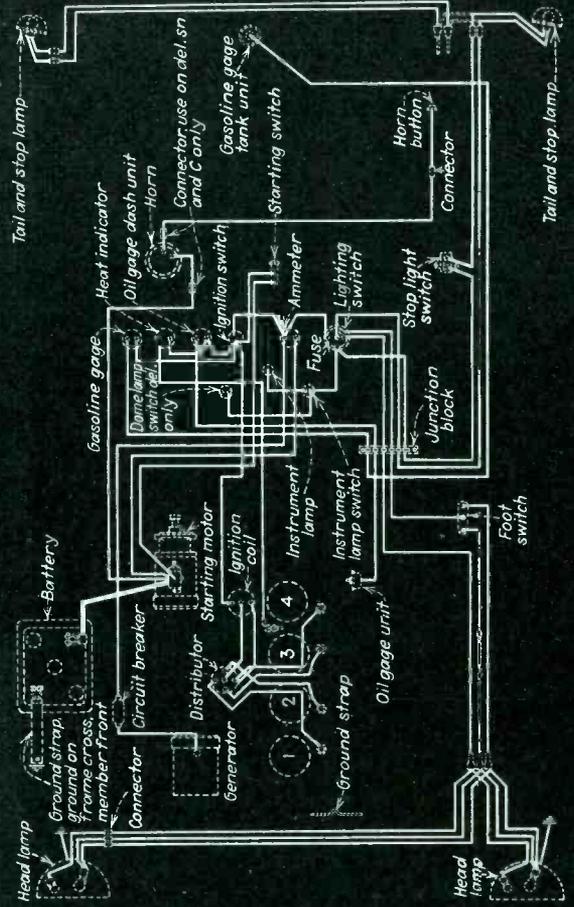


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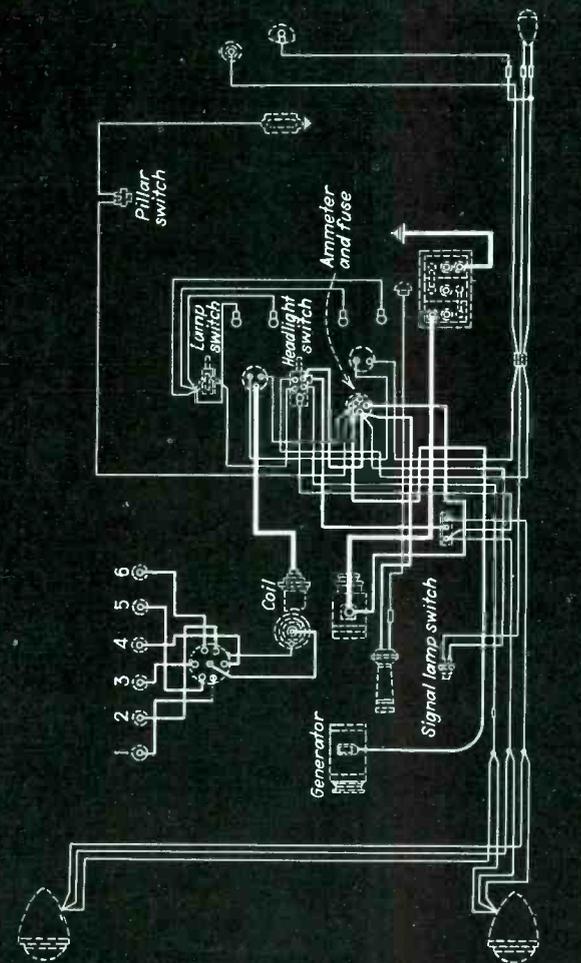


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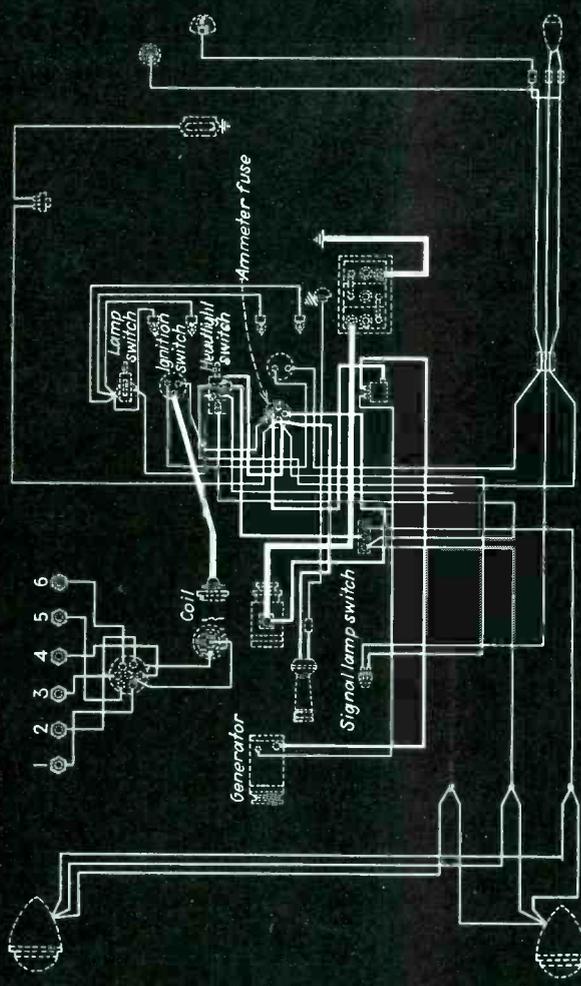


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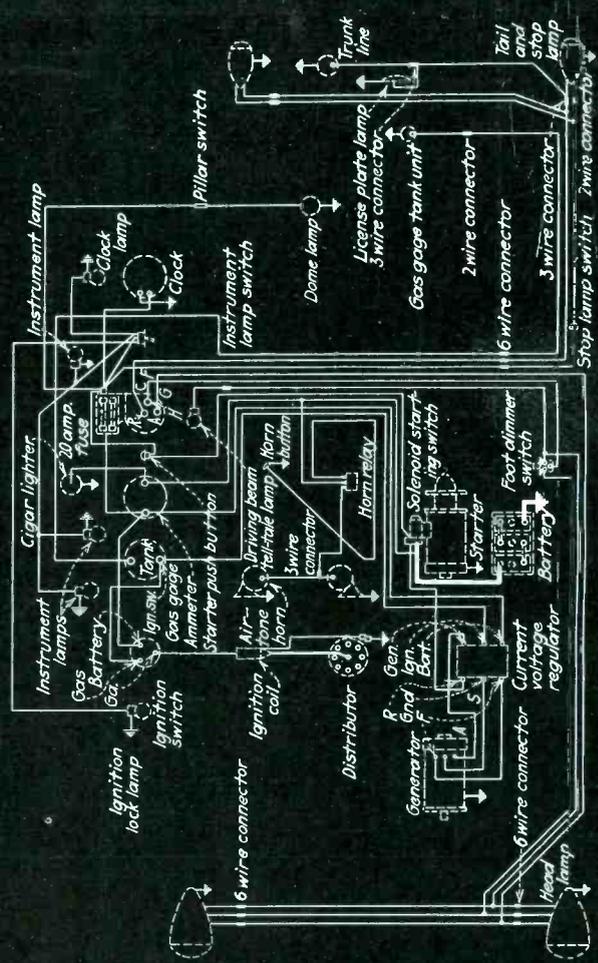


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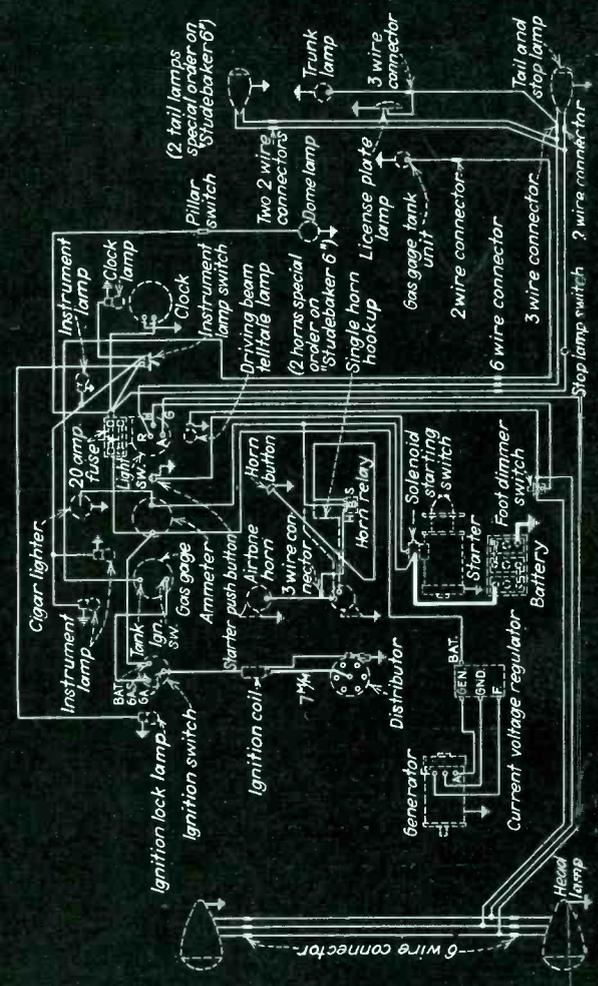


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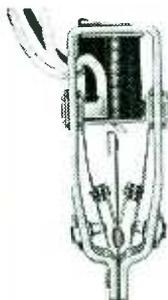
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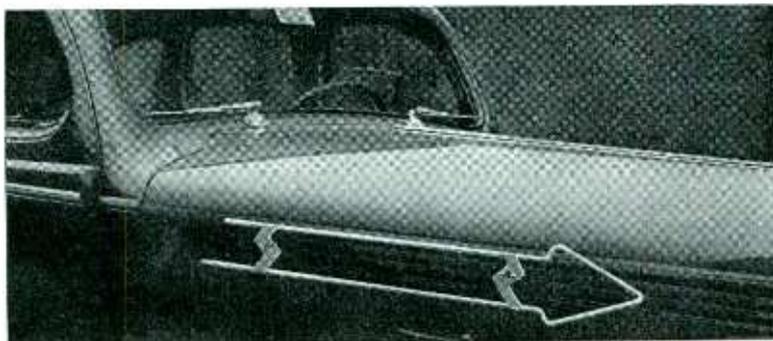
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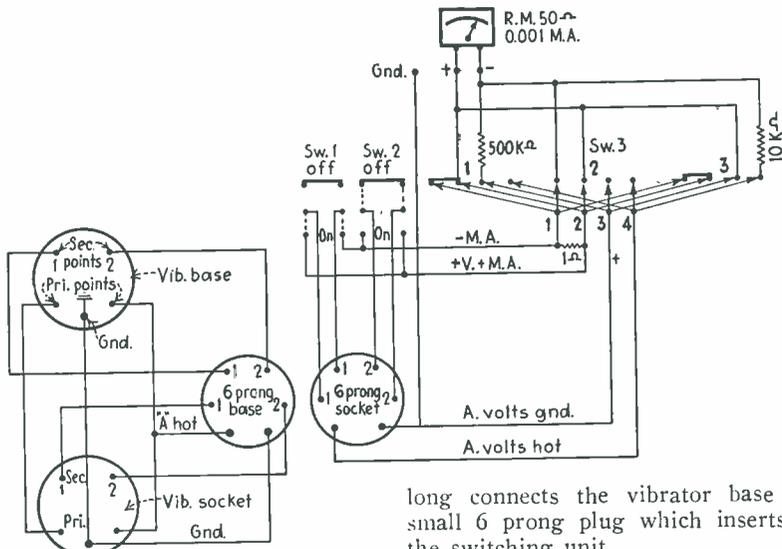
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SHORTCUTS



Simple Vibrator Tester

By Allen Beers

Noting the sketch, the tester consists of an adapter unit for various vibrator socket connections, and a switching unit. The adapter is made from a defective vibrator base, a vibrator socket, and a piece of bakelite tubing $2\frac{1}{4}$ inches in diameter by $4\frac{1}{4}$ inches long. The tubing is fastened to the vibrator base to provide a handle. A cable 18 in.

long connects the vibrator base to a small 6 prong plug which inserts into the switching unit.

The vibrator connections shown are used in 38 models of United Motors receivers on Buick, Oldsmobile, Pontiac, and Chevrolet, and is listed in Mallory's Encyclopedia as type 273C.

The switching unit is mounted on a bakelite panel 6 in. by 4 in. by $\frac{3}{8}$ in. It is best to build a small box for both sections so that they may be more universal.

In operation the tester works as follows: Insert the vibrator adapter in the vibrator socket of the receiver. Plug adapter socket into switching unit. Connect meter to meter pin jacks and set meter for 1 ma. scale. Switch 1 and 2 should be in the off position. Set switch 3 to position 3. Turn receiver on and meter will read A volts to vibrator coil; approximately 5.6 volts.

Now flip switch 1 to "on" position and switch 3 to position 2. The meter will now indicate the current through the secondary points on the No. 1 side of the vibrator. This will be about 20 ma. on a 6 tube receiver.

Set switch 3 on position 1 and the meter will read secondary volts from No. 1 points to chassis; about 230 volts. Next throw switch 1 to "off" position and switch 2 to "on" position; meter will read secondary volts from No. 2 points of vibrator to chassis, which should be approximately the same as No. 1 side.

Set switch 3 on position 2 for secondary current on No. 2 side. This should also be approximately the same as the previous current reading, namely 20 ma. By adding the current drawn from each side, the total current is obtained; approximately 40 ma. for a 6 tube receiver.

If No. 1 side should read 10 ma. and No. 2 side 20 ma., it is a good indication of pitted or oxidized points on No. 1 side. This means that the vibrator is not likely to start up unless it is jarred. High secondary current and low voltage indicate shorted or leaky condensers in the receiver.

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"They Stay Put!"

INTERNATIONAL RESISTANCE COMPANY

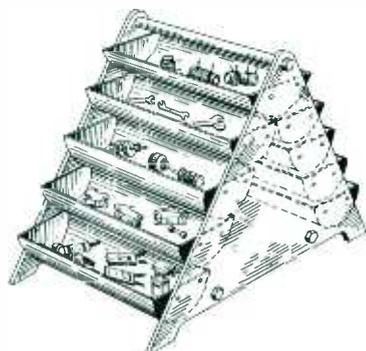
401 N. Broad St., Philadelphia, Pa.

SHORTCUTS

Portable Parts Container

By C. H. Willey

In keeping with the modern trend of neat service benches, the following small parts container looks well and fills the



need of a place for small odds and ends. Since it is kept on the bench it permits easy access to the parts; also, as it is always before you, it tempts the serviceman to sort out the "chaff" that accumulates.

To make it, all that is necessary is a little ingenuity with a pair of tin snips, and a few empty cans that have been cut half open on the end. These are positioned as shown on the two end

sheets and riveted or soldered to them. The top handle is made of a small tube, through which is inserted a long screw. A little aluminum paint will improve the appearance considerably.

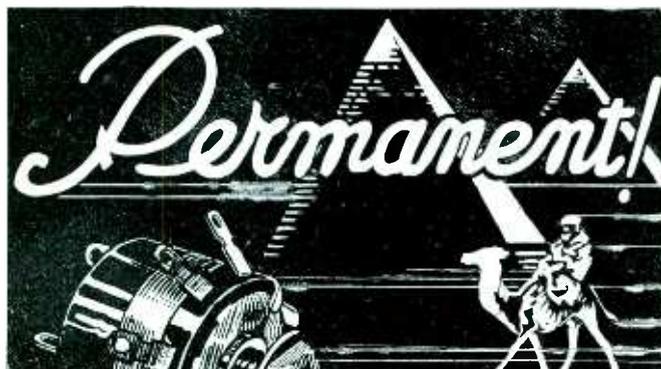
SURVEYING AN AUDITORIUM

(Continued from page 56)

previously described very satisfactory results were accomplished. The two lower speakers are directed at points A and B in Figure 2 and with a rather wide angle of projection cover the orchestra seating space. The two upper speakers on the proscenium arch are directed at similar points in the balcony seating area, and have a somewhat narrower angle of projection to avoid the undesirable flutter echo which results from sound projected directly to the ceiling. Because of their height from the floor, however, the sound from these speakers reaches the center point of the ceiling at approximately an angle of 20 degrees and is not reflected to the floor in such a way as to cause the flutter effect. Little difficulty was encountered in securing good coverage of the balcony without any undesirable

effects. The orchestra section provided a somewhat more difficult problem due to the multiple reflections from the hard surfaces present in this part of the auditorium causing dead spots at several points.

These reflections could of course be reduced by the application of absorbent materials at the proper point, but this method would prove rather costly, and at the same time would not enhance the somewhat unique decorative scheme. Comparable results were obtained by slight changes in the angle of projection of the lower speakers until all of the so-called dead spots were eliminated and a satisfactory coverage of the entire seating area obtained. It was at the same time possible to retain the correct illusion which enabled the audience to feel that the sound originated from the stage rather than from the loud speakers. This latter effect is extremely important, but is sadly lacking in many sound installations. This study of acoustic conditions and sound reinforcement brings to light many of the usual conditions and everyday problems encountered in Sound Engineering and does not include any extreme conditions, but it proved to be an interesting case. At the same time the installation was accomplished without the use of expensive acoustic treatment or any changes in the existing decorative scheme.



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Negligible resistance change after cycling 10,000 times.

Antenna and C-bias control still perfect after 28,000 cycles.

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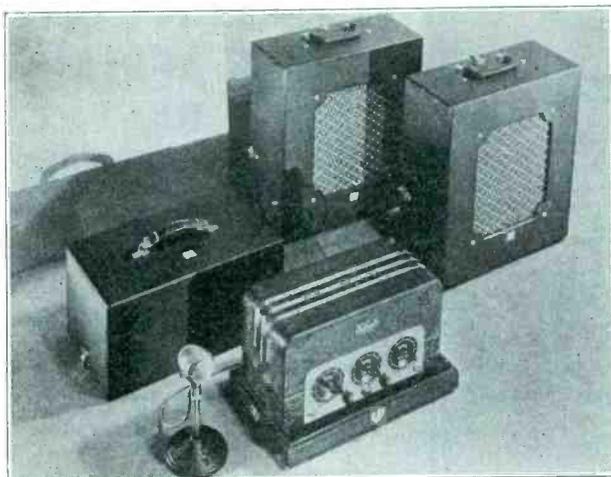
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Manufactured Under License Arrangement With E.R.P.I.

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Completely AC operated. Wide frequency range—100 to 30,000 kcs. Harmonics of last band may be used for ultra-high frequency testing. 6 bands. Dial scale length over 50 inches. Calibration accuracy of 2%.

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Attractive blue-gray wrinkle finish case with snap handle.

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BILL GROMMES
Radio Service Engineer
Chicago

November 16, 1937
Jefferson Electric Company
Bellwood, Ill.

Gentlemen:

During the past five years, I have recommended Jefferson Radio Transformers to my customers and friends. That these transformers are technically and electrically correct, is evidenced by the fact that I do not recall a single complaint.

My sales and service work are increasing steadily, which means better income for me.

Respectfully yours,

Bill Grommes

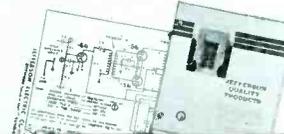
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● Good radio men know the value of using dependable replacement parts when servicing sets . . . Giving a customer a replacement job that satisfies is the surest way to future profits.

Mr. Grommes is another of the thousands of radio service experts who have found that Jefferson Transformers help to increase their sales and service work and add to income . . . As Mr. Grommes says—"that these transformers are technically correct is evidenced by the fact that I do not recall a single complaint."

Jefferson Transformers have the backing of an organization specializing in radio work since when it was called "Wireless"—Jefferson engineers have cooperated with the country's outstanding radio set builders—and Jefferson Transformers are used regularly for replacement work and by "ham" operators in all parts of the world.

Increase your profits in 1938 by using dependable Jefferson Transformers . . . Write for 1938 Catalog 372-R and Manual of latest Amplifier Circuit Diagrams. JEFFERSON ELECTRIC COMPANY, 906 - 25th Ave., Bellwood, Ill. Canadian Factory: 535 College Street, Toronto, Ont.



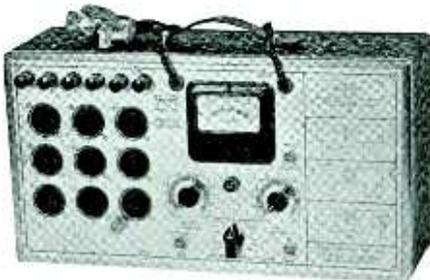
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Now you can test
All Automotive
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Home Battery
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6V. VIBRATORS
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An Approved
DeLuxe Model

DEALER PRICE **\$24.00**
(Metal Case)



Locate Service Troubles Quickly
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- Tests All Types 6 V. Vibrators
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- Uses Approved 500 Ohms Load

This new Triplett Vibrator Tester has been constructed with the engineering cooperation of leading manufacturers of vibrators. It will test all types and makes (6 volts) as used in automotive and home battery receivers. A load of 500 ohms recommended by vibrator engineers is applied. The 3-scale meter shows the following: 0-10 volt scale shows voltage input to the vibrator; the GOOD-BAD scale shows output; scale marked 0-100 per cent shows per cent of output voltage as reflected by change in input voltage. Low damped meter permits needle to follow voltage fluctuations caused by faulty vibrator contacts. Sold with complete instructions on how to test.

Model 1670 in Portable Metal Case with Black Wrinkle Finish. Attractive Etched Panel. DEALER NET **\$24.00**

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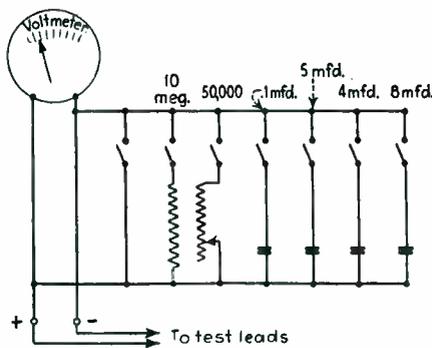
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203 Harmon Dr., Bluffton, Ohio
Please send me Details on Model 1670;
 Complete Catalog.

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

SHORTCUTS



Simple Substitution Tester

By Q. Gibbons

A handy test system is shown above. It consists of assorted capacities and resistors that may be connected to any circuit by means of test leads. When all switches except the meter switch are open, the tester serves as an ordinary voltmeter. Different values of capacity or resistance or both may be inserted across the meter while making voltage tests.

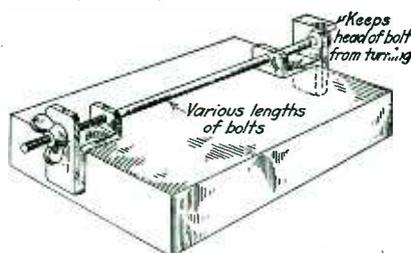
All parts may be mounted permanently on a test panel or made to plug-in.

Wide Range Clamps

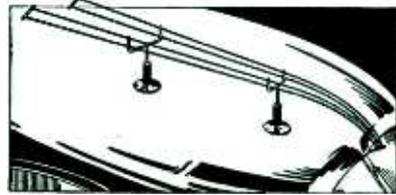
By H. Crest

There are often times around the shop that the conventional type of clamp does not meet the requirements of a bulky job. Of course we all know that when it is possible to buy a tool on the market it is foolish to make one. The work required to make this simple wide range clamp to meet the need is very little, and the material for its construction can be found in the odd ends of shop scrap. It consists of three parts, the two jaws and a bolt and thumb nut.

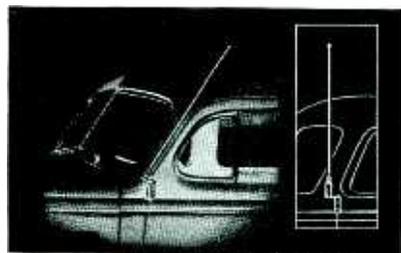
As the sketches really tell the story it will be sufficient to say that the bends must be made square, and it is best to heat the stock. The jaw used at the head end of the bolt is shown in detail. The offset keeps the bolt from turning. Various lengths bolt permit splendid working range.



1938
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EQUIP your sets with low-cost, efficient, built-for-service General Industries automatic record-changer units. Meet the natural demand. High-fidelity reproduction. Surprisingly low additional cost over hand-changing equipment.

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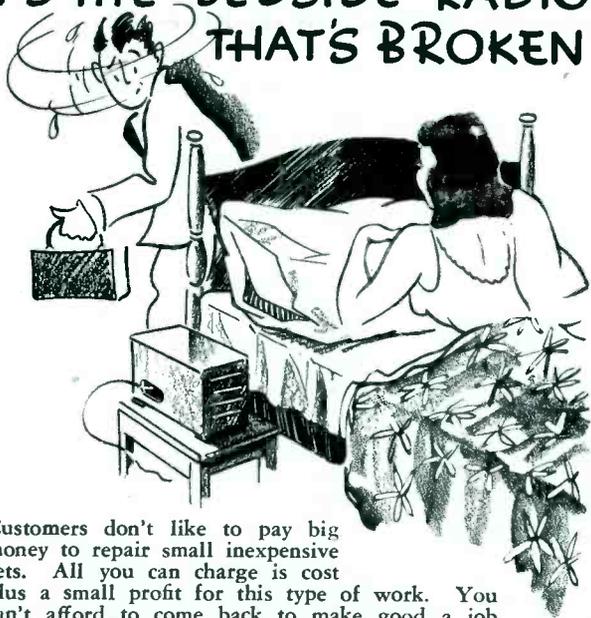
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A wide variety of UTAH speakers are specifically designed to make replacement easy and more profitable for servicemen.



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CHICAGO, U. S. A.

BUENOS AIRES — UCOA RADIO PRODUCTS CO.

"16 YEARS OF LEADERSHIP"



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- Protected Controls
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Distortion . . . this is a common condition in most battery sets using 19 output tubes. When the battery voltage begins to drop distortion appears because the "C" bias remains normal (approx. 6 volts). Reduce this bias to 4½ or 3 volts and the distortion will disappear.

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GE J83

Insensitive . . . Sensitivating can be improved by soldering a short length of insulated wire to the grid cap of the first detector. Wrap the other end around the grid lead of the first r.f. tube. This supplies regeneration to the r.f. stage, increasing the gain. No direct connection to the r.f. grid is necessary. The resultant capacity of 5 or 6 turns around the grid lead is sufficient.

G.E. E81

Distortion, low volume after 10 minutes of operation, plate voltage on 6L6 drops to about 25 volts . . . 6L6 shorted internally to shield. Replace with similar tube or 6L6G.

G.E. 1937 MODELS

Colorama lights burn out . . . insert a 150 ohm resistor in the centertap of the high voltage winding. Also, a 15 ohm resistor in series with the lamps will increase their life.

G.E. COLOR TUNING

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Low volume, vibrator buzzes . . . check the condenser across the plates of the 84 rectifier for leak or short. This condenser is located directly under the 84 socket and is covered by a tin shield. Remove the shield and condenser; replace with .006 1500 volt unit.



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in
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- 2 High Gain Inputs
- Electronic Mixing Circuit
- Multi-Stage Degeneration
- Underwriters' Laboratories Approved

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The Dictionary TELLS IT BEST

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Practice: The accomplishing of a set of principles.

Successful servicemen, learning theory first, are never troubled by circuit changes or complicated problems.

You Need Theory if you are to succeed in Practice

For "knowledge of the fundamentals" needed in modern service work depend on

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At The Time Of The

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RADIO PARTS CITY
STEVENS HOTEL — CHICAGO
June 8, 9, 10 and 11, 1938

RADIO PARTS MANUFACTURERS NATIONAL TRADE SHOW
53 WEST JACKSON BOULEVARD CHICAGO, ILLINOIS

TRICKS

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Regenerative whistle . . . ungrounded shielding on one of the 51 spray-shielded tubes. Connection to the shield may be made by wrapping a few turns around the envelope and grounding to the cathode prong.

PHILCO 45

Intermittent . . . check wave trap for open or short.

PHILCO 70

Oscillation that cannot be cured by the usual methods . . . bypass the filaments of the r.f. and i.f. tubes with capacities ranging between .005 and .25 mfd. The correct value must be found by experiment.

PHILCO 71

Cuts out on strong locals, low-powered stations can be heard in the background . . . change the bias resistor on the oscillator from 15000 to 10000 ohms.

PHILCO AUTO RADIO

Noisy, motor noise, motorboating . . . check the antenna connector for poor contact. Often this coupler becomes corroded, or the spring loses tension. Stretching the spring is only a temporary repair. For a permanent job insert an additional spring under the original one. A fibre washer between the two will help to keep them in place.

PHILCO 112

Distortion on local stations . . . replace the a.v.c. resistor to the first r.f. tube with a 70,000 ohm unit.

RCA R55

Fading . . . check the .0024 mfd condenser across the plate and cathode of the a.v.c. tube for open or leak.

SPARTON 900

Hum and noisy reception . . . this trouble is nearly always caused by poor contact between the can of the electrolytic condensers and chassis. Sometimes corrosion at the bottom of the copper can is the reason for poor contact. Often paint on the chassis prevents good contact from being made. Clean the electrolytic can and chassis.

**ANYBODY CAN BUILD
CHEAP SPEAKERS —
IT REQUIRES AN EXPERT
TO BUILD A GOOD SPEAKER
AT A LOW PRICE!**



**New
JENSEN**

Series "S"

5 INCH

6 INCH

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REPLACEMENT SPEAKERS

are *Quality* Speakers
at Low Prices

Here is the answer to the problem with which every dealer and serviceman has struggled. A replacement loud speaker at a price the public will pay and with guaranteed quality and reliability.

It is no longer necessary for the reliable radio service dealer to jeopardize his reputation by offering an ill-fitting, poorly designed replacement part or a nondescript complete speaker to meet the owners' demand for low price. The name Jensen insures the quality, and the price of these new speakers is the lowest in history.

PRICES

- 5" Speaker—List Price, less transformer..\$2.30
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- 8" Speaker—List Price, less transformer..\$3.90

Add \$.60 for fixed impedance transformers; \$.85 for adjustable impedance transformers. All are available with an assortment of field coils.



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Please send me more detailed information on New Jensen 5", 6" and 8" Replacement Speakers.

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Model
430
DEALER
Price ONLY

\$19.80

**Judged by the
number in use . . .
TODAY'S MOST
POPULAR
TUBE TESTER**

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

Readrite

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

Model 431 same as 430 except has Readrite (GOOD-BAD) Meter

Dealer Price\$15.90

**A MODIFIED EMISSION TYPE TESTER
APPROVED CIRCUIT**

READRITE METER WORKS, 320 College Ave., Bluffton, Ohio

Please send me more information on Model 430.

Name

Address

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

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AMERICAN MICROPHONE CO.	45	JANETTE MANUFACTURING CO.	47	SOLAR MANUFACTURING CO.	60
(Microphones)		(Rotary Converters)		(Condensers)	
AMPERITE CO.	64	JOHNSON MOTORS	28	STROMBERG CARLSON TELE. MFG.	2
(Microphones)		(Space Coolers)		CO.	
BELDERF ELEC. MFG. CO.	60	JEFFERSON ELECTRIC CO.	63	(Radio Sets)	
BELL SOUND SYSTEMS, INC.	63	(Transformers)		THORDARSON ELEC. MFG. CO.	66
(Sound Systems)		KEN-RAD TUBE & LAMP CORP.	47	(Transformers)	
BRACH MFG. CO.	45	(Radio Tubes)		TOPSTREAM, INC.	64
(Antenna Systems)		KOOLROOM, DIVISION OF INDIAN		(Auto Radio Antennas)	
BRIGGS & STRATTON CORP.	10	PRODUCTS CORP.	45	TRAV-LER RADIO CORP.	48
(Gas Engines & Generators)		MALLORY & CO., INC., P. R.		(Radio Sets)	
CLAROSTAT MFG. CO.	62	(Replacement Parts & Power Packs)		TRIPLETT ELECTRICAL INSTRUMENT	
(Volume Controls)		MUELLER ELECTRIC CO.	47	CO.	64
COLUMBIA BROADCASTING SYS-		(Wire Clips)		(Test Equipment)	
TEM	26, 27	NOBLITT-SPARKS INDUSTRIES.	7	TUNGSOL RADIO TUBES, INC.	68
COMMERCIAL CREDIT CO.	20	(Radio Sets)		(Tubes)	
(Time Payment Financing)		ONAN & SONS, INC., D. W.	46	UNIVERSAL CAMERA CORP.	44
CORNELL-DUBILIER ELECTRIC CORP.	50	(Gas-Electric Plants)		(Cameras)	
(Condensers)		OPERADIO MFG. CO.	43	UTAH RADIO PRODUCTS CO.	65
CROSLEY RADIO CORP.		(Sound Systems)		(Speakers)	
(Auto Radios)	Inside Back Cover	PAULEY-JAMES CORP.	60	WARD-LEONARD MFG. CO.	65
EDISON GENERAL ELECTRIC APPLI-		(Vibrators)		(Replacement Parts)	
CANCE CORP.	4, 5	PHILCO RADIO & TELEVISION CORP.	8	WARD PRODUCTS CO.	46
(Refrigerators)		(Radio Sets & Tubes)		(Auto Antennas)	
ELECTRO-VOICE MFG. CO.	64	PIONEER SPECIALTY CO.	47	WEBSTER ELECTRIC CO.	57
(Microphones)		(Auto Antennas)		(Sound Systems)	
EMERSON RADIO & PHONOGRAPH		PREMAX	45	WEBSTER-CHICAGO	67
CORP.	25	(Auto Antennas)		(Sound Equipment)	
(Radio Sets)		RAYTHEON PRODUCTION CORP.	3	WESTON ELEC. INSTRUMENT CO.	54
GENERAL ELECTRIC CO.	Back Cover	(Tubes)		(Sound Equipment)	
(Radio Sets)		RCA MANUFACTURING CO.			
GENERAL INDUSTRIES CO.	65	(Radio Sets, Tubes, Parts, Commer-	17, 33, 35, 36, 63		
(Phono. Motors, Record Changers)		cial Sound)			
GIBSON ELECTRIC REFRIGERATOR		REMLER CO., LTD.	46		
CORP.	43	(Sound Systems)			
(Refrigerators)		READRITE METER WORK.	69		
HORTON MFG. CO.	45	(Test Equipment)			
(Refrigerators)		RIDER, JOHN F.	68		
HYGRADE-SYLVANIA CORP.	41	(Service Manuals)			
(Tubes)		SETCHELL-CARLSON, INC.	60		
INTERNATIONAL RADIO CORP.	47	(Inter-communicators)			
(Radio Sets)		SERVEL, INC.	6		
INTERNATIONAL RESISTANCE CORP.	61	(Refrigerators)			
(Volume Controls)					

SEARCHLIGHT SECTION

(Classified Advertising)

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RADIO STOCKS	
Allied Radio Corp.	71
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Although Radio Retailing takes every precaution to insure accuracy, we cannot assume responsibility for an occasional change or omission in the above index

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SEARCHLIGHT SECTION

EMPLOYMENT and BUSINESS OPPORTUNITIES—SURPLUS STOCKS—DISCONTINUED MODELS

UNDISPLAYED RATE:
15 cents a word, minimum charge \$3.00
Positions Wanted (full or part-time salaried employment only) ½ the above rates, payable in advance.

(See ¶ on Box Numbers.)

Proposals, 50 cents a line an insertion.

(New advertisements must be received by March 31st for the April issue)

INFORMATION:

Box Numbers in care of our New York, Chicago and San Francisco offices count 10 words additional in undisplayed ads. Replies forwarded without extra charge. Discount of 10% if one payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:

1 inch\$8.00
2 to 3 inches..... 7.80 per inch
4 to 7 inches..... 7.60 per inch

An advertising inch is measured vertically on one column, 3 columns—30 inches—to a page. Contract Rates on request.

Radio Retailing

YOU ARE ONE

of more than 20,000 readers of RADIO RETAILING.

Your problems of selling radio sets, accessories and other home merchandise—whether business or individual—are duplicated with other readers, but—

Still OTHER readers can provide the solution of your problem IF THEY KNOW WHAT IT IS!

Tell them! Here!

Through classified advertising in the Searchlight Section of RADIO RETAILING—your business paper and theirs.

POSITION WANTED

SALES-SERVICE ENGINEER, experienced manager field engineering organizations, service shops, commercial design, sales, market analysis, domestic and abroad desires position with distributor or manufacturer as commercial engineer or sales representative. Will locate anywhere. PW-117, Radio Retailing, 330 West 42nd Street, New York City.

EMPLOYMENT

THE RIGHT MAN in the right place is a matter of vital importance to both the employer and the individual employee. The opportunity of benefiting from training, experience and ability suited to specific employment is equally great in its possibilities for both. Therefore choosing a prospective employee from among the most competent and experienced men that offer, or choosing the available employment best suited to the individual's qualifications, requires using the best means at the command of either, to assure satisfactory accomplishment. In the radio field Positions Vacant and Positions Wanted advertisements in these columns offer a means of contacting this industry and its personnel effectively and at small cost.

RADIO IN IT'S ENTIRETY!

"B-A" serves the trade with every need in radio—complete 160-page catalog of nationally known radio receivers, public address, parts, supplies and equipment. Orders shipped same day received.

COMPLETE CATALOG AVAILABLE

BURSTEIN-APPLEBEE CO. 1012-14 McGEE ST. KANSAS CITY, MO.

OVER 10,000 PARTS FOR VACUUM CLEANERS AND WASHING MACHINES

24-HOUR SERVICE!
Attach this "Ad" to Your Inquiry and Receive "Special Inventory Reduction Price Sheet"
Manufacturers Factory Representatives
MIDWEST APPLIANCE PARTS CO.
2722 W. Division St. CHICAGO, ILL.



JUST OUT!
ALLIED'S SPRING CATALOG
Everything New
IN RADIO

at Radio's Lowest Prices

Get this brand new guide to Everything in Radio, FREE—just send coupon! Service men and service departments everywhere find what they want, quickly, in ALLIED'S Catalog. Over 12,000 exact duplicate and replacement parts for building or repairing any circuit; all leading lines of Testers—analyzers, tube-checkers, set-testers, meters, signal generators; revolutionary new Sound Systems, 10 to 70 watts, portable, mobile, permanent; Builder's Kits, Amateur Gear, books, tools, etc.—and 56 sensational new "Knight" Radios, with newest features—Push-Button Tuning, etc., at new low prices, sets for every purpose—some under \$10, ideal price-leaders for dealers. You'll find 164 pages of special values in ALLIED'S new Spring Catalog—

Just out! Send Coupon now for FREE copy.

ALLIED RADIO CORP.

833 W. Jackson Blvd. Dept. 18-C-8
Chicago, Ill.

Send me your new Spring-and-Summer Catalog—FREE

NAME
ADDRESS

FREE-SEND COUPON

STOP SEARCHING!

HERE IS YOUR "GUIDE"

LOWEST PRICES

SEND FOR YOUR COPY NOW!

The new 1938 Radolek Radio Profit Guide contains complete showings of Radio Repair Parts, Radio Receivers, Public Address Amplifiers, Speakers, Microphones, Service Test Instruments, Radio Technical Books, Special Radio Tools. Leading Standard Brands! Everything you will ever need in the Radio Business all at Lowest Prices. You save money at Radolek!

GUARANTEED QUALITY

Every item you get from Radolek is guaranteed. It must be right or we make it right. Standard merchandise produced by leading Manufacturers with Radolek's guarantee added!

FASTEST SERVICE

Everything in Radio promptly when you want it—and exactly what you want. Radolek's efficient organization backed by a huge stock of standard guaranteed quality merchandise insures you the fastest service in the Radio business. Twenty-five Thousand Servicemen customers depend on Radolek service and benefit by Radolek's LOWEST PRICES. Send Now for your copy of the Radolek Radio Profit Guide. It will help you make money.

Rely on Radolek for "Everything in Radio"



1938 RADOLEK
the Most Complete Radio
Buying Guide FREE!

RADOLEK

601 W. Randolph St., Dept. A-17, CHICAGO

Name
Address
Serviceman? Dealer? Experimenter?

Audio Frequency...

How Car Allowances Compare

On a good many counts this industry of ours might very well benefit by a study of the automobile business, its methods of trade and codes of operation. This applies particularly to the practices concerning trade-ins. In the hope of finding something of practical value to radio the writer has made a survey of second hand automobile values and allowances. The investigation covers three of the most popular cars within their respective price classes

to establish the selling value after repair and reconditioning, deduct estimated cost of repair and reconditioning determined by an appraiser's examination, deduct a reasonable margin for selling costs, and allow the balance.

Another method arriving at about the same conclusion is to establish the selling price, deduct a more or less flat percentage for repair, reconditioning, selling cost, and allow the balance. At any rate the dealer seldom takes a loss on the trade-in for the sake of selling a new car.

The December issue of *Radio Retailing*, page 50, gives a schedule of maximum allowances as suggested, tentatively, by a dealers' Association. Compare their fig-



ATTENTION, AMATEUR TITLE-WRITERS—To the tender mercies of the anonymous subscriber who suggested for our November cover (left) the title: “. . . And Then the Lights Went Out” we submit the card reproduced below. It is used to boom room radio rentals in Los Angeles for the Mayfair Hotel.



as traded in the New York territory in November 1937.

	Year	Original Price	Average Trade In	Ratio
CAR A:	1936	\$ 850	\$365	43%
	1934	807	230	30
	1932	726	135	19
CAR B:	1936	\$1,141	\$440	39%
	1934	1,135	290	26
	1932	1,266	170	13
CAR C:	1936	\$2,735	\$790	29%
	1934	2,985	465	16
	1932	3,105	215	07

Two important facts were learned. Within the popular car group there was very little variation in allowances offered. Dealers had an uncanny way of agreeing on the trade-in value. Also that this fairly well-established trade-in allowance permitted the dealer to recondition the car and unload it at no loss.

The general practice seems to be to es-

tures with averages of the three groups above.

Age	Radio	Car Averages
2 years	42½%	34%
4 years	25 %	20%
6 years	\$10	10%

Although tentative, the radio percentages are represented as a fixed base presumably to be used under all market conditions until revised, whereas the car averages, varying with the changes in the used car market are representative only of the period under survey and are subject to any degree of fluctuation more or less automatically.

NEW YORK

RUSSELL B. RICH

Service Internationale

I ask Your attention for the Dutch Service organization Nederlandsche Radio Service. (N.R.S.) This is an organization of Radio service men and it will try to get the position of the radio service men in better ways. We are busy to get an International organization with The English: “National Radio Engineers Association” and the American “Radio Servicemen of America.” We hope that by this activity the position of the service man will gain in importance to every man in the street.

I hope that we also can get Your assistance, and that You will be so kind to write some words about this matter in Your paper.

DEN HAAG, HOLLAND A.F.L. DEQUANT
Nationale Radio Service

Question Asked, Answered

How can I get some cathode-ray oscilloscope diagrams and circuits?

LISBON FALLS, ME. John's Radio Shop

In the January, 1937 issue of *Radio Retailing* you will find an article by L. C. Waller entitled: “Oscillograph Design for the New 913”, with how-to-build instructions. In the July number, same year, there are 8 complete circuit diagrams of manufactured oscillographs. And in this present issue you will find the first of a series of actual photographs showing what specific patterns encountered in radio service work mean.

Stop, We Love It

We like the editorial content of *Radio Retailing* and enjoy reading the magazine each month.

SPokane

MORRIS H. WILLIS
Mgr., Spokane Radio Co., Inc.

Wish to thank you very kindly for copy of your *Radio Retailing* and wish to express my thoughts regarding same. I subscribe to 12 books and among them all I think you have one of the best.

The fact that you have a section for servicemen makes it even more interesting as it gives one a clear conception of what the other half of the world is doing.

WEST FERNIE, CANADA

H. E. MILLEY

I just received my copy of “Tricks of the Trade.” I wouldn't trade it for \$50. It is worth its weight in gold.

NOONAN, N. D.

DWIGHT CANNON

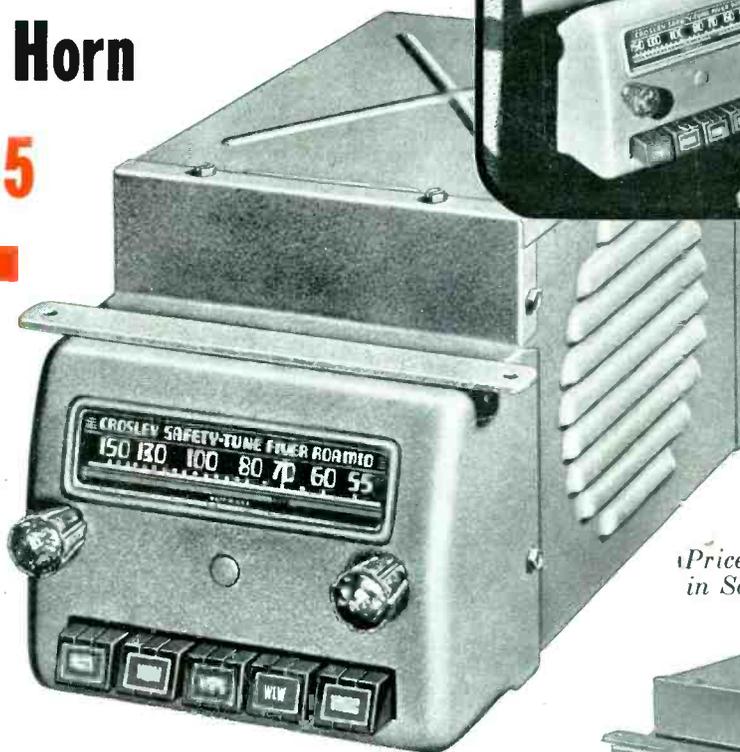
MORE "DYNAMITE" FROM CROSLEY
THE NEW

CROSLEY SAFETY-TUNE
 (PATENT PENDING)
FIVER ROAMIO

THE LOWEST PRICED PUSH-BUTTON TUNING AUTO RADIO

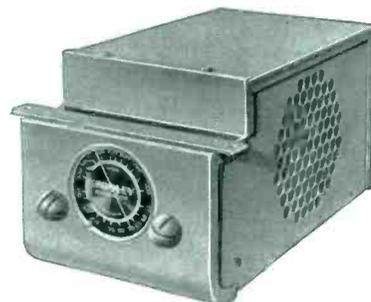
**As Easy To Tune As
 Sounding Your Horn**

\$24.⁹⁵



1. Highest signal to noise ratio in any 5-tube radio.
2. Full size, full wave, vibrator transformer for long life.
3. 5 Octal base tubes in standard circuit.
4. Antenna system designed to compensate for any type antenna.
5. Fully equipped with distributor compressor and generator condenser.
6. Easy to read, edge-lighted, slide rule type dial.
7. Full automatic volume control.
8. Low battery drain.
9. Sufficient volume to be heard at any speed.
10. Single unit, easily and quickly installed in any car.

(Prices slightly higher in South and West)



FIVER ROAMIO

The famous Crosley Fiver Roamio with conventional tuning is also available at **\$19.99**

Last year Crosley startled the radio world with the most sensational value in the automobile radio field—the Crosley Fiver Roamio selling for \$19.99 . . . and car radio sales skyrocketed to a new high.

Now Crosley again scoops the industry with another record-breaking sales-leader—the Safety-Tune Fiver Roamio with automatic push-button tuning for \$24.95! It has marvelous improvements and sensational refinements. The safety-tuning mechanism is instantaneous. Here is the best in car radio reception and tuning at a price suited to the means of practically every car owner. Here's a real sales booster.

THE CROSLEY RADIO CORPORATION - CINCINNATI

Home of "the Nation's Station"—WLW—500,000 watts—70 on your dial.

POWER CROSLEY, Jr., President

YOU'RE THERE WITH A CROSLEY



OUT FOR A BIG YEAR IN 1938

1937 was one of the best years in the entire history of General Electric Radio — IN FACT THE YEAR OF OUR GREATEST PROGRESS.

General Electric's 1938 Touch Tuning models are leaders in design and performance, priced to give great value for the consumer's dollar, and a generous profit opportunity to the dealer.

The 1938 G-E Radio line was supported by an advertising and promotional campaign second to none in effectiveness. Over 500 leading news-

papers — the large circulation magazines — and radio broadcasting spotlighted and dramatized General Electric's powerful radio story.

As a result, more dealers than ever before are now lined up with General Electric Radio.

General Electric Radio sales to date this year are 50 per cent greater than the corresponding period of last year.

General Electric Radio is progressively planning for a still greater progress in 1938.

GENERAL  ELECTRIC