JANUARY, 1934

RADIO RETAILING

INCLUDING SERVICE AND INSTALLATION SECTION

Home Entertainment Merchandising

25 Cents per Copy McGraw-Hill Publishing Company, Inc.

HISTORY REPEATS!

ARCTURUS *first with* QUICK ACTING . . . . . 25Z5 *and* 43

In 1928 Arcturus startled the radio world with its 7-second type 127.

Now Arcturus again crashes through with two new quick-acting tubes—25Z5 and 43. They operate in *17 seconds*, instead of 60 seconds or more.

Jobbers and dealers found that the 7-second tube sold more sets—and kept them sold. The speedier operation of *these* two tubes will also speed up your tube and set sales; make set demonstrations more effective; satisfy your customers.

Like the well-known Arcturus 7-second tube, this development indisputably ranks Arcturus as *the* quality tube. Here is a line that gives impetus to tube sales, that consumers readily accept, that jobbers and dealers can safely recommend, and that you can sell at a profit.

Stock and sell the latest in radio—Arcturus Tubes. Get the details from your jobber, or write us. Arcturus Radio Tube Company, Newark, N. J.

Remember? Here's news just as big.

6 out of 7 fundamental developments in a.c. tubes were pioneered by Arcturus. Can you name them?

See next month's announcement.

ARCTURUS

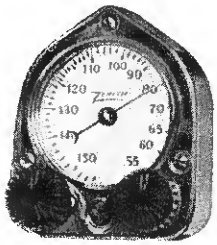
RADIO TUBES

RADIO RETAILING; January, 1934, Vol. 10, No. . Published monthly, price 25c a copy. Subscription rates: United States and Central and South American countries, $2.00 a year. Canada, including duty, $2.50 a year. All other countries, $3.00 a year or 12 shillings. Entered as second-class matter April 10, 1925, at Post Office at New York, N. Y., under the Act of March 3rd, 1879. Printed in U. S. A. Cable address "McGrawhill, New York." Member of A.B.P. Member of A.B.C.

Printed by The Schweinler Press, N. Y.

HERE'S THE *Auto Radio* that SCORED in the Automobile Industry!

$49.95 *retail* — *Complete with suppressors, less installation, price subject to change without notice*

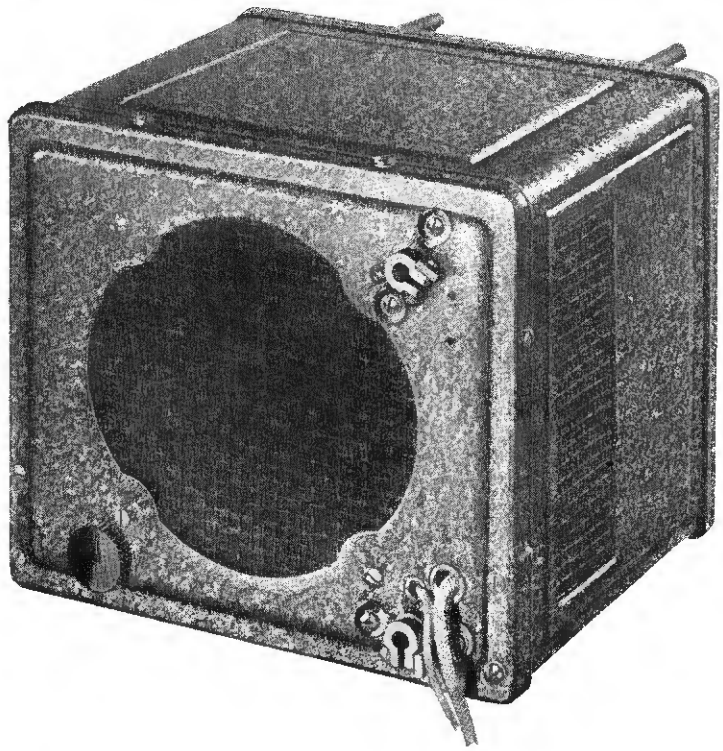


Tone superior to that of most home radio sets.

6 Tubes, new type, insuring volume and clarity.

Airplane Dial in keeping with the dash board designs of 1934.

Performance so outstanding that Detroit has "gone" for Zenith Auto Radio.



Detroit is pretty shrewd on auto-radio. So is the crowd at the New York Show.

You can be pretty sure that their choice is a wise one to follow. That's the significance of Zenith's recent triumphs in the automobile industry.

Take Hudson-Terraplane for instance. With the whole world to choose from, they picked Zenith for standard factory equipment on certain deluxe 1934 models.

Dealers, distributors, equipment wholesalers and retailers are urged to inquire about the Zenith Auto Radio franchise.

There are still many desirable territories open. Send for details now.

Here's a real franchise opportunity for 1934. Don't pass it up. Get in touch with the Zenith distributor, or the

ZENITH

THE MONEY FRANCHISE

ZENITH RADIO CORPORATION, 3620 Iron Street, Chicago, Illinois

Presenting

A STROMBERG·CARLSON *with*

TOUCH TUNING·SUPER CLASS A

AMPLIFICATION *and* HIGH POWER

at $125.

TUNES your favorite stations by touch, or all channels with "free wheeling." Absolutely silent when tuning between favorite stations. Delights everyone with its restrained new-day cabinet. Reproduces with new brilliance gained by Super Class A Amplification and high power (15 watts). Covers the entire broadcast band, both channels of police calls, many amateur and aircraft stations. A new standard of comparison from a famous laboratory. RADIO'S QUALITY LINE EXTENDED TO VOLUME SELLING.

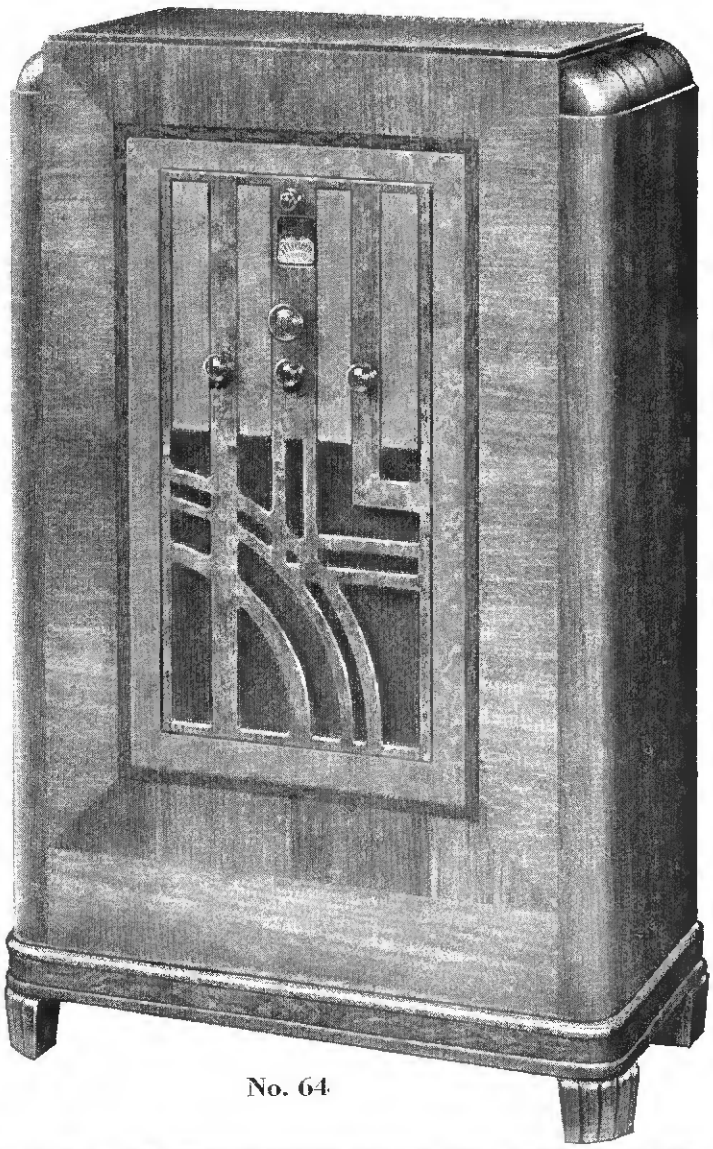
Stromberg-Carlsons range in price from $79.50 (Automobile Radio) to $592.50 East of Rockies.

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

Other Attractive New Models

NO. 56-R TE-LEK-TOR-ET Stromberg-Carlson's latest innovation. A console model with removable tuning mechanism, so that it may be operated either with or without remote control. The removable selector case of polished burled walnut gives control of every function of the radio. Touch Tuning of favorite stations. Modish cabinet of French Circassian Walnut, Tiger Wood and Carpathian Elm. A set whose unique versatility is very appealing. Price, East of Rockies **$188.50**

NO. 59 RADIO The finest "straight Radio" (except Te-lek-tor) ever produced in the Stromberg-Carlson factories. Large-sized cabinet of solid walnut with doors, whose rich quality is unmistakable. Eleven-tube chassis built on a one-piece copper-plated framework. Seven-octave fundamental tone range, and all the operating excellence the experience of radio engineers can provide. Super Class "A" amplification and High Power (18 watts). An instrument for your finest trade. Price, East of Rockies **$275**



No. 64

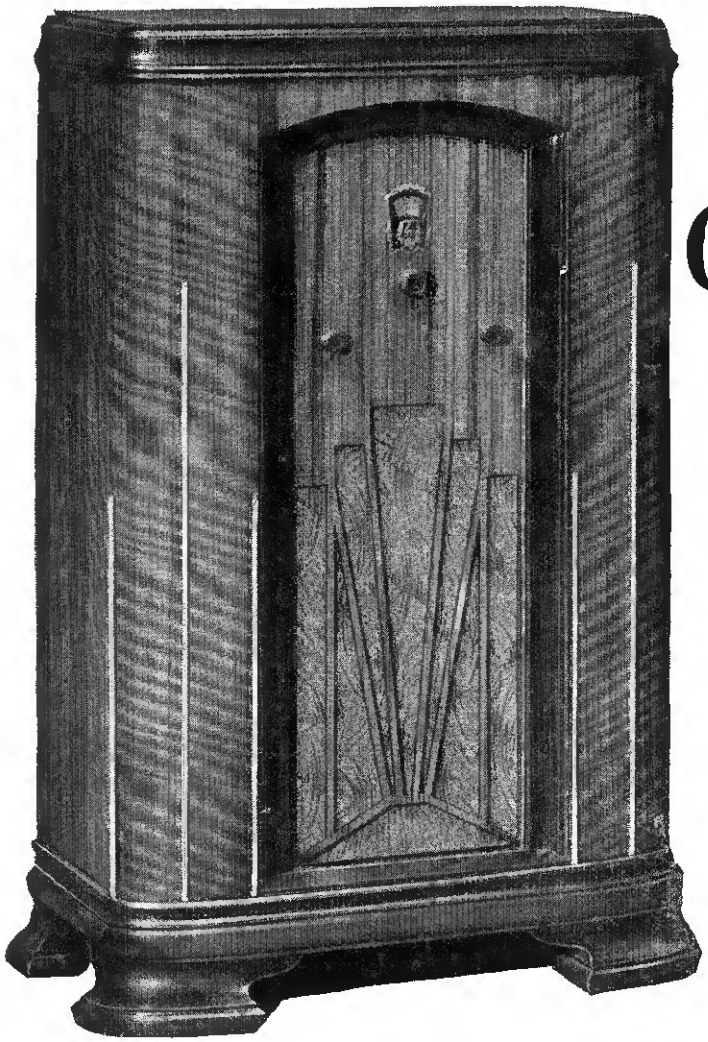
"THERE IS NOTHING FINER THAN A STROMBERG-CARLSON"

Stromberg-Carlson

NRA MEMBER U.S. WE DO OUR PART

"It is our task to perfect, to improve, to alter when necessary, but in all cases to GO FORWARD."

— said PRESIDENT ROOSEVELT in his message to Congress



Emerson GOES FORWARD

. . . With the tremendously increased manufacturing facilities of our new plant in the great Port Authority Commerce Building . . . with an outstanding line of Compact Radios, that takes advantage of every new engineering improvement . . . with a selection of distinguished Consolettes and a brand new Console that is a masterpiece in both appearance and performance. . . .

We take this opportunity to invite dealers and jobbers to visit our new quarters and learn at first hand our forward-looking plans for 1934.

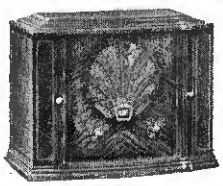
The New *Emerson* Model 77

—housed in an exquisite cabinet of restrained modern design, embodying the latest expression in furniture mode. The entire cabinet is made of imported Oriental wood—finger-rolled figured walnut—used on top, sides and front. Chromium trimmings, beautiful piano finish. Stands 39" high. ENGINEERING FEATURES of this 7-tube Superheterodyne include: 12-inch Dynamic Speaker, A.V.C., Duo-Diode Detector, Stage of R.F. ahead of First Detector, Seven Tuned Circuits, Super-Control R.F. Pentodes, Pentode Output Tube. Operates on 110-120 Volts, A.C., 50-60 Cycle. (Adaptable for 220 volts at slightly higher price.)

$69.50

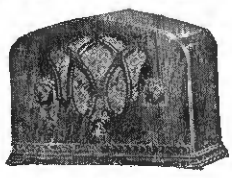
Complete with Cunningham Tubes

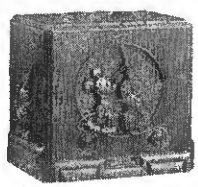
Emerson features AC-DC Compacts for every purse and purpose.
Prices are COMPLETE with Cunningham Tubes—West Coast Prices Slightly Higher.



Model 375 — Superb 6-tube Universal Superheterodyne. **$12.50**

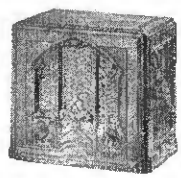
Model 250AW — the world's most popular Universal Compact . . . **$25**





NEW! Universal Model 414. A sensation at **$19.95**

Model 411 — famous Mickey Mouse Universal Radio **$25**



Emerson Radio and Phonograph Corporation

NEW HEADQUARTERS — 111 EIGHTH AVENUE — NEW YORK CITY

FRANCHISE COMPARISON CHART

points way to greater REFRIGERATION PROFITS

Mail Coupon for Your Copy NOW

● If you are interested in *facts* as opposed to *unsupported claims* . . . in *profits* instead of *promises* . . . if you really want to make your 1934 selling effort on electric refrigerators produce dividends in *good-will* as well as *cash* . . . you will welcome the Franchise Comparison Chart. A few minutes of study, in the privacy of your own office, will convince you that this method of comparison is worth more than all the hours you have previously spent in discussions and decisions on this vital question.

The success of the Westinghouse Dual-automatic Refrigerator is founded upon a rock — and the name of that rock is "User-Satisfaction." Because Westinghouse experimenting is done *in advance* and not at the expense of the public, service calls are few and far between. Because owners are enthusiastic about the greater dependability, economy and convenience of this *time-tested* refrigerator, word-of mouth recommendation keeps pace with Westinghouse advertising and promotion programs. And because facts, features and familiarity create *acceptance* for the Westinghouse Refrigerator, retailers secure greater volume at more profit with less selling cost.

You will find in the "Franchise Comparison Chart" an unusual opportunity to check the advantages of Westinghouse against all others — point by point — dollar for dollar. No method could possibly be devised that is more fair . . . more *thorough*. Why not send for your copy now . . . on the coupon below or your own letterhead? You have everything to gain and nothing to lose by taking this action NOW.

SEND FOR YOUR COPY NOW

USE THIS COUPON
or your own letterhead

Westinghouse Electric & Mfg. Co.,
Refrigeration Division (R R.1),
Mansfield, O.

If the Westinghouse franchise can make me some extra money in 1934, I want to know more about it. Send me the "Franchise Comparison Chart."

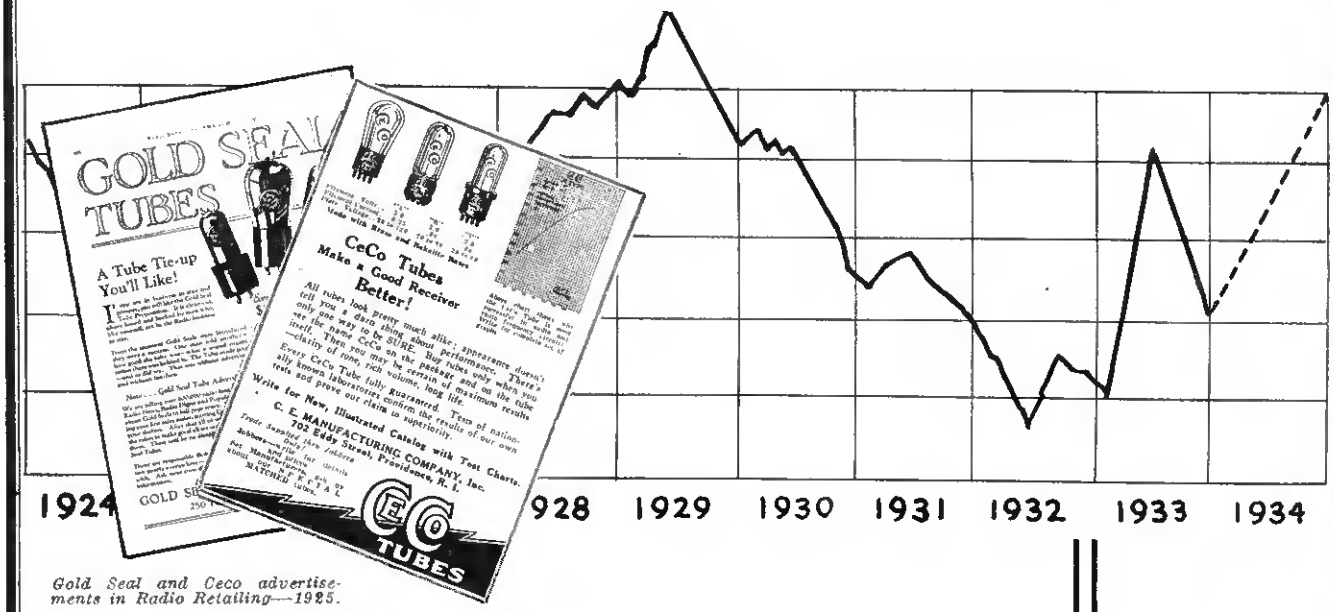
Name .....

Address .....

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

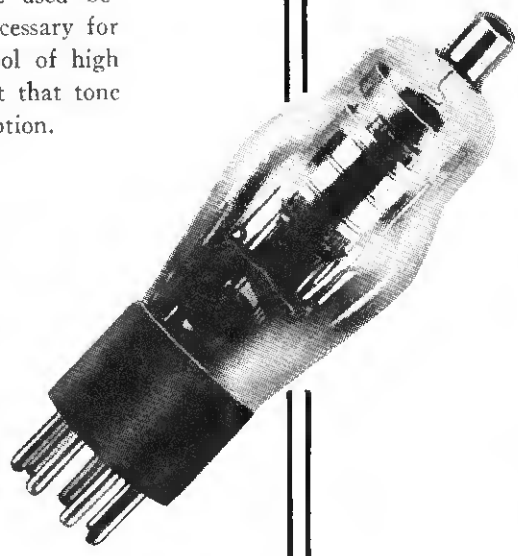
After Ten Years of Supremacy

Step Ahead With Gold Seal and Ceco Radio Tubes



Gold Seal and Ceco advertisements in Radio Retailing—1925.

Crystal Radio Sets were in Vogue—then came the development of Battery Sets. From the inception of Battery Sets *Ceco* tubes were used because of that old Pep that was needed to bring out volume necessary for the old type earphone unit speaker. Gold Seal was the symbol of high tube quality so essential to the first battery sets in bringing out that tone quality which all new radio fans thought was the acme in reception.



Ten Years Later—Gold Seal and Ceco still doing their part in the development of finer radio reception. For today's sets, precision radio tubes are even more vital than in the good old battery set days. Ten years of experience, engineering development, constantly improved manufacturing and engineering facilities, is your guarantee of fullest satisfaction with Ceco and Gold Seal Radio Tubes.

Modern Gold Seal and Ceco Tubes represent the outcome of ten years of scientific laboratory research backed up by unsurpassed manufacturing facilities.

Your profits are assured by profit-creating merchandising helps and maximum discounts.

Check the 1934 franchise

Gold Seal Mfg. Co., Inc.

East Newark, N. J.

Gold Seal Mfg. Co., Inc.
East Newark, N. J.

Gentlemen: Please send me full details on the Gold Seal ( ) Ceco ( ) 1934 franchise.

Name.....

Address.....

My nearest jobber is.....

● The camera catches a group of Majestic executives "previewing" one of the new models for 1934. The last word in refrigeration—climaxing months of work by Majestic engineers and designers . . .

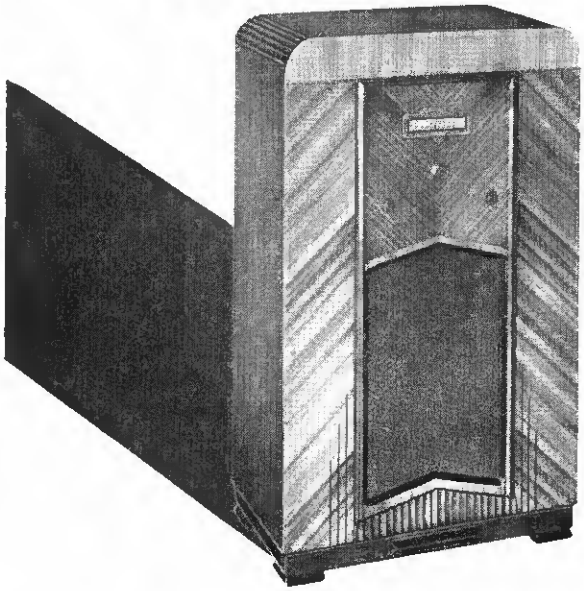
We believe you are going to agree with us that these new refrigerators are the finest the industry has ever produced. The most efficient, the most beautiful.

In both performance and appearance they are as far in advance as the new Majestic "Smart Set" radios—and that is a high compliment.

Majestic Dealers in 1934 will be offering the most salable refrigeration line in America. Wait and see!

Majestic
REFRIGERATION

Kingston offers A LINE OF 3 MODELS for 1934



MODEL 600B . . . $62.50

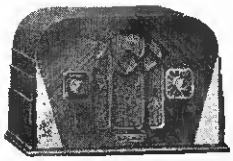
A 6-tube (9-tube performance) Superheterodyne Console. Embodied in the circuit are radio's latest refinements. The cabinet, while of moderne design, is by no means too daring for the average home. A distinctive beauty is given this model by the unique matching of imported woods. Height, 38″; width, 22½″; Depth 12½″.

THE 1934 Kingstons are ready. A line built with jobber and dealer consideration—three models only—price range $29.95 to $62.50. Specialized selling always has been recognized as the vehicle with which most sales records are attained. Kingston presents 3 models as a complete line.

Application of sales effort to fewer models strengthens individual model presentation whether it be to a salesman or consumer.

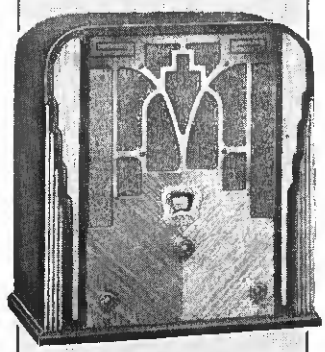
Intensify *your* sales efforts through the Kingston line of three models. Consumer requisites—*Style, Quality* and *Price,* are paramount in Kingston radios. Each model is carefully balanced to insure an outstanding value.

If you are looking for a value line wire or write us and a representative will call.



MODEL 55 . . . $29.95

An unusual high quality AC-DC receiver. Its 5-tube Superheterodyne Chassis is encased in a cabinet of compact design made exceptionally attractive by overlays of straight-grained American Walnut and imported Prima Vera. Tubes: 2 No. 78, 1 No. 77, 1 No. 38, 1 No. 12Z3. Height, 8″; Width, 11⅝″; Depth, 5¼″.



MODEL 600A

$39.95

A 6-tube (9-tube performance) Superheterodyne Table Model. Uses same chassis as Console Model 600B. Tubes: 2 No. 78, 1 No. 6A7, 1 No. 42, 1 No. 75, 1 No. 80. The cabinet is of pleasing design having an overlay of V matched straight-grained American Walnut. Height, 16″; width, 14⅞″; depth, 8¼″.

KINGSTON RADIO COMPANY Inc.

A Subsidiary of Kingston Products Corporation

KOKOMO INDIANA U.S.A.

McGraw-Hill
Publishing Company, Inc.

RADIO RETAILING

HOME ENTERTAINMENT MERCHANDISING

January, 1934
Vol. 19, No. 1

IN January, 1925, the first issue of *Radio Retailing* appeared. It was an outgrowth of the radio section of Electrical Merchandising, also a McGraw-Hill paper, which since 1922 had been covering the merchandising side of radio, under the same editorship. Thus *Radio Retailing* and its editorial organization have been in the center of radio-industry development from the beginning.

To look back on the crude assortment of bulky boxes, funnel loudspeakers, assembled parts, and feeble tubes, which made up the radio-store stock of those early days, brings a smile, in the face of present-day refinements.

Even broadcasting was a side-line effort, filling in time with free artists and dismal discourses. When *Radio Retailing* was already a lusty infant the National Broadcasting Company was yet to be born. And for years afterward, *Radio Retailing* continued on its staff the man who later was to be the first president of the Columbia chain.

FROM its initial issue, *Radio Retailing* took up the cudgels for better radio. It compiled the first industry statistics—against over-production and dumping. It made the first merchandising survey of the cost of retailing radios, in its moves against price-cuttings. Its protests against over-officious municipal inspections removed a hampering restraint on general enjoyment of radio. It outlined an adequate radio law to replace that which broke down, ending with the chaos of 1926. Its editor had an active part in setting up the present broadcast allocation along sound engineering lines. In recent years, *Radio Retailing* has been tireless in promoting the more general and convenient use of radio sets, for all times and places, and it has worked for better tone quality and a stabilized radio business. It will continue to point the way to better business practices.

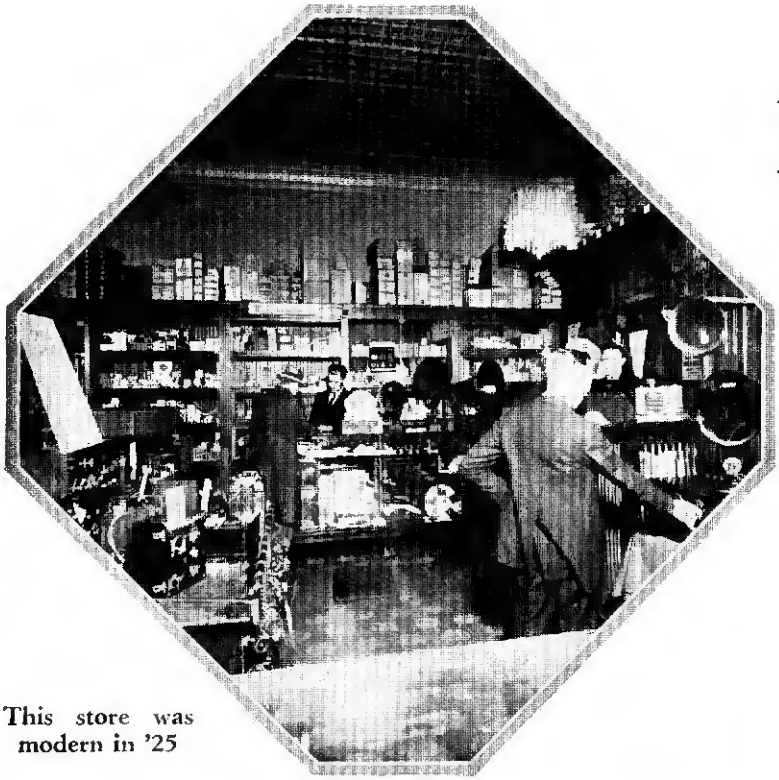
Inherently radio is more firmly intrenched as an industry than it was during the boom days of 28-29. Broadcasting billings and radio tube sales are fairly accurate guides of this increasing popularity. The former will reach an all-time high this winter and tubes sales for the year will be the second largest on record. Further, if December business comes up to expectations, 1933 set sales may exceed 3,000,000. The *fundamentals* of radio have never been in healthier condition.

YET new marvels, new sevices and new products are in store for us. Short-wave and all-wave sets, improved battery sets, universal sets, pocket and personal receivers, phonograph combinations, home talkies, facsimile attachments, and even television!

And so with radio accepted by the public on a scale hitherto undreamed of, with broadcasting pre-eminently "the greatest show on earth," and with radio sets of new ranges, usefulness and size for the home, farm, office and automobile, the radio art is just coming into its stride.

With millions of hours of enforced leisure being handed the American people by the new economics, this whole tremendous art and mechanism of home entertainment is put into the hands of *Radio Retailing's* readers to distribute. In this widening field of home entertainment there will be business for all, for a long time to come.

We Celebrate A Birthday



This store was modern in '25

Merchandising and Then

By

Ray V. Sutliffe

Managing Editor

AS *RADIO RETAILING* enters its tenth year of service, and the Radio Industry faces a new year of opportunity, it is appropriate that we review certain interesting happenings of the past decade—in whose brief span radio's rapid fire changes have equalled those of a lifetime in other less volatile businesses. From the technical angle a vast amount of progress has been registered—engineering developments have been eminently satisfactory. As much cannot be said, however, for the merchandising side of this business of ours.

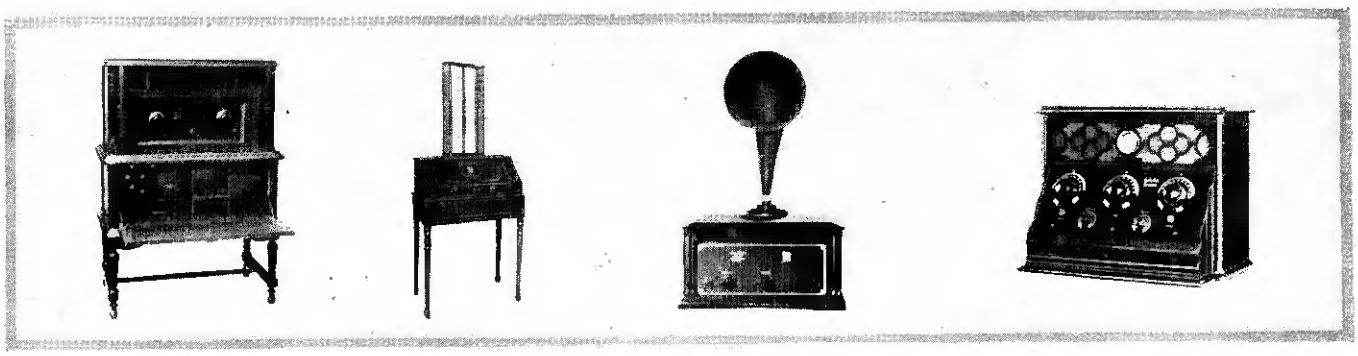
We quote from *Radio Retailing's* opening editorial, January, 1925, under the heading, "Plans and Purposes":

"It is to serve as such a clearing house for this great vital business of retailing radio that the editors of this journal, backed by fifty years of electrical publishing experience, now accept responsibility. A host of problems present themselves today to the radio trade. Here are some of the situations that press for solution:

Stabilization of prices
Offsetting seasonal slumps
Selection of balanced stocks
House-to-house selling
Store methods. Pricing policies
Store operating costs
Installations, service and repairs
Style designs; Interesting the women
Timing advent of new models
Reaching the great farm market
Trade-ins. The second-hand problem
Standardization and simplification
Trends in future radio development."

Note how many of these problems still "press for solution." Price stabilization remains a matter of prime importance . . . and the tube discount situation cries to high heaven for rectification. "Timing the advent of new models" needs as much study today as when this line was first written in 1925. Too many models, new product announcements at unseasonal periods, is still the complaint of those who must, perforce, keep the consumer happy.

Ten Short Years Ago the



Console with storage A and B's

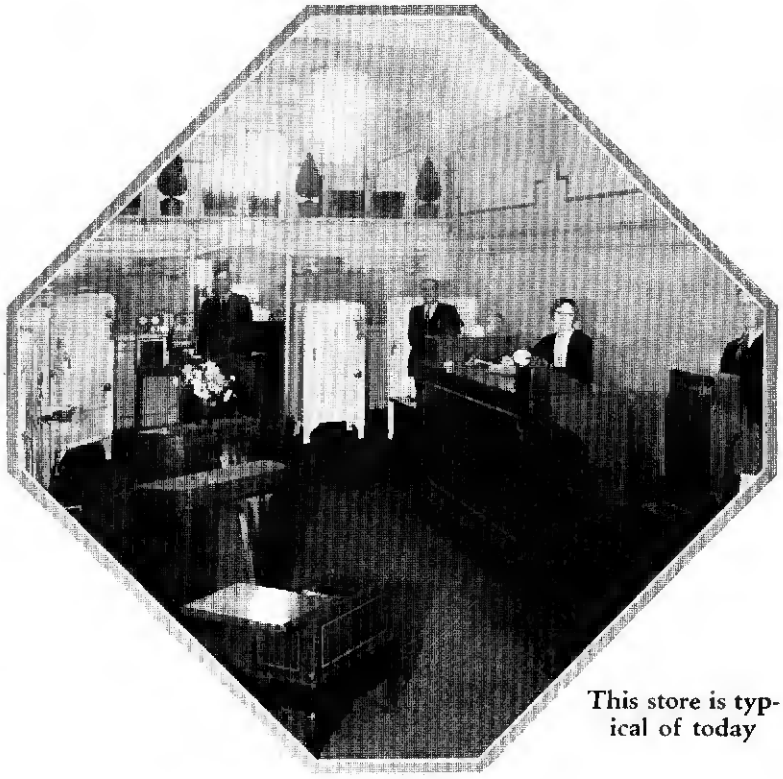
The loop antenna had many friends

Table and horn were indispensable

One of the first built-in speakers

Methods Now

There Are Still Many Problems That Press for Solution



This store is typical of today

And it is of interest that "the great farm market" is as great as ever—and that only within the past month has the dealer in the hinterland been placed in a position to serve this market with a modern, reasonably priced battery set.

On the credit side of the ledger we observe that seasonal slump has been smoothed out by the advent of the electric refrigerator and the motor car radio and by the profit-making, year 'round development of servicing. Styling, in cabinets, is much better and now in keeping with the taste of the discriminating. Disastrous dumping sprees—here we knock wood—have gone out of style. While our standard-set market is well supplied with reception facilities compared to 1925, all-wave, auto-radio, efficient battery models, midgets—yes, and the possibility of commercial television—have more than made up for the fact that now over 18,000,000 American homes have radio.

Probably the most spectacular merchandising development has been the rapid progress achieved by motor car radio sets. Five years ago "road radio" was lightly treated by most men of our industry—we claim an exception for this publication. But the scoffers "got religion." From 34,000 automobile installations in 1930 to over 600,000 for 1933, tells its own story.

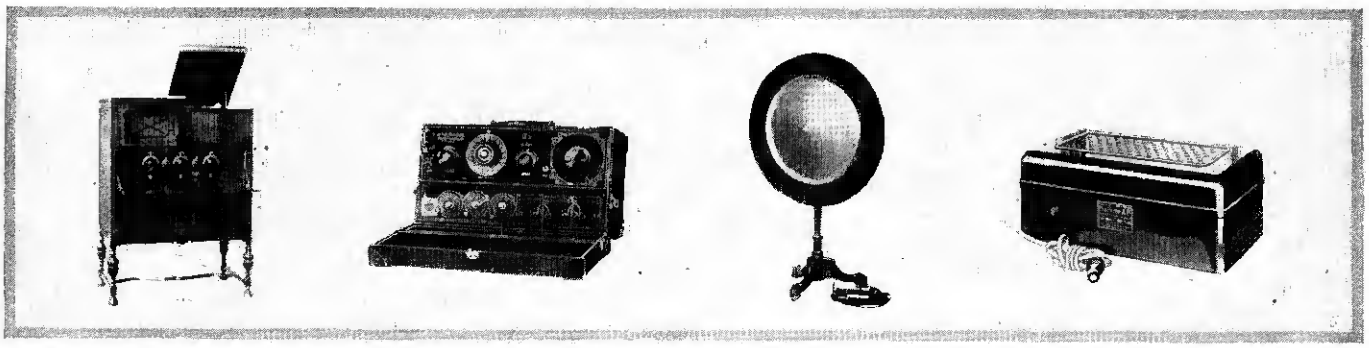
In 1930 auto-radio was a distinct novelty. Today it is a staple article of merchandise, efficient and highly desired. Not only will it be part of the standard, factory installed equipment of many of this year's cars but taxi owners, in large numbers, are providing "music as the meter ticks." These trends will do much to bring the owners of cars already in use to the stores of radio dealers, seeking similar equipment.

Tube Situation Needs Rectifying

The one sour disfigurement in our present picture is unquestionably the lamentable tube fight which has been raging, at everybody's expense, for many months. Recently conditions have become even worse, in spite of

(Please turn to page 14)

Public Fought for These



A phono-combination of 1925

A typical early portable

Pedestal - mounted magnetic cone

A & B eliminators electrified the trade

Radio's "REPEATING

JUST about 10 years ago Gross-Brennan, then New York factory representative for "Thermiodyne," one of *Radio Retailing's* first advertisers, hired men to form a factory service-sales crew. I was one of them and, fresh from a Brooklyn retail radio store, took a night train to Plattsburg, up near the Canadian border. Followed a month of intensive circuit study in the northern factory, then off for work with distributors.

Woodward-Wright of New Orleans, Cheney Brothers of Boston, Music Master of Philadelphia, Motor Equipment Sales of Wichita, Zamoiskie of Washington, my early contacts, still conjure up vivid memories of radio's baptism along the Gulf coast, in the Pennsylvania coal mining districts, among Kansas, Oklahoma and Panhandle oilwells and in the shadow of the Nation's capitol. The names of other jobbers are long since forgotten.

In 1927 I renewed acquaintance with amateur radio, obtaining a license to operate U2TY. (Now W2TY on 7,290 kc.)

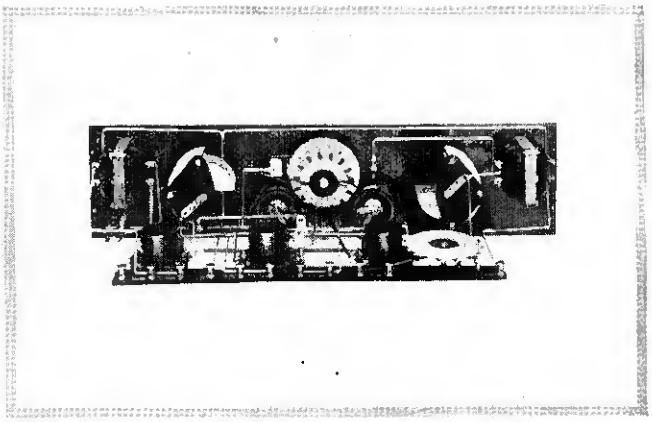
Looking back over this long panorama of radio experience one curious fact stands out in sharp relief, as it must in the minds of many old-timers. *How very many of the early circuits and parts, subsequently discarded, have once again come into their own.* Mental review of radio design brings to light a distinct "repeating cycle."

IN 1925 Carl Trube of Thermiodyne struggled to perfect a single-dial control receiver. Magnavox and Mohawk (now Wurlitzer) furnished stiff competition but all three companies were handicapped by their inability to obtain matched gang condensers having the necessary permanence of alignment. Today, single-dial receivers are the accepted standard because condenser makers have learned to turn out reliable units.

RCA introduced a portable superheterodyne which achieved some success despite a tricky oscillator control, image interference, two-spot tuning and excessive battery drain. The circuit has since achieved universal acceptance because ganging was mastered, image suppression and two-spot tuning were eliminated by adding a t.r.f. stage and choosing a new intermediate frequency. Drain was rendered unimportant by complete electrification.

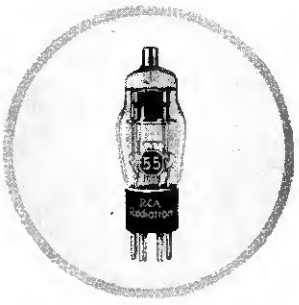
Western Electric used push-pull amplification for telephone repeater work before commercial broadcasting started. In 1927 I distinctly recall buying two "Como" transformers, later discovering that they made little improvement in audio amplifier performance. But when high power output tubes were produced the need for quality amplification at high volume levels and the necessity for reducing hum output in electrified receivers again brought push-pull to mind. Engineers resurrected it and the circuit is now in common use in modern receivers.

HORN type dynamic speakers were made as far back as 1925 but did not "bat 1,000" because of their excessive battery drain. Electrification removed this obstacle, and dynamics came into their birthright. Horn type speakers dominated the field in the early days, only to give way before an influx of superior cones. Now it seems possible that

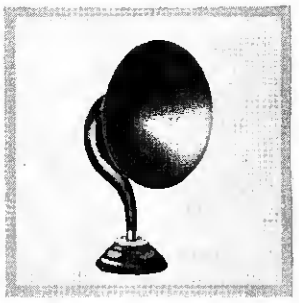


A 1925 "squealer"

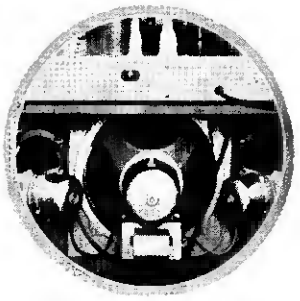
An early tube



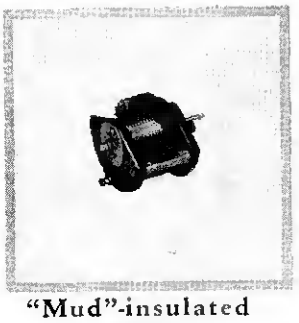
New duplex diode-triode



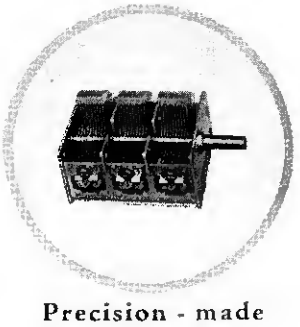
Pioneering "goose-neck"



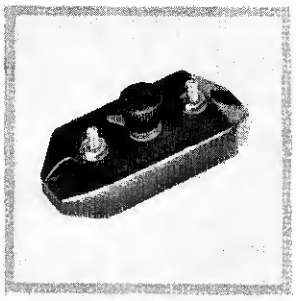
The last word in dynamics



"Mud"-insulated variable

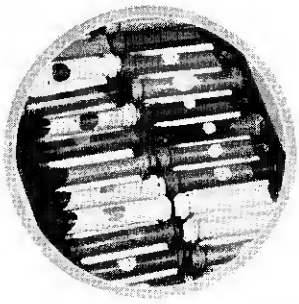


Precision - made gang unit



Pencil-mark grid-leak

Modern pigtail resistors



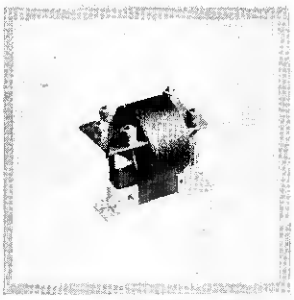
with remote control, the separate speaker is one of the most promising modern design ideas and is offered by such companies as Sentinel, Philco, Crosley, General Household, Howard, Galvin, Stromberg-Carlson and a host of others.

INTERESTING? Read on then, for there have been even more amazing resurrections. Years ago the "Mu-Rad" receiver startled the industry by utilizing variable inductance tuning. The idea was lost in the shuffle when condenser makers brought out precision gang units. Now, in England, tuned inductance receivers are gaining in popularity and Polydoroff's variable core units are being given serious consideration by American manufacturers.

Amateurs used Ford car spark coils in conjunction with batteries to provide high plate potentials for portable transmitters many years ago, although rectification was not attempted. The principle has since been effectively applied in the design of vibrator-type, auto-radio B-eliminators such as those made by Mallory, *et al.* Motor generators, dynamotors and similar rotating devices have been brought back for the same purpose.

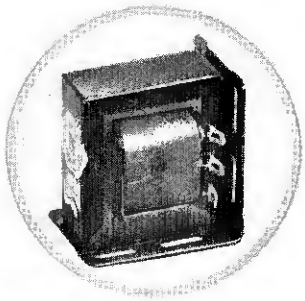
Piezo-electric crystals have been used by "hams" for many years to control transmitter frequency. Now they are coming into general use in broadcast type microphones and Brush Laboratories has licensed B. A. Proc- and other manufacturers to produce crystal pickups which have excellent frequency response characteristics.

Amateurs also built their own plug-in coil receivers for multi-band operation as far back as 1923. The very latest commercial extended-band receivers change inductance in much the same manner, substituting switching systems for manual plugs.



One of the first audio transformers

Its big, up-to-date off-spring



Metal-cored, untuned r.f. transformers were quite common in 1925 but were soon superseded by air-core t.r.f. coils. Today metal particles embedded in insulating binder are considered for use as i.f. transformer cores.

Battery receivers were forgotten in the rush for electrification along about 1927. Now the trade's interest is being revived by 2-volt tubes drawing only 60 milliamperes of filament current and special batteries such as the National Carbon "Aircell." Burgess and other manufacturers are bringing out 2-volt cells. And magnetic speakers, once buried under a welter of dynamic types, find new usefulness in such sets.

I COULD go on enumerating old ideas which have been revamped to suit modern requirements almost indefinitely expanding this story of radio's repeating cycle to infinity. For such "modern" improvements as automotive volume control, tone control, visual and automatic tuning, interstation noise suppression and remote control probably were born years ago in some obscure laboratory, the result of some dimly remembered experiment.

Suffice it to say that design engineers have abstracted bits of past history from dust-covered notebooks, added to these the wealth of practical experience which is the radio industry's heritage, and produced modern receivers with which the retailer can whet consumer desire for new equipment.

Merchandising Then and Now

(Continued from page 11)

the fact that the tube industry now has a code and is functioning as a part of the National Electrical Manufacturers Association with three supervisory agencies. This code requires that each tube maker file discount schedules—which must not run below production costs—but does not provide for the establishment of any mutual scale of prices.

At present it is a mad race to see who can grant the longest discounts and still survive. The result is that certain tube concerns are seriously embarrassed and that the tube gyp has been given every aid and sustenance to encourage him to cut list prices. Furthermore, in certain instances, the jobber's margin has been reduced to a less than 10 per cent leeway, despite the fact that the costs of distribution seldom are less than 18 per cent.

An investigation of actual costs of manufacturing and distributing tubes should be conducted.

While the problems of '25 were many, those of today not only "press for solution" but certain of them *must* be settled soon. It is vital to our existence as an industry, for example, that haste be made in putting the tube business on the sound basis of profit-permitting list prices and discounts, because of the diminished resources of those participating in this branch of radio. Increasing sales volume no longer is a factor sufficient to counteract the losses due to selfish policies.

Because the public no longer storms radio stores in its eagerness to buy is no reason, however, why the radio industry cannot look forward to many years of prosperity. But it does mean that we must bury the chisel and work together.

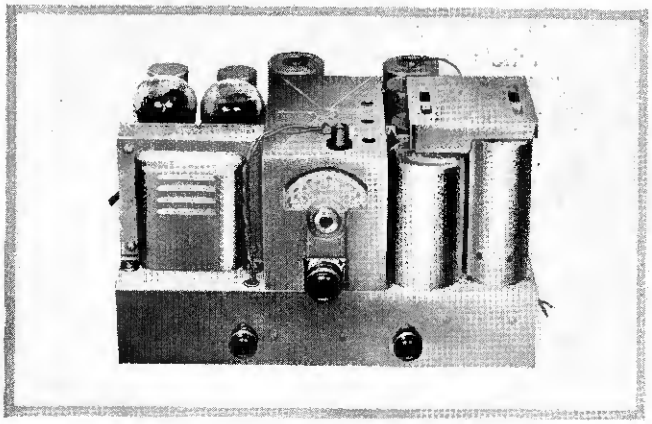
Summarizing our present-day situation, it is apparent that what the radio industry needs now is a return of buying power. The 1934 radio merchandise is most desirable and reasonably priced—a type set for every need and full value whatever model is selected.

Many of the mistakes of the past have been rectified. New technical developments are opening up new marketing possibilities. The situation simply calls for common-sense business judgment.

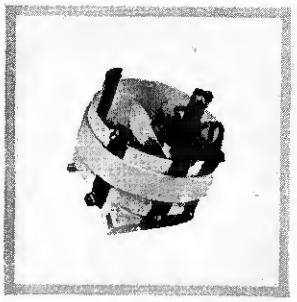
To this end *Radio Retailing* again dedicates itself. Quoting the concluding paragraph of its first editorial, January, 1925, this publication will continue—"to disseminate sound practices throughout the industry."

CYCLE"

By
W. W. MacDonald
Technical Editor

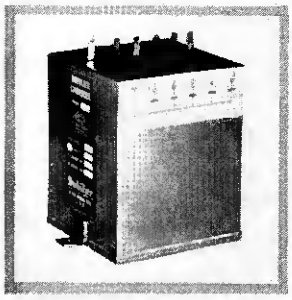


Its modern successor

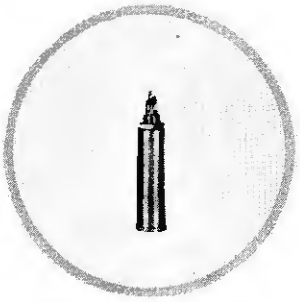


Low-loss era's pride and joy

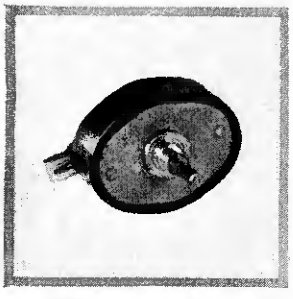
1934 extended-band superhet coil



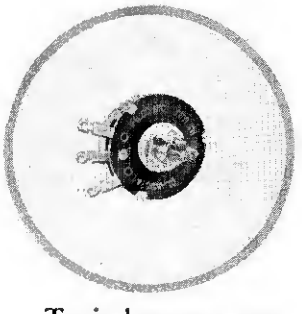
Historic 13 mfd. filter block



Today's 8 mfd. electrolytic



Volume control of unknown vintage



Typical new control

they may come back as auxiliary "tweeter" units because of their efficiency at high audio frequencies.

Diode detection was one of the earliest forms. It disappeared from the market for many years when triodes provided superior gain, much desired in transition years. But diode detection has been back with us since 1931, for Philco engineers found that they could obtain gain elsewhere and took advantage of the diode's excellent fidelity.

Super-regeneration was popularized for one short season by a "fan" magazine. I built a single-tuber with a giant honeycomb coil at the time and brought in KDKA with loudspeaker volume. But the circuit was too broad for use in broadcast bands. It is just becoming apparent that this high-gain circuit is extremely useful on ultra-high frequencies. And broad tuning is a positive advantage in installations such as one recently made for the Bayonne, New Jersey, police department by Radio Engineering Laboratories for a sharp receiver would not hold fixed-tuning at 8.6 meters.

Amateurs used "Zeppelin" feeders which did not radiate at an early date but there appeared to be little likelihood that these would ever be useful in connection with commercial receivers. But when extended-band reception was offered to the radio buyer, Lynch and other manufacturers brought out "transposed-lead-in systems" for the reduction of noise-pick-up. It was remembered that not only did such balanced transmission lines prevent transmitter lead-in radiation but reduced receiver noise pickup.

JOG your memory again and radio's "repeating cycle" becomes increasingly apparent. The discovery of the regenerative circuit permitted rapid development of sensitive receivers. Then, it was displaced by the neutrodyne and similar t.r.f. receivers and its squeals distinctly frowned upon. But engineers have since learned how to control regeneration and in midget receivers like the Crosley "Totem" it is used to obtain high gain from few tubes.

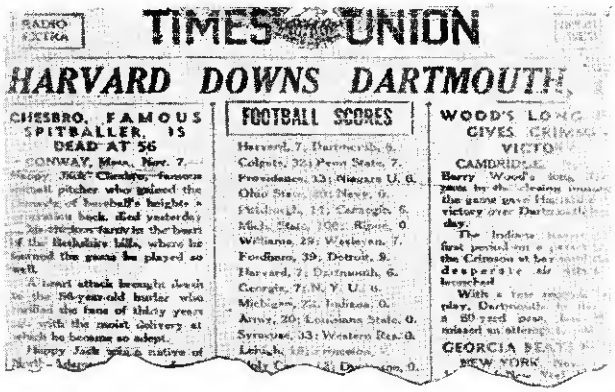
In the old magazine "Radio Broadcast," Kenneth Harkness once described a two-tube reflex circuit. I built one and found that while it had truly marvelous gain, tuning was somewhat difficult. Reflexing went out as tube and parts prices declined, reducing the cost of straight multi-stage receivers. But it reappeared in General Electric's 1933 auto-radio receiver. This company revamped the idea and it made possible four-tube receivers with admirably low battery drain.

Resistance coupling was popularized as far back as 1926 as a means of achieving high-quality audio amplification. It failed to set the world afire because in those days set-builders wanted the maximum of volume with the minimum number of tubes. Transformer coupling filled the bill. Since then tube design has advanced by leaps and bounds and electrification economically furnishes high plate potential. Ample gain can be secured without transformer coupling. Many set makers were using resistance coupling again in 1931.

When separate speakers abdicated in favor of built-in types who among us thought that some day they would again be used? Certainly, not I. And yet, coupled

At Breakfast-Time

A *Radio Newspaper*



RADIO EXTRA

TIMES-UNION

HARVARD DOWNS DARTMOUTH

CHESBRO, FAMOUS SPITBALLER, IS DEAD AT 56

FOOTBALL SCORES

WOOD'S LONG GIVES CRIMSON VICTO

GEORGIA BEATS NEW YORK

An ordinary home radio can be equipped with "facsimile" attachment to receive a morning newspaper similar to the reproduction above

WHAT will be the next major radio accessory that the dealer can sell?

From the trend of events and from developments that are now going on in the manufacturers' laboratories, it looks as if "facsimile" reproducers, which can be plugged into standard sets or built into the newer models, offer the next great merchandising opportunity.

What would such a facsimile device do? Of what use will it be to the purchaser?

For the answer, let us transport ourselves for a minute to the Jones home of the future, equipped with one of these facsimile devices.

Along in the late evening, after a delightful program of radio music and entertainment, the Jones family prepares to retire. But instead of "turning off" the family radio set as in the old days, Father Jones switches it to a point on the dial labeled "Facsimile" and trudges off to bed.

And then, while the Joneses, big and little, are sleeping soundly, that radio set is busy feeding to its printing apparatus an exact reproduction of a little newspaper, which unrolls and falls into a basket.

So that when the Jones family comes down to breakfast in the morning, there will await, in the basket by the radio, *a morning newspaper—headlines, cartoons, and all.* And this radio newspaper will carry the very latest news, within a few minutes of its happening, instead of an edition printed at midnight or earlier, for breakfast consumption.

Already, all of the experimental work for this facsimile apparatus has been successfully completed and the apparatus is ready for commercial sale. By it, newspapers have been sent to remote cabins, and across the sea, to ships. To cover an ordinary broadcast area would be easy for these new facsimile devices.

The principle of operation will be evident to any radio man. For the usual loudspeaker, an electromagnetic stylus is substituted. This stylus is moved back and forth across the paper, to draw a series of parallel lines. As the movement of the stylus is in step with the corresponding facsimile-recording eye at the broadcast source, scanning the "copy" to be sent, the stylus will be *lifted* each time its controlling eye passes over a *white space,* and dropped, so as to *make a mark,* when the eye passes over a *black part* of the type matter. A synchronized motor mechanism feeds the stylus across the page and at the end of each line advances it to the next line.

It will be evident, therefore, that the essential parts of this new facsimile apparatus are only (1) an electromagnetic mechanism similar to a loudspeaker but actuating a stylus instead of a diaphragm and (2) a clock motor to drive the stylus across the paper in synchronism with the sending mechanism. The broadcast-receiver apparatus would be the same as before, receiving on the broadcast band impulses suitable to operate the facsimile printing apparatus. The broadcast channels are unused and wholly wasted after midnight or 1 a.m., and such an important new service could properly be used over the broadcast frequencies during these inoperative hours, when no aural broadcasting is done.

Such a facsimile attachment for the home radio, it is estimated, can be produced in quantities to sell at retail at prices as low as $50 to $25. Such apparatus could be built into new broadcast receivers at the factory, at a cost amounting to a fraction of even these figures. With only the equivalent of a loudspeaker unit and an electric clock and some auxiliary connecting mechanism needed, let any radio man figure out for himself the factory cost of such an assembly.

To attach such a facsimile reproducer to an existing standard radio set, would mean merely installing a cut-off jack in the loudspeaker circuit so that, when the facsimile attachment is switched in, the speaker would be cut off and not reproduce the curious whistles and squeals which are heard when the facsimile impulses are converted into sound. Thus to equip an existing radio set for facsimile would be a service job—insuring the proper operation of the facsimile apparatus.

Besides involving an initial sale of considerable magnitude, as radio sales go nowadays, the introduction of facsimile would also have its effects on speeding up tube sales. For the installation of facsimile would mean that the set would have to be left turned on all night long, resulting in longer use of tubes, and so the possible doubling of both tube and electricity consumption, as compared with present aural-broadcast conditions.

The powerful influence which will speed the coming of facsimile service on the broadcast wave-lengths, is the present tendency among newspaper publishers to eliminate radio programs from their daily papers. For the proper use of ordinary broadcasting, and the successful operation of present stations, *daily printed programs* must be available to the listeners, in handy form. If the newspapers see fit to take the radio programs out of their daily issues, then the broadcasters are all ready to send out printed programs over their own wavelengths by means of facsimile.

from Crystal. . . . . .

. . . . *the* Haedike's *have kept pace with rapidly changing trends*

BILL . . . *tunes the firm's first set*

How The Picture Has Changed

1923	
Parts and accessories	$24,109.84
1924	
Parts and accessories	$42,371.09
Sets	34,600.00
	$76,971.09
1925	
Parts and Accessories	$33,676.97
Sets	67,354.36
	$101,031.33
1928	
Parts and accessories	$21,333.54
Radio	175,164.14
	$196,497.68
1932	
Radios	$24,141.07
Tubes	4,992.08
Service	3,687.92
Refrigerators	6,144.95
Washers	5,619.93
Miscellaneous, including vacuum cleaners and musical instruments	2,135.77
	$46,721.72

"IN the same hour came forth the fingers of a man's hand and wrote, upon the plaster of the wall: Mene, mene, teckel, upharsin." Those who have delved into the Old Testament remember the words which told Belshazzar that the end had come. Because the Haedike brothers, Chicago, were able to interpret modern warning signs, upon the wall of Radio's everchanging structure, they've risen triumphant over each crisis, which spelled doom for many of their brethren.

Into the machine shop of the Haedikes, one day in 1921, strolled a punch board operator. Said he, "I wish you could build me some crystal radio sets for premiums."

"What's a radio?" asked W. H. Haedike.

"I'll show you," replied the premium man and led them to a clothing store where a primitive set was in operation. After proving that it was not done with mirrors, he said: "How about making some of these?"

Haedike brothers could—and did. Got to making radio parts, and selling them to hams—who insisted in thinking the factory a retail store and demanding that they be allowed to buy. One day W. H. said: "There are too many people coming in here and bothering us. We'll have to open a regular store." So they did.

I. The "Help the Ham" Era

Half the rear of this small store was equipped for the amateur set builders. Up front, on crude shelves, were the crude parts of that early day and age. But, in 1925—the year *Radio Retailing* first saw the light of day—Wonder Radio Sales grossed a cool $100,000.

It was the advent of the one-tuber that wrote "mene, mene" for the parts business as a major activity. The demand for this item, and early Grebe and A-K table model sets, at $110 stripped, made it obvious. Who'd bother building a set when it could be had already made?

II. Enter, Specialty Dealers

From a parts business with a merchandising technique like a five and ten store, the Haedikes jumped into the specialty business. They moved next door to their present 30x40 foot space. The shop space was cut down as customers ceased coming in to work on sets. W. H. Haedike read in *Radio Retailing* how other stores decorated and put in carpeting and furniture that gave the appearance of a well appointed home. The floors were dotted with radios, and the counters lined with loud speakers. The parts shelves took a meek place in the rear.

to Console

HERMAN . . . *demonstrates a modern receiver*

Diversification is the order of the day. So the Haedike's sell sheet-music, washers and refrigerators. Their refrigerator department grossed $6,144 in 1932

High-water mark in the specialty career of the Wonder Radio Sales Company was the time it took on the Majestic radio. After looking at the sky we see if it threatened rain, the Haedikes rolled one out in front of the store to give the passing public a taste of its resounding bass notes. In no time at all a crowd stood around this deep throated model, stepped inside to buy what stock was on the floor. If ever merchandise went like hot cakes this dynamic speakered model did, declared the Haedikes. In 1928 the firm did $196,497 in sales.

III. The Chain Store Dream

Like many another radio dealer, the Wonder Radio Sales Company had the dream of unlimited expansion. If one store could gross $35,000 in one year (1927) what could two do? So at 4766 Milwaukee Avenue another was opened in 1927 (and closed in 1933). When in 1929 the "radio vision" idea brought together a group of merchants with the idea of a big chain, the Haedike boys were in to the hilt. The collapse of the bull market in the fall of 1929, however, sent hopes aglimmering and the Haedikes returned to normalcy.

IV. Diversification Arrives

Coyly the Wonder Radio Sales Company took on a few midgets in 1930, found they sold well and heeded hints of approaching depression time. The "cream was off the bottle" with high priced consoles.

Diversification of merchandise began. Haedike no longer ran an exclusive radio store. Washers were given a corner next to the windows and at once became a profitable item even though sold entirely off the floor. In 1931 a line of Norge refrigerators was stocked up front and the last of the parts department gave way to sheet music. Royal vacuum cleaners made their appearance in 1931 as a floor sale item.

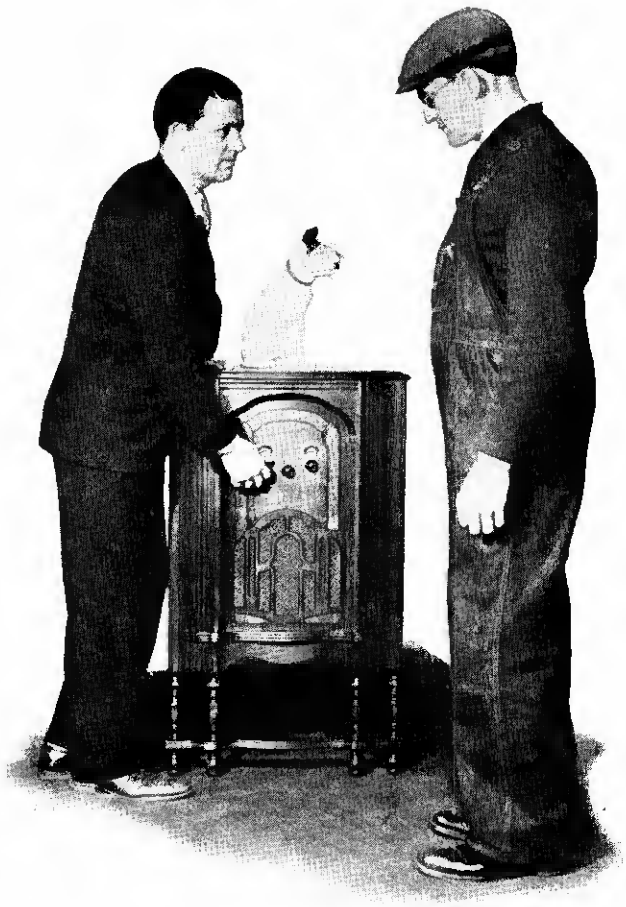
Today radio still dominates and the business flourishes. The attitude of the neighborhood in regarding the firm as a logical place to go for service, repairs and tubes makes it in spirit a radio store still despite the introduction of other merchandise.

V. Money Makers of Tomorrow

"The peculiar thing about the radio business," declares W. H. Haedike, "has been the number of changes in merchandising methods necessary. We could have operated a grocery store for ten years with little variation. With radio, every two or three years we had to turn a complete handspring. As I look back, I can see that the handwriting has always been plain on the wall. The trade papers have pointed the way.

"The moment our sales of Brandes head phones dwindled, I knew that the day of parts was waning. The week the crowd stopped in front to listen to our Majestic demonstrator's bass voice, we knew that loud speakers as separate merchandise were through. With the coming of midgets we realized that the day of the straight radio store was over. So it has been all along. *Listen to every new idea and try it out. It may be a money maker.*

The FARMER



NOW the rural market can be sold. The farmer's buying again; it's modern radio he wants—and the dealer has been placed in a position to supply this demand.

That buying power has returned to the farmer and that new radios, efficient and properly priced, are now catalogued by practically every set maker, is well known. The problem is: how to reach and sell this major market—the house off the light line.

Like all merchandising situations in these days it's a special business, however, and must be learned. The dealer who wants to add another 100 sets to his gross for 1934, via the farm market, may now do so if situated in agricultural or stock-raising country, but he must realize that there are certain ways and means for getting in personal touch with his rural prospects, inexpensively.

The case of Fowler Brothers, Knoxville, Tenn., provides a fine example of just what can be accomplished if the rural market is intelligently and consistently worked. True, the cotton farmers of the South have lately come into a bunch of Government cash; what with cotton at 10 cents and checks signed and delivered for plowed under crops. But Fowler's methods of getting this money, of persuading farmers to convert it into consoles rather than some other family need, can be duplicated in any part of the country.

UNCLE SAM'S mailmen constitute the first line of attack. Read what Merchandising Manager E. L. Fielden has to say about the use of letters and circulars when gunning for battery set business (RCA Victor):

"Direct mail is far more effective with the farmer than when used in town," he states. "I know what radio dealers think about ordinary mail circularizations, but we find that this real 'news' message to all RFD box holders pulls inquiries five to one, even over Fowler's customer list of Knoxville residents. Reasons why: because of less competition (radio) and because the farmer reads his mail more closely and is in the habit of writing for further information.

"I use direct mail exclusively. Have circularized every RFD box holder in this and surrounding counties a number of times. Will 'shoot the works' again in January. Using the manufacturer's printed matter, sup-

The best way to display farm sets is in country stores and at county fairs

Fowler Bros., Knoxville, Moved 95 Battery Sets in 11 Months Because It Knew How to Reach the Owners of Unwired Homes

Can Now *Be Sold!*

plemented with a personal letter, is the cheapest form of advertising, in proportion to its pulling power, for this particular market."

For the benefit of those dealers not familiar with the special service the Post Office Department offers merchants, we quote Article 300, U.S. Postal Regulations:

"In an advertising campaign to reach all the residents on a rural route, it is not necessary to know the names of any of them. The procedure is to write to the postmaster of the territory to be covered for the number of box holders on each of the rural routes operating from his office. The postmaster is permitted to furnish this information. Stamp each piece of mail and address it: 'Boxholder, Rural Route 1, Mt. Vernon, N. Y.' or whatever the proper address may be. All the pieces should then be tied together and a slip of paper attached, reading: 'For distribution to Boxholders, Route 1, Mt. Vernon, N. Y.' or whatever may be the route, office or proper address."

After the Direct Mail Advertising—Two Other Factors: Local Displays and Personal Contact Agents

Only two other activities, in this simple sales set-up, are needed: means for displaying the new receivers in the farmer's own community and, second, personal contacting, through one's own organization or with authorized rural agents.

Fielden exhibits at county fairs, taking the trouble to build impressive displays. He also visits country store proprietors and sees that a battery set is well placed and that the storekeeper knows something about it. For his trouble the rural merchant receives a proportionate commission on sales made as a result of this publicity.

Personal contacts are established through Fowler's own rural salesmen and also by enlisting the services of rural canvassers and farm agents. For example: implement, insurance and home appliance canvassers.

Then there is the "call back" policy. All customers are called on "religiously," quoting Mr. Fielden. "The country man likes to show off his new radio. When his neighbors sit there, in his mountainside cabin, and hear New York or California they immediately give vocal assurance that they are going to have one of them 'thar' things if they 'have to sell a heifer.' The host tips off the salesman, when he drops in, and there you are. One of my men sold 15 sets in one community, just about every possible prospect, by this system."

The average dealer side-steps the farm market, thinks Manager Fielden. Hence it's fine picking right now for those who will gear up to tackle it. Mr. Fielden sold 95 battery sets in '33. He sees plus business in this activity and a cure for Spring slump (in many farming states this year economic conditions are such that the March-June period will embrace the peak of the buying season).

Attracted to the farm market by the possibilities of higher unit sales and repeat business in batteries, Fielden has become an ardent convert. He concludes, "Simple methods, low-selling costs, an unsaturated market wanting a good battery set . . . this total, multiplied by a wide-awake retail organization, will equal more net profits."

To the radio dealers in Nebraska, Iowa, Illinois, Minnesota, South Dakota, Indiana and Kansas: Right now the Government is dumping over $180,000,000 into the laps of farmers in these seven states—just as fast as Herbert Daniel, Manager of the Reconstruction Finance Corporation in Omaha, can sign checks for the 45c. corn loan. Not one merchant in fifty yet realizes the significance of this unprecedented act. The farmers are spending this money for merchandise. The line forms at the right!

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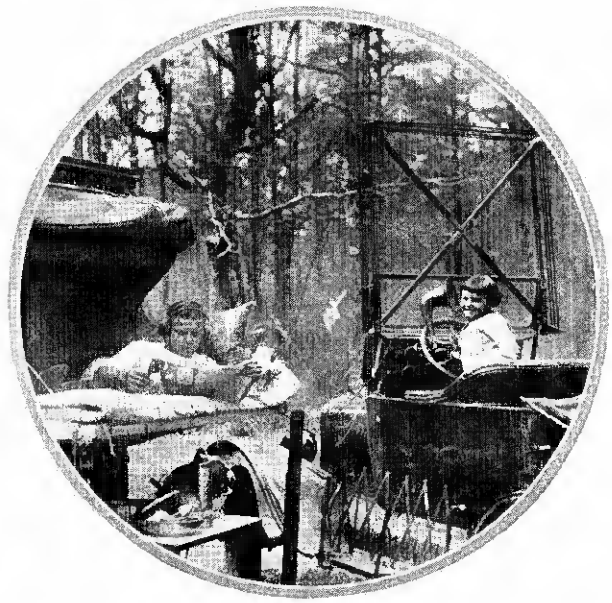
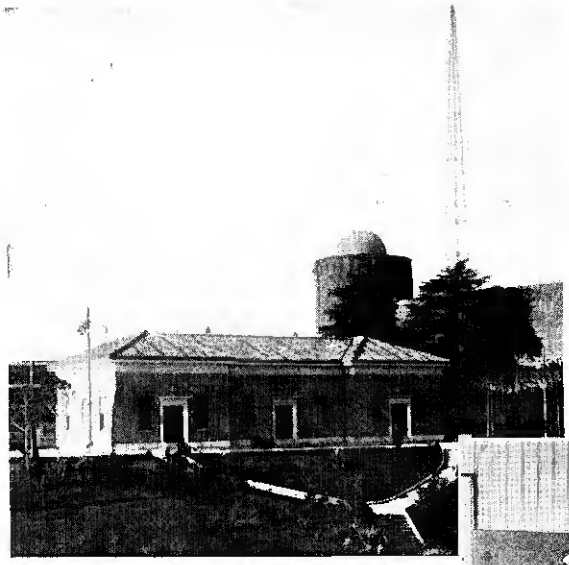
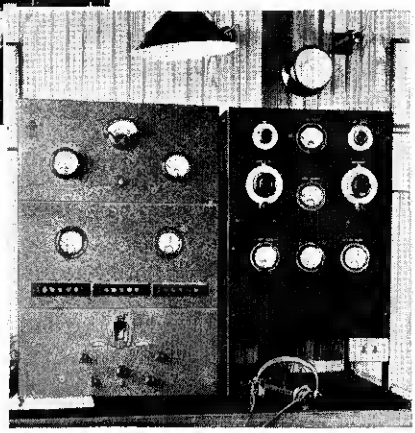


When RADIO RETAILING Was Born—
—this was considered the very last word in auto-radio receivers. How we have progressed in design!

How, When and Short



FOREIGN *broadcaster HVJ of Vatican City*



AMATEUR *radiophone transmitter W2FIU*

AIRPLANE *radio equipped by T.A.T.*

NOW that Admiral Byrd and his gallant crew of explorers are broadcasting regular programs each week over a chain of American stations by means of shortwaves from "Little America," and the larger chains are giving their listeners an average of one broadcast each day from overseas, shortwave radio has taken on a new and greater interest. People who listen to these broadcasts are bound to consider the possibilities of hearing foreign stations direct and, therefore, are certain to look over the industry's new line of extended-band receivers.

But give the average broadcast listener a shortwave set and he is lost, for shortwaves bring in an entirely different sort of entertainment from the regular broadcast receiver and require a different kind of tuning. You simply can not flip a switch and twist a dial and bring them "rolling in." The shortwaves have certain characteristics which must be understood before really successful reception can be realized.

Many salesmen have tried to sell all-wave receivers and made a miserable failure of it simply because they, themselves, never attempted to understand shortwaves and could not pass along sufficient information to the customer to get him started right.

On a regular broadcast receiver we have the same stations day after day on the same frequencies, and these stations are all alike inasmuch as they broadcast programs for entertainment. Log books show the listener just where to find each and every station on the dials. But shortwaves cover much more than a few stations.

Generally speaking, there are seven classes to be heard. These are telegraph or code stations, police stations, aircraft stations, telephone stations, amateur stations, experimental stations and shortwave relay stations, more commonly called shortwave broadcast stations. Each of these are assigned certain bands in the shortwave field, and each have certain characteristics that mark them from the others. And each may be tuned in only at certain times of the day or night on certain wavelengths.

It is good practice to tune below 60 meters in daytime and not bother trying above that wavelength as long as daylight prevails, as it is generally wasted effort. It is also generally useless to tune below 25 meters after dark. In tuning for the different stations, we offer the following suggestions.

General Communication Bands

The police stations are heard near 125 and 175 meters. They can be identified from other stations easily by the type of reports they send out. These messages are intended for police cars that patrol the cities and the broadcasts are usually about some crime or accident.

The aircraft stations operate between 50 and 60 meters (5 and 6 megacycles) in daytime; between 90 and 100 meters (3.3 and 3.0 megacycles) near twilight and between 100 and 130 meters (3.0 and 2.3 megacycles) at night. These stations can be identified by the way they speak about the weather, visibility, passengers and freight carried and general flying conditions.

The telephone stations operate from 15 to 70 meters (20 to 4.3 megacycles) usually between 15 and 35 meters (20 to 8.6 megacycles) in daytime and 25 to 75 meters (12 to 4 megacycles) at night. They can be identified by the conversations carried on between subscribers and by the way the operators speak about the calls that are to be made. There are about 250 of these stations in use daily, located all over the world. A carrier wave, or "hissing noise" such as is heard when a station is not broadcasting, may be heard for hours at a time without any voice being heard, then suddenly the operators will start preparing the circuit for a call.

Foreign telephone stations, of course, use foreign languages as a rule. It is possible to hear these stations from all over the world in a single day. To identify them a good up-to-date shortwave list is needed, as they change often and operate irregularly.

Ship phones, though rarely heard, are generally found near 17 meters (17.7 megacycles) daylight and 71 meters (4.2 megacycles) after dark.

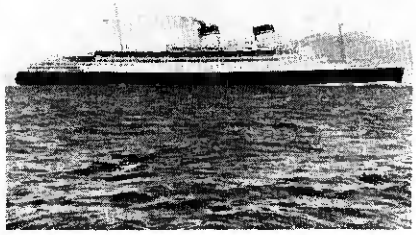
The amateur stations are those which are owned and operated by radio fans for their private entertainment. In most countries these stations are limited to transmission of a personal nature. Owners must not broadcast music or any information of a commercial nature. Some foreign countries, however, do

Radio Salesmen Must low 200" Themselves Sell the Consumer

By Arthur J. Green

Where to Tune for

Waves



POLICE *call transmitter in New York*

SHIP *Conte di Savoia, phone equipped*

RADIOPHONE *terminus of the A.T.&T.*

permit amateurs to broadcast music. In America these stations are usually heard talking to other amateurs about their transmitters, how they are built and operated and such things. They are crowded into very narrow bands and you will seldom run into one of these bands without hearing a station calling the letters "C Q" which means that they wish to contact some other station. They are heard on voice on 21 meters (14.3 megacycles), 75 meters (4 megacycles), and 150 meters (2.7 megacycles) while a few foreign stations may be heard on voice near 42 meters (7 megacycles).

The experimental stations are those such as Admiral Byrd's and the one which was carried by Lt. Settle in his stratosphere balloon a few months ago. These stations are usually heard below 50 meters (6 megacycles) day or night.

Foreign Broadcasts

The relay stations, or shortwave broadcast stations, are perhaps the most interesting of all to the average listener. For these stations bring the broadcasts of the countries in which they are located, the native programs and the every-day life of the people from all the different parts of the world. Every country of any size or importance has at least one. They broadcast music, speeches and everything that goes to make up a regular broadcast.

They are all experimental in nature and change their wavelengths and schedules often. It is a mistaken idea that tuning for these stations must be done only at certain times of the day, for they usually are on the air during their own evening hours, which may be early morning or late afternoon where the listener is located. Australian stations are broadcasting their evening programs while New Yorkers are getting out of bed in the morning. It is evening in Europe while it is afternoon in Washington, D. C. So, there is no definite time of day to tune for these stations, except where a station list is on hand showing where and when to tune for each station.

Shortwave broadcast stations operate between 15 and 75 meters (20 and 4 megacycles) regardless of the time of day. Countries in the "Radio Union" have their stations operating on five narrow bands within this range but there are many countries not in the Union. The Radio Union bands do hold most of the stations, however, and it is good practice to concentrate on them.

The five bands, along with the best time to tune in each, are given here. The first is near 17 meters (17.7 megacycles) and tuning should be done in the early mornings. The next is near 19 meters (16 megacycles) and tuning should be done in the mornings and afternoons. The third is near 25 meters (12.9 megacycles) and tuning should be done in the late afternoons. The fourth is near 31 meters (9.5 megacycles) and tuning may be done at any time of the day. The fifth is near 49 meters (6.1 megacycles) and tuning should be done at night.

Tuning

A person who becomes interested in receiving shortwave stations regularly should always have a good station list on hand, one that is published at least once each month, and one that gives information regarding all the different stations heard on a short wave receiver. The listener should also be told to mark down the dial numbers of each station heard, so that they can go back and get that same station at another time.

Although many rules have been made regarding tuning, there is really no foolproof rule, for shortwave stations have a very peculiar habit of doing the things they are not supposed to do. The rules applying to skip-distance are more or less things of the past, since shortwave stations and shortwave receivers have developed to where skip-distance effects are greatly nullified. Stations are far more powerful and receivers far more sensitive than they were a few years ago when these rules were set up.

No list of "best bets" or best stations heard can be good for more than one month's time, for stations have a habit of changing wavelengths and schedules often, and the changing of the seasons affects tuning somewhat. Tell your "dx-ing" customers to tune for Asian stations in the early morning below 25 meters, the Europeans mornings and afternoons below 25 meters and evenings between 25 and 50 meters, and the South Americans in the evenings between 25 and 75 meters.

Sell yourself on shortwaves before trying to sell the consumer.

Know Conditions "Be-Before Attempting to and Keep Him Sold

International Shortwave Club

The EDITORIAL VIEWPOINT

Safe and Sane SHORTWAVE

EIGHTY-FIVE per cent of all manufacturers include one or more extended-band models in their 1934 line. This indicates that most companies see in reception outside regular broadcast channels certain sales possibilities for the new year.

The shortwave switch is, in our estimation, one of the best sell-up refinements now available to the dealer. The feature is well worth the few extra dollars asked in anybody's money and will, properly merchandised, help the trade move sets carrying higher lists.

Don't attempt to use it as the sole sales inducement. Rather, tell prospects that for just a slight additional outlay one can listen not only in the popular broadcast channels but also in many genuinely interesting general communications bands.

Enthusiastic as we are for shortwave reception we by no means recommend that it be whooped-up to the exclusion of other equally important refinements. Over-enthusiastic advertising claims gave this feature a blue eye in the past—the result of over-selling, which must not be repeated.

Sell the extended-band feature for what it really is . . . a worthwhile "extra."

"It's Smart to Play RECORDS"

An Editorial by John F. Ditzell, President of Columbia Phonograph Co.

IN EVERY town in this country there is a "smart set"—a group of people who are considered the leaders of fashion. This group receives much publicity and this publicity influences the lives of other citizens of the community.

Now this "carriage trade" is one of the biggest groups of record buyers in the country today. They buy them because they appreciate the good things of life and also because it is considered "smart" to play recorded music of one's own selection. They possess, therefore, a combination instrument and a well-stocked library of records. These people are of great importance to the music dealer.

This brings us to the subject of the radio dealer's follow-up on the sale of a combination. If he sells one of these instruments and doesn't complete the job with an initial stock of records he is making only one part of the sale. If he is equipped to sell records he will increase his unit sale, he will give the instrument an added importance in the eyes of the prospect and he will bring the customer back again and again for more records.

Experience has shown that this trade, as a whole, is not confined to a particular kind of music, although it does collect a library of records of the great symphonies. If the local dealer is not selling these records they will be purchased by mail from the nearest metropolitan center. It also will be found that the smart set is well informed on the latest in dance and popular selections.

Here's another merchandising thought in this connection: To increase profits the dealer should sell more of the higher-priced sets. But he first has to justify this higher figure. How? By demonstrating their added value. Now the record playing feature on a console offers the best opportunity of this nature I know of. But to really push the sale of combinations he must handle records.

Q.E.D. "It's smart to play records"—for the dealer as well as for the élite.

TELEVISION *Outlook for 1934*

WILL we have commercial television some time in '34? Expert opinion disagrees. Some say it soon will be ready for public exploitation. Others, equally learned, think it will not emerge from its laboratory stage for another 12 months. Here is its status, as we enter the new year:

DISCOURAGING	ENCOURAGING
Lack of detail in pictures	*New cathode-ray pick-up devices*
High cost of television set	*Better cathode-ray televisor tubes*
Expense of tube replacements	*Increased intensity of illumination*
Small range of single transmitter	*Large projected pictures*
Difficulty in "chaining" stations	*Wide band transmissible by new conductors (2,000,000 cycles)*
Tremendous studio expense	*Developments in ultra-short wave apparatus*
Problem of who will pay for transmission	

Those in the "know" are, however, more hopeful for television's ultimate acceptability than ever before. It would appear that practical television may be possible.

Popularizing Motor Car Sets

THERE is a trend to provide radio as stock equipment on new motor cars. A number of the 1934 models will leave the factory assembly belt with a set installed beneath the cowl. And in approximately 80 per cent of all of this year's automobiles definite provision has been made for installing a-r at the plant when so specified by the prospective owner.

Nor is this popularity confined to pleasure cars. Taxicabs all over the country are finding in radio a powerful traffic-getter—"almost a necessity," according to Jerome Hyman, manager of Radio Fleet Owners, Inc., of New York City. We are advised by Mr. Hyman that this corporation now has on order 2,000 taxicabs, each to be provided with radio reception facilities.

This movement can mean but one thing—the public likes music as it rides. The radio dealer, therefore, who does not take full advantage of this surging wave of automobile-radio popularity will miss a big business opportunity that next spring and summer has in store.

The Tube *Situation*

THE NEW YEAR finds the tube makers engaged in an internal struggle of major proportions. So serious is his costly fight that drastic measures must be applied if all of those now in it are to emerge as going concerns. A genuine willingness to "let live"—to cease this battle for a disproportionate share of volume, based on profitless discounts of fantastic extremes—is the only right way out.

May 1934 witness a return to sane policies, in keeping with the spirit of the "new deal."

The Editorial Viewpoint *—in 1925*

"A time clock, bringing in the morning exercises automatically, makes getting up early a pleasure"

"Tell them about the convenience of remote control switches for turning the set on and off"

"Sell them two types of speakers so that every tone will be faithfully reproduced"

Voices from the Marketplace

Will Continue to Show List Prices

Editor, "Radio Retailing":

Your article on page 25 of *Radio Retailing* for November was very interesting to us and we are glad to comment on this subject.

When we issued our first catalogue of radio replacement parts in June, 1932, we showed list prices and issued a separate discount sheet. While we knew that our action would be considered radical by some, we believed that it was a sound policy.

We believed at that time, and we still believe, the service man is entitled to a profit on parts and tubes that he uses in repair work, and that it is often necessary to show his customer the list price of the items used. If he does not have a list price available he is handicapped getting even a small profit on parts.

From the many favorable comments we have received from service men in this territory we expect to continue showing list prices.

L. H. Wilkinson,
Wilkinson Bros., Dallas, Texas.

List Prices a Lot of Bunk

Gentlemen:

This certainly is a lot of bunk about publishing "list price" catalogues. This will encourage long discounts and higher parts prices as individual bargains cannot be listed. It will mean less business to the jobber and give him an unfair advantage in passing on taxes, etc. Also we would never know the exact costs and many COD shipments at an increase would result.

Where would we service men be today if it were not for the hundreds of net catalogues sent freely to all of us while we were beginning?

George R. Campbell,
Ann Arbor, Mich.

Approves Pricing Parts at List

To The Editor of "Radio Retailing":

Believe me I sure am glad to see you also taking up the question of list price catalogues for any jobber who handles the regular line of parts from whom we service men must buy.

Servicing has now developed into a business where so many parts are interchangeable that we should be in a position to stock standard capacitors and resistors of reliable manufacturers to use in our replacement work. However as it stands now I frequently have people come in and ask me to tell them what is wrong with their radio and that *they will get the part* from this or that mail order house which, in my case, is right here in the city. They will even quote me the prices on parts I tell them need replacing.

I approve pricing parts at list. Keep up the good work.

Carl D. Short,
New York City.

"Being a Service Man . . ."

Dear Sirs:

Being a service man I know what it is to make a profit where the general public can get wholesale prices as they do at present. I think it a good stunt for the mail order to publish list prices only and mail a separate sheet of discounts to dealers and service men only!

William McCoy,
Cayuga, Ind.

"With the Customer Looking Over His Shoulder"

Editor, "Radio Retailing":

Your topic, "What Price Parts?" interests me very much and more power to group action on this matter.

Any serviceman is handicapped when it comes to pricing parts to a customer especially if the serviceman must first look up the price of the parts with the customer looking over his shoulder.

Frank Tibbett,
Tibbett's Radio Service, Lyons, Ind.

NEWS of the month

January, 1934 — New York, N. Y.

Broadcasters and Publishers Agree on News Service

A tentative agreement setting up a co-operative plan for the broadcasting of news by radio was reached at a conference between the newspaper publishers association and the broadcasting companies at the Hotel Biltmore, New York, December 12.

This agreement provides that a committee of seven be established to furnish radio broadcasting companies with a limited supply of news bulletins daily for broadcasting purposes. Broadcasts of this nature not to be put on the air prior to 9:30 in the morning and for news of the current day not earlier than 9 o'clock that same evening. News commentators hereafter must limit their talks to background matter and avoid repetition of "spot news."

According to this tentative agreement, which it is expected will be confirmed, the Columbia Broadcasting System will dissolve its present news service and the National Broadcasting Company agrees not to enter the news gathering field.

Jansky President of IRE

The Institute of Radio Engineers has elected C. M. Jansky, Jr. as its president for the ensuing year. Balthasar Van der Pol, Jr. will serve as vice-president and director. Dr. Van der Pol is head of scientific research for Philips Radio at Eindhoven, Holland.

Other directors are: Arthur Batcheller, Inspection Service, FRC; Alfred Goldsmith, consulting engineer and William Wilson, of the Bell Telephone Laboratories.

To be Opened January 20

This packing case, set up in the main office of Stewart-Warner Corp. in Chicago, is the center of much interest and speculation. It conceals the first 1934 model of the new S-W refrigeration line and will be "unveiled" on January 20th.

Starters Ready! Timers Ready! Go!

Jimmy Davin of General Household Utilities, challenges his old friend Bobby McLean to a friendly race. Bobby is now running Six Day skating contests throughout the country. There will be a "Grunow Carrene" team entered in each of the cities where these races are scheduled.

Wells Gardner and Gulbransen Divorced

Wells-Gardner & Co., associated since May, 1929, with the Gulbransen Co., is now handling all matters pertaining to complete radios while Gulbransen will specialize in wood products, particularly cabinets and furniture specialities. Total and complete separation of the manufacturing, financial and sales interests of the two companies has been effected.

Wells-Gardner, now located in its own plant at 2701 N. Kildare Ave., Chicago, makes private label sets for chain stores, mail order houses and jobbers requiring high-quality equipment in addition to its own trade marked line.

Agreement on Shows Likely

As reported last month, the Radio Manufacturers Association has voted to sponsor two trade and public radio and electrical appliance shows during the fall months of 1934, Chicago and New York being the cities selected. Possibility of a direct conflict with the plans of the Madison Square Garden Corporation for a similar exposition in the latter metropolis now appear to be on the way to a mutually satisfactory settlement. It is expected that arrangements may be completed whereby the successful Radio and Electrical Exposition, held in the Garden, New York, this fall, will be repeated, with the official approval and active participation of the RMA. This matter will be one of the chief items for consideration at the meeting of the board of directors of the RMA, scheduled for the fore part of this month.

J. E. Otis Jr. Elected President Stewart-Warner

The reorganization of the personnel of the Stewart-Warner Corporation, Chicago, which began last spring, was completed Dec. 26, with the election of Joseph E. Otis, Jr., as president. Mr. Otis has functioned as executive vice-president since last July and has been connected with the affiliated Alemite corporation since 1921. He fills the position made vacant by the resignation, in July, of C. B. Smith.

Frank Hiter continues as general sales manager of the Stewart-Warner Alemite Corporation. The radio division is headed, as formerly, by Oden F. Jester and the refrigeration division by Charles R. D'Olive. A new line of refrigerators will be announced this month, together with major merchandising plans.

Jack Helsper S. M. for Republic

The Republic Radio Manufacturing Corp., Irvington, N. J., announces the appointment of S. Jack Helsper as its new sales manager. Mr. Helsper formerly was vice-president of Ceco, Providence, R. I.

Floyd Masters now directing Majestic's field sales activities. Floyd is one of the best known men in the musical instrument field.

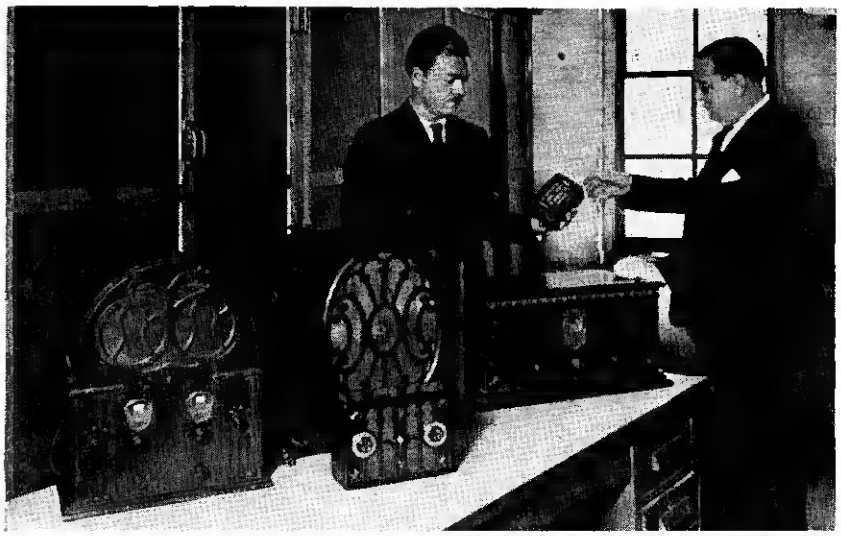
Grigsby-Grunow Declared Solvent

Petitions of bankruptcy, filed in the United States District Court at Chicago, against the Grigsby-Grunow Company, manufacturers of Majestic radios and refrigerators, were dismissed by the presiding Judge on Saturday, Dec. 23.

The adjudication of the Court was that insolvency was not shown by the petitioners and the Court accordingly dismissed the suit. Majestic will continue to operate under equity receivership through Le Roi J. Williams and Thomas L. Marshall, who were recently appointed permanent receivers by the Court.

Radio Tax Collections

U. S. Internal Revenue Bureau collections of excise taxes for the month of October, 1933, were $292,332 according to a statement released November 22 by the Treasury Department at Washington. This compares with 5 per cent excise tax collections during September, 1932, of $218,722.



International Ties-In With Own "Decade" Party

Coincident with Radio "Retailing's" own birthday celebration, International Radio, Ann Arbor, Mich., holds a progress party of its own.

Chronologically, extreme right, an early constant coupled battery set about 10 years old. In center (rear) the "first midget" 1927—which shrank in size to Model P (foreground). At the extreme left, the "Duo" the "first long and short wave chassis ever offered," according to president Charles Verschoor, who may be observed about to receive the latest—and smallest—set offering from engineer Robert Wuerfel.

DETECTOR

To Canada's recent RMA campaign is credited a goodly share of a 30 to 40 per cent radio sales increase. Prospects of a good Christmas season looked mighty slim one month ago but business turned out to be substantially better than in 1932. The Dominion's Radio Broadcasting Commission in straining every nerve to improve the quality of broadcasts and dealer's expect much of the new year.

Bill Grunow is moving his refrigerator cabinet plant from Detroit to Chicago. He has appropriated $500,000 for the purpose and will invest four fifths of this in new machinery.

Production of the 1934 line of Grunow electric refrigerators will get under way the first week in January with a schedule of 250 units a day, which will be increased progressively to the capacity of 1,500 a day.

The Institute of Radio Servicemen plans to run its second annual regional convention February 23 to 25 inclusive in the Hotel Sherman, Chicago.

Majestic reports a nice gain in business. Shipments for the first half of December were 12 per cent ahead of the same full month in '32. Unfilled orders plus expected current demand will keep the curve up in January according to John F. Ditzell.

Charlie Backus, who has been with Caswell-Runyan (cabinets) for over 8 years left the company January 1. He will continue in the cabinet business but has not yet made known future plans.

Zenith Opens Detroit Office

The opening of a new sales and engineering office in Detroit for the Automobile Radio Division of Zenith is announced by Ray S. Erlandson, manager of Manufacturer's Sales. Quarters, with equipment to carry on engineering and design directly to the car manufacturers, are located in the Maccabee Building. Grant Eller and L. L. Kelsey, well known in the radio trade, are in charge of the Detroit activities for Zenith.

Jackson H. Pressley is announced as the new chief engineer in charge of the entire engineering department and laboratories at the plant in Chicago.

Zenith Radio Corporation, Chicago, reports a net operating profit for the six months ending October 31, 1933, of $131,741. This compares with a net loss of $201,972 for the same period in the preceding year, after all charge-offs including liberal depreciation, but before Federal profit taxes.

The company has had an exceedingly successful fall and winter business and has topped this off by securing a contract to equip Hudson and Terraplane cars with Zenith sets.

General Household dealer meetings were held last month by F. C. Connelly of Portland, Ore., Southwest Distributing, Dodge City, Kansas, Griffity Victor of Indianapolis, H. Poll of Toledo and Shapiro of Newburgh, New York.

Air Cell Maker Sponsors $6,750 Contest

What is regarded as the most important effort yet made on a national scale to place radio at the service of one third of the country's population will soon take form with a consumer contest sponsored by the National Carbon Company, Inc. It is designed to bring the new possibilities of a modern radio set to the attention of those who live in sections not having electric service. Back of this movement is the development of Air Cell receivers, powered with a battery which, it is claimed, will last a whole year.

This concern's cash prize contest is based upon simple information, obtainable from radio dealers, about the merits of air cell radio receivers. There's to be a total of $6,750 awards, first prize $1,000. Also 382 other cash prizes for those who submit the best statements as to the features of this type of set that appeal.

The judges: Senator Arthur Capper, of Kansas; Judge John Barton Payne, national chairman of the American Red Cross, and Harold A. Lafount of the Federal Radio Commission. The contest closes Feb. 20, after which the judges will meet in Washington and announce the lucky winners.

The Digest's Radio Poll

Last month we opined that, by and large, today's radio programs weren't so bad. No less a distinguished authority than *Literary Digest* now confirms this thought. It received 16,400 replies to a recent poll. The "likes" outnumbered the "dislikes" by 124,065 to 81,271.

Take a look at the Dec. 16th and 23rd issues of the *Digest*. You'll find interesting reading on pages 8 and 9 respectively. Jazz, crooners and excessive advertising blurbs top the dislikes—but make allowance for a slight touch of highbrow among L D's readers. A knowledge of the favorable subjects (there are 34 of them) will help you sell sets.

Wider Use of RMA Seal

Wider use of the RMA official seal for receiving sets is being developed. New association members have adopted the seal and its increasing use is reported by other set manufacturers. The RMA seal for receiving sets was instituted just a year ago and has been declared a prime sales promotion aid.

Palatial, Sez We!

Here's President Ben Abrams of Emerson enthroned in his swanky new office in the vast Port of New York Authority Building, second largest structure in the world. In Mr. Abrams' sanctum, Eighteenth Century English is the motif, the work of Alene Austrian, interior decorator, and gifted wife of Ralph Austrian, Emerson's sales manager

Merchandising RECORDED MUSIC

By Richard Gilbert

IT has been claimed that the radio stifled record sales. For a while this was true but it is doubtful if such a statement any longer holds good. The fact is now apparent that phonograph disc sales are actually being boosted these days by radio broadcasts.

Radio is helping records come back in two ways: First, by its advertising blurbs inflicted on people interested only in good music; second, by introducing a host of intelligent listeners to the better things of music, thus arousing their curiosity to hear what they like at a time of their own choosing.

These two factors have certainly helped the phonograph business achieve what is at present taking on the proportions of a veritable regeneration.

High Class Broadcasts and Discs

The music lover will heartily applaud the sponsorship of several important broadcasts to be heard this winter. First in importance is the announcement that the American Tobacco Company will make the music lovers of the nation its guests during the 14 weeks season of the Metropolitan Opera Company now in progress. The music of Verdi, Wagner and other celebrated composers will be wafted to the ears of all who care to listen. These Metropolitan broadcasts will tempt thousands of listeners to purchase opera records. It is up to the record dealer to acquaint these prospects with the identical musical fare offered also on discs.

The second commercially sponsored event of importance is the series of Cadillac Concerts, now under way every Sunday evening. "In sponsoring this series, Cadillac hopes to bring about a change in the time-worn notion that great music does not belong in radio broadcasting. We feel confident that it will be listened to eagerly," states the president of this automobile concern.

The concerts of the Philadelphia Orchestra, broadcast nightly, under the baton of Leopold Stokowski, should go a long way in helping to merchandise phonograph records. This Chesterfield program, aside from presenting the world's best music, supplies the listener with helpful notes from the lips of Dr. Stokowski. Make a window display of the Philadelphia Orchestra records—picture Stokowski and a few cigarette cartons and draw attention to this "music when you want it," on Victor records.

The Merchandising Angle

Getting to our month's *merchandising point:* It is notable that the majority of the great musicians who will engage in these and other broadcasts are conspicuously represented in the record catalogues. In many instances they will appear on the air only once, and will introduce a large number of works which they have also put down in recording wax, available to the owner of a phonograph combination. Most of the Metropolitan singers are old names in the Victor and Columbia catalogues; some, like Lily Pons, Richard Crooks and John Charles Thomas have but lately begun to make recordings — already their discs are famous. Complete recordings of operas, which will intrigue many radio listeners, are available in complete form.

The Cadillac Concerts announce the following conductors and soloists who will appear during this hour, who have made records:

Eugene Goossen (Victor Records), Artur Bodanzky (Columbia Records), Walter Damrosch (Victor and Columbia), Sir Henry Wood (Columbia), Nikolai Sokoloff (Brunswick), Ossip Gabrilowitsch (Victor). As this is written Bruno Walter has already appeared and it is significant to note that his interpretation of *Siegfried's Journey to the Rhine* from Wagner's music drama *Götterdämmerung* is available in a splendid Columbia recording which a great many of his listeners, who admired his vibrant reading of the excerpt, would be glad to have if they but knew of it.

The soloists on this Cadillac hour include Yehudi Menuhin (Victor), Efrem Zimbalist (Columbia), Josef Hofmann (Victor—to be announced), José Iturbi (Victor), Vladimir Horowitz (Victor), Rosa Ponselle (Victor), Lily Pons (Columbia and Victor), Lucrezia Bori (Victor), Lotte Lehmann (Columbia), Elisabeth Rethberg (Victor and Columbia), Tito Schipa (Victor) and Richard Bonelli (Brunswick). Truly the sponsors of this series have ordered their fare with a lavish hand and it is hoped that record sales will be suitably rewarding.

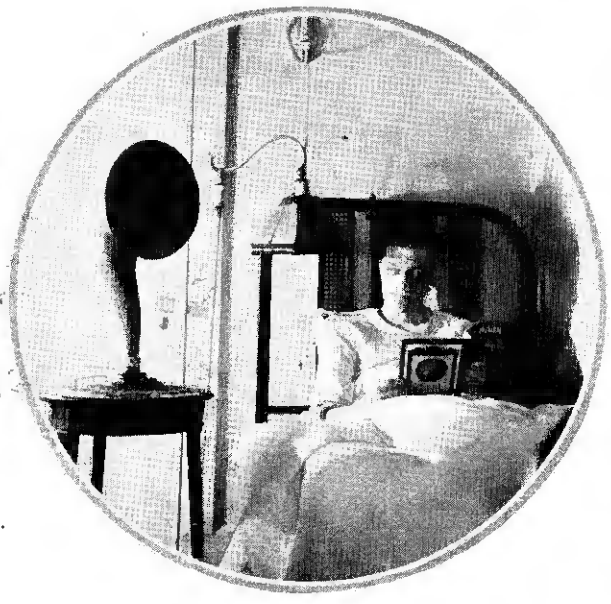
Record Promotion Tie-In

Tie up your record promotion with these opulent broadcasts. The programs will be announced in advance. Fill your window with a notification of the

(Please turn to page 33)

In 1925 RADIO RETAILING Began

—And this bright boy put a speaker beside his bed. Today he could tune in with a "personal" midget or remote control



What we mean . . .

They're HOT!

. . . and, furthermore, *all* the Hot Bands are exclusively Victor

DO you want the latest, hottest, spine-tickling, hair-raising numbers? The kind that make your customers buy . . . and buy . . . and buy? Naturally, you do. And just as naturally you turn to RCA Victor. For Victor Records have exclusive rights on *all* the real hot bands. Look 'em over . . . Duke Ellington . . . Cab Calloway . . . Louis Armstrong . . . Mills Blue Ribbon Band . . . and a host of others. Victor Records are top-notch in more than artists, too. They're long wearing, warp resisting, beautifully recorded platters—sales points you can pass along to your customers. Get a list of the latest Victor releases . . . and you'll get records that mean money to you! Write or see the Victor distributor nearest you.

Victor Records

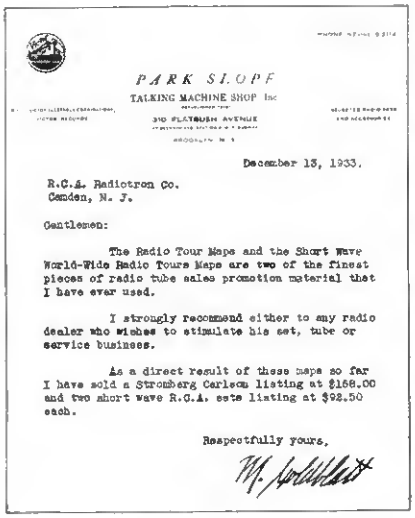
RCA Victor Company, Inc., Camden, N. J. *"Radio Headquarters"*

ATLANTA, GA. . . . . . POLK MUSICAL SUP. CO., 29 Pryor Street, N. E.
BALTIMORE, MD. . . . . . OLLENDORF & HIRSCH, Inc., Candler Bldg.
BOSTON, MASS. . . . . . EASTERN RADIO COMPANY, 88 Pearl Street
BUFFALO, N. Y. . . . . . NEW YORK TALK. MACH. CO., 327 Washington Street
CHARLOTTE, N. C. . . . . . SOUTHERN RADIO CORP., 208 S. Tryon Street
CHICAGO, ILL. . . . . . CHICAGO TALK. MACH. CO., 111 N. Canal Street
CLEVELAND, OHIO . . . MIDLAND RADIO COMPANY, 725 St. Clair Ave., N. W.
DALLAS, TEX. . . . . . SOUTHWESTERN MUSIC CORP., 517-A So. Ervay Street
DENVER, COLO. . . . HENDRIE & BOLTHOFF MFG. & SUP. CO., 1635 17th Street
DETROIT, MICH. . . . . . GRINNELL BROTHERS, 1447 First Street
DETROIT, MICH. . . . . . RADIO DISTRIBUTING CO., 129 Selden Avenue
EL PASO, TEX. . . . . . W. G. WALZ COMPANY, 500 San Francisco Street
GRAND RAPIDS, MICH. . . . . . RADIO DISTRIBUTING CO., 235 Market Street
LITTLE ROCK, ARK. . . . . . GUNN DISTRIBUTING CO., 417 Capitol Avenue
LOS ANGELES, CAL. . . . . . LEO J. MEYBERG CO., 1022 S. Wall Street
MADISON, WIS. . . . . TAYLOR ELECTRIC COMPANY, 201 E. Washington Ave.
MEMPHIS, TENN. . . . . . RIECHMAN-CROSBY CO., 223 S. Front St.
MILWAUKEE, WIS. . . . . . TAYLOR ELECTRIC CO., 730 N. Jackson Street
MINNEAPOLIS, MINN. . . . . . LUCKER SALES CO., 608 First Ave., N.
NEWARK, N. J. . . . . . RADIO DIST. CORP., 558 Broad Street
NEW ORLEANS, LA. . . . . . PHILIP WERLEIN, Ltd., 605 Canal Street
NEW YORK CITY, N. Y. . . . . . BRUNO-NEW YORK, Inc., 460 W. 34th Street
OKLAHOMA CITY, OKLA. . . HUGHES-BOZARTH-ANDERSON CO., 15 E. Grand Ave.
PHILADELPHIA, PA. . . . . . WEYMANN COMPANY, 13th & Arch Streets
PITTSBURGH, PA. . . . . . LUDWIG HOMMEL & CO., 929 Penn Avenue
ST. LOUIS, MO. . . . . . AEOLIAN CO. of MISSOURI, 1004 Olive Street
SALT LAKE CITY, UTAH . ZIONS COOPERATIVE MERCANTILE INSTITUTION
SAN FRANCISCO, CAL. . . . . . LEO. J MEYBERG CO., 70 Tenth Street
SEATTLE, WASH. . . . . . HARPER-MEGGEE, Inc., Republican & Terry
SYRACUSE, N. Y. . . . . . ONONDAGA AUTO SUP. CO., 351 E. Onondaga Street
WASHINGTON, D. C. . . . . OLLENDORF & HIRSCH, Inc., 932 "H" Street, N. W.

TUBE TIDINGS

January, 1934 E. T. Cunningham, Inc.—RCA Radiotron Co., Inc. Camden, N. J.

Three Radio Tours Maps Produce $353 in Set Sales for Dealer



PARK SLOPE
TALKING MACHINE SHOP Inc
[illegible] PLATBUSH AVENUE

December 13, 1933.

R.C.A. Radiotron Co.
Camden, N. J.

Gentlemen:

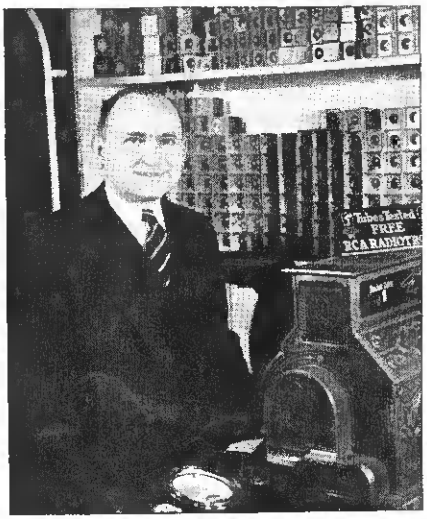
The Radio Tour Maps and the Short Wave World-Wide Radio Tours Maps are two of the finest pieces of radio tube sales promotion material that I have ever used.

I strongly recommend either to any radio dealer who wishes to stimulate his set, tube or service business.

As a direct result of these maps so far I have sold a Stromberg Carlson listing at $168.00 and two short wave R.C.A. sets listing at $92.50 each.

Respectfully yours,

M. Goldblatt



The Big Bad Wolf—Consumer Sales Resistance—just can not stand before the attack of Radio Tours Maps, according to well-substantiated accounts from both big city and small town dealers.

In the case of the Park Slope Talking Machine Shop, Brooklyn, 3 Little Radio Tours Maps resulted in three big set sales. Manager Goldblatt gave a Radio Tours Map of the United States to a person who had been attracted into the store by the "3 Sales Opportunities" display. When the prospect returned the next day to complain that his set would not reach out for the stations shown on the Map, Mr. Goldblatt proved himself a real salesman by selling the *prospect* a $168 Stromberg-Carlson.

Next Mr. Goldblatt gave Short-Wave World-Wide Radio Tours Maps to two set prospects. Awakened to the possibilities of short-wave reception, both prospects bought $92.50 RCA-Victor all-wave receivers within the week.

$181.50 For This Dealer

Over a 12-day period, Martin & Meyers, of Dormont, Pa., a progressive suburb of Pittsburgh, sold $62.00 worth of RCA tubes, list value, and one radio set listing at $119.50, as a direct result of a Studio Party and Radio Tours Map window display.

Mr. Meyers attributes these sales entirely to the effect of the window display, as none of the buyers were among the prospects whom the firm had been contacting.

The window contained the regular Cunningham-Radiotron display material, and in addition was featured by a large map on which were pasted a number of colored discs, indicating distant stations that had been picked with a set on display. This set was equipped with RCA tubes.

FAME SPREADING

The fame of the World-Wide Short-Wave Radio Tours Maps is reaching high places. A request was recently received at the C-R Home Office for six copies of the Map for distribution among the Secretariat of the League of Nations!

Another request, which shows how the map is regarded by confirmed DX-ers, was received from the New York Chapter of the International Short-Wave Club. This request was for 100 copies for distribution among the club's members.

Another tribute came from "Radex," the monthly radio program guide which asked for a quotation on 500 Radio Tours Maps.

Two New 6.3-Volt Tubes Announced

Radio tube types 6C6 and 6D6, both 6.3-volt heaters, have recently been announced to receiver manufacturers by E. T. Cunningham, Inc., and RCA Radiotron Company, Inc. These types are now available to the trade.

The 6C6 is a triple-grid tube for use, like the C-57, as detector or amplifier. The 6C6, however, employs a 6.3-volt heater cathode.

The 6D6, like the C-58, is a triple-grid tube of the super-control type. It is primarily applicable as an r-f or i-f amplifier in receivers having 6.3-volt heater supply.

The 6C6 and the 6D6 list for $1.25 each.

Additional technical information on these types may be secured from C-R Commercial Engineering Section at Harrison, N. J.

Sales Jump From $15.00 to $25.00 Daily

Western Dealer Credits "3 Sales Opportunities"

Tingstad & Hampton, of Everett, Wash., report that their over-the-counter tube sales have increased from $15.00 per day to $25.00 per day as a result of installing the Studio Party Display and using other "3 Sales Opportunities" sales aids.

The Studio Party was in the window for two weeks, was taken out, and then reinstalled just before Christmas. Radio Tours Maps were also featured in a second window. Charlie Hampton, Manager, estimates that 40 per cent of the passers-by stopped to look at the windows and that 20 per cent came into the store for either the key or a Radio Tours Map.

$500 Monthly Tube Business

This specialty store, selling radio, tubes, washers and a few electrical appliances, is located one block from the shopping center in an industrial town of only 30,000 population, and yet is able to do an average monthly tube business of $500.00.

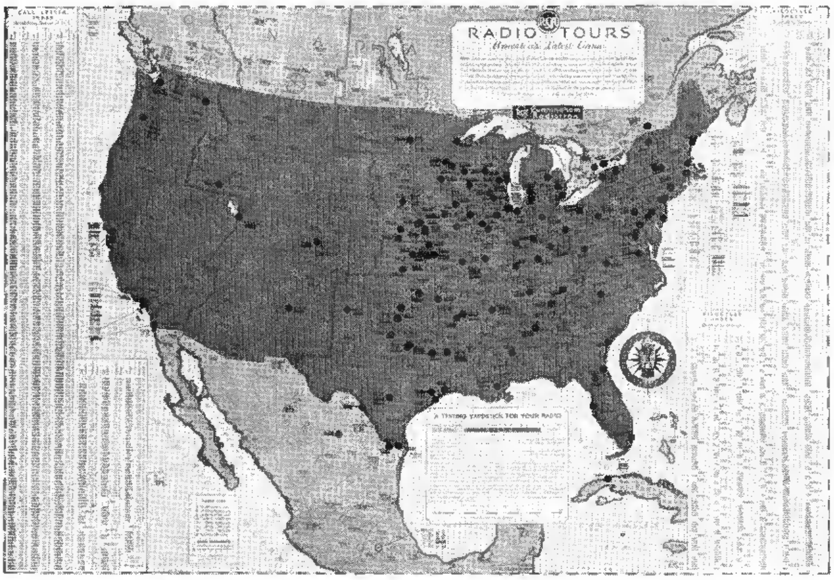
Mr. Hampton was so convinced that "3 Radio Sales Opportunities" was the plan he had been waiting for, that, at the time it was presented to him, he placed his order for 500 Radio Tours Maps, 1500 Patented Action Post Cards and 1100 RCA Radiotrons.

Four Factors in Success

"We attribute our success in the tube business to four things," says Mr. Hampton. "First, the handling of genuine RCA Radiotrons exclusively. Second, attractive window displays, on which we spare no reasonable expense. Third, an efficient, well-merchandised service department. Fourth, direct mail—we keep a careful card file and make frequent mailings to our former customers and prospects.

When a prospect comes into his store for a Radio Tours Map, Mr. Hampton carefully explains the map to him (or her) and presents a tube carrying carton at the same time. "Usually," he reports, "the customer comes back with his tubes, and many sales result from this method."

DX Fan Logs 209 Stations With Aid of Tours Map; Praises Tubes



George Pung, 3022 N. 53rd Street, Milwaukee, returns his Radio Tours Map to the C-R Home Office, marked as shown. The heavy dots (and, under the dots, the bars) represent stations Mr. Pung has logged on his Bosch receiver equipped with Cunningham Radio Tubes.

Mr. Pung's record is verified by his station stamp book. Among the 209 stations logged were a 250-watt station in Seattle, Wash., 1,700 miles distant, and a 27.5 watter in Brownsville, Ont.

As to the performance of his Cunningham Radio Tubes, Mr. Pung writes: "Experience has taught us to use no other. Although we have used other tubes when our dealer could not supply same (Cunningham) we have learned the difference in reception, tonal quality and distance, which no other tube can furnish like your tubes."

A Taste of 1934 Profits

Cunningham and RCA Radiotron dealers count among their most novel Christmas greetings the delicious small fruit cakes

which were sent to all dealers handling the two famous brands of tubes as harbingers of the profit-cake in store for them in 1934.

Reports "Growing Demand" for RCA Tubes

Acknowledging receipt of a shipment of sales promotion material, H. C. Rawlinson of the Radio Service Company, Andalusia, Alabama, writes the C-R District Sales Office in Atlanta, Ga., as follows:

"The demand for RCA Radiotrons in the locality served by this company is growing. In fact, we discontinued another line of radio tubes about two months ago because of the growing demand for RCA Radiotrons, and also we find that RCA Radiotrons will test higher tube for tube against the other line."

L. S. Ayres' Tube Sales Up 21 Per Cent

Dept. Store Gets Quick Results with Display

C. M. Rigsbee, Manager of the Central Repair and Radio Tube Departments of L. S. Ayres & Company, leading Indianapolis department store, reports a 21 per cent increase in RCA Radiotron sales during the week the Studio Party Display and Radio Tours Maps were featured in the window shown.

Mr. Rigsbee is high in his praise of the drawing power of the display. Fifty-seven persons went to the seventh floor of Ayres' store and asked for one of the Radio Tours Maps. Results are credited to the display alone, as no other form of publicity on the maps was used.

DEPT. STORE FEATURES MAPS

Customers requesting Radio Tours Maps were shown Ayres' new line of radio sets and a number of definite prospects resulted. In addition, the window was responsible for several service calls and one aerial installation.

L. S. Ayres & Company is known throughout Indiana as a headquarters of quality merchandise. They have discontinued selling several other lines of radio tubes and are now selling RCA Radiotrons exclusively.

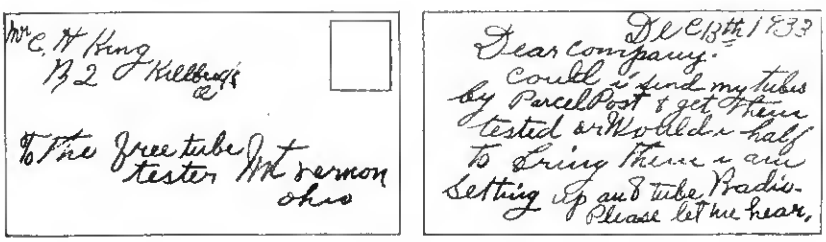
Start Drive on Sockets

Lovering Radio Laboratories, Duxbury, Mass., write C-R headquarters that they are starting a drive to "put a genuine RCA-Cunningham Radio Tube in every socket" in their territory. This is the way receipt of the "3 Sales Opportunities" Essential Kit affected a lot of dealers.

ONE FOR YOU, MR. RIPLEY

About two years ago the Kenecht-Feeney Electric Company, Mt. Vernon, Ohio, purchased a Cunningham tube checker. Since then they have consistently advertised Cunningham Radio Tubes and free tube testing in their local newspaper, by direct mail and through other forms of advertising. The fact that they test tubes is known to everyone whom advertising can reach.

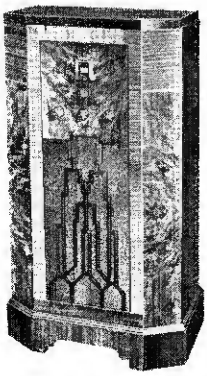
Thus when the card below (here reproduced by a tracing to make it more legible) arrived at the local post office, attendants had no doubts as to where to deliver it. The merits of advertising that bring results like this don't have to be explained.


Mr C. H. King
132 Killbuck

To The free tube tester Mt vernon ohio

Dec 13th 1933
Dear company:
Could i find my tubes by Parcel Post & get them tested or Would i half to bring them i am setting up and tube Radio. Please let me hear,

NEW MERCHANDISE



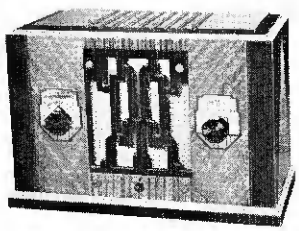
Crosley Dual 70 Lowboy

Crosley Moderne Radios and Tri-Shelvador

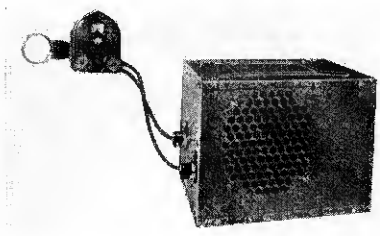
A complete new line of moderne radios and a new Tri-Shelvador refrigerator were shown for the first time at the convention of the Crosley Radio Corp., Cincinnati, Ohio, Jan. 3 and 4.

The following sets were displayed: Dual Fiver Lowboy, $39.50; Dual Fiver table model, $26; Dual Sixty Lowboy, $50; Dual Sixty table model, $35; Dual Seventy Lowboy, $59.50; Dual Seventy midget, $45; Dual Ten Moderne, a console, $69.50; Dual Twelve Moderne, a console, $85. All these models tune from 540-3495 kc. and are designed along conservatively modernistic lines which fit in with any home interior yet mark them as "new."

Other models include:



Crosley Travo Deluxe



Crosley Roamio 103

Travette Moderne, trimmed with chromium. A table set with a.v.c. $28.

Forty, an upright table radio, employing woods in the modern way. $19.99.

New Fiver, similar in design, $23.50.

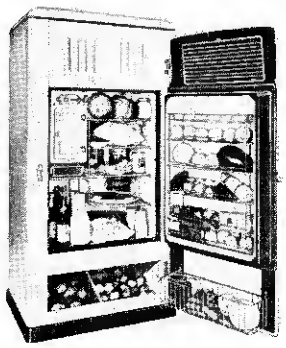
Travo, a portable a.c.-d.c. set. All metal, brown or bronze. $18.50.

Travo Deluxe, the modernistic version of the Travo in wood with silver trim. $19.95.

The latest development in auto radio sets by the Crosley Radio Corp., Cincinnati, Ohio, is the Roamio Model 103. This set has synchronode B eliminator, a.v.c., 6 in. full-floating moving coil dynamic speaker, Tennaflex and under-car antenna. The retail price with tubes is $44.50. The improved circuit provides 8 tube performance although this set uses but five tubes.

The chassis and loud speaker are housed in a small compact metal cabinet, 10½x7¾x7½ in.

Crosley's new edition of the "Shelvador" is the "Tri-Shelvador," illustrated, which has, in addition to the door shelf, the Shelvatray, Shelvabasket, Storabin, ventilated



Crosley Tri-Shelvador E55

front, automatic interior light besides all previous features. 5.51 cu.ft. net capacity, 11.6 sq.ft. shelf space (NEMA rating), 4 trays—3 for ice and 1 double depth for desserts. The white lacquer exterior is trimmed in black. The base rests on the floor, following the modernistic trend. Known as Model E55, $150. Porcelain exterior, $177.50.

Other new refrigerators are: Tri-Shelvador E43, $130; Tri-Shelvador E70, $175; Shelvador EA35, $99.50; Shelvador EA43, $117. Slightly higher with porcelain exterior.—*Radio Retailing*, January, 1934.

Capehart Line

Three automatic radio phonograph combinations can be obtained from the Capehart Corp., Fort Wayne, Ind.

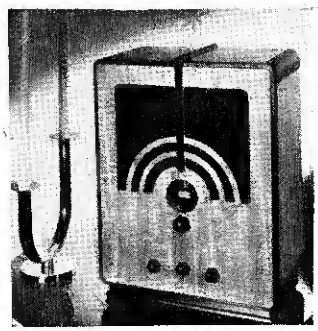
The Chateau is of Louis VI design. The Adam adheres to the Adam style and the Chippendale is identified with the Georgian period Chippendale.

These Capehart 400 Series instruments contain a dual unit radio, using 6-58, 55, and a 57. The amplifier uses 3-56, 4-2A5 and 2-5Z3 tubes. The set has improved a.v.c., silent tuning between stations and visual meter tuning. The speaker is a 14-in. auditorium type dynamic.

The record changer handles from three to twenty records of any make, 10 or 12-in. size, or both intermixed. It takes both the 33⅓ and 78 r.p.m. types. This changer will play both sides of each record in sequence, one side only, or repeats any record as desired. The list prices are: Chateau, $1,095; Adam, $945; Chippendale, $975.—*Radio Retailing*, January, 1934.

"Little Giant" Crystal Set

The manufacturer of the Little Giant crystal set described in the December issue is Snyders', 55 N. 7th Street, Philadelphia, Pa.—*Radio Retailing*, January, 1934.



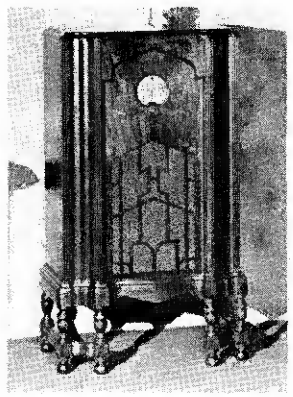
Philco 60MB

Philco 60MB and 14MX

Two modern—but not modernistic—radios, one a console and the other a baby grand, are announced by the Philco Radio & Television Co., Philadelphia, Pa.

Model 60MB, illustrated, comes in a natural finish mahogany with ebonized trim. The chassis is the No. 60 which takes five tubes. Gets police calls. $37.50.

Model 14MX has the inclined sounding board and the No. 14 chassis (9 tubes). Features are shadow tuning and a.v.c. Receives all police calls.—*Radio Retailing*, January, 1934.



Howard Q9

Howard Models Q8 and Q9

In addition to the sets announced in last month's issue, the Howard Radio Co., South Haven, Mich., has brought out Models Q8 and Q9.

Each has the same chassis—8 tubes, 10 in. Jensen speakers, push-pull Class A 12A5 power tubes, illuminated clock type tuning dial, a.v.c., and gets police calls.

The cabinets are similar.

Model Q8 comes in the "solid" type cabinet and Model Q9 is a six legged console. Each lists at $59.95.—*Radio Retailing*, January, 1934.

Eby Wave Band Switch

The new Model 34 wave band switch of the H. H. Eby Mfg. Co., 21st St. & Hunting Park Ave., Philadelphia, Pa., has the following characteristics: definite indexing, low capacity, single hole mounting, silver-plated contacts, low contact resistance, special solder lug features, and floating contacts, grounded or ungrounded. It is furnished in all combinations from single-pole single throw, to 4-pole double throw.—*Radio Retailing*, January, 1934.

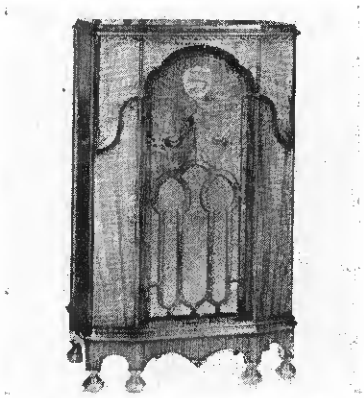
Wells-Gardner Battery Sets

Three battery-operated sets have been brought out by the Wells-Gardner Co., 2701 N. Kildare Ave., Chicago, Ill.

Model 36A5 superheterodyne console is a 6-tube job with the following line up: 30, 32, 2-34, 19, 6AA. This set has Class B audio amplification, automatic A-voltage regulation and a 3-point switch which disconnects all batteries when the set is not in operation. It may be operated on air cell, dry cells, or 2-volt storage A-battery, and three 45-volt B-batteries and one 22½ volt C-battery. The range includes 530 to 1,500 kc.

Model 36A1 with the same chassis is a table model.

Model 30A5 is a lowboy covering from 530 to 1750 kc. This set also has Class B amplification, a.v.c., automatic A-voltage regulator and automatic bleeder circuit. The tube equipment consists of 6-30, 3-34, and 10AB.—*Radio Retailing*, January, 1934.



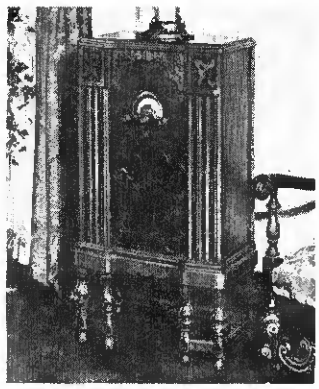
Wells Gardner Model 36A5

Yaxley Replacement Volume Controls

The new replacement volume control—for both wire wound and high resistance types—has a protection cover which completely encloses the resistance elements and is instantly removed for attaching the switch. The Yaxley and Mallory engineers have also designed a new switch for use with this control, featuring rugged construction with smooth, positive action. Both may be obtained from the Yaxley Mfg. Co., Inc., a division of P. R. Mallory & Co., Indianapolis, Ind.—*Radio Retailing*, January, 1934.

American Bosch Dashboard Charger

A simple way of keeping car batteries at full strength is recognized in the dashboard socket battery charger just announced by the United American Bosch Corp., Springfield, Mass. This charger hangs on the garage wall and is plugged into the socket on the instrument of the car. An automatically regulated rate keeps the charger from overcharging the battery. It takes only as much current as an ordinary lamp bulb. The retail price is $11.50.—*Radio Retailing*, January, 1934.



Sparton Model 82

Sparton Battery Sets

Two new battery-operated radio receivers designated as Models 81 and 82 have just been put on the market by the Sparks-Withington Co., Jackson, Mich. The 81 is a table model while the 82 is a six-legged console. Both utilize the superheterodyne circuit. The 81 takes 2-32, 1A6, 30 and 33. The 82 uses a 1A6, 2-32, 30, 19.

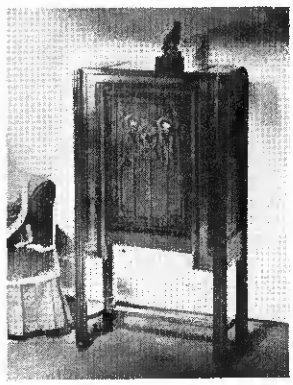
These sets tune to 2,500 kc. and have an adjustable control so that they may be operated on three-volt dry battery packs, air cells or two-volt storage batteries.—*Radio Retailing*, January, 1934.

GE Models K55, K53M, K66M

An apartment size, 5-tube console with a tuning range of 1400-2800 kc. for police calls and some amateur and aircraft transmissions is the latest addition to the line of the General Electric Co., Bridgeport, Conn. This is Model K55.

Model K53M, also has 5 tubes and gets police calls. It is a table model.

Model K66M has the new airplane type dial and a tuning range of from 540-3500 kc. This set utilizes 6 tubes and comes in a console cabinet.—*Radio Retailing*, January, 1934.



GE Model K55

"Clok-trola" Radio Clock

The "Clok-trola" is an electrical robot which turns the radio, or any other electrical device, on or off automatically as desired. Around the face of the clock is a series of keys, one for every twenty minutes. If a program is desired for seven o'clock, the seven o'clock key is pressed down. The set automatically starts at 7 and shuts off in twenty minues if the next key is not pressed. In this way the radio can be turned on or off throughout a full evening. This clock can be used to allow the user to go to sleep to dance music and be awakened in the morning for the setting up exercises.

A master switch at the front of the clock allows the set to work independently of the clock if desired. $8.50. Obtainable from the Clock Control Corp., 1260 W. 2nd St., Los Angeles, Calif.—*Radio Retailing*, January, 1934.

Majestic Receivers

Two 6-tube superheterodynes for 32-volt d.c. operation are now being made by the Grigsby-Grunow Co., 5801 Dickens Ave., Chicago.

One is a console and the other a Gothic table model the cabinets being the same as used in Majestic air cell Models 105 and 95. They receive police calls.

Another modernistic radio is ready, the Mayfair, Model 608, incorporating a 6 tube superheterodyne chassis with delayed a.v.c., self-contained aerial and super-dynamic speaker. The kilocycle range is from 540 to 1730. The tube complement is as follows: 6AF8, 2-6EF, 6CF, 43 and 25Z5.—*Radio Retailing*, January, 1934.

RCA-Victor Model 222

RCA-Victor Models 222, 115, 210

Model 222 of RCA-Victor Co., Inc., Camden, N. J., is a six tube superheterodyne console of modified modernistic design. It has the airplane dial with dual range, covering from 540 to 3,500 kc. The tube complement consists of 2-58, 2A7, 2B7, 2A5 and 80. $77.95.

Model 115 is a 5-tube modern table set with police band switch for tuning up to 2,800 kc. The tube line-up consists of 58, 2A7, 57, 2A5, 80. $35.95.

Model 210 has the same chassis but is a modernistic lowboy. $52.50.—*Radio Retailing*, January, 1934.

Universal Test Instruments

Three units for testing, locating and determining cause of trouble in radio sets, audio amplifiers or any type of apparatus which employs conventional vacuum tubes have been designed by the Sound Engineering Corp., 416 N. Leavitt St., Chicago, to comprise a service instrument of extreme versatility. Each unit is a complete, self-contained instrument.

Model 90 test unit is a multi-range universal a.c.-d.c. voltmeter, milliameter and ohmmeter, providing 7 voltage ranges and 3 resistance ranges as well as means for measuring inductance, capacitance and impedance.

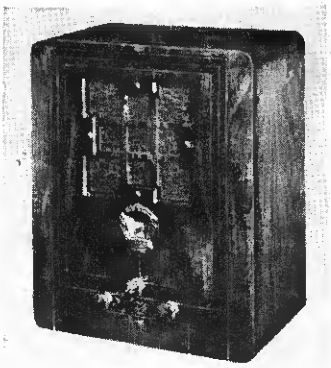
Model 91 analyzer uses the No. 90 to provide a simple direct point-to-point analyzer and also provides means for tube testing.

Model 92 oscillator is a modulated electron coupled signal generator, 110 volt a.c. and covers frequencies 90 to 1,600 kc. without use of harmonics. When required, harmonics may be used to cover the higher frequencies. Each unit can be used separately or they can be combined in a carrying case with cable and adapters.—*Radio Retailing*, January, 1934.

Karadio Auto-Radio

Model 53 auto radio of the Karadio Distributing Co., 2223 University Ave., St. Paul, Minn., lists at $49.95, completely installed. There is a slight additional charge for aerial. This set uses no spark plug suppressors and is a 5 tube superheterodyne. The B power supply is of the tubeless type. This set comes in a one-piece cabinet with a 6-in. speaker.

Other car radio models are the "Super New De Luxe," $79.50 and the "Super New Marvel," $69.50.—*Radio Retailing* January, 1934.



Garod Set

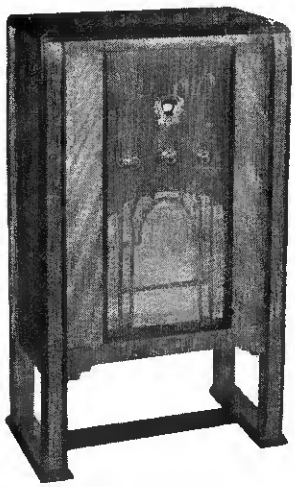
Two table models, both universal superheterodynes, are being made by the Garod Radio Corp., 34 East 12th St., New York City.

Model G-35 is in the upright style, modernistic in line, using five tubes. This set measures 11½x8¾x6¾ in. This set is also available as a dual range receiver for the European market with frequency range of from 1500 to 540 kc. and 300 to 150 kc.

The model G-37 is a 7 tube set with six tuned circuits. It receives police calls.—*Radio Retailing*, January, 1934.

Freed-Eisemann Battery Set

A 7-tube battery operated console in a modernistic walnut veneer console for use with the 2-volt air cell battery and heavy duty, layer built B-batteries can be obtained from the Freed Television and Radio Corp., Long Island City, N. Y. The set has 8-in. full floating moving coil, permanent magnet dynamic speaker, and the tubes used are 2-34, 3-30, 32 and 1A6. The tuning range is from 190 to 560 meters. This set is known as Model 370.—*Radio Retailing*, January, 1934.



Shallcross Universal Tester and Radio Set Analyzer

Type 611 universal tester of the Shallcross Mfg. Co., Collingdale, Pa., has facilities for measuring all the fundamental electrical circuits of past, present and future radio sets. The ranges are as follows: D.C. and A.C. voltage (1000 ohms per volt) 5-25-100-250-1000 volts; D.C. current range, 1-10-100-1000 M.A.; resistance, d.c., 0.5 to 5,000,000 ohms; resistance, a.c. 25-3,000,000 ohms; capacity, .001-10 mfd.; inductance, 100-10,000 henrys.

One of the features of this tester is the measurement of the capacitance of electrolytic condensers used so extensively today.

This tester carries a dealer's net price of $49.70. For those who wish to build their own tester the parts are priced at $41.50 to the dealer.—*Radio Retailing*, January, 1934.

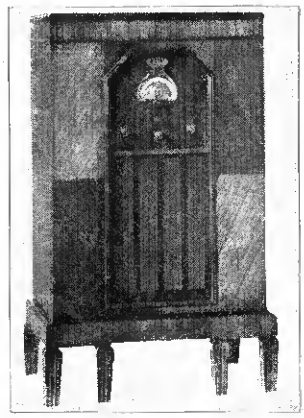
Silver-Marshall Sets

Three new models have just been added to the line of the Silver-Marshall Mfg. Co., 417 No. State St., Chicago. This line now includes over 33 chassis and cabinet combinations, including 32-volt and battery operated farm receivers.

The new Model Z-De Luxe is a 13-tube all-wave receiver. A full line of console cabinets is available with a choice of both modern and conservative lines. A feature of this model is the color-band tuning dial for both broadcast and short-waves.

Model Z-10 is an all-wave receiver using the new multi-purpose special superheterodyne tubes.

The Victory series are 10-tube broadcast sets having such features as dual tuning range (police, aviation, and amateur stations), a.v.c., flash-o-graph tuning indicator, and a choice of two cabinets, highboy or lowboy.—*Radio Retailing*, January, 1934.



Shure Power Supply for Condenser Microphones

Designed to eliminate cumbersome batteries, the Model 41A power supply, manufactured by Shure Brothers Co., 215 West Huron St., Chicago, is now available for condenser microphones. A special rectifier circuit converts a.c. from commercial circuits into a filtered d.c. for both filament and plate circuits of the head amplifier with the result that there is no audible hum.

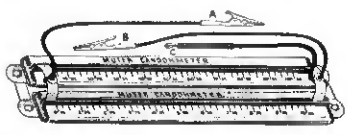
The equipment weighs 12 lb., a feature which will be appreciated in portable work.

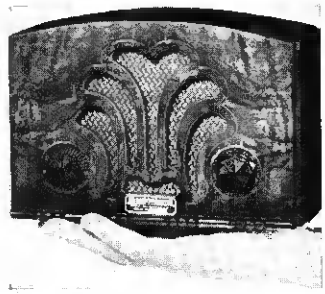
The power supply operates from 105 to 125 volt, 60-cycle lines and furnishes 6 volts at 0.06 amp. and 200 volts at 5 M.A. direct current, for filament and plate circuits, respectively, "A" plus and "B" minus being grounded to the case. The plate voltage is adjustable.

A condenser microphone is also ready. Two models are available. Model 40A employs two 30 tubes for use with dry cell A- and B-supply. It may be used for both broadcasting and P.A. installations. List Price, less tubes, $50.—*Radio Retailing*, January, 1934.

Muter Resistance Indicator

The Candohmeter resistance indicator of the Muter Co., 1255 S. Michigan Ave., Chicago, is an accurate, uniform, wire wound resistor insulated from and enclosed within a metal housing with a narrow slot on top permitting contact with the resistor at any desired point. A test prod mounted in an insulated handle is furnished. This resistance indicator can be used to determine the proper resistance to replace a defective resistor; as a voltmeter multiplier, enabling measurement of high voltages with a low range voltmeter, and as a calibrated resistor for use in experimental work. These indicators range in price from $1.50 to $2.50, depending on the range in ohms.—*Radio Retailing*, January, 1934.





Hi-Lo Receivers

The first two models of the new 1934 line manufactured by the Hi-Lo Radio Co., 5100 Ravenswood Ave., Chicago, are now ready. Three other medium priced sets including an auto radio and a three-tube job will complete the line and will be ready shortly.

Model TMMA is a 4-tube job in a satin wood and walnut finished case, measuring 8x5¾x4½ in. This set employs a t.r.f. circuit and operates on a.c. or d.c.

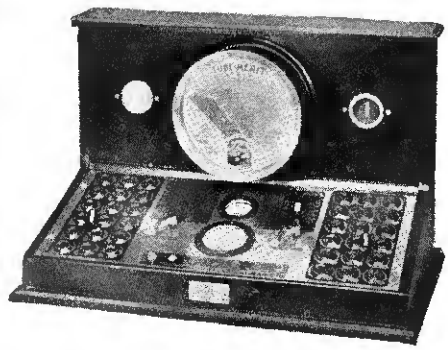
Model TDDA is about the same size and uses four of the latest type tubes in a t.r.f. circuit. It has built-in aerial. Gets police calls.—*Radio Retailing, January*, 1934.

Modernization Service on Tube Checkers

Modernization of the dealer's obsolete tube checker is offered by the Precision Apparatus Corp., 821 E. New York Ave., Brooklyn, N. Y.

The modernized Jewell 538 provides for the testing of 202 different tubes, short tests for all tubes, testing of both sections of dual purpose tubes and tests on both plates of full wave rectifiers. Other features include easy reading meter scale plate, new power transformer, replaceable sockets, seven pre-heater sockets, and provision for future releases. Testing is accomplished in the same manner as before modernization.

Modernization for the dealer's Jewell 214 and 535 and DayRad 381 checkers is also available. Instruments should be sent to the above company.—*Radio Retailing*, January, 1934.



Electronic Laboratories Product

Among the products offered by the Electronic Laboratories, Inc., 122 W. New York St., Indianapolis, Ind., are a 32-volt d.c converter which has an output of 110 volts, a.c. at 100 watts; a 32-volt d.c. eliminator for battery operated radio sets outputting 200 volts dc. at 40 milliamperes and a 110-volt d.c. converter which outputs 110 volts a.c. at 200 watts. This line is rounded out with a 6-volt eliminator for auto radios.

All four items are equipped with a new Electronic full wave interrupter. The two eliminators utilize the patented load delay circuit which maintains a constant output voltage for the transformer during the entire cycle of operation of the power supply.

This company's devices are now presented through jobbing outlets.—*Radio Retailing*, January, 1934.

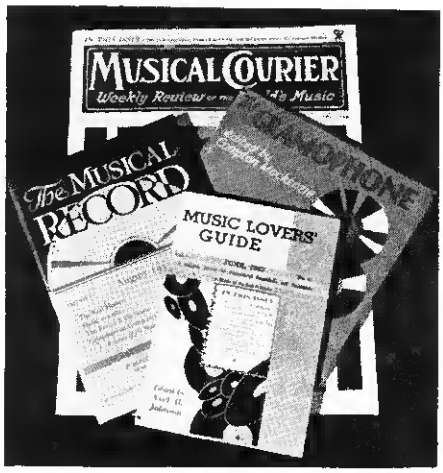
More products of interest to servicemen on page 47

Merchandising RECORDED MUSIC

(continued from page 26)

hour, copies of the principal's records and an invitation to hear these same artists, in perhaps the same compositions, at anyone's leisure from a superb electrical recording played on the latest model combination radio phonograph. Ask your customers how they liked Lily Pons last Sunday night or Saturday afternoon. Play the *Lakmé Bell Song* record made by the petite coloratura soprano and point out the pleasure of having her glorious tones to thrill one at any time desired. The dealer who will study his record catalogues, match these broadcasts and work his promotion schemes out on these lines—possibilities only faintly indicated here—will soon discover that there *is* a field for recorded music. He will sell records and have a lot of music lovers coming to him for other suggestions.

RECORD reviews and phonograph articles also stimulate interest in the art. They are a highly necessary adjunct to conducting a record department as well as educating your trade. With this article we have reproduced a



few of the leading ones. These journals contain information not only of value to your record clerks but of special interest to your clientele. Copies of these specialized periodicals on your counter where the buyer can pick them up and read about the latest discs will help tremendously in selling discs you or your sales force may not think of suggesting. Write to the magazines listed below for sample copies (they will furnish a few gratis) and look through them—you will see in a second what they can do for you. It might be profitable to sell subscriptions to your customers, taking out the discount allowed to dealers. This will increase customers' interest and boost your own sales. Here are the best:

The Music Lover's Guide. 10c per copy; $1 annually. New York Band Instrument Company, 42 East 20th Street, New York City.

The Musical Record. 35c. per copy; $3.50 annually. 26 South 21st Street, Philadelphia, Penna.

The Musical Courier. 15c. per copy; $5 annually. 113 West 57th Street, New York City. This contains weekly reviews of the better records by Richard Gilbert, phonograph editor of RADIO RETAILING.

The Gramophone. 40c. per copy; $3.50 annually in America. 10 Soho Square, London, W.1., England. This is a highly specialized phonograph journal containing much information about recordings which eventually arrive here on Victor and Columbia lists.

If you have a record department you would like to push, send for sample copies, at least, of these magazines. They will open your eyes regarding the present state of the industry.

Dealer's One-Foot Shelf

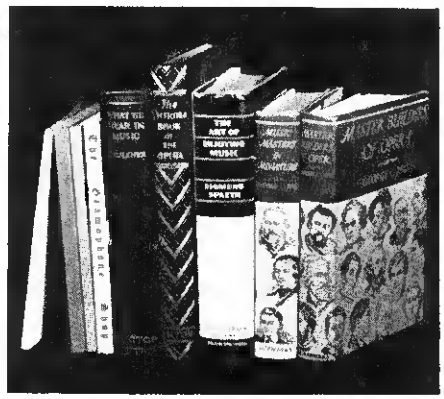
Here we also show a picture of a number of helpful books devoted to the popularization of good music which should be on every record counter. Not only as a handy reference library for the sales force, but for sale as well. *The Victor Book of the Opera* is famous and the Metropolitan broadcasts this winter will create a demand for this type of reference book.

George C. Jell, in charge of Masterworks and Celebrity records of the Columbia Phonograph Company, has written two extremely interesting, non-technical books: *Master Builders of Opera* deals in a popular and absorbing manner with the lives of the great operatic composers; *Music Masters in Miniature* covers biographically the important symphonic creators. Both volumes are published by Charles Scribner's Sons, at $2 each; they may be obtained from the Columbia Phonograph Company with a discount.

The Gramophone Shop's *Encyclopedia of the World's Best Recorded Music* is a catalogue containing thousands of American and European records listed together under "composers" and other handy headings. A new edition is in preparation. Address The Gramophone Shop, Inc., New York City.

Other Victor publications are *What We Hear in Music*, by Anne Shaw Faulkner ($2.75), a comprehensive history of music, listing, as examples, hundreds of Victor records; *Music and Romance* and *Musical Appreciation.*

Everyone knows the Tune Detective—Dr. Sigmund Spaeth. Well, he has written a book as entertaining and instructive as his famous radio broadcasts. It is called *The Art of Enjoying Music* (McGraw-Hill Book Company, New York City. $2.50). Stock a few copies of this splendid guide to musical comprehension for your record customers will be interested in it and *it is a good item of merchandise in any radio store.* All of the above prices are list: naturally every dealer is entitled to an appropriate discount. Pictured also are the various complete record catalogues which should always be in sight. Offer to order any record asked for which you may not have in stock.



Underwriters Will Insure Cars Equipped with Radio

"Radio Retailing" has spiked a rumor that certain insurance companies are refusing to issue policies on automobiles if said car is equipped with a radio set. The truth of the matter is that a few of the insurance companies will not broaden their policy so that the clause "and equipment," against theft and fire, includes the radio set itself. The reason for this is that automobile radio is so attractive that certain light-fingered gentlemen have been purloining altogether too many radios from parked cars.

All the automobile insurance companies, we understand, are glad to issue full insurance against accident liability and do not consider that the presence of a radio set creates an extra hazard.

Minnesota Service Men Favor List Prices in Parts Catalogs

At the December meeting of the Minnesota Radio Servicemen's Association, held at St. Paul, Minn., the following resolution was adopted:

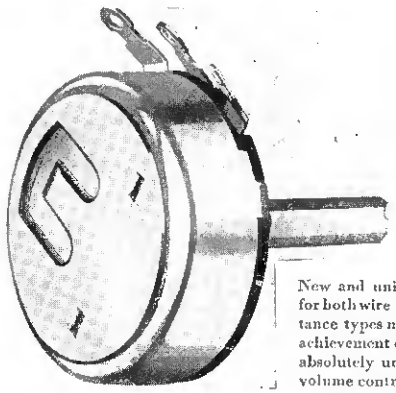
> "Whereas: 'Cut price' competition has made it difficult for the serviceman to obtain business otherwise, and Whereas: 'net price' catalogues of radio parts have been flung far and wide to the radio trade and public, and because labor charges must be held to a minimum and radio parts are sold much easier than labor—
>
> "Be it resolved that: It is the opinion of this group that servicemen do not want net prices on radio parts published nor even list prices on small parts which gross them less than $1 believing that the customer should not and generally does not discriminate between the size of condensers, volume controls, resistors, etc., and their respective prices.
>
> MINNESOTA RADIO SERVICEMEN'S ASSN."

WE'VE SOLVED YOUR PROBLEMS

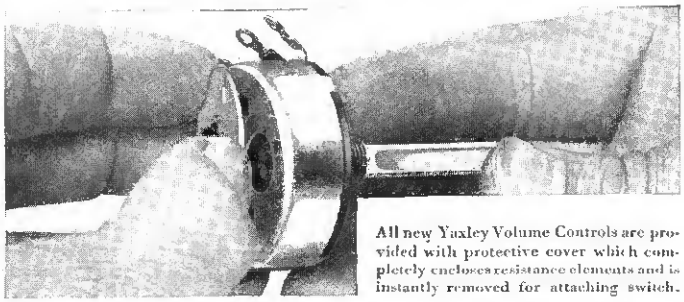
WITH THIS NEW YAXLEY VOLUME CONTROL for REPLACEMENT both WIRE WOUND & HIGH RESISTANCE

TWO BIG ADVANTAGES

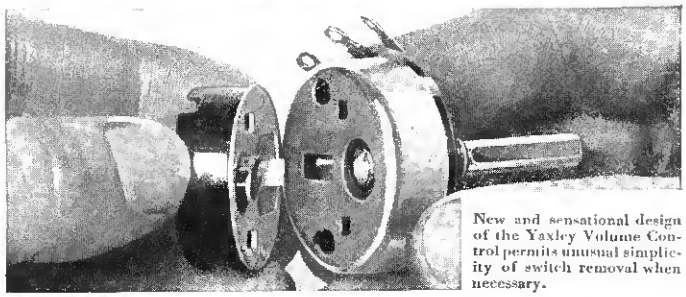
1. *More nearly duplicates the control you replace.*
2. *Easy to attach — nothing can touch it.*



New and unique design furnished for both wire wound and high resistance types makes this outstanding achievement of Yaxley engineering absolutely unapproachable in the volume control field.



All new Yaxley Volume Controls are provided with protective cover which completely encloses resistance elements and is instantly removed for attaching switch.



New and sensational design of the Yaxley Volume Control permits unusual simplicity of switch removal when necessary.

NO. 9 SWITCH

—an A. C. Switch for use with the new Yaxley Volume Controls sets a new standard of performance. Quick and positive in action. Smooth in operation. Rugged in construction. Handsomely finished.

As an advertiser in the first issue of Radio Retailing it is significant that the Yaxley Manufacturing Company should make an announcement of special importance in this Special Anniversary Number.

Ten years is a long time in the radio industry, and with the Yaxley Manufacturing Company these ten years have been spent in continuous progressive development. Yaxley has at all times pioneered and the New Yaxley Volume Control represents a degree of thorough study—from *your* standpoint—that is new to the field of radio engineering. We've produced the volume control that we'd expect from you—if *you* were doing our work, and *we* were doing yours. It's a job that we are proud of—and one you'll profit by. It brings to you *today*, the volume control that you've always hoped would come *some day!* Yaxley and Mallory engineers have worked hard to make your work easier. They have accomplished exactly what they planned to accomplish in the solving of your problem.

Write today for complete details and mention the name of your jobber.

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INCORPORATED
Cable Address Pelmallo
Division of P. R. Mallory & Company, Inc.
INDIANAPOLIS · · · · INDIANA

YAXLEY | MALLORY

Conducted by

SERVICE AND INSTALLATION SECTION

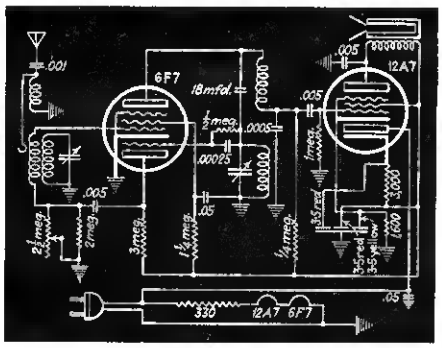
W. MacDonald

CIRCUITS of the MONTH

Two-Tube Universal

Ever since the Kadette F Junior coat-pocket model was announced technicians have tried, without much success, to puzzle out its circuit. Here's the first authentic one we've seen, obtained direct from the Ann Arbor factory.

The pentode section of a 6F7 works as an r.f. amplifier. Amplified r.f. is passed from



the upper plate through an 18 mmfd. coupling condenser to the triode section of the same tube, which operates as a gridleak detector. A choke keeps r.f. out of the audio amplifier circuit. The output of the detector is fed from the lower plate back to the pentode portion through a .005 mfd. condenser. Thus the pentode is reflexed to serve not only as an r.f. but also as an a.f. amplifier.

A.F. appearing in its plate circuit flows through the r.f. choke in preference to the small 18 mmfd. condenser and is applied to the grid of the 12A7, the pentode section of this special tube (Ken-Rad) functioning as a final amplifier. An additional cathode and plate are included in the 12A7 and these are used to half-wave rectify a.c. line voltage to provide d.c. plate and screen potential. Prong connections of the tube, looking at the bottom and reading clockwise from the two heavy heater terminals are: Heater, heater, pentode plate, pentode screen, rectifier cathode, rectifier plate, pentode cathode. The cap is the pentode control grid.

The input circuit of the 6F7 is indirectly tuned in an interesting manner. Litz wire having a heavy, solid core and 9 sheathing strands all insulated from each other is used and examination indicates that the heavy, solid core is the actual grid coil while the variable condenser tunes an electrically separate but closely coupled second coil formed by the 9 strands.

Normal voltages are as follows: 6F7: pentode plate—20, pentode screen—10, triode plate—5, triode grid—0, cathode—0; 12A7: pentode plate—108, pentode screen—115, rectifier cathode—135, rectifier plate—0, pentode cathode 10.

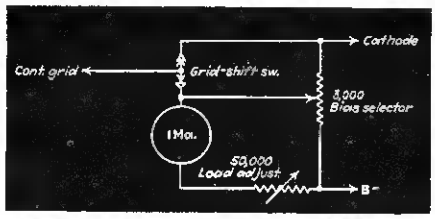
•

Checker Circuit Prevents Meter From Backing Off-Scale

Supreme's model 55 checker (also the Master Diagnometer) employs a circuit which prevents the meter from backing violently off-scale when a tube is removed, without the necessity of a "bucking-current" rectifier.

A 3,000 ohm bias selector potentiometer is connected in the cathode circuit of the tube under test, hence a voltage drop proportional to plate current is produced across it. Any desired portion of this drop may be used to bias the grid by varying the contact arm and when the shift-button is pressed to a position opposite the one diagramed bias is reduced to zero, giving an increased plate current reading.

The meter is divided into three sectors, "Load," "Bad" and "Good." The 50,000 ohm load adjustment or multiplier rheostat is set so that the needle reads full "Load" (about the center of the scale), compensating for variations in cathode emission. Thus

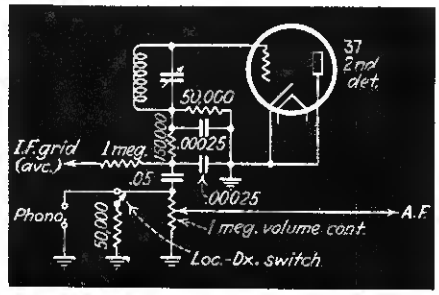


when the shift-button is pressed the needle jumps from the "Load" position rather than from the minimum position to "Bad" or "Good" (near full-scale).

•

Local-Dx Switch Controls A.F. Input

Fada's model NA chassis is equipped with a local-dx switch which controls



a.f. input rather than i.f. or r.f. gain. As shown in the accompanying circuit of the 2nd detector, a 37 working as a diode rectifier delivers a.v.c. voltage to the i.f. tube grid through a 1 meg. filter and also develops a.f. voltage across the volume control. When receiving local stations a 50,000 ohm. resistor may be switched in parallel with the volume control, reducing a.f. voltage appearing across it and preventing audio overload.

•

"Meterless" Tube Tester

A special neon glow discharge tube similar to those used as resonance indicators in several popular receivers replaces the more customary milliameter in Acme Manufacturing's latest tube tester. The tube, which requires from 2 to 11 ma. at approximately 86 volts for operation, is provided with a calibrated "English-reading" scale. The tester, aside from its unusual indicating device, is of the conventional grid-shift variety.

•

Rectified A.F. Used To Vary Grid Bias

We rarely "ring in" circuits having no immediate practical value to servicemen but here's one from England so novel that it is permitted to break our hitherto inviolable rule. The diagram shows a power pentode connected as what we shall call (for lack of a better term) a hybrid Class A-B audio amplifier.

A C-battery having approximately double the voltage specified for normal bias is connected to the grid through a 50,000 ohm,

The TRANSFORMER warehouse of RADIO SERVICE

THE new 1934 STANCOR Catalog of Transformers . . . like an immense warehouse of transformers . . . that the high type of service work you are rendering may be maintained without interruption in the supply of STANCOR products . . . is ready for you.

Here are STANCOR EXACT-DUPLICATE Replacement Transformers—Power, Audios, Chokes and Filters . . . Universal Replacement Transformers . . . Amateur Broadcast Transformers, carried in stock and distributed by a highly organized system of Authorized STANCOR Distributors—as close to you as your telephone.

This is a book of 88 pages destined to become the hand book and reference piece of the service man in 1934 in matters pertaining to Transformers for radio. It is not merely listings of what you may buy. It is a book containing these and vital information you will want in your reference library. No Transformer catalog you have ever had is at all like it.

Ask your distributor for your copy, or write to this office saying who your distributor is. Your copy will be forwarded to you immediately. The first edition is limited, so we suggest that you request your copy at once.

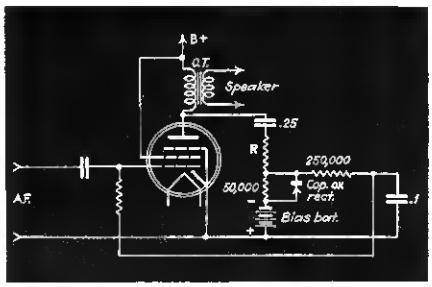
REPLACEMENT
STANCOR EXACT
DUPLICATE
TRANSFORMERS

STANDARD TRANSFORMER CORPORATION • • • 852 Blackhawk Street, Chicago

250,000 ohm and leak resistor. Thus the tube is biased near cutoff when in a no-signal condition. When a signal is impressed on the tube, however, it not only drives the speaker but a small part of the a.f. output is by-passed to cathode through R and the 50,000 ohm resistor. A.f. current flowing in the auxiliary load is rectified by a "Westector" copper-oxide device and the resulting d.c. *bucks* the battery, reducing bias and permitting normal plate current to flow. The tube thus resembles Class-B in that plate current is cut off when in the no-signal condition, becoming more nearly a Class-A stage when a signal is received.

The 250,000 ohm resistor and .1 capacity are simply filter units, included to keep a.f. from feeding back to the grid from the auxiliary plate load. The value of R is determined by the tube type. The English 220A, which resembles our 47, requires 100,000 ohms. Too high a value results in over-bias and harmonic distortion while too low a value results in insufficient bias and positive grid swing.

Gain and battery economy rather than quality is the scheme's long suit.



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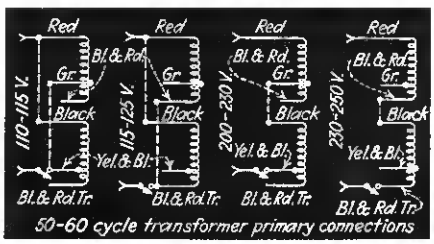
Universal Power Transformer

RCA models 140, 141, 141E, 240 and AVR1 are equipped with universal 50-60 cycle power transformers. The diagram



indicates connections for 110-115, 115-125, 200-230 and 230-250 volts a.c. Sets may also be obtained with 25-60 cycle transformers adjustable for 100-115 or 115-125 volts. When received from the factory all receivers are connected for 115-125 volt operation.

•

Circuit Suppresses High Frequencies On Weak Signals

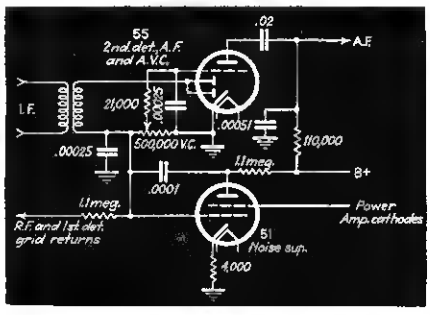
Here's a new kind of suppressor circuit. It automatically cuts high-frequency response (and the static and electrical interference inherent to this region) on weak signals, letting the full band of audio frequencies through when signals are sufficiently strong to override noise. The idea is Stewart-Warner's (model 110 chassis) and is, in effect, an automatic tone-control system.

The receiver uses a 55 as half-wave diode second detector, a.v.c. and first audio. The suppressor is a 51 variable-mu tetrode which, unlike most tubes used for this purpose, receives no r.f. signal voltage. Nor does its action overbias r.f. or i.f. grids in the accustomed manner.

It happens that if a capacity is connected between the grid and plate of a tube its by-passing effect will be multiplied by the amplification factor of that tube. Referring to the circuit asociated with the 51 it will be seen that a .0001 mfd. condenser is connected in this position. One terminal is connected to the high-potential leg of the volume-control, across which a.f. voltages are developed. Thus it is evident that a.f. in an amount determined by the effective capacity of this condenser will be by-passed to ground and will therefore not reach the control grid of the first a.f. stage.

When a loud signal is received a.v.c. voltage developed by the diode and applied to the control-grid of the 51 overbiases this tube almost to its cutoff point. Thus only the actual capacity of the .0001 shunts a.f. to ground. This capacity is so small that little high-frequency by-passing takes place.

If normal plate and screen voltages were applied to the 51 by-passing would be too severe so only 17 volts is applied to its plate. A similar potential is applied to the screen by connecting this element to the cathode of the final audio stage.



"AUDIO FREQUENCY"

THAT INSIDIOUS PLASTIC, CELLOphane, is now being used as a "spacer" in electrolytic condensers. It permits the electrodes to be built closer together, increasing capacity without sacrifice of voltage rating, hence smaller units. We wouldn't be surprised to wake up one fine morning and find the stuff in our coffee.

AVC SOLVES THE FADING CARrier problem nicely but is ineffective when sidebands remain constant and the carrier drops out. Ken Jarvis has an alleged cure he calls a "dynamic detector" up the sleeve but we can't get any dope on it . . . . yet.

SUPERS NEEDN'T RADIATE. NINEteen manufacturers have been induced by a kindly spirit to provide preventative circuits (as many have turned the suggestion down) and find that in most cases suppression of radiation actually increases receiver efficiency. The average cost to the manufacturer is just about six cents.

FEW RADIOS REPRODUCE AUDIO frequencies below 70 cycles. High quality stations with carefully designed transmission lines can, however, transmit lower frequencies so it follows that broadcasters could transmit a 20 to 40 cycle signal which would be picked up by home receivers but not amplified by their audio systems. Several experimenters are busy figuring out a way to use such a "ghost" signal. It might, we are told, work relays and turn sets on automatically when important news broadcasts take the air. Or it might be used to automatically segregate jazz and classical programs, speech and music.

SPARK SUPPRESSORS ARE OFTEN detrimental to a motor which uses Ethyl gas, according to a prominent engineer. It seems that lead-tetraethyl, a basic ingredient of such fuels, gradually forms a conductive layer on the plug electrodes, decreasing inter-electrode resistance. Shunt resistance therefore becomes less and less desirable. Perhaps there is something to the slogan "change plugs every 10,000 miles" after all.

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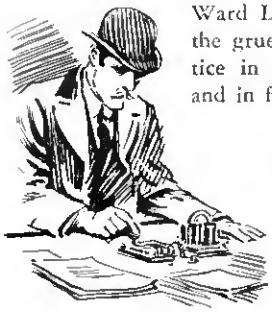

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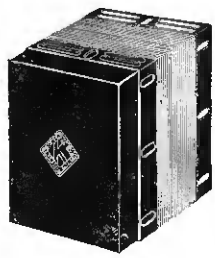

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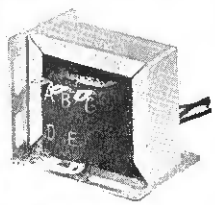

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Extended-Band Receiver Design

Fundamental dual-range superhet circuits. Switching methods explained. How to test and align

By EDGAR MESSING

The F. W. Sickles Company

THE sets of this year and even more the sets of next year feature the ability to receive shortwave stations as well as those in the usual broadcast range. The addition of another waveband was first made by enterprising manufacturers seeking to supply a novelty to a somewhat jaded listening public. The eagerness with which other manufacturers followed can be seen from the list of models published in the October issue of *Radio Retailing*. Approximately 84% of all lines include receivers going below 200 meters and practically 100% of the larger manufacturers offer extended band receivers. Shortwaves now appear to have a definite sales value.

The first receivers to advertise police band reception were primarily broadcast

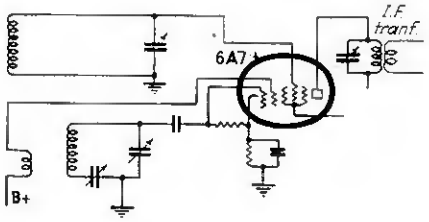


Fig. 1 — Conventional detector-oscillator circuit of modern broadcast super

sets whose tuning condensers had a slightly larger range than usual so that the receiving band was from about 550 meters to 185. The police band near 190 was then satisfactorily covered and could be heard by tuning around the high frequency numbers on the dial. The majority of police stations, however, are located around 2,400 KC. To receive these the radio frequency circuits of the receiver have to be revised so that the new coil and condenser combinations can tune to these high frequencies.

In addition to the original police call—broadcast receivers leading manufacturers are now presenting two-band models that tune down to about 75 meters and also "allwave" types which cover the radio spectrum from about 15 meters to 550, dividing the range into 4 bands usually. The first band may go from 15 to 35, the second from 35 to 85, the third from 85 to 200 and the fourth from 200 to 550. A multi-gang switch is controlled from the front panel to select the desired band. In the later models every effort has been made to simplify shortwave tuning so that reception will be as enjoyable as experienced with the usual BC receiver. Reception has been made truly one dial and elaborate tuning devices are being used that allow accurate selection of the wavelength desired.

Circuits and Switches

The allwave set is an entirely different sort of animal from the receiver with the additional police band and is far rarer. Fig. 1 shows the r.f. circuits of a modern receiver using a 6A7 tube as first detector and oscillator. This particular circuit is for a two-gang condenser; a 3 gang condenser set will have an r.f. stage or preselector whose grid circuit will be identical with that of the detector section of the 6A7. A padding condenser rather than a tracking condenser is used to govern the oscillator range.

The higher the frequency range to be covered the higher the intermediate frequency should be. It is a rather complicated matter, however, to change the intermediate frequency transformers and this is not done. On the higher frequencies an i.f. of 456 is preferable to 175 from the image standpoint and for that reason is usually employed in two-band sets. Where the designer considers the high frequency band a relatively unimportant addition, as some designers do, a low frequency i.f. such as 175 may be used.

If we consider the i.f. 450 and the high frequency range to be covered 3,500 to 1,500 the problem of redesigning the circuit of Fig. 1 boils down to changing the inductances or capacities in the oscillator section to tune from 3,950 to 1,950, and the similar units in the detector section to tune from 3,500 to 1,500. Either the inductance or the capacity must be lowered but since it is desired to tune over a large range it is the inductance that must be decreased.

There are three methods of decreasing

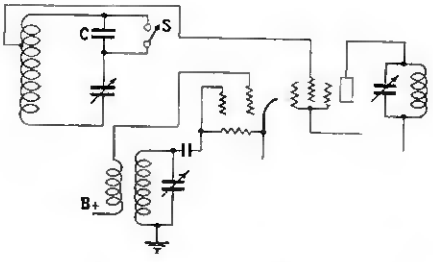


Fig. 3 — Harmonic operation of broadcast band oscillator for extended-range reception

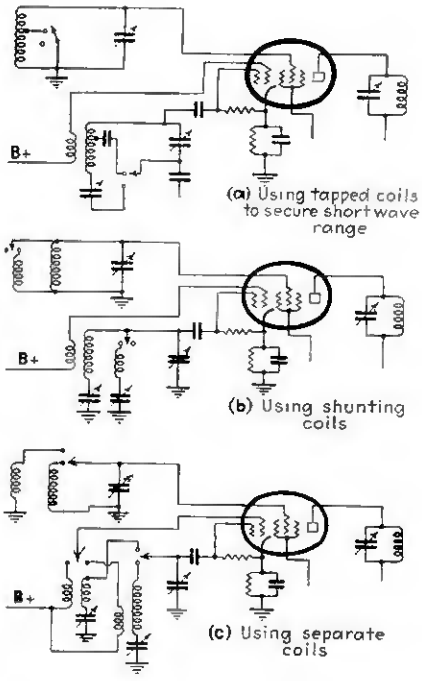


Fig. 2 — Three common methods of adapting a standard super to shortwaves

the inductance used in commercial practice. These are illustrated in Fig. 2. All of them are in common use and each is simple to understand.

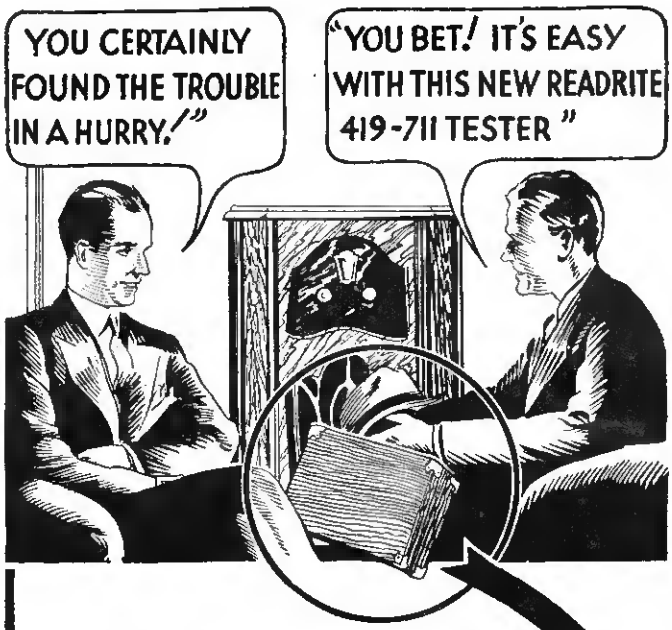
There is not much preference between the methods practically and one company may make one model using method "b" and another model using method "c."

In "a" the switch shorts out part of the tuning coil so that only the small section is used for tuning the high frequency band. In the oscillator section a switch selects part of the coil for the low frequency band. The unused portion of the coil in the high frequency switch position is not shorted because of the possible difficulty in making the tube oscillate. Separate padding condensers are used for each band.

Usually the condenser on the high frequency band is adjusted around 1,600 kc. How many trimming adjustments there are on this band depends on the viewpoint of the manufacturers. If he desires a good job each band will have its own series and shunt oscillator adjustments and shunt signal circuit adjustments. More usually just a series oscillator adjustment is provided on the shortwave band.

In "b" small coils are switched in shunt with the regular BC band grid coils. Coils in shunt act to reduce the overall inductance just as resistors in parallel act to reduce the overall resistance. In the diagram the coils are shown permanently connected to ground with the switch in the grid side. Some manufacturers prefer to reverse the procedure and connect the shunt coils permanently in the grid side and put the switch in the ground side.

The shunt coil method is the newest of all and is the simplest to use. The designer simply takes a standard set, and connects simple small coils, of about 25 turns wound on a ¾-in. form, in parallel with each of the signal circuit secondaries; a slightly smaller coil of possibly 20 turns in shunt with the osc. secondary; adds a switch and the job is done. In this arrangement the primary



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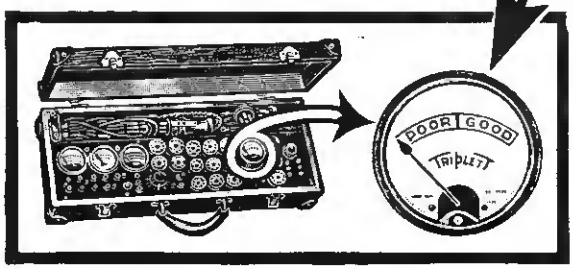

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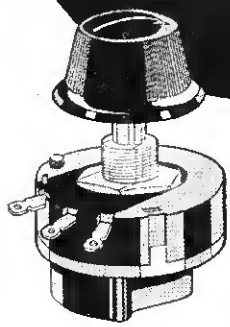
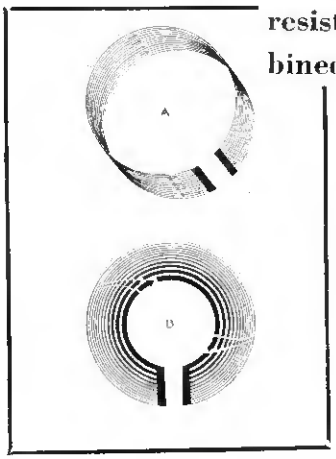
no "hugging the fence" with the New Centralab radiohm



Unlike the old annular type resistors, there is no inner fence to hug in the new Centralab Radiohm.

Here is a resistor that distributes the load uniformly across its entire width. And because it is located on the inner circumference of the case, large resistor area is combined with small size.



Resistor A used in the new Radiohm, has the same length path across its entire width, giving greater effective area for good volume control.

Resistor B of annular shape, has long been the standard type. Current concentrates around the INNER edge, i.e.: the shortest path.

Central Radio Laboratories

MILWAUKEE, WIS.

is still coupled to the large secondary as on the broadcast band and this coupling is sufficient for the SW band since the large secondary is still part of the grid coil.

The serviceman can most conveniently use this method in revising sets to "put police bands in."

In commercial models this shunt coil takes two forms—it may be a separate coil as just described or it may be wound at one end of the same form on which the regular secondary is wound. In the second case the inductance of the small coil is adjusted to take care of the mutual inductance between it and the regular BC secondary.

The third method is the most obvious one and requires no explanation. Here entirely separate coils are switched into the circuit and it is usually necessary that separate primaries also be switched.

Exactly the same methods can be used in t.r.f. sets. However, the number of t.r.f. sets using extended bands is small.

The switches used in dual-band receivers are usually one of three types—compounded snap switches, gangs containing arm and taps, and rotary snap switches. The most usual is the switch gang consisting of one or more plates on which the contact points are mounted. An arm passes on these contacts to connect the desired circuits. Often a multiple arm, grounded, will contact several points when in one position and none in the other position. Some of the switches are complicated in appearance and their manner of operation not obvious. A continuity meter will usually tell the story. Switches, as always, are a possible source of trouble.

Testing and Aligning

A defective set on which the shortwave band lacks sensitivity or is dead should have its oscillator circuit checked first. The carrier signal circuits should next be checked. Lack of sensitivity, all else being correct, is usually due to misalignment of oscillator and signal circuits. There is nothing in the least bit mysterious or magical about these extended-band receivers and the same straightforward procedure that is applied to standard band receivers can be applied here.

The regular test oscillator can be revised to produce signals on the shortwave band in the same way that the oscillators in sets are revised. A shunt coil consisting of about 25 turns of any size wire from 24 to 34 on a ¾-in. form can be arranged to be switched in parallel with the tuned circuit coil in the oscillator. No other changes need be necessary with standard type oscillators. The new band can be calibrated in frequency by comparison with a known oscillator or by beating with the harmonics of a calibrated oscillator.

In aligning do the broadcast band first. On the high frequency band adjust the shunt trimmers, if any separate ones are supplied, at the high frequency end of the band, which is usually about 3,700 kc.; adjust the series trimmer at about 1,750. If only a series oscillator trimmer is supplied adjust it at about 1,850 kc. unless otherwise directed.

RCA in its Model R-22 uses a different arrangement from those discussed to pick up SW signals. Fig. 3 shows the scheme. The harmonics of the oscillator are used instead of using a new oscillator tuned circuit combination. The designers evidently figured that the 2,450 kc. police band was the most desirable SW band. Therefore, switch S is used to cut condenser C in or out. When "in," the overall capacity of the circuit is lowered and the response of the signal circuits is a maximum around 2,450; the exact position depending of course on the setting of the variable condenser.

Examination of leading types of all-wave, 15-550-meter receivers show that the circuits are identical with that of Fig. 2C, except, of course, that several separate grid and plate coils rather than only two are used. Some manufacturers use individual oscillator tubes rather than the 6A7. Shunt and series trimmers for the oscillator and shunt trimmers for the signal circuits are usually used. The complicated switching arrangement may be somewhat awe-inspiring, but they all boil down to Fig. 2C, with possibly an additional switch section that shorts out coils not in use. A good oscillator covering all of the bands is necessary for proper servicing.

There is nothing tricky about such sets; large scale manufacturers know that the simple straightforward designs are the safest. The same technique that holds for the BC band holds for the shortwave bands.

Coils, in fact, are simpler, usually consisting of two single-layer windings. Chokes and capacity turns are rarely used.

Dead spots on any band are an engineering problem and are faults that should not exist in commercial models. Their existence therefore would mean that something elementary has broken down.

A good oscillator tube is essential

Switches are the biggest possible sources of trouble; rosin on the contact points will kill a set as quickly as clipping a wire will. A good cleaning of switch contacts will prevent noise and in some switches is required periodically. Absolutely the same procedure is to be followed as is done with standard sets.

While possibly more detailed explanations of exact line-up procedure might be in order, it is felt that an understanding of how the systems work, and more fundamentally an appreciation of the similarity between SW and BC sets is all that the experienced serviceman requires.

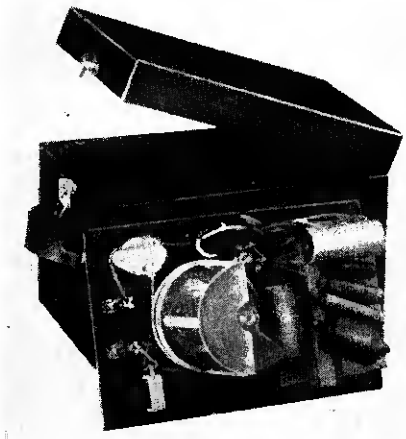
SHOP SHORTCUTS

Condenser Substitution Panel With Polarity Indicator

By S. Bend

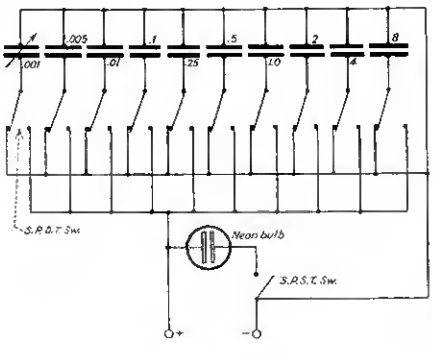
For less than seven dollars, the serviceman can have a useful condenser test box for substitution work. Most shops have all the parts on hand. Here is the list:

43 to 45 plate, 0.001 mfd. Variable Condenser
0.005 mfd., 400 volt condenser
0.01 mfd., 400 volt, condenser
0.1 mfd., 400 volt condenser
0.25 mfd., 400 volt condenser
0.5 mfd., 400 volt condenser
1.0 mfd., 400 volt condenser
2 mfd., 450 volt electrolytic condenser
4 mfd., 450 volt electrolytic condenser
8 mfd., 450 volt electrolytic condenser
10 SPDT toggle switches
SPST toggle switch
Midget candelabra socket
Midget, ¼ watt, neon bulb
2 pin jacks



My unit fits nicely on a 6½ in. x 9 in. hard rubber panel which was mounted in a carrying case about 6 in. deep. All the condensers were assembled on the back of the panel, their flexible lead wires connecting directly to the toggle switches.

In the off position, the SPDT toggle switches are wired to short circuit the condensers. This prevents deterioration of the condensers which might otherwise be strained holding a charge for a long time. It also prevents shocks to the operator from handling the leads connected to the charged condensers.



The circuit permits use of all the capacities in parallel or any combination in parallel. The variable condenser of the straight line capacity type with semi-circular plates can be roughly calibrated—reading from a maximum of 0.001 mfd. to 0.00001. This is a practical feature for checking the alignment of oscillator condensers in superheterodynes.

The neon pilot light, which may be cut in or out of the circuit with a SPST toggle switch, should be employed to indicate the polarity of circuits in which electrolytic capacities are to be substituted. A preliminary test will indicate which electrode in the neon bulb glows with the correct polarity. If both electrodes glow, this indicates an alternating current present and warns the opera-

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Radio Retailing

tor not to use the three electrolytic capacities on such a circuit. If the voltage in a circuit is under 120, the neon bulb will not glow, indicating a circuit fairly safe to handle. A bright glow indicates the presence of a higher voltage and serves as a warning to avoid shock.

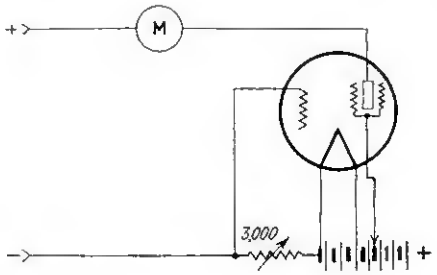
•

Automatic Meter Protection

By Morris Chernow

A 1 mil. meter may be protected by operating it in series with the vacuum tube circuit diagrammed. Use a 32 with two C batteries supplying filament and plate potentials. Plate potential need not be more than about 7 volts.

Bias, it will be noted, depends upon the



amount of current flowing from the external circuit through the 3,000 ohm resistor and tube. Thus, by adjusting the resistor the bias can be made to cut off plate voltage automatically, removing load from the meter, when current exceeds the safe maximum.

If, for example, the resistor is adjusted so that the tube may pass plate current up to 1 ma. application of current in excess of this value would simply cause the tube to be so highly biased that the circuit would be effectively opened.

The tube resistance must, of course, be taken into consideration when reading the meter.

•

AC-DC Filter Improvement

By V. C. Gerhardt

Filtering may be improved in most universal receivers, where there is not room for large parts, by connecting a 1½ to 2 mfd. electrolytic condenser across the filter choke, giving a tuned filter action. Be sure the positive terminal goes to the rectifier side of the choke.

This idea is particularly efficient on 25 cycle receivers.

•

Power Transformer Replacement

By B. O. Bass

Due to the variety of transformers used in sets I find it impossible to stock them all. Manufactured universal types are excellent for jobs on which a decent charge may be made. And where the work must be done cheap I "roll my own."

Midget transformers available for as low as 85c. may be hooked in parallel for use in 7 to 10 tube receivers. If the wattage demand of the set, figured by consulting a tube characteristic chart, exceeds the wattage rating of the transformer, I use this stunt, connecting coils so that they do not spark.

Most of the older mantel sets such as Crosley, Jackson-Bell, etc., require a separate output tube filament winding. Part of the transformer's shield is clipped off. The core, or one leg, of the unit is then insulated with a layer of paper. From 14 to 18 turns of number 20 to 22 dcc wire is threaded through and around the leg for the 2.5 volt, 45 or 47 filament supply winding. I wind double the number of turns for a single 71 or push pull tubes of this type. Center tap for C resistor is made when installing this winding.

Several older sets using 26's, such as the Eveready, Crosley and A-K 7-tubers require a 5 volt coil on one leg of the transformer and a 2.5 volt winding on the other leg. The main 2.5 volt, 9 amp. coil's center tap is untwisted, then clipped. One half of this coil connected in parallel to the other half rates 1.25 volts at 18 amps., or 1.43 volts at the new drain of 4 amps. when working four 26's. One transformer fills the bill in such cases due to the low drain of the 26's.

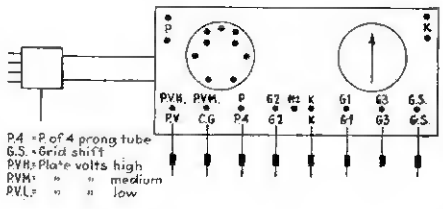
•

Tube Tester Works From Rectifier Socket

By Al Beers

For the past few months I have been packing around a fancy tube tester capable of checking every commercial type. But when I get on a job what do I find? Usually it's just 24, 26, 27, 35, 45, 47, 51, 57, 58, 71, 80 or the more common types of the 6.3 volt series. So I have designed a simple portable grid-shift checker which secures its power from the rectifier socket of most any a.c. receiver.

The gadget is 4 in. long, 2½ wide and



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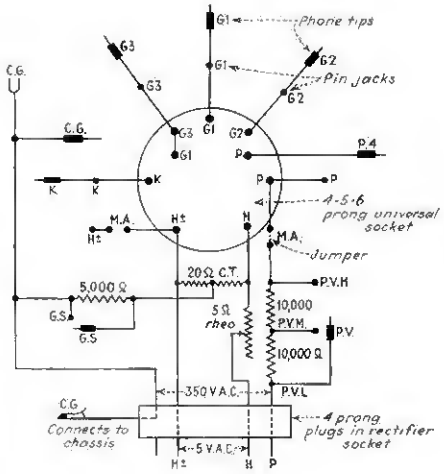
The SHORTCUTS *on this page are good examples of what we want. Diagrams and drawings need not be artistic.*

Mail items to W. MacDonald, Technical Editor, RADIO RETAILING, *330 West 42nd Street, New York City.*



1½ deep. It works so well that I have decided to take in 7 prong tubes by simply mounting a 7-7 socket on a 6 prong tube base, putting a ⅜ in. 6/32 flat head screw filed and smoothed down to size between the G2 and G3 prongs of the base so that it fits into the G1 hole of the universal socket of the tester, all connections being run straight through; 6.3 volt tubes test ok on 5 volts.

The unit is used in conjunction with an external milliammeter. The majority of tubes test on the 10 ma. scale, rectifiers on the 100 ma. scale. Following is a tabulation showing the method of testing a few typical tubes:

26, 45, 71	C.G. to G3	P4 to P
27, 56	C.G. to G1	K to H ±
24, 35, 51	C.G. to Cap	K to H ± G1 to P
47	C.G. to G1	K to P
42	C.G. to G3	K to H ± G2 to P
57, 58	C.G. to Cap	K to H ± G2 to P G3 to G2
80 (1 pl.)	P4 to P	
80 (2 pl.)	G3 to P	

All tubes are removed from the chassis when making tests with the described unit. Diode plates of the 55 are tested by connecting G2 and G3 together, a 20,000 ohm resistor between P and G2 and a 10,000 ohm resistor between G3 and K.

•

Glass Soldering Board

By B. B. Lamoni

Soldering or tinning on a wooden bench or on a metal block is unsatisfactory. Working on wood dirties the iron as well as the joint, while a metal base dissipates heat too quickly and produces cold joints.

Men who have a lot of soldering and tinning to do will find a "board" made of ordinary window glass excellent as a workbase. It does not dissipate heat quickly, is easily cleaned with alcohol and a rag and does not dirty the work.

Place a sheet of glass about 15 inches square on a piece of plywood with a soaked sheet of asbestos between them. This will insure against breakage of the glass by anything except an unusually hard blow. Two pieces of alarm clock spring may be bolted down at either end, forming "hands" which will hold small objects by pressure to the glass. Cleat compartments and a metal rest for the iron may also be

"built-in" if the plywood is permitted to project beyond the glass on all sides to provide an anchorage for screws.

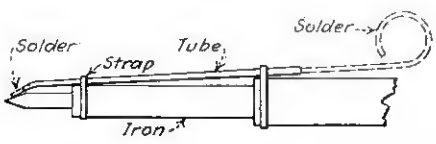
The board may be stood up on edge when not in use.

•

One-Handed Soldering

By Seymour S. Balsam

A soldering iron can be provided with an accessory which permits one-handed work. Fasten a piece of tubing (from an



old curtain rod will do) to the tool as shown. Now strip solder can be pushed through the tube as needed, the stock rolling up near the handle.

•

"Sliding Leaf" Bench

By George R. Campbell

When sets are repaired right on the shop bench they must be turned around and over many times in the course of the job. This can be avoided by making a "leaf" of heavy wood large enough to accommodate an average chassis and mounting this beneath the bench so that it may be pulled in and out like a drawer.

By placing the chassis on this leaf, which projects out from the front of the bench, you can work around three sides without moving it and the leaf can be slid back out of place when not in use.

•

Pepping Up Midgets

By V. G. Gary

I have hit on a method of pepping up many of the smaller 4 and 5 tube midgets and also reducing distortion in such sets. Most of these use screen-grid detectors and pentode amplifiers. Cut the detector screen lead and connect the screen, instead, to the "high" end of the pentode's cathode resistor. This puts about 18 volts on the detector screen.

By-pass detector and pentode amplifier cathode resistors with 10 mfd., 25 volt condensers.

•

Variable Resistor Repair

By Joseph E. Soos

When variable resistors used as volume or tone controls are found to be open and duplicate controls are not easily obtainable repairs can often be made by testing the defective unit over its entire range with an ohmmeter until the bad spot is located and then jamming a "sliver" of Gillette razor blade between wire and insulation strip in such a manner as to effectively jump the gap.

"TRICKS of the TRADE"

APEX. Loud hum when switch is first turned on. . . . . Open 8 mfd. cardboard type filter condenser.

AK "L." Oscillation when sensitivity switch is in "local" position. . . . . Caused by coupling between wire leading to switch and r.f. choke. Bend the wire away from coil opening.

AK 67, 67C. Volume control seems to have improper taper, will not cut down locals. . . . . Look for open in black wire leading from control to on-off toggle switch, or for contact failure in the switch itself. If shorting switch cures trouble open it and bend up on the contact spring.

CLARION 320. Broken or intermittent reception . . . often caused by poor connection in first i.f. transformer at point where flexible lead connects to coil winding. Also check 8,000 ohm resistor providing oscillator bias.

CROSLEY 154. Speaker rattle . . . Remove nuts and washers between speaker and baffle, bolt speaker tight to baffle.

GE H32, K62. Reception fades shortly after set is turned on but can be restored to normal by removing a.v.c. tube . . . Caused by leaky bypass condensers in a.v.c. circuit. Replace C20, C18 in K62 and C32 and C34 and C35 in H32.

MAJESTIC 20. Weak or no reception, acoustic control works only in one position, low or no plate voltage on 51's . . . Replace shorted tone control condenser with .022 mfds. and shorted .1 mfd. condenser in i.f. transformer. The latter is removed by heating the transformer with a torch until the can can be removed.

MAJESTIC 52. Intermittent reception . . . Look for shorted condenser between cathode of first detector and tap on grid section of oscillator coil. Replace with .04 mfds.

MAJESTIC 66. Eliminator vibrator interference . . . If chokes and filter condensers are ok check the by-pass connected from one side of B supply fuse to ground. A cartridge type held by it protruding leads, this .3 mfd. unit frequently vibrates and breaks a lead or opens up inside. When replacing, fasten the new condenser down. Spurious oscillation in sparking vibrator armature circuit . . . If all parts in the eliminator appear to be ok connect a 60 ohm carbon resistor in series with the small by-pass condensers connected across the vibrator primary circuit.

OZARKA 90. No signal, voltage reading on high side of speaker but none on low . . . Check for short in one of the three by-pass condenser sections.

PHILCO 20. No volume, all analyzer tests ok . . . suspect open blocking condenser in resistance-coupled a.f. stage. Mushing, distortion after set has been in operation few minutes. . . . . Usually bad .5 megohm grid leak in 27 circuit, fluctuation in value causing trouble.

RADIOLA 17. No B voltage at sockets, pack ok . . . Look for shorted a.f. by-pass. No B voltage at detector . . . shorted plate-cathode by-pass. Loud hum other than because of unbalanced c.t. . . . Examine 26 filament by-pass. Lack of volume, no detector voltage . . . Open grid resistor.

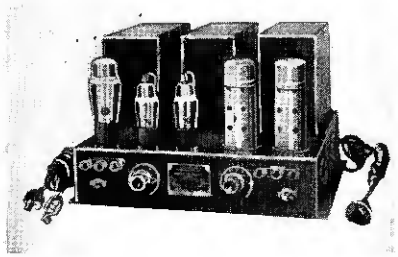
RADIOLA 18. Voltages ok but no signal . . . Test for shorted output condenser by inserting phones in 71 plate lead.

RADIOLA 16, 17, 41. Oscillation . . . In model 16, connect 600 ohms in series with red, 135 volt, power pack lead. In model 17, shunt 600 ohms across primary of second or third r.f. transformer. In model 41, place closed loop of insulated wire near r.f. coil.

STEWART-WARNER 112. Ignition interference caused by chassis pickup after shielding and by-passing has been resorted to . . . In late production sets having transformer housing top soldered all around remove the short black wire connecting black pilot light terminal lug to the filament of the 6A7. Now solder a wire between the pilot light lead terminal and the receiver side of the filament switch, which is in turn connected to the filament of the 41. In early production sets without soldered transformer housing cover cut out the wire leading from the pilot light terminal to the 6A7 filament and connect the ungrounded filament prong of the 41 to the main A battery circuit at the top terminal of the large shielded by-pass condenser No. 17A in the circuit diagram, part No. 83118.

STEWART-WARNER 112. Vibrator hash present with engine stopped . . . Remove chassis from metal cabinet and with heavy iron solder top of transformer-vibrator housing to sides, running a ring of solder clear around all four sides. See that bottom cover is soldered to side at least one point. If this fails to remove hash add two .25, 100 volt condensers across vibrator contacts. To do this remove two self-tapping screws holding housing to bottom cover, break solder seal at bottom of housing with hammer and screw driver, not an iron. Force screwdriver between housing and bottom cover at screw holes to break away burr formed by screws. Place block of wood against upper edge of housing and knock it lose with hammer. Connect new condensers across each of outside terminal strips, grounding the other end of each. Place one in vertical position alongside transformer winding directly opposite r.f. choke. Place the other in a horizontal position between bottom of transformer winding and legs of transformer bracket. Model 112's with rubber vibrator housing already have soldered tops and .25 mfd. condensers.

NEW PRODUCTS OF INTEREST TO SERVICEMEN



Universally Powered Amplifier

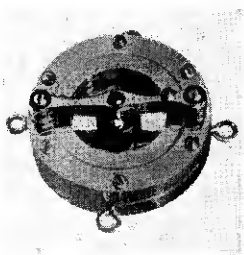
A universally powered sound truck or auditorium public address amplifier operating from 110 volts a.c. or from a 6-volt storage battery, or from both, can be obtained from the Coast-to-Coast Radio Corp., 121 W. 17th St., New York City. It employs a 78, 89, 2-79 and 83. The change-over from 6 volts to 110 volts a.c. operation or vice versa can be rapidly made by simply inserting a five prong plug into either of two sockets.

When powered by a storage battery it utilizes the new RCA Victor vibrator type converter-rectifier which furnishes high d.c. voltage (250 volts at 75 mils) required by the amplifier.—*Radio Retailing*, January, 1934.

Microphone and Sound Equipment

A complete line of microphones and sound equipment is now offered by the Lifetime Corp., 1306 Dorr St., Toledo, Ohio. This line includes carbon and condenser microphones, hand and lapel mikes, electrodynamic speaker units and aluminum trumpets and hard-of-hearing aids.

Illustrated is a popular priced Model 8 double button mike, excellent for voice and music transmission and popular with amateurs and for public address work. This model sells to dealers at $5.95. A stand to match is $1.95.—*Radio Retailing*, January, 1934.



Ohmite Center-Tapped Resistors

A line of center-tapped, low-wattage radio resistors has been placed on the market by the Ohmite Mfg. Co., 636 N. Albany Ave., Chicago. These units are of the same construction as the Wirewatt resistors with the exception of the center terminal lug.

In the construction of these units the resistance wire is wound over a porcelain core and covered with a special insulating material. Tinned lugs and tinned wire leads on the end terminals are used for connecting the units. They are color-coded and are also marked in numerals.

They come in the following resistance values: 10, 20, 25, 50, 75, 100 and 200 ohms. They are rated at one watt for the entire unit or one-half watt for each section.—*Radio Retailing*, January, 1934.

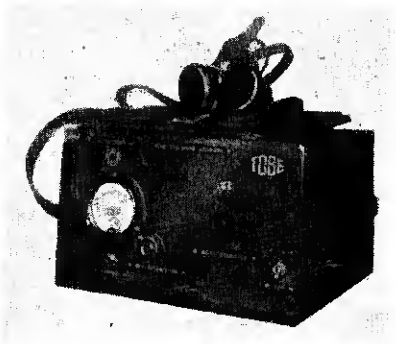
Dayrad Instruments

Simplified operation with ample ranges for all radio service work combine to make the DayraD Series 51 volt-ohmmeter a suitable point to point or voltage-current analysis tester. D.C. milliamps and d.c. and a.c. volts in five suitable ranges with an output meter complete the equipment.

A universal test box, designed for point to point radio set analysis with old analyzers, is also ready.

Series 31 portable test oscillator provides all frequencies from 105 to 1650 kc. The attenuator, separately shielded, offers signals of varying intensity necessary for the alignment and neutralization of all types of sets.

A portable, compact and flexible tube checker which checks all standard tubes as well as popular special types is also ready. Two combination sockets are employed for all tests. Line test and tube values are shown on one meter. Separate tests are provided for amplifiers, iodes, and rectifiers. —*Radio Retailing*, January, 1934.



Tobe Radio Noise Locater

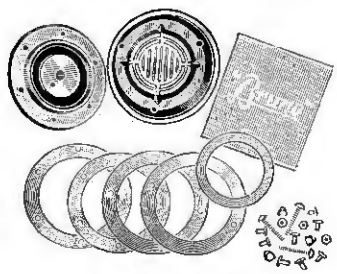
Designed to meet the need of public utilities, manufacturers and engineers for a reasonably priced, truly portable instrument to be used in tracing radio noise to its point of origin and in locating such line faults as give evidence of their presence by causing r.f. disturbance, Tobe Deutschmann Co., Canton, Mass., announces its Model 233.

It is 12 in. long x 12 in. high x 7½ in. wide, and weighs only 21 lb. The housing is a riveted steel cabinet with black baked-enamel finish.—*Radio Retailing*, January, 1934.

Bruno Condenser Microphone Kit

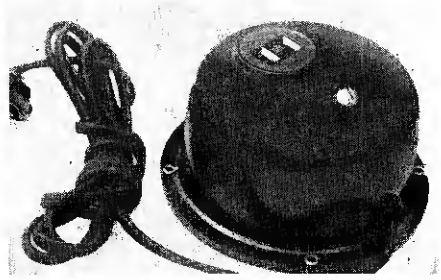
The parts for a condenser microphone supplied in the kit made by the Bruno Laboratories, 20 W. 22nd St., New York City, can be assembled into a really professional instrument. This microphone can be used for broadcasting, public address, etc.

The parts can be easily assembled with only the use of a screw driver. This kit is packed complete with instructions and the hook-up for an efficient 2-stage amplifier. List price $5.—*Radio Retailing*, January, 1934.



Birnbach Standoff Insulators

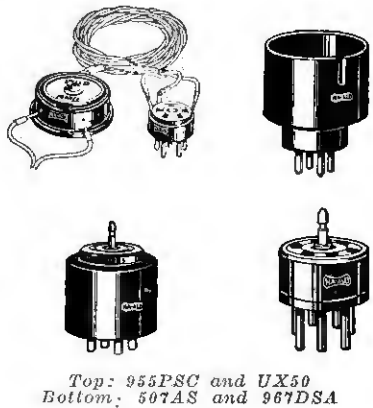
With the release of several new standoff insulators, the Birnbach Radio Co., 145 Hudson St., New York City, completes a line of porcelain small standoff insulators. They are supplied in several sizes ranging from ⅝ in. to 1¼ in. high. The ⅞ in. and 1¼-in. sizes are supplied with jacks making these insulators desirable for plug-in coils, chokes and all types of high voltage apparatus. The list prices range from 13 to 30 cents.—*Radio Retailing*, January, 1934.



Pacent Line Filter

A line filter to prevent noise that comes over the power line from entering the radio is being made by the Pacent Engineering Corp., 79 Madison Ave., New York, N. Y. List price is $3.

Among the other Pacent products offered are Radioformer (shielded lead-in system); Recordovox (for home recording with any radio); Phonovox (for reproduction of phonograph records with any radio); Compensating Phonovox (an electric pick-up for the artist); Oil Damped Phonovox (an electric pick-up for theatre and public address use); Pick-up Transformers and Sound Systems.—*Radio Retailing*, January, 1934.



Top: 955PSC and UX50
Bottom: 507AS and 967DSA

Alden Products

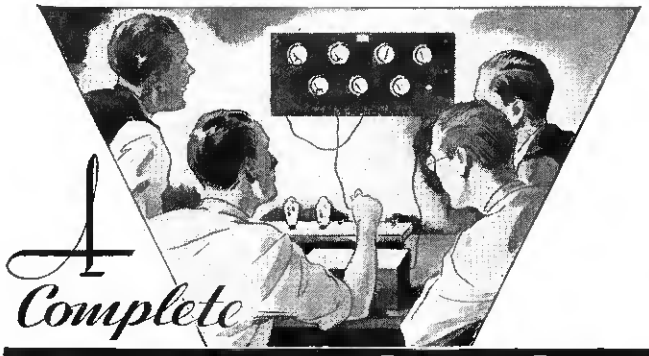
No. 955PSC adapter of the Alden Products Co., 715 Center St., Brockton, Mass., is for use under any single output pentode to provide facilities for instantly switching to either phones or speaker, the other being silent. As the plate circuit is not opened at any time there is no danger of harm to the pentode. The low value of the screen current, with the phones in this circuit, protects the phones from burn-out. The phones are left permanently connected and the adapter and pentode are left in the socket at all times. Change-over is made by flipping a toggle switch.

Alden also offers adapters, tube cap leads and analyzer plugs to enable the service man to handle calls on talkie equipment. With these products the dealer will be able to use his present equipment for analyzing 50-watt tube circuits of talkie, public address, transmitter equipment, etc.—*Radio Retailing*, January, 1934.

Serviceman's Signal Generator

In order to give the radio service man an instrument which gives him much newly needed information the Wireless Egert Engineering Co., 179 Varick St., New York City., has designed the "Serviceman's Signal Generator."

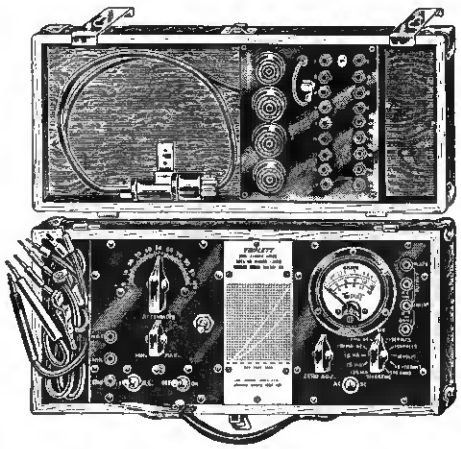
Among the many things this generator will do is to generate an unmodulated broadcast signal; modulate a broadcast signal; measure the microvolt sensitivity of a broadcast set; generate a modulated or unmodulated i.f. signal; supply a pure sign wave a.f. signal fixed at 1,000 cycles, and generate a distorted 1000 cycle audio signal variable from 0 to 5 volts. $75.—*Radio Retailing*, January, 1934.



A Complete TESTING Laboratory in One Case!

TRIPLETT

Tester No. 1179



NOW you can carry a complete and compact laboratory with you and solve any testing problem . . . without having to guess what the trouble may be. This new Triplett portable laboratory, No. 1179, consists of three units: 1150 Oscillator, 1125 Volt-Ohm-Milliammeter, and 1166 Free Point Set Tester.

No. 1150 is a well designed, completely shielded oscillator. A switch permits generating either a stabilized modulated or unmodulated signal of constant level. Extremely accurate scale divisions cover fractional frequencies from 110 to 1600 K.C., on the individually hand-made chart.

No. 1125 contains a direct reading Ohmmeter, Output meter, A.C.—D.C. Voltmeter and Milliammeter. Complete with 16 different scale readings. All readings are controlled by a selector switch. It lends itself admirably to point to point continuity testing for set analysis and general testing.

The Free-Point Set Tester, No. 1166, is universal, flexible. Four sockets take care of all present-day tubes. Designed to overcome obsolescence.

YOUR JOBBER CAN SUPPLY YOU

. . . at the dealer's net price of $34.67. See him today.

The Triplett Electrical Instrument Co.

42 Main St. Bluffton, Ohio

Send Coupon for Facts

Triplett Electrical Instrument Co.
42 Main Street, Bluffton, Ohio.
Gentlemen:
Send me catalog on Triplett Tester 1179 . . . and complete line of radio servicing instruments.

Name .....

Street Address .....

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

Forging Ahead!

ATTRACTIVE dealer helps, constructive merchandising and resultful advertising have boosted Ken-Rad sales. Ken-Rad Radio Tubes are built carefully and skillfully according to the highest requirements and are worthy of your selling efforts.

Ken-Rad Radio Tubes

DEPENDABLE LONG LIFE

THE KEN-RAD CORPORATION, Inc., Owensboro, Ky.
Division of Ken-Rad Tube and Lamp Corporation
Also Mfrs. of Ken-Rad Incandescent Electric Lamps

REPLACE Defective Electrolytics with NEW CONTINENTAL - IGRAD Paper Condenser Units

Have you tried SUPER-WATT?

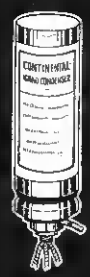
Here is a Continental Certified Resistor with three times the ordinary rating, yet only a fraction of an inch larger. Use it on those troublesome circuits where ordinary resistors can't take it.

Double-coated with 1000 volt insulation—pyro-formed from "Carborite," the everlasting resistor material—SUPER-WATT is the sure solution for resistor troubles.

Now you can make permanent trouble-proof repairs of electrolytic condenser failures with these new CONTINENTAL-IGRAD paper filter units.

They are easy to install for they match closely the old electrolytic, yet afford trouble-free performance and improved filtering action.

Lower leakage current, improved power factor and ability to withstand heat and overloads assure you a far better set performance.



CONTINENTAL-IGRAD paper sections to replace electrolytics are available in single and double units of all standard capacities, in inverted round metal containers, upright round metal containers and impregnated cardboard containers.

New Flexo-Terminal Spark-Plug Suppressor fits all cars

An exclusive Continental design eliminates the need for numerous suppressor designs to fit all cars. The new S-18 suppressor has the Flexo-Terminal that can be quickly bent to fit any spark plug installation, thus keeping your stock to a minimum. Ask to see one at your jobber's today.

Ask your jobber or write for catalog

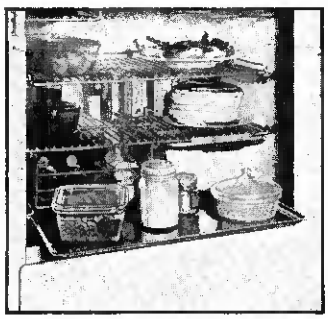
CONTINENTAL CARBON Inc.

13902 LORAIN AVE. CLEVELAND, OHIO
Canadian factory Toronto, Ontario

Please send literature on the complete Continental Line.
Name .....
Address .....
City State .....

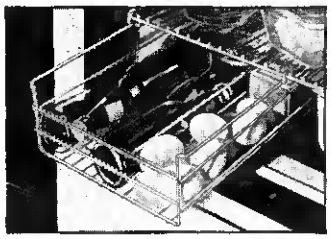
A NEW LEONARD LINE

AND A NEW WAY TO SELL IT!

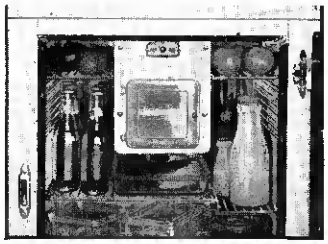


Service Tray

TO most refrigeration dealers, *getting* prospects is as big a problem as *selling* them. Leonard recognizes this. And along with a great new line of electric refrigerators for 1934, Leonard announces a new, original plan for *bringing buyers into the stores of dealers.* A practical, workable plan. Tested. Proven. Highly effective. Not canvassing. Not direct mail. Every dealer who wants to make more money from electric refrigeration next year will be interested in both this product and this program.

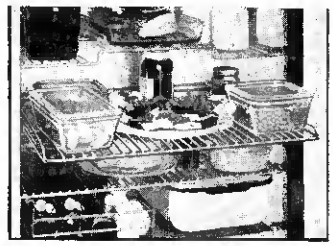


Dairy and Bottle Rack

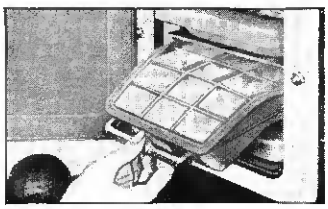


Center Cooling Unit

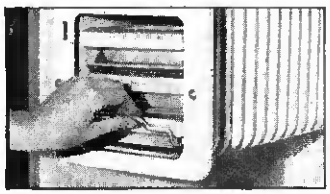
LEN-A-DOR



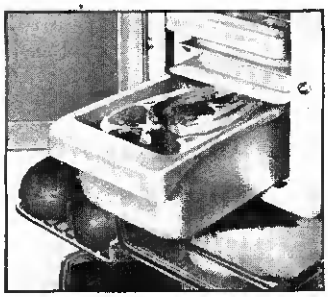
Sliding Shelf



Easy Cube Rubber Tray



Ice Tray Lifter



Cold Chest

THEY COME IN TO SEE AND BUY THE NEW 1934 LEONARDS

Leonard is the *complete* electric refrigerator. That is why prospects who see it, become customers who *buy* it.

It has *looks*—beauty. Charming, modern lines. Snowy finishes—non-fading, hard as flint. Inside, there's more room—and every inch of it usable. Shelves that fold up to make space for bottles. Shelves that pull out to save reaching. Improved dairy basket with bottle container. The new serving tray—to set things on when re-arranging shelves.

Twelve freezing speeds—extra-fast freezing tray—cold chest for storage—a "vacation temperature" that cuts operating cost when the owner is away—ice tray lifter—improved LEN-A-DOR—and a score of other features.

There are 11 beautiful new models (5 all-porcelain), covering 98½% of the refrigeration market. Write or wire *now* for details of the new Leonard line and selling plan. LEONARD REFRIGERATOR COMPANY, *14259 Plymouth Road, Detroit, Michigan.*

LEONARD

THE *COMPLETE* REFRIGERATOR

UNWIRED HOMES—RADIO'S GREATEST MARKET

7,551,332

FAMILIES WILL SEE THIS DOUBLE PAGE ADVERTISEMENT

It will appear in the following magazines in February

Country Gentleman · Wisconsin Agriculturist · Successful Farming · Wallace's Farmer · Cappers Farmer
Kansas Farmer · Progressive Farmer · Farmer and Farm, Stock & Home
Southern Agriculturist · Nebraska Farmer · Rural New Yorker · Prairie Farmer · Pennsylvania Farmer
Missouri Ruralist · Michigan Farmer · Ohio Farmer · Farm and Ranch

7½ Million families . . . Every one of them urged get help in winning the Big CASH PRIZES in this

IS NOW OPENED TO YOU BY "AIR CELL RADIO"

Huge "AIR-CELL" radio prize contest to head customers straight to your store

Get set . . . and get your share! Here's a market that can absorb 5 to 6 Million "Air-Cell" Radio Sets. A market that's hungry for these "Air-Cell" radios . . . and has the money to pay for them NOW.

Yes, Sir! This is a ready made radio market. They've always wanted a *real* radio . . . *and now you can sell them one.* They haven't had money . . . *but now Uncle Sam is giving them millions of dollars* under Hog, Cotton and Wheat Farm Relief Programs. And, mind you, these millions are *farmers spending money* . . . not a cent of it is subject to attachment.

GET BUSY . . . PUT YOUR "AIR-CELL" RADIO SELLING KIT TO WORK IT PUTS YOU IN THIS BIG MONEY

In 5 simple moves . . . moves that are easy to make ...this "AIR-CELL" RADIO SELLING KIT makes your store headquarters for the "Air-Cell" Contest and "Air-Cell" Radio Selling.

Have you sent in for your Kit yet? If not, don't wait another day. Rush us the coupon from this advertisement and we will send you one.

•

All this material is absolutely FREE . . . Send for it TODAY and put it to work selling for you. Rush the coupon right back to us for your Kit.

NATIONAL CARBON COMPANY, INC.
General Offices: New York, N. Y.
Unit of Union Carbide UCC *and Carbon Company*

HERE'S WHAT THE KIT CONTAINS:

First A smartly designed, colored window streamer which tells people you have the "Air-Cell" Radio Contest information they want.

Second A large, colored reproduction of the advertisement about the contest, which you can use in your window or inside your store.

Third A generous supply of folders which will contain rules and complete information about this tremendous Farm Radio Contest. These can be used as mailing pieces if you want, or can be handed out over the counter.

Fourth A generous quantity of well illustrated colored folders which will give your new customers the whole story of "Air-Cell" Radios and supply you with selling information on all types of radio sets. Ideal for direct mail selling.

Fifth A striking designed counter card, complete with a pocket to hold the folders. This display will keep the contest and "AIR-CELL" Radio in front of the eyes of your customers

USE THE COUPON

National Carbon Company, Inc.
30 East 42nd Street, New York City.

Rush me an "AIR-CELL" RADIO CONTEST-SELLING KIT.

I agree to display the streamer and the jumbo advertisement.

Name.....

Town.....County.....

State*.....

R. T.-1

"TO GO TO HIS DEALER" to "AIR CELL RADIO CONTEST"

COMING

"RADIO RETAILING'S" MARKETING and STATISTICAL NUMBER

NO matter what else we all disagree upon, this one statement will probably pass muster, "1933 has been a trying year for radio." There have been, to be sure, many bright spots—more sets have been sold in the year just past than in 1932—auto radio sales soared to an almost unbelievably new high. But on the other hand there have been in 1933 many obstacles to greater profits for manufacturers, for distributors, for dealers and for service men.

1934 looks much better. But no matter how good a year it will turn out to be for the radio industry as a whole, it is bound to be a year that will call for new technique in selling and in marketing. It will be a year that will demand of each member who is to survive a greater measure of market planning.

To fit the new need of 1934, *Radio Retailing* institutes in its March issue, an innovation in radio trade publishing. Instead of our usual, annual Statistical issue, we will publish a "*Marketing* and Statistical Number." This will be primarily a market planning guide for the 20,000 readers of the magazine—dealers, distributors, service organizations and even manufacturers.

You'll find in our March issue figures on the number of radio sets, tubes, other accessories and parts sold in 1933. There'll be figures on retail value of these sales. We'll include figures on the number of homes with radio sets, as of the new year. But in addition, we'll review the 1933 trends in selling home radio sets, auto radio sets, tubes, parts and other equipment. We'll look ahead into the future as far as possible and attempt to show what's likely to happen in 1934. There may be a down-to-earth review of the present status of television, too. Broadcasting's changes will come in for their share of attention, too. All in all, we're out to make the March issue of *Radio Retailing* a truly helpful "Marketing and Statistical Issue."

Now a Word to Manufacturers—Dealers and Distributors Please Don't Peek!

Our editors, from what we know of them, are going to do a splendid editorial job with *Radio Retailing's* first,

RADIO RETAILING

COMING

MARCH ISSUE MARKS PUBLISHING INNOVATION —a MARKETING REVIEW

annual "*Marketing* and Statistical Issue." So good a job that it's going to make the March issue an unusually good advertising buy for you manufacturers. After all, it simmers down to this: Each month you have a sales story for dealers, jobbers and servicemen. You want that story to get the widest possible attention from these prospects and customers of yours. You want what we publishers call "reader interest." It would be nice, for instance, if you could send out your sales story with a message from Mae West or Mussolini—*that* would make reader interest in your advertising message. And while a marketing and statistical review of the radio industry is no Mae West, it is, in the March issue of *Radio Retailing* going to get close and careful attention from every worthwhile radio distributor, dealer, service manager and service man in the radio industry. These men will be in an analytical frame of mind when they study this March issue. Naturally, they're going to say, "How am I set up with the lines I'm now carrying to get more business in '34? Should I look around for a new line of sets, tubes, auto radios or automatic refrigerators? Should I pay more attention to radio service work? Ought I buy more service equipment and shut up the yapping of those service boys in the back room?"

While all this business soul-searching is going on, promoted by our March "Marketing and Statistical Issue," attention is bound to be paid to the advertisements in that issue. Will yours be included? Or will only those of your competitors? Remember, 20,000 worthwhile radio merchants will get many of their impressions of 1934 leaders among the manufacturers from the "Marketing and Statistical Issue" of *Radio Retailing*.

P. S. Here's a statistic that will not be published in our Annual Marketing and Statistical Issue. Considering the advertising pages published in the three leading monthly radio trade publications during 1933 as 100%, *Radio Retailing* secured 49% of the space, magazine "B" secured only 29% and magazine "C" secured only 22%. That's leadership for you. And if the amount of money invested by manufacturers in advertising in the three publications were used as a criterion, *Radio Retailing's* leadership would be even more pronounced.

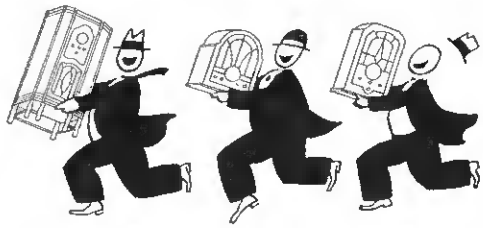
More Subscribers—More Reader Interest—More Advertising than any other radio trade magazine

Member of ABC and ABP

McGraw-Hill Publishing Co., Inc.

330 West 42d St., New York, N. Y.

Also offices in the principal cities



A new and dramatic leader for your full line sales!

GENERAL ELECTRIC started something three months ago . . . gave the radio business the lift it needed.

Introduced thrillingly new all-wave sets that reach out across the world for new entertainment.

Of course, these dramatic sets sold—sold big. But they also generated new buying enthusiasm for every set that General Electric makes.

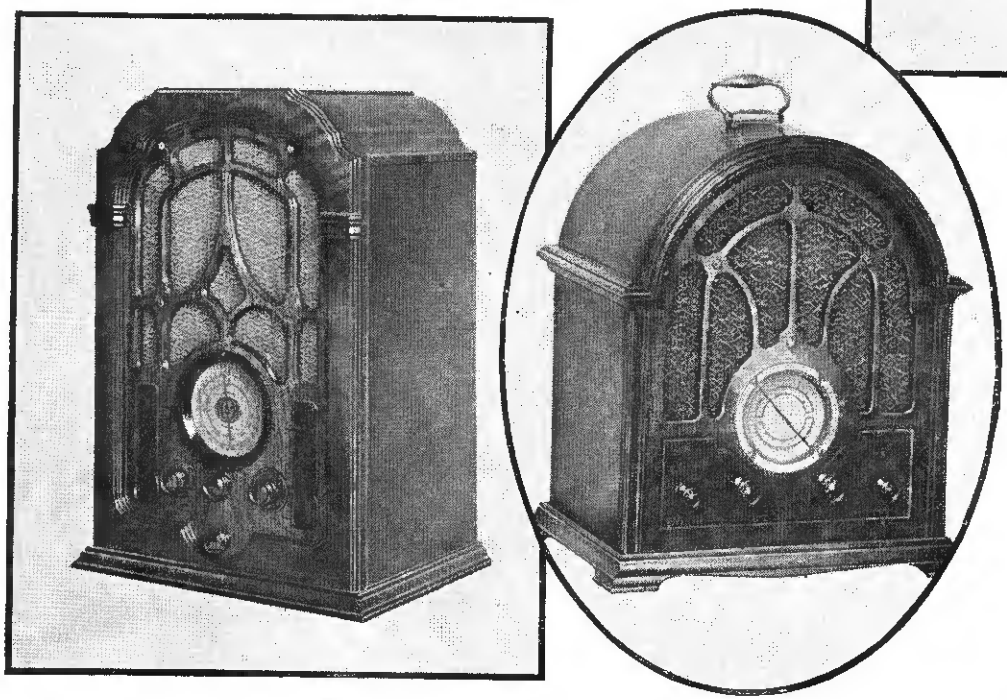
The standard-range sets swung right into line. The popular-priced table models, the stately consoles, the distinguished radio-phonograph combinations all kept sales' pace with the all-wave leader.

And at this time of year, when buying normally falls off, the demand for all G-E sets, short-wave and standard-range alike, continues to climb.

• • •

Tie up with today's most enthusiastic buying market. See your nearest G-E distributor. Or write the General Electric Co. Section R-361. Merchandise Dept. Bridgeport, Conn.

"Now is the time to buy"



MODEL K-85 (above)—All-wave deluxe console. A-C superheterodyne. Covers American and foreign stations, police and aviation calls, amateur signals. . Lists at **$128.75.**

MODEL K-64 (center)—Dual-wave table model. A-C superheterodyne. Brings in American and foreign stations, aviation and amateur signals. . . . . Lists at **$54.50.**

MODEL K-80 (left)—All-wave table model. With the same chassis and broadcasting range as Model K-85. . . . . Lists at **$92.50.**

GENERAL ELECTRIC RADIO

NRA MEMBER U.S. WE DO OUR PART

SEARCHLIGHT SECTION

EMPLOYMENT and BUSINESS OPPORTUNITIES—SURPLUS STOCKS—DISCONTINUED MODELS

UNDISPLAYED—RATE PER WORD:
Positions Wanted (full or part-time salaried employment only), 10 cents a word, minimum $2.00 an insertion, payable in advance. (*see ¶ on Box Numbers.*)
Positions Vacant and all other classifications, 15 cents a word, minimum charge $3.00.
Proposals, 40 cents a line an insertion.

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.....$7.50
2 to 3 inches..... 7.25 an inch
4 to 7 inches..... 7.00 an inch
Rates for larger spaces, or yearly rates, on request.
An advertising inch is measured vertically on one column, 3 columns—30 inches—to a page. Radio Retailing

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Radio Manufacturers
Jobbers
Dealers
Contractors
Merchants
Commercial Depts.
(of Central Stations)
their
Sales Managers and Salesmen
and all others associated with the merchandising of radio apparatus or service.

Employers and Employees

Buyers and Sellers

You can reach them all through the SEARCHLIGHT SECTION

Searchlight Advertisements are quick acting. They usually bring prompt returns. There is no better way to reach the men of the radio field at small cost.

For Every Business Want

"Think SEARCHLIGHT *First"*

SPECIAL NOTICE

To the Radio Industry

Advertising in connection with legitimate offers of surplus stocks and discontinued models of radio merchandise is acceptable in this section of "Radio Retailing."

Extreme care will be exercised by the publishers to prevent the use of advertising in the Searchlight Section to encourage price cutting on current models of merchandise or equipment. Nor will advertising which invites violation of the dealer's contract with the manufacturer be acceptable.

All merchandise offered in the Searchlight Section must be accurately and fully described and must be available on order.

DEALERS and SERVICE MEN
Genuine Grebe factory made parts in stock for all model Grebe receivers manufactured prior to 1933. Power transformers for sets using from 4 to 12 tubes. Also audio transformers and filter chokes. Write for descriptive data and parts price list.
GREBE RADIO SALES & SERVICE CO.
137-28 Jamaica Ave., Jamaica, N. Y.
(Owner former Gen. Fact. Mgr. of A. H. Grebe & Co., Inc.)

DEALERS

Save 10 to 30% On Your Purchases
This Tested and Successful
MERCHANDISING PLAN

Has made millions of dollars for the leading mail order houses and chain stores.

We, as electrical-radio specialists, offer to one high calibre dealer in each town or community exclusive participation in the benefits of mass purchasing power that saves 10 to 30% on well known products and enables rock bottom costs on Parts, Tubes, Batteries, Lamps, Appliances, Equipment, Specialties, Wire, Motors, Washers, Refrigerators, etc.

Each affiliate receives a buying guide, monthly bulletins, flyers on bankrupt stock offers, reports on market conditions and trends, etc.

The yearly fee is less than 2c. per day and there are absolutely no obligations on your part.

Exclusive areas are going rapidly. Write your application immediately, stating number of years in business, annual turnover and what percentage is electrical and what percentage radio.

Electrical Purchasing Syndicate
240 W. 23rd St., New York, N. Y.

REPRESENTATIVE AVAILABLE

HIGH-GRADE man thoroughly familiar with Cleveland market desirous of handling low priced radio and chassis on commission basis. RA-186, Radio Retailing, 520 No. Michigan Ave., Chicago, Ill.

REPRESENTATIVE WANTED

CONTACTING wholesale radio trade in Southwest territory located in Texas, Oklahoma, Memphis or New Orleans, also for West Coast located at Los Angeles or San Francisco for well established volume line electrical instruments. Please give full details regarding lines handled territory covered. RW-185, Radio Retailing, 520 No. Michigan Ave., Chicago.

FOR SALE

SUCCESSFUL manufacturer of full line of condensers, electrolytic and paper, also radio accessories. Write Dumont Electric Co., 453 Broome St., New York City, New York.

AGENTS WANTED

MEN WANTED. We require a man in every community, and every industrial plant, full or spare time. The work pays well, from $1 to $3 an hour. You simply recommend and call to the attention of business men and fellow employees business and technical books published especially for them so they can make more money. No experience required. You can make a substantial extra income quickly and easily by simply showing our lists. Complete equipment free. Write T. Crawford, Dept. R.R., McGraw-Hill Book Co., 330 West 42d St., New York City.

WANTED
DISCONTINUED MODELS, RADIO RECEIVERS AND CAR SETS of recent Manufacture wanted. Price must be low. Send full particulars stating:—Quantity, make, circuit, lowest price, packing and other details. Complete samples would be accepted C.O.D. under $9.00.
R. C. RADIO-ELECTRIC LTD.
51 Whitcomb Street, LONDON, W. C. 2
Cable address, Loudsigs, London. A.B.C. 5th.

RADOLEK CO. (Dept. 513) Chicago, Illinois
Gentlemen:—I am a Dealer ☐ Serviceman ☐. Please send the New Radolek Profit Guide immediately and put me on your mailing list to receive your literature regularly.
Name .....
Address .....
City ..... State .....
Please attach coupon to your letterhead or enclose your business card. We sell only to the trade.

RADOLEK · CHICAGO

CONTENTS *for* JANUARY, 1934

INDEX TO ADVERTISERS

This index is published as a convenience to the reader. Every care is taken to make it accurate, but *Radio Retailing* assumes no responsibility for errors or omissions.

SEARCHLIGHT SECTION

Classified Advertising

McGRAW-HILL PUBLISHING COMPANY, INC., 330 West 42d Street, New York, N. Y. Branch offices: 520 North Michigan Ave., Chicago; 883 Mission St., San Francisco; Aldwych House, Aldwych, London, W. C. 2; Washington; Philadelphia; Cleveland; Detroit; St. Louis; Boston; Greenville, S. C. James H. McGraw, Chairman of the Board; Malcolm Muir, President; James H. McGraw, Jr., Vice-President and Treasurer; Mason Britton, Vice-President; Edgar Kobak, Vice-President; H. C. Parmelee, Vice-President; Harold W. McGraw, Vice-President; B. R. Putnam, Secretary. Member A.B.P. Member A.B.C. Printed in U. S. A.
Printed by The Schweinler Press, N. Y.

SINCE radio became an industry, the name CROSLEY has stood for the things that people looked for in radio and the prices they were willing to pay. That brief statement explains CROSLEY'S consistent leadership.

And each year, from the early twenties until now, has been a new and greater exemplification of the CROSLEY dictum: Whatever is new and worthwhile in radio, CROSLEY has it; whatever is the best in style, CROSLEY embodies it and adds to it—always—a touch of tomorrow. CROSLEY has always designed and built for quality, making this quality available at low prices by means of mass production methods.

Today CROSLEY *value* stands alone in the field of radio. And CROSLEY'S *value* leadership will continue into tomorrow. Then—as now and yesterday—CROSLEY radio receivers will be ahead of their times in smartness, quality, and performance. They will continue to represent CROSLEY'S dominant idea: *More for the dollar in radio.*

THE CROSLEY RADIO CORPORATION

POWEL CROSLEY Jr., *President*

Home of *"the Nation's Station"*—WLW

CINCINNATI

WHATEVER HAPPENS . . . YOU'RE *THERE* WITH A CROSLEY

CROSLEY RADIO

ATWATER KENT RADIO

and now 2 NEW "sweeteners" FOR THE 1934 LINE

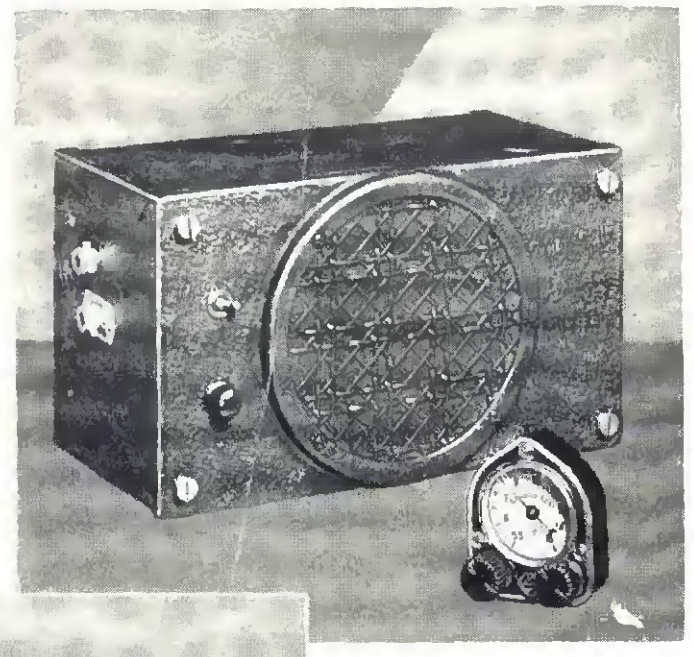
Thousands of new dealers have "taken on" the Atwater Kent line during the past six months.

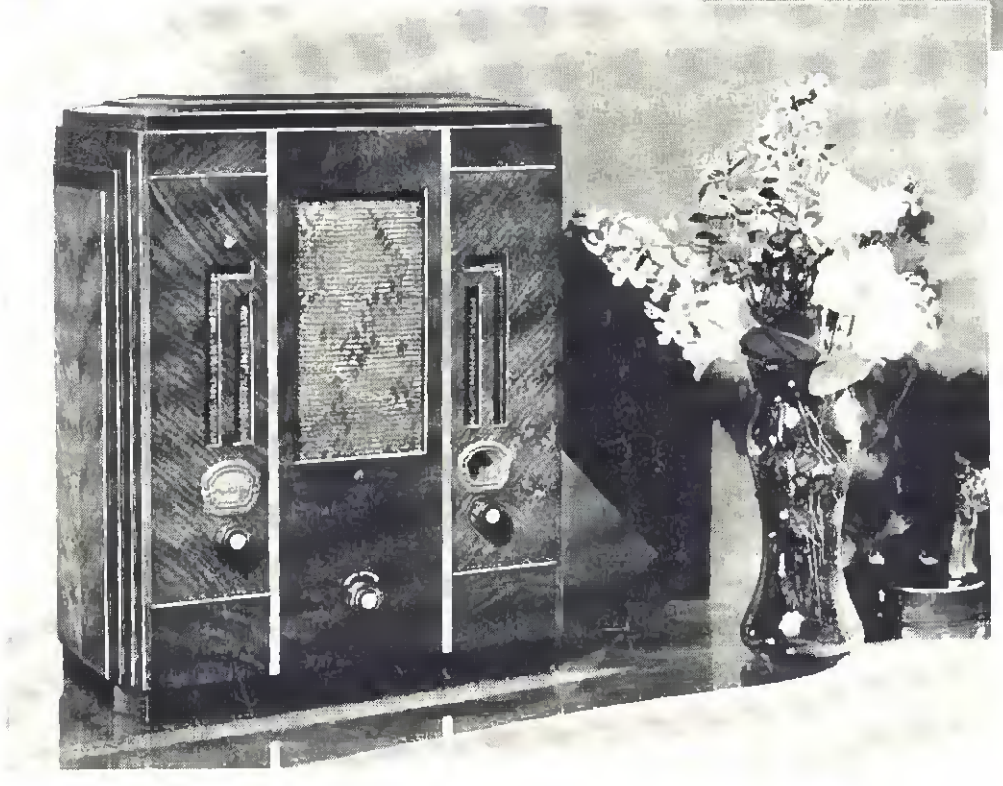
Why?

Because to please the radio-buying public today you need Atwater Kent Radio.

AND—any one of the many dealers who are helping to make 1934 a big success for Atwater Kent Radio will tell you, an Atwater Kent sale is a profit sale—not a service sale.

Atwater Kent Radios give satisfaction.





$59.50 (F. O. B.)

Above
Model 816—Powerful 6-tube Auto Radio. Designed not only for metropolitan use, but to capture distant stations with ease. Mounted on live rubber, protected by triple shielding, 5 watts output, it is capable of truly fine radio reception. Its tonal excellence is such as is usually found only in home sets.

$39.90 (F. O. B.)

At left
Model 185—A striking new 5-tube compact that delivers the finest performance of any 5-tube set in existence today. Full sized electro-dynamic speaker with ample baffle area for perfect acoustical quality. Police calls, automatic volume control, tone control. Beautiful cabinet of matched and contrasting woods with metal inlay.

ATWATER KENT
MANUFACTURING COMPANY
A. *Atwater Kent, President*
Philadelphia, Pa.