

RADIO RETAILING

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Cleanup

MAY-1938

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RADIO RETAILING

MAY, 1938

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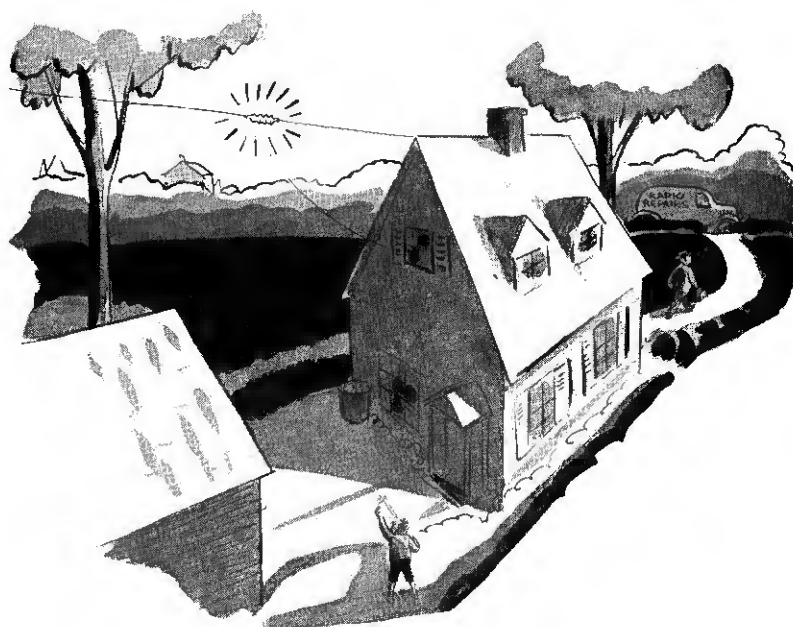
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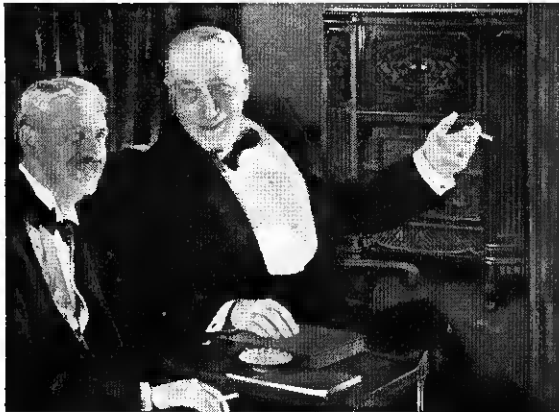
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1,000,000 More Prospects Now Can Afford LABYRINTH RADIO



In **1934** a radical development, the Acoustical Labyrinth, came from Stromberg-Carlson Laboratories to startle the radio world with new tone quality. The first set with this revolutionary advance, the No. 70, sold at **\$495.00**



In **1935** so general was recognition of the superiority of Labyrinth Tone, that the Labyrinth was placed in many more Stromberg-Carlson models. It was discovered also, how to use it in a smaller cabinet. The lowest priced Labyrinth set that year, the No. 84, cost **\$285.00**



In **1936** the fame of Stromberg-Carlson "Labyrinth Tone" had spread so widely that the larger factory production it called for brought down the price sharply. A "Labyrinth" Stromberg-Carlson, the No. 145-L, could be had for **\$197.50**



In **1937** "Labyrinth" Tone was fascinating radio buyers everywhere. With no other method was it possible to get bass notes without "boom"; freedom from false sounds from the back of the speaker. Again larger output lowered the price, the No. 240-M, to **\$189.50**

Now the glorious tone which only the Labyrinth can give, is within the means of almost everyone who is ready to buy a new radio. What a chance for a Stromberg-Carlson dealer to do business this season . . . at the new prices of "Labyrinth" radio!

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



AND WATCH OUR SALES JUMP IN JUNE WHEN WE GET THIS NEW "LABYRINTH" RADIO. IT WILL COST EVEN LESS!

There is nothing finer than a

Stromberg-Carlson



NEW YORK AND CHICAGO POLICE
FIGHT CRIME WITH RADIOS
100% RAYTHEON EQUIPPED!

Where absolute dependability of a radio for the protection of lives and property is as important as in a police squad car—why do the two largest metropolitan cities in the United States choose Raytheon tubes?

The answer is in Raytheon's outstanding record of performance—in ruggedness and long life! That's because Raytheon auto set tubes are especially designed and constructed for maximum life under adverse conditions and over the wide range of voltages in an automobile battery—and to withstand the jarring and pounding on the roughest of roads.

The more efficient police forces in hundreds of smaller cities, too, have Raytheon-equipped radios in their squad cars.

Play safe, too! Insure more efficient operation of the sets you service. Replace with these same Raytheons—and enjoy greater *permanent* tube profits!

Visit the Raytheon booth at the Radio Parts Show, Booth 207 Henry Avenue, Stevens Hotel, June 8, 9, 10 and 11, Chicago.

RAYTHEON

CHICAGO • NEW YORK
ATLANTA

NEWTON, MASS.
SAN FRANCISCO



"WORLD'S LARGEST EXCLUSIVE RADIO TUBE MANUFACTURERS"



**"OUR OLD CUSTOMERS
CAN BE
Your new Ones"**

PEOPLE who have bought automobiles and automatic equipment for kitchen and laundry on the Commercial Credit Company time-payment plan have been pleased with its low cost, and with the courteous way they've been treated. They're ready to do business through us again.

I can make your selling job with these folks far easier. I have kept tabs on them in a friendly way. I can steer

you clear of dangerous credit risks... give you a financing service they'll readily accept.

When you do business with me you get these extra advantages, plus freedom from credit cares. You get your cash promptly. We carry on with a frictionless collection system that relieves you from worry or embarrassment. All your time may be devoted to your principal problem—sales.

I am the local manager for Commercial Credit. I can take care of all your sound sales despite local conditions. Feel free to consult me. No obligation, of course.

**REFRIGERATORS • RADIOS
RANGES • HEATING AND AIR
CONDITIONING EQUIPMENT**

COMMERCIAL CREDIT COMPANY

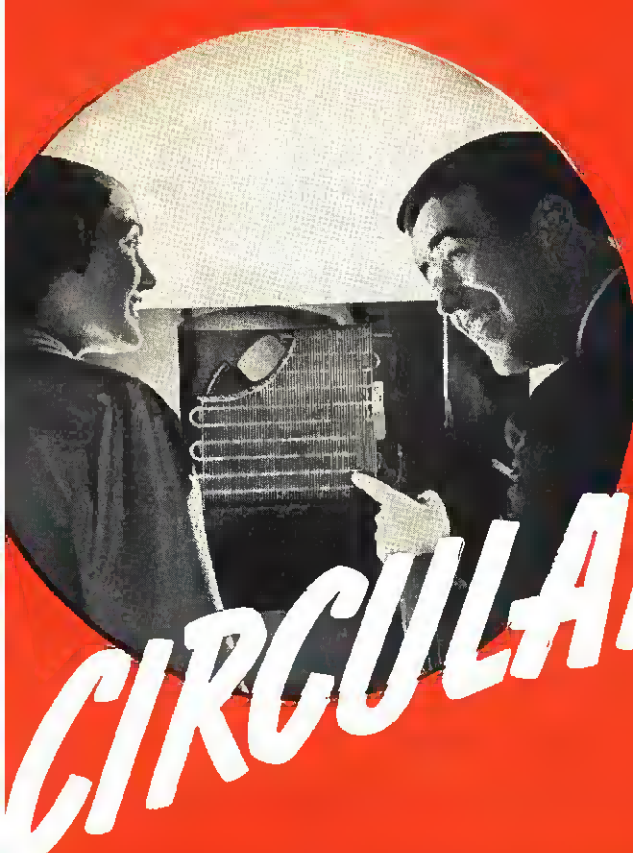
COMMERCIAL BANKERS



HEADQUARTERS BALTIMORE

CONSOLIDATED CAPITAL AND SURPLUS OVER \$64,000,000

Serving Manufacturers, Distributors and Dealers Thru More Than 200 Offices in the U. S. and Canada



*Step out in front
this year with*

CIRCULAIRE COOLING

**20% FASTER FREEZING
AT EVEN LOWER COST!**

THE YEAR'S GREATEST ADVANCE IN ELECTRIC REFRIGERATION

Circulaire Cooling in the New Hotpoint Refrigerator offers you the greatest economy story of the year. Here's a sales feature you can translate into practical, down-to-earth savings for refrigerator-wise replacement buyers. Get more sales this Summer by showing prospects how this larger, roomier Hotpoint Refrigerator can be bought out of actual savings over dinky, old-fashioned refrigeration.

Hotpoint supports you with the biggest advertising campaign in Hotpoint Refrigerator history. In leading national publications, 97 million advertising messages are telling this compelling story of Hotpoint economy and convenience to 8 out of every 10 wired homes in your community. Hotpoint helps you sell.

Tie-in with this campaign. Demonstrate Circulaire Cooling. Show prospects Hotpoint's unique Pop-Ice Tray, Gliding Shelves, Five Zones of Cold and other advantages. Win their business with the refrigerator that gives them most.

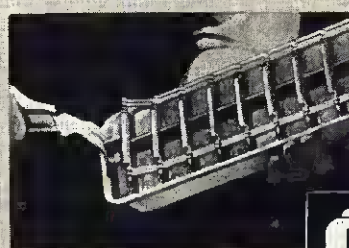


*The Mark of a
Dependable
Dealer*

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



3 COMPLETE LINES
Standard Line offers four smart models at attractive low prices. Deluxe models are available in five convenient sizes. Imperial Line offers six models which are unquestionably America's finest refrigerators. Circulaire Cooling is standard equipment on all of the models.



POP-ICE TRAY—So simple a child can release it—even when tray is frozen in solid. Just pop it for two cubes or a trayful. Eliminates cube waste and struggle.



5 ZONES OF COLD—
1. Speed Freezing Zone.
2. Additional Cold Storage Zone.
3. Cold Beverage Zone.
4. Food Protection Zone.
5. Conditioned Fruit and Vegetable Zone.

Hotpoint

ELECTRIC REFRIGERATORS

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



HARRY BOYD BROWN
National Merchandising
Manager of Philco

ADVANCE INFORMATION ON THE GREATEST RADIO INVENTION IN 10 YEARS

WITHIN the next 10 days, Philco will introduce a radio invention so new—so different—so mysterious—so sensational that it is positively greater than anything you can imagine.

This amazing Philco development is almost as unbelievable, as uncanny as radio itself was 20 years ago. Everybody should have it. Everybody will want it. Anybody can use it, and it clicks with the prospective customer the very instant it is seen.

Yes, it will absolutely sweep the American buying public off its feet. Everybody will want to watch it work. Everybody will want to try it. And the demonstration of it will positively pack your store with floor traffic—with prospects.

It is such a marvelous thing that outside salesmen can *now* make home demonstrations anywhere they care to call. In fact, it is so good that the outside salesman will actually get "choosy" as to where he wants to demonstrate. No one can resist its mystery and fascination.

In addition, this Philco Radio invention is so intensely interesting—so almost incredible—that it makes the greatest advertising copy ever written. And as a window display, nothing ever before has even remotely approached it.

Naturally, it will obsolete radio receivers by the millions because this Philco engineering development will bring a *comfort, a convenience and pleasure* to radio users beyond their dreams and their imagination. It is something that will sell regardless of general business conditions.

In conclusion—the details of this great Philco invention must remain a secret for about 10 more days. However, I felt that you should have some advance information on it so that you can use good judgment in your present radio purchases—because during this coming Season—good times or bad—the radio dealers who concentrate on Philco will do a thriving radio business.

Harry Boyd Brown

PHILCO

The RADIO MONTH

MAY

1938

OUR COVER: Offensive as dirt swept under a rug is dirt behind a radio. Afraid to remove it themselves for fear of injuring parts, women especially receptive to suggestion concerning cleanliness while spring-cleaning will pay a small fee to have dirt removed by vacuum. Contacts so gained by servicemen provide an easy path to adjustments, repairs, new set business.

A New Order Last month *Radio Retailing* inaugurated the new Business Barometer of retail radio set sales, and in doing so expressed the opinion that the creation of that yardstick might mark a turning point in the history of the whole industry.

This month we feel free to reaffirm that opinion with utmost assurance. At its April 21st meeting, the board of directors of the Radio Manufacturers Association voted to establish a system by which set manufacturers will make weekly reports of actual set production.

With such a record of current set production and the *Radio Retailing* barometer of retail set sales, the industry no longer will need to travel an uncharted course. The result should be that production schedules will be balanced more accurately with actual consumption, overproduction should be found confined to isolated cases and specific models, overstocks should become a rarity, and any necessity for indiscriminate dumping eventually should cease to exist.

10,640 Families Once more the marketing department of De Paul University has gone out to feel the pulse of Mr. and Mrs. Public to determine what they are going to buy next in the way of major items.

Once more—as in 1936—a new radio set is *third* on the list. This year the new radio set is outranked only by the vacuum cleaner, which heads the list, and the automobile, which ranks second.

The survey was made in January and February of this year, and covered 10,640 Chicago families. People in the Windy City differ little from those who

live elsewhere—they are all brothers under the skin.

Thus it appears that the want and desire for a new radio set already exists, in fact is deep-rooted to the point of outclassing such items as insurance, fur coats, pianos.

Now it's up to you, Mr. Dealer, to do the selling job.

Junking Trade-Ins After a lapse of several years, Henry Ford has resumed junking of trade-ins. He pays dealers \$12.50 per car and carts them for salvaging to the big breaking-up plant at River Rouge. The plan applies only within a radius of 300 miles from Detroit—because, beyond that, hauling cost makes it uneconomical.

Junking of radio sets involves no hauling problem—just a stout axe and a strong arm—yet, for lack of a suitable plan, the trade-in problem in the radio industry is allowed to grow more acute with each season, while millions of dollars are poured down a rat-hole in the form of spiffs, allowances, dumping operations.

We still think that dealers from everywhere will wear that proverbial path to the door of any manufacturer who makes a good radio set and in his dealer set-up provides for orderly and systematic destruction of obsolete trade-ins by *his own representative* and issues a credit for each set destroyed.

Broadcasting Up For March, 1938, billings of the National Broadcasting Company were 5½ per cent above those of March, 1938, and the Columbia Broadcasting System registered a 19.4 per cent gain.

In actual dollars, the three major

radio networks took in over seven million, which was nearly \$700,000 more money this March than last March and means just that much more money put on the air in better and bigger programs.

Programs are the lifeblood of the radio industry. Dealers who boost programs automatically boost the radio business.

Going Up A recent issue of *Engineering News-Record* reports engineering construction up 70%—yes, seventy per cent—over last year, and commercial building awards at six-year peak. Private construction awards for the same week were \$53 millions against \$24 millions last year.

Those awards don't include radio sets *but they do mean jobs*, and when men have jobs they are more apt to buy radio sets, that's why we quote those cheerful construction records.

As a by-product of many of those construction operations, wide-awake dealers are going to sell sound equipment in no small volume, only don't forget, that in these days the orders don't very often come to you. Instead you have to go out and get them.



EDITOR

There's a Big Market for Farm Washer Sales Right Now!

Millions of Farm Homes Need Power Washers Now

83% —the big majority—must use gas-motor washers in order to enjoy the advantages and economies of power washing . . . Only 17% can use electric washers because only this small per cent have hi-line service.

It's a big market — this rural America — and a receptive one, too. The need for power washers is great — the desire to purchase is great — and the cash income, "ability-to-buy," is good — a better market today than most metropolitan and industrial centers.

It's a market where saturation is low — where competition is not so keen — where most sales are "clean," with no trade-in problems.

Farmers Want Power Washers

Farm women want power washers, now. They want the same labor-saving appliances that city people have. They want more time, for other tasks, for more leisure. They know that power washers make clothes cleaner, whiter — save time — save on clothing — eliminate hard work — do away with backaches.

There Is No Difference

Farm women are tired of waiting for hi-lines so that they can buy electric washers. They know that most farms will have to wait years — that many farms will never have hi-line service.

Farm women know there is nothing to gain by waiting — that electric and gas-motor washers are practically the same — that one does the wash just as well as the other — just as quickly — just as economically.

Farm women also know that they can buy a gas-motor washer now — enjoy all the advantages of power washing — and then later, if the hi-line does come, the gas-motor washer can be made over to an electric drive, quickly and at little expense, by merely adding an elec-

tric motor. It is probable the gas-motor washer will have proved itself so dependable and economical that the change will not be made.

Briggs & Stratton Motors Lead

Farm people know Briggs & Stratton 4-cycle gasoline motors. There are over a million in farm use today — the leader in their field — noted for easy and quick starting, for rugged dependability and years of trouble-free service, for economy and simplicity — famous for farm washers, because they are built for women to operate.

Your farm washer sales will be made more quickly, more easily, if the models you sell are powered by Briggs & Stratton gas-motors.

There is an increasing demand for washer models powered by Briggs & Stratton Start-chargers. Farm people like the added advantages of being able to crank the washer motor electrically, and also charging radio and other batteries while doing the wash.

Now Is The Time

Now's the time to sell this big market. Briggs & Stratton advertising now appearing in farm papers with a combined circulation of 9,940,000 copies, is regularly telling farmers everywhere why they should buy a gas-motor washer now.

Now's the time to display and demonstrate gas-motor washers powered by Briggs & Stratton. Push for sales where they are the easiest to make — the farm market.

Ask your washer manufacturer's representative for more information on his gas-motor models.

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

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



Convert Those
"Going-To-Buy-Later" Prospects
To Farm Washer Owners, NOW

Point out to your sales force the way to make these sales. See that they tell every farm prospect how slowly hi-lines are coming — that there's nothing to gain by waiting — that gas-motor and electric washers are just the same — how easily, at small cost, gas-motor washers can be changed to electric drive, if the owner ever wishes to make the change. Display gas-motor models. Have your sales people demonstrate them to all farm prospects.



YOU HAVE NOTHING TO GAIN BY WAITING FOR A HI-LINE. YOU CAN CHANGE THIS GAS-MOTOR WASHER OVER TO ELECTRIC DRIVE, AT LITTLE EXPENSE, EASILY AND QUICKLY, AT ANY TIME.

BUSINESS BAROMETER



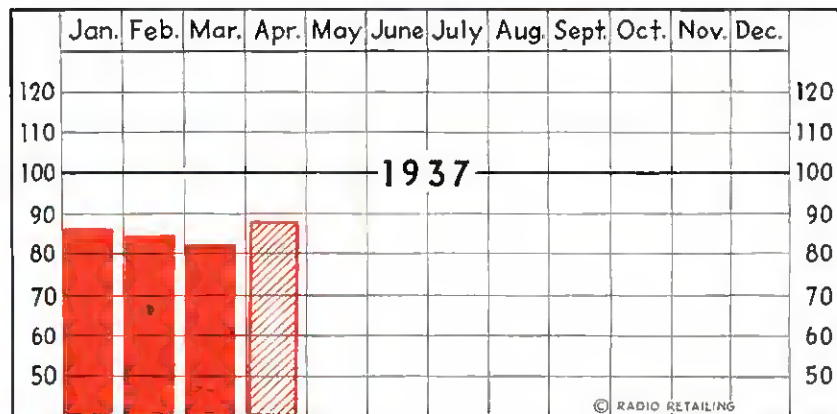
APRIL Retail Radio Sales

The Retail Radio Sales Barometer inaugurated last month was designed to provide a yardstick by which dealers might plan their purchases, manufacturers schedule their production.

The red arrow shows in percentages how April retail sales this year compare with the same month of last year, the latter—taken as 100—being indicated by the black arrow.

At present this barometer reflects only unit sales for the country at large. It will be expanded to show dollar values and specific territorial sales as soon as practicable.

This service is made possible through the cooperation of nearly 1,000 dealers who send confidential reports of their sales regularly each month to Radio Retailing's editor.



NORMALLY, April retail radio set sales show continuation of the ebb which always starts with January and generally reaches its lowest point in June. This year unit sales rebounded to a more favorable comparison with 1937 chiefly due to two causes: (1) Emergency and clearance price concessions to move 1938 sets before the 1939 lines are announced produced big sales for many dealers; (2) Because the many new small radios put on the market since the holidays are so attractive that they succeed in coaxing money out of many consumer's pockets.

Sales in the various Federal Reserve districts continued the trend of earlier months, but comparison with last year's performance for April now shows a narrowing of the gap in a majority of the districts. This fact contributes to the better showing in April by the country as a whole.

Dealer reports from the 9th district (Minn., Mont., N. Dak., S. Dak.) showed outstanding performance, many marking substantial gains, the credit being given to "High Line" extensions tapping new markets, while farmers in that vast Northwestern territory are extremely optimistic because they have had plenty of rain, and the crop outlook is the best it has been in many years.

Sales reported in certain sections of Georgia, Iowa, Texas and Wisconsin were affected favorably by the latter factors.

In the 12th district (Pacific Coast) sales reports show spotty conditions, many California and Washington State dealers recording substantial increases over last year, many about even, and declines in such states as Idaho, Oregon and Nevada were less than the average submitted for the whole country.



The Best Known Name and the Oldest Trademark in the Business

CAPITALIZE on the definite sales advantages of the RCA Victor name and famous trademark.

Authorized RCA Victor Radio Tube franchises are available only through RCA Victor Instrument Distributors.

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



RCA Victor RADIO TUBES

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



INTO this "neutral corner," a cooperatively operated store-room set aside for the purpose, go traded-in radios collected by all the dealers in a certain southern town.

Novel plan hit upon to keep profit in sales during the winter was the addition of between \$10 and \$15 to the list price of most new models. The reverse of price-cutting, this innovation enabled participating retailers to extend used-set allowances sufficiently large to satisfy buyers, permitted subsequent touching of a match to virtually all trade-ins.

Completely practical proved the policy because it was practiced 75 miles from the nearest big city, in a rural territory enjoying relative prosperity due to a good 1937 crop.



NEUTRAL CORNER



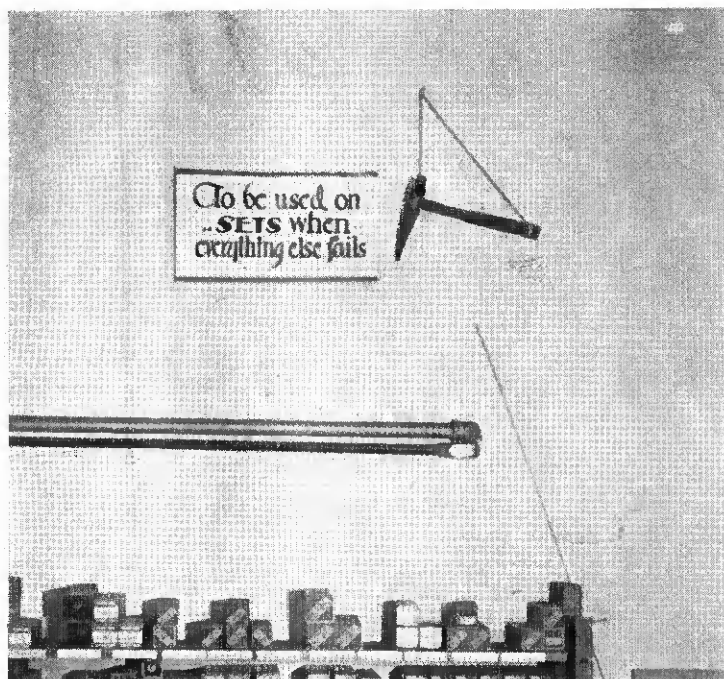
PUPPETS PULL A CROWD

Californians (*left*) flocked to Sherman-Clay's window when a clever display man installed a miniature theatre, filled it with electrically mechanized moving figures. Flanked by new electric-tuning models, the display stepped up radio department sales



MOVIES ON THE MOON

Keen is the advertising sense of Roy Bannon, boss of the X-L Radio Shops of Morris and Sandwich, Illinois. Using a movie projector and special 35 mm. film (*above and right*) from which letters are cut out, he shines ads on the sidewalk, on the window, even on the homes of customers while installations are in progress

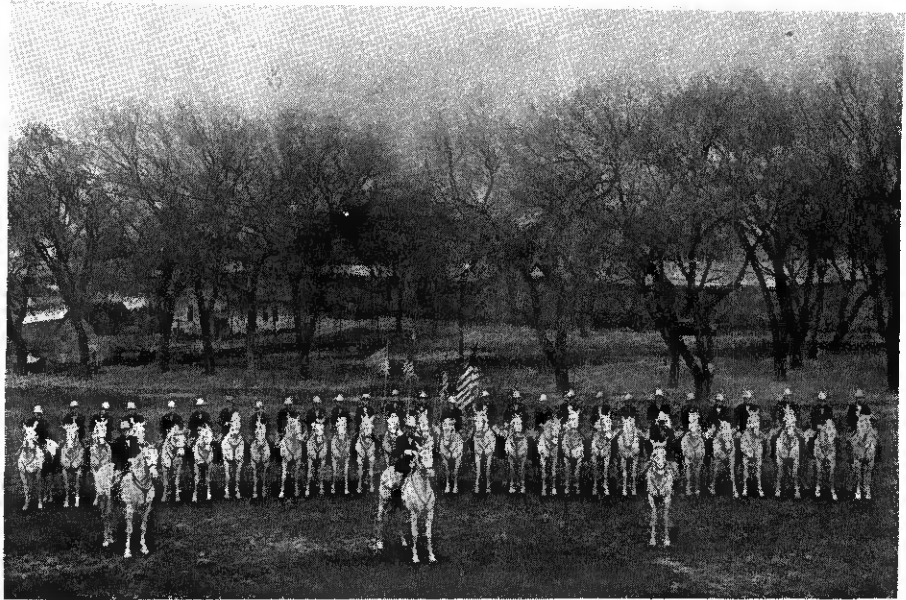


HUMOR NEVER HURTS

Over the workbench (*left*) of R. L. Andrews City Radio Service Company in El Paso hangs a hammer. With it is a sign which reads: "To be used on sets when everything else fails." Customers smile, knowing full well that Andrews never uses the hammer. And when they smile they are easier to sell

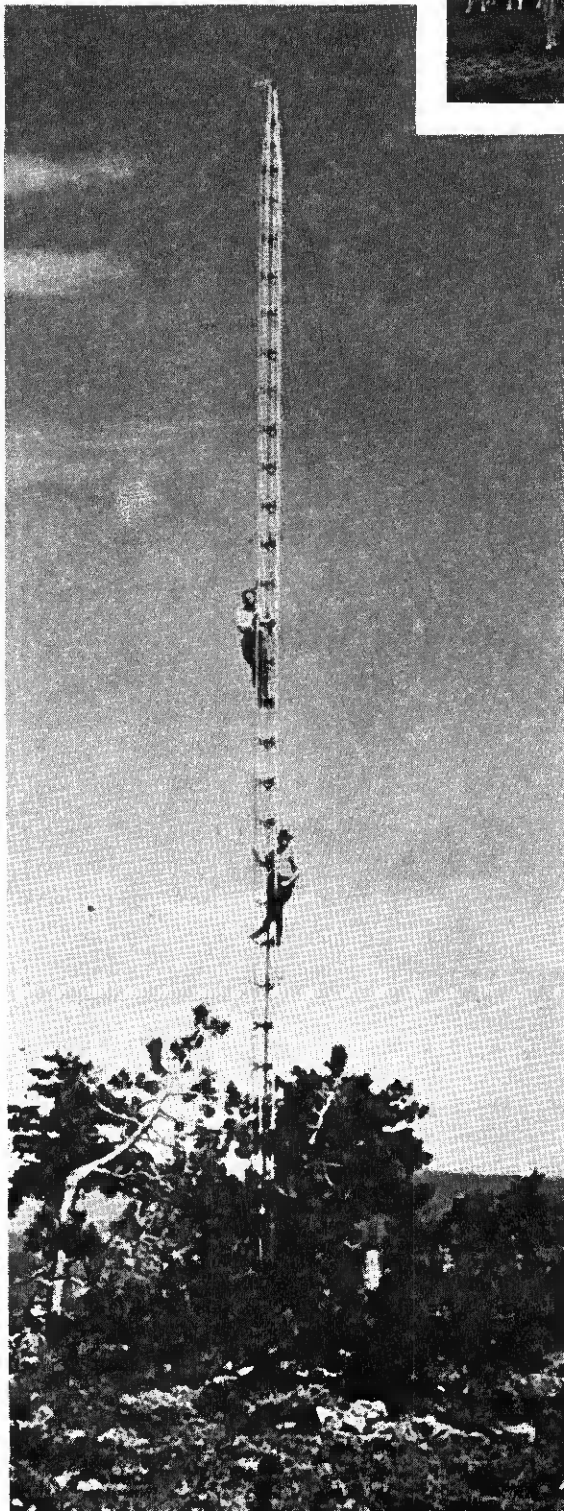
MILE-HIGH TOWER

Sixty-five feet above mile-high Signal Peak in Washington state's Yakima Indian Reservation rises forest supervisor Tom Carter's antenna-supporting Wincharger tower. (below) Amateurs, short-wave fans should be told about this structure sold in sections.



COMPAN-E-E-E, HALT!

Sioux City's "Stockyards Mounted Patrol" (above) has been trained to drill over a Webster-Chicago sound amplifying system. Imagine trying to control horsemen spread out all over the map without the aid of such equipment. Here's another use for sound, already suffering from no application shortage



FEEDS FARMERS

Every year the James D. Casey Company, hardware and implement store with a large radio department in Watertown, Wisconsin, runs a "Farmer's Day," arranges free lectures, demonstrations, movies, professional stage acts, a dinner. Held last spring before plowing started, the 1937 promotion attracted 1400, sold many radios

One to CANVASS



By
**CASWELL
ODEN**



THERE are two types of outside sales force operating in the radio and electrical appliance field today. One requires each salesman to handle each detail of every sale he makes. The other is composed of crews of canvassers of varying sales ability and experience, with each crew directed by a supervisor who, due to the inexperience or inability of his men, closes most of the sales himself.

Strange as it may seem to some, the latter type is best. It is more efficient, and will produce more business per man. The former type is

not as efficient or productive, and yet it is harder to organize and harder to keep intact. And if, by superhuman effort and the expenditure of much time and money in training, you finally get such a force organized—it is *still* not as good as the other. And, to put the last touch on its denunciation, if you finally get such a force organized and then even get it to *operating*—it is *still* not as good as the other.

It would be very nice, you may imagine, to have a sales force of ten, fifteen or twenty men, each one able

to stand on his own feet; each one able to canvass for his own prospects; close his own sales; even take care of his own complaints. If I wanted to be deceitfully optimistic, I would tell you that such a sales force is easy to organize, even tell you how to do it. But I want to tell you the truth, so I will tell you that it is extremely difficult to organize such a sales force.

To those dealers who have yet to organize an outside sales force, I'll try to explain why it is so difficult to organize a force in which each man can do, and will do, everything him-

and One to CLOSE

The ONLY way to use *inexperienced* man-power The BEST way to use experienced man-power

self. To save space and also facilitate my explanation, we'll call it a one-man sales force, and the other a two-man sales force.

In the first place, the capable men in the business generally already have good jobs. They are not available. In the second place, it would take too long to train the man-power at your disposal. Third, the expense of training would be too great. The men have to eat while they're being trained; and there is no sense of training them unless they are trained *well enough to earn a living*.

Maybe a large and wealthy concern can do it, but the average dealer can not. Fourth, after you (as well as the wealthy concern) got them trained, they wouldn't really work—each man by himself. Fifth, even if they *did* work, their time would not be spent to the best advantage.

A fine lot of pessimism to hand out? Not at all. I keep placing that barrier there simply so I can show you that it does not *have* to be hurdled. Because, as I have said, the two-man sales force is the best. And here are the advantages of a two-man force:

Your sales force, newly organized, will be made up of men from all walks of life, drawn from the vast legion of unemployed. And when they start to work for you they will be square pegs in round holes. Before you get through with them, of course, some of them will have had their corners rubbed off, will almost fit in their holes (the others will have fallen by the wayside), but this is the important point: *as soon* as these men start working for you (and income for themselves)—*because their sales will be closed by an experienced man who is also a good salesman*.

In other words, you don't give these men intensive training, in selling, *at first*, and then watch them leave . . . because, even with all their training, they probably can't make the grade. You make use of their *brawn*, until they *are* capable men, and let a *good* man put the finishing touches on their labor. You do, however, give these men training in *canvassing*.

It is quite true that there are a few men in this business today canvassing for their own prospects, selling them, and making a living at it. But they are few and far between. There is a larger number who could do it, but won't. And one can hardly blame them.

It's one of the toughest jobs on earth. It requires canvassing at least three hours each morning, afternoon calls, and evening calls. He's one unusual man if he keeps it up. He'll be on the go from nine in the morning until nine or ten at night.

Now I've never seen a man yet who liked to canvass, and this man, in particular, will like it least of all. When he is canvassing, he will feel that he is wasting his time. He's constantly thinking of the prospects he *already* has lined up. There's Mrs. Jones he should see, and Mrs. Brown the best time to see them is in the morning. And here he is pushing doorbells. Being able to *sell*, he will know—either consciously or subconsciously—that he could be spending his time to much better advantage. And he's right!

There is another—and more important—phase of his mental condi-

tion to consider. Three hours of canvassing can give a man—even an optimistic man—the impression that there is nobody in the whole wide world who wants to buy anything he's got to sell. And that is no way to "prime" even a good salesman for his afternoon and evening calls.

Moreover, being on his own, without a boss, he'll take mornings off, and afternoons off, and evenings off. If there is a light drizzle this morning, instead of finding porch-front houses to work he's more apt to go somewhere and drink beer and shoot darts.

Now suppose this same man were a supervisor, with men to handle. As far as his mental condition is concerned, he'd *always* be primed to sell. The supervisor's mental condition is vastly different from the canvasser's or even the canvasser-salesman's. The supervisor thinks that everybody he sees can be sold, if only he's got it in him to sell them. And why? Simply because he is constantly calling on the *cream* whipped up from the thousands of doorbells his men have pushed.

And with men to look after, he'd *have* to be on the job. He'd have plenty of places to go, rain or shine, when he wasn't checking up on his men.

Now I'm not going to be foolish enough to tell you that if you already have a force of five or six good salesmen who can stand on their own feet you'd be better off with five or six inexperienced, or even experienced, canvassers and a supervisor or two to close their sales for them. I don't mean that at all. But what I do say, and say very emphatically, is that those five men of yours should be supervisors. Their time is too valuable to be spent in canvassing. If each of those salesmen of yours had several canvassers supplying him with leads you'd get more business, they would make more money without working as hard, and you'd

(Continued on page 37)



First of a Series about

OUTSIDE SELLING

Coming: Advertising for men; Salaries and commissions; Qualifications of a sales manager; Picking supervisors

ALMOST PERFECT..

*Yet into
"the crusher"*
they go*

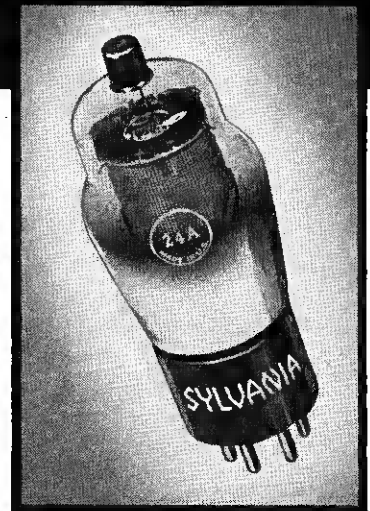
*"The crusher", a huge, electrically-driven machine, is used to destroy defective Sylvania tubes . . . grind them into harmless bits of metal and glass.

EVEN the slightest defect—a twisted wire...a loose top cap...a broken guide pin—is enough to doom any Sylvania tube. For Sylvania will *not* risk quality by making even minor repairs on imperfect tubes.

This rigid "no repair" policy assures Sylvania of uniform, high quality radio tubes...

freedom from "duds." It assures you of satisfied tube customers, repeat business—and steady profits.

Remember this: *You can't buy a second-quality Sylvania tube...so you can't lose a customer by selling him one!* Hygrade Sylvania Corp., Emporium, Pa. Cable address: HYSYLVANIA, New York.



See Us at 204-06 Ampere Avenue, Nat'l Radio Trade Show, Hotel Stevens, Chicago.

SYLVANIA

SET-TESTED RADIO TUBES

HYGRADE SYLVANIA CORPORATION ALSO MANUFACTURES THE FAMOUS HYGRADE LAMP BULBS.

To SEE AHEAD LOOK BACK



Distributor **GEORGE TURNEY**
—Knows history repeats

firm from out of the office files.

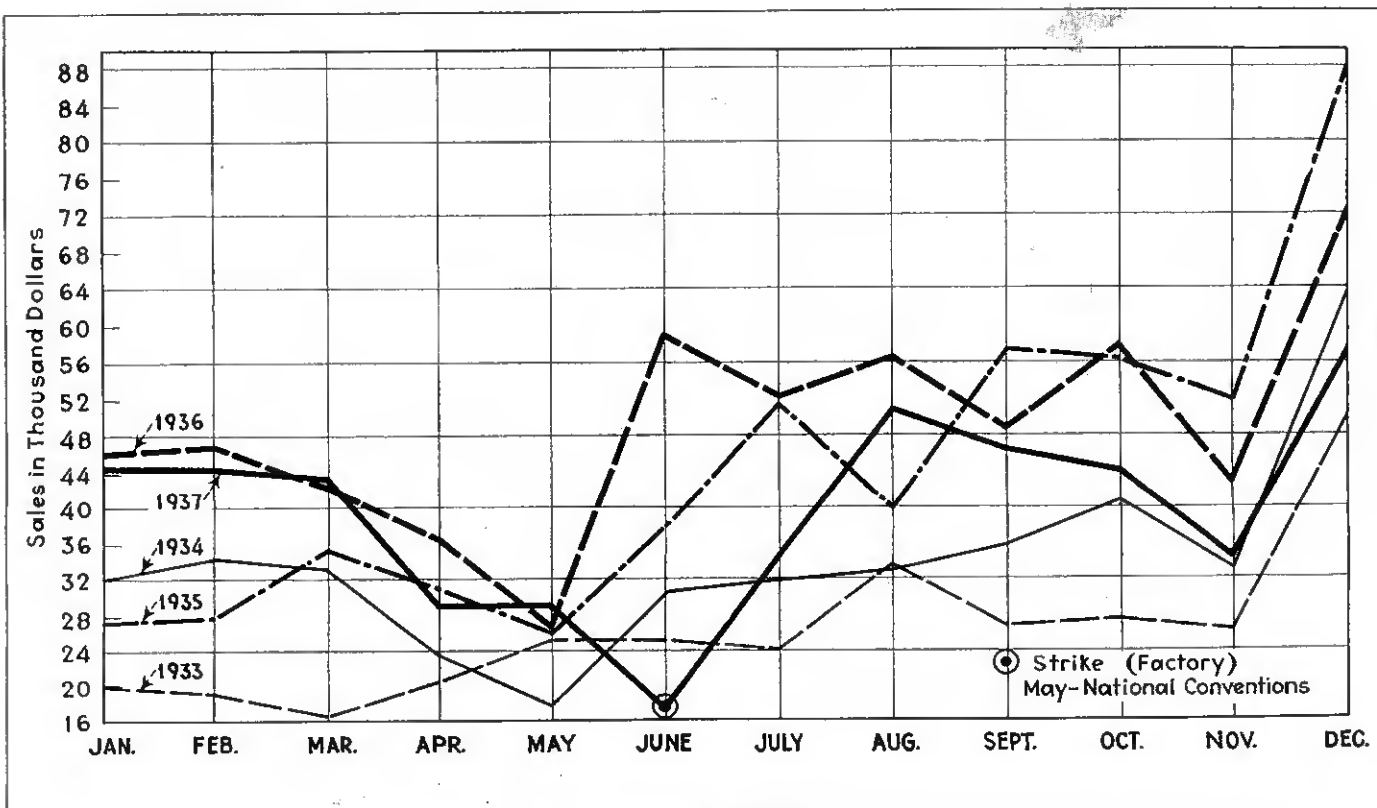
"Here is proof that history repeats itself," he demonstrates to the weak-spirited brother. "It may bounce back far more than it was the year before or a little less but we can anticipate to a certain degree what will happen and plan accordingly. Distributors, who have to put their money on the line and take a much bigger chance than dealers, could not keep in business if this were not so."

Right now, says Turney, the little dealer has the best chance of his lifetime. He is back on the map in financing, thanks to plans that permit him to offer as good terms as any department store. The furniture store which jumped into the radio picture is not making the progress it did. Big advertisements alone won't bring in the trade anymore. Spiffs are out.

Dealers need today to appreciate the importance of their salesmen and their salesmen's training as never before. The backbone of this business is outside speciality selling. "I think dealers should quit commission basis with experienced salesmen," says Turney. "Pay a good man a salary and a bonus, say \$25 a week for \$300 a week retail sales plus two per cent on excess of this. It's perfectly proper for a dealer to ask a salesman how much business he will bring in, in return for so much salary. However, I think that a draw helps to give the salesman a lot of self-confidence."

Retailers enjoy another advantage today—they need carry little stock. Firms doing from \$150 to \$1,000 a month need carry one only of popular models which can be replaced immediately as sold.

WHEN ASKED what business is going to do within the next six months, George Turney, executive of the Crumpacker Distributing Corporation, Houston, Texas always plucks the records of his own

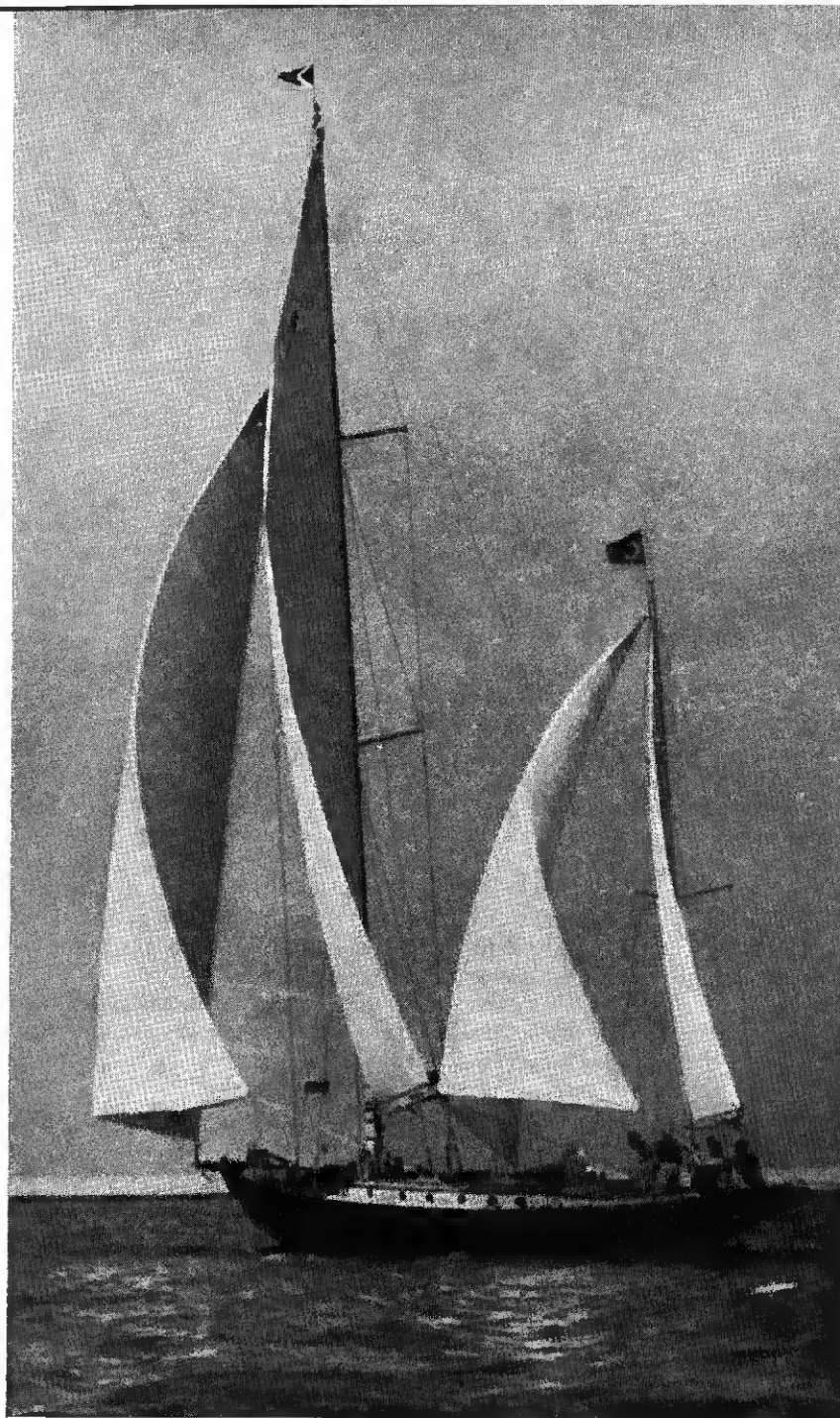


CRUMPACKER'S Five-Year Curve

How to Sell

By

TOM BLACKBURN



WHY TAKE CHANCES?—Like the *Southern Cross*, many sailboats operate far off shore. Radio brings important, new storm-warning service, entertains too. If you are set up to handle the business, direction-finders are also in great demand

A STORM-WARNING weather service, broadcast directly from the U.S. Weather Department, places new emphasis this year on the importance of radio on every boat that puts out any distance from the shore. In forty cities near important water new equipment has been set up in weather stations, permitting an instantaneous radio broadcast of weather information.

This is news of first importance to the 204,193 engine-equipped boats under forty feet in length which were on registry March 1, 1938, with the U.S. Customs. Only a fraction of them are radio equipped,

and a sizeable market awaits the active dealer.

Why hasn't this reservoir of business been tapped before? Boat owners have money, their sea-going hacks costing from \$1,000 to \$3,000 on the average. They are easy to see, inasmuch as they nearly all hang around the docks and work on their craft over the weekend. The answer lies in the fact that the whole boat radio business is in as much of a fumble as auto radio was in 1930. Some dealer gave a blanket quotation for an installation, discovered he had to put in two or three days making it work, lost

money, and said "to hell with that kind of business."

Although automobile type radios are most commonly installed, the serviceman usually meets up with something new in marine motors. On cars, the hood shields the motor pretty well. On the sea, Diesels cause no trouble, are found only on larger boats anyway. But the gasoline marine motor stands out like a sore thumb and you can't always put suppressors on the plugs.

"We shield the motor just like you would an airplane engine," says Ralph L. Mitchell of Radio Development Co., Chicago. "We shield the plugs and distributor wires. We use copper screens. We get the aerial as far from the motor as possible, shield it up the mast to protect it from light waves, and to prevent a playful wave from grounding it. We ground the set to the motor block. You must not put up too much aerial, as reception is particularly good at sea, and you might get overlapping when using a long wire.

"The chief trouble one has in servicing installations comes from run down batteries. People in cars travel a lot, and keep their batteries up. People in boats go out and drift a lot, play the radio, and are surprised when they can't start their engine.

"If you want to make a real installation, sell the customer a miniature gas engine charger. You can put suppressors on the charger plugs, the battery will be kept up, and you can run a few lights to boot. The whole layout will not run much over \$100, and what's that to a fellow with \$2,000 in his boat?

"Radio dealers should protect themselves on quoting installation costs. We quote \$25 up. All boats are different. You are likely to run into trouble drilling holes in the deck to get the aerial through, for example as the job has to be absolutely watertight."

Another expert tells *Radio Retailing* that 2-volt sets are best where

and Install RADIO for BOATS

they have to be hung on the boat storage battery, as their drain is less. Frequently it is desirable to use a non-rechargeable battery for the radio alone. *Wind charger manufacturers are already experimenting with water-driven generators using small diameter propellers, suitable for mounting on boats, which will provide juice for separate batteries.*

While vacationing in Miami last year Bob Weinig, of Zenith, ran a census of the craft afloat in Biscayne Bay. Of 3,000 boats with radio, some 2,250 had 6 to 12-volt systems; 650 had 32-volt, and 112 used 110 ac. There is a trend, he reports, for boat owners to use switchover systems, which permits 6-volt operation

at sea and 110-volt central station service at the dock, with resultant saving of batteries.

There is a practical way of going after boat radio business. In the first place all craft with engines must be registered with the U.S. Customs, marine division. If over 5 tons or exceeding 45 feet in length, the boats are documented; if smaller, they are given numbers. There are 48 customs divisions in the country, and each keeps its own records. In the Chicago district, for example, there are 3,680 boats, approximately 100 which are documented.

"By arrangement with the collector" it is possible to obtain lists of boat owners in each of the forty-eight customs districts. Most of

these owners do their purchasing from ship chandlers, who operate along shore and have few facilities for selling radio. Four or five of the larger power boat manufacturers, such as Chris-Craft and Gar Wood, today are selling radio as standard equipment on new boats. However, boats are exceedingly long-lived and pass through the hands of many owners. The great market for radio is in old craft.

In centers where there is enough activity to justify a yacht club, the steward is a valuable source of leads and sales. Obviously it is a good idea to make his co-operation worth while.

With the coming of warm weather, boat owners, who are "bugs" in the same sense that golfers and camera artists are, drift down to the yards and spend weekends toiling away. One dealer said it was useless to try to sell during the week—but that a good demonstration during the weekend caught a flock of prospects at one time and got action.



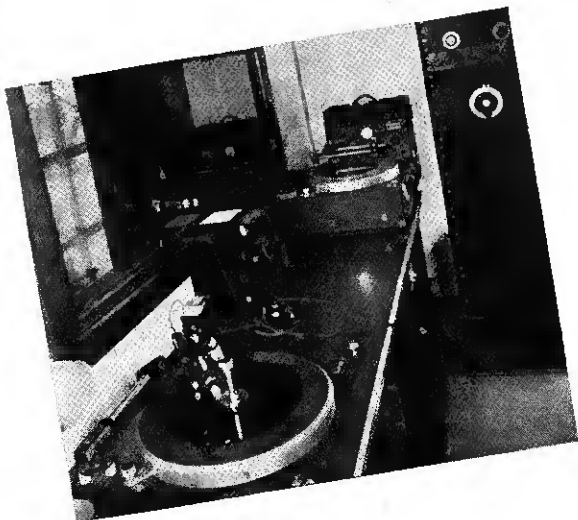
POWER CRUISERS TOO—Boats like this Chris-Craft provide an excellent market for sets, gas-chargers, batteries. There are 204,193 under forty-feet alone on registry

KNOWS THE BUSINESS—Ralph L. Mitchell of Chicago's Radio Development Company prefers to use car sets, gives some interesting tips on sea-going antennas, marine motor shielding, installation costs



MUSIC, ART, ELOCUTION SCHOOLS—These are excellent prospects for the personal records turned out by the Frank-Vance Recording Service, whose New York studio is shown here

PERSONAL—Equipment includes fixed unit, rack-type tuner and amplifier, portable recorder and amplifier for outside work and emergency



RECORDING

By
MYRON BOGUSLAVSKI

THE RECORDING field is divided into two major units—phonograph records for purchase by the general public and electrical transcriptions for broadcast, audition, and air check purposes as well as for the newly established enterprise of music by wire which has been introduced in New York.

We feel that radio or sound equipment dealers who are interested in this field are going to ask many questions. So we have anticipated those questions which are most important and answer them as if we were sitting across the table from the questioner:

Question No. 1—What apparatus is required in order to enter the recording field to the greatest advantage?

Answer—It is recommended that the serious newcomer procure a recording machine which is sturdily built and suitable for cutting on acetate blanks up to and including 16 inches in diameter if he intends to make transcriptions. In the case of "off the air" recording two such machines are desirable, also a well designed radio tuner of the radio

frequency type, a good recording amplifier, at least two good microphones, plus a properly acousticed studio and a good piano.

Question No. 2—Is it wise to purchase both permanent and portable recording machines when entering the recording field?

Answer—Yes, it is very wise to select both permanent and portable recording apparatus.

The permanent machines should be of a dependable make, should be heavy and preferably contain a turntable which weighs not less than 30 lb. and is well balanced. These machines should be mounted on heavy wooden tables which are specially built for this purpose. Thus the recording apparatus is rendered vibrationless.

Portable recording machines should be selected with exactly the same care as permanent equipment, for this equipment will be pressed into service either in case of emergency in the studio or for special outside assignments.

When using permanent recording machines, a large measure of safety lies in the installation of a vacuum

suction cleaning system. This serves two very worthy and important purposes and these are to eliminate the skipping of grooves while recording, and to preclude any possibility of fire hazard.

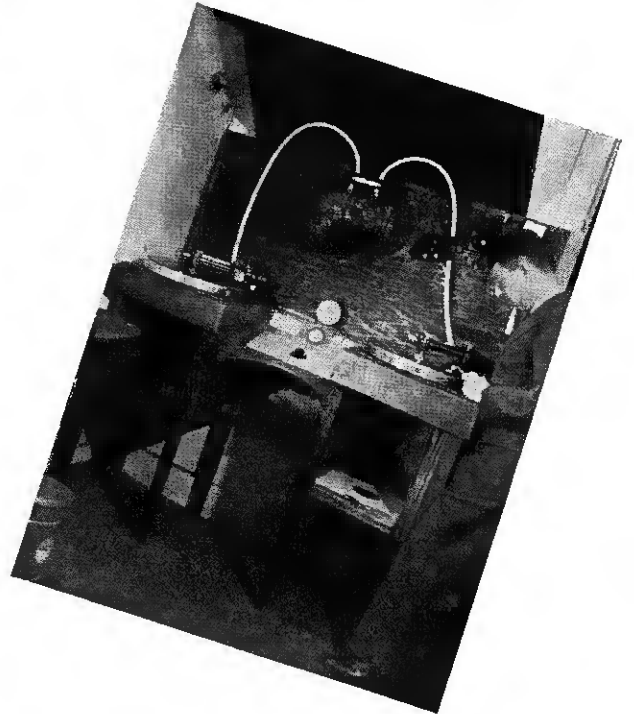
Question No. 3—What is the approximate cost of a double recording installation complete with two permanent machines, amplifier, monitoring speaker and two good quality microphones?

Answer—An exceedingly good dual recording outfit for acetate discs may be purchased complete with two cutting mechanisms (one for each machine), two dual speed synchronous motors for 78 r.p.m. (standard phonograph speed) and 33½ r.p.m. (electrical transcription speed), two high grade playback pickups with weight adjustments, one recording amplifier complete with preamplifier, gain controls, equalizers for recording and play back, volume indicating meter, two good quality crystal microphones and a monitoring speaker (which need not be expensive) for approximately \$1,500 not including tax. A vacuum suction system is around \$50 additional.



AD AGENCIES, ACTORS CLUBS—They help put profit in the transcription service maintained in New York by Advertisers Recording Service. Here's a quality job in process

TRANSCRIPTION—Vacuum devices keep shavings off disc surface. C. A. Boggs, with the aid of a glass, casts a critical eye over a new cut



as a **BUSINESS**

Where to sell personal records, transcriptions . . . What to charge . . . Apparatus and studio suggestions . . . Costs

Since switching from one machine to another in continuous recording is accomplished by means of a switch located on the front panel of a single amplifier, a second one is not required. However, no harm is done if a spare amplifier is kept on hand in case the main one suddenly stops functioning.

An entire recording installation may be purchased on time payments to suit the buyer.

Question No. 4—What kind of a piano is most suitable for recording purposes?

Answer—It is advisable that the piano be either a Baldwin or a Steinway. The piano should be preferably a grand which is 6 ft. or 7 ft. in length and should be accurately tuned and voiced in the studio in which it is to be used, because piano recordings have become a wide basis for comparison between records of different makes.

Question No. 5—What type of recording studio is advisable to make clear, clean-sounding records?

Answer—In order to produce

fine recordings without having to over-spend when buying equipment, it is desirable to have a studio about 30 ft. long and 30 ft. wide, with a ceiling height of not less than 11 ft. If at all possible the studio should be free from cornices, pillars, pipes or other obstruction that may cause acoustical defects, such as rebound or dead spots, and the floor should be covered with either carpet or linoleum with special padding underneath to render a walking-on-air effect for absolute silence.

The studio should be acoustically treated so that it will be echo-proof. Some natural reverberation properties are preferably left in, so that when a record is made in the studio it will not sound "flat," but like the actual performance in a well acoustical hall. Concerns such as

PORTABLE—Equipment of this type permits dealers to get into the recording business without great cost, is essential for outside assignments and emergency use even if more elaborate, fixed machines are later purchased

Johns-Manville may be consulted with profit.

Question No. 6—What is the approximate cost to acousticalize a studio completely for recording purposes?

Answer—This depends upon the size of the studio and the grade of material desired. There are several

(Continued on page 37)



CHANGING Your Window?

By
I. L. COCHRANE

Show this page to your display man . . . Watch him go for the new translucent paper that makes luminous columns once used only by plutocrats cheap and easy to build

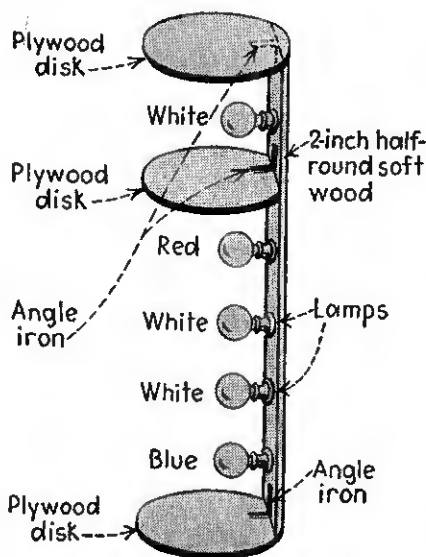


THE phonograph pendulum is swinging back again. The demand for music of our own choice is on the upturn. Depending upon our mood the splendid radio programs of the moment may not be suitable. The golden tones of Caruso, the melodies of Stephen Foster, a preferred dance tune, or the plaintive strains of "Auld Lang Syne" may be preferred to a King of Swing, or the comedian whose income soars above that of the greatest industrial magnate.

And so, here is Action Display to dramatize the growing demands for the phonograph, and phono-combination. It is a display which may be used in a window and then transferred to the store interior.

We show only the centerpiece—you fill in the sets and placards to suit. Black and white lines cannot possibly come within a mile of describing this very colorful display. Imagine, if you will, luminous color columns quickly changing from a pale yellow, or any other color, to a mass of blended crimson, purple and deep blue, and then back again. Not in arranged order, but haphazardly. Then add the glossy black oversize record as a foil, reflector and background, and you are bound to stop and interest almost everyone passing your storefront.

Simple to construct? Yes. The



COLUMN DETAILS

luminous color columns are merely sheets of Lamiluxe, the new translucent, acetate-coated display paper, curved around wooden discs. This material may be lettered and decorated in water colors, lacquer or oil paint, then easily bent around the wooden discs and firmly tacked to the upright wooden stick in the rear. When lighted, the entire column is brilliantly luminous, making the copy stand out sharp and clear.

The colors are brilliant in daytime, as well as at night. If the sun is not shining too strongly into the window

TRY THIS FOR RECORD SALES—Huge black and red disc, flanked by columns that fade from yellow, to red, to blue. Drawing shows just the centerpiece, leaving the rest of the window to individual taste.

(and who permits that?) these columns are brilliant and sharp in their color schemes. At night one need not dim the window lighting more than a little. A good store interior lighting intensity dims the reds, violets, and blues very little.

The shorter column is composed of two wooden discs, one top and the other bottom, with a stick between. The discs and the flat inside of the upright are fastened together, and made flush, by means of angle brackets at least 4 inches long. Then the previously lettered sheet of Lamiluxe is tightly turned around the form and firmly tacked to the stick, which might be a strip of 2-inch half-round plain moulding. A fairly wide line of black or color might be painted around top and bottom, for finishing effect.

The taller column is the same as the other, except it is higher, is more slender, and has two separated compartments. The bottom one is the same as that of the other column. The top, or upper third, is separated from the bottom by a third wooden disc. The upper section holds the name of your set, and so should not change color. A white lamp burns

(Continued on page 39)

40 YEARS YOUNG!



Wait until you see how
RCA Victor cuts you in
on its 40th Anniversary
Celebration...It'll be a
Profit Surprise!



RCA Victor

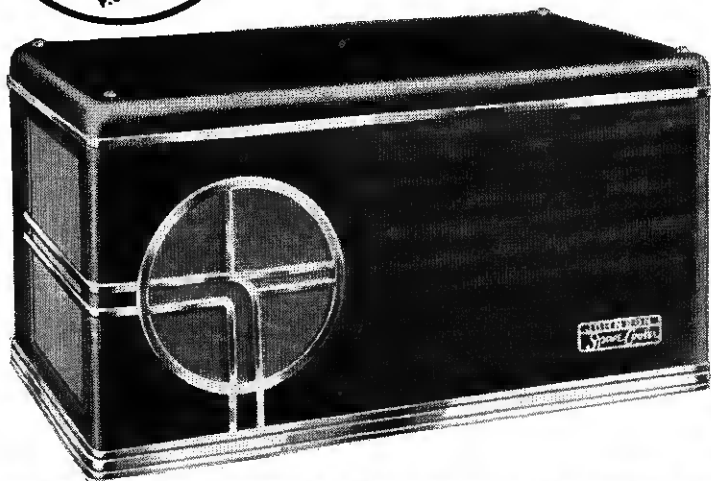
RCA MANUFACTURING CO., INC. • CAMDEN, NEW JERSEY
A SERVICE OF THE RADIO CORPORATION OF AMERICA

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

Over 325 million RCA radio tubes have been purchased by radio users . . . in tubes, as in
radio sets, it pays to go RCA All the Way.

NEW SPACE COOLER MAKES DRAMATIC DEMONSTRATION!

ONLY
\$159.50
LIST
F.O.B. FACTORY



High quality "package" unit eliminates all engineering problems.. Just plug it in.. No water pipes to connect.. No wiring to install.. Fits on window sill.. Demonstrates itself .. A new APPLIANCE!



THE NEW Johnson Space Cooler is a compact, self contained electric refrigeration plant which circulates air over cold coils where it is cooled, cleaned, de-humidified—then distributed throughout the room. It provides the refrigerating equivalent of 650 lbs. of ice per day! Fits on any window sill. (Width 27". Window sealing-panels are furnished.)

Show it. Simply take it to a prospect's home or office. Plug it in. And let it sell itself!

Nothing that you handle makes a more convincing demonstration. The housewife in her kitchen, the professional man in his office, the

patient in the sick room gets sold—quick—on a unit that gives *real* relief from heat and humidity!

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



DEALERS, DISTRIBUTORS

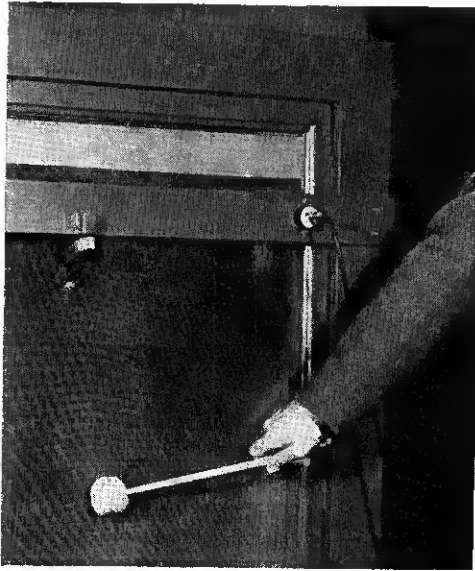
Send for full details, discounts and merchandising plans. The season is **HERE**. Every day means extra profits.

JOHNSON MOTORS • REFRIGERATOR DIVISION
1930 MONMOUTH BLVD., GALESBURG, ILLINOIS

JOHNSON
Space Cooler

GET GOING RIGHT NOW .. WRITE, WIRE FOR DETAILS

ALL IS NOT GOLD...



THUNDER—Beat a wooly drumstick on an electrically charged screen contacting a pickup



EXPLOSION—Place 100 lead shot in a basketball bladder, shake well to taste



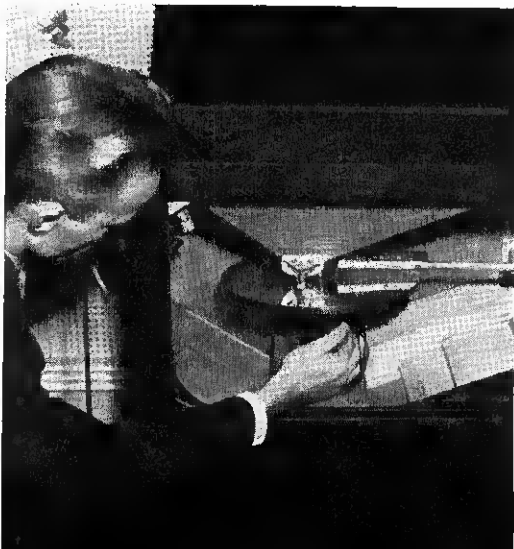
WAVES—A few dried peas and a screen, properly manipulated, does the trick



CRICKETS—Their sound can be simulated by flicking a thumbnail through a comb before a microphone



HOOFS—Cups in gravel. Recordings (foreground) are rapidly replacing sound effect "props"



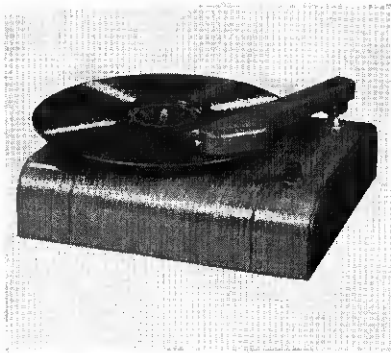
RAIN—Birdseed, thrown off a revolving disc fed by a hopper into a chute

AIRPLANE—Massage a tom-tom with an electric vibrator



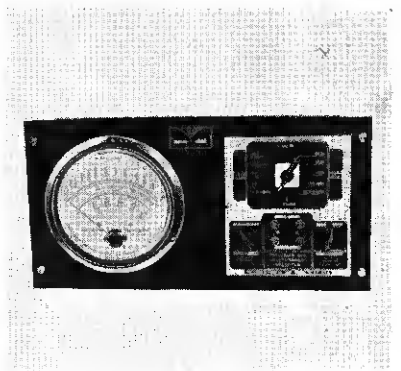
Preview of New

This record player by the RCA Mfg. Co., Camden, N. J., known as model R-93-C will operate in conjunction with any electrically operated receiver. An improved type of light-weight crystal pickup and true-tracking tone arm give better reproduction. Special plug for easy connection to RCA receivers; walnut veneer case; list price \$14.95.

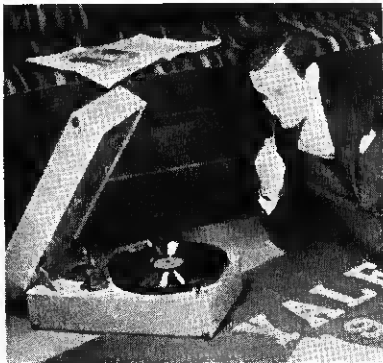


R. C. A.

This laboratory - type service multimeter by Precision Apparatus Corp., 821 East New York Ave., Brooklyn, New York, has a 9 in. dial for easy reading; voltage tests from 10 to 1500 in 5 ranges a.c. or d.c.; current ranges from 1 ma. to 10 amps.; resistance from 1/4 ohm to 10 meg.; base sensitivity of meter is 400 microamperes; also db. and output meter ranges.

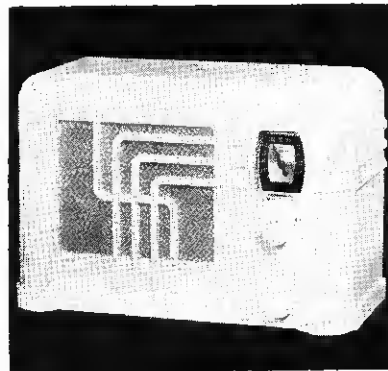


PRECISION



ANSLEY

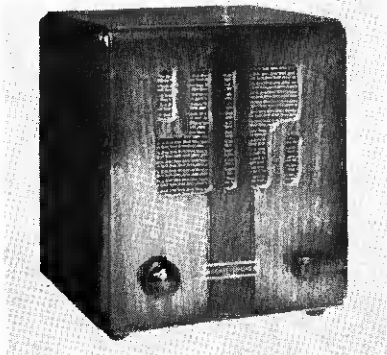
Lightweight Dynaphone model D-26 by Ansley Radio Corp., 240 W. 23rd St., N. Y. C., is well suited for college use as illustrated. Gray airplane luggage case; ac-dc motor; Ansley crystal pickup, weight 18 1/2 lb.; six inch speaker; twenty 10 inch records may be carried in case.



FADA

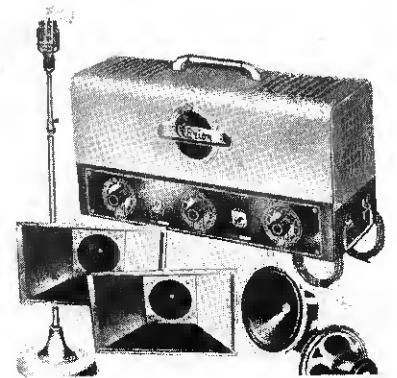
The new 20 series by Fada Radio and Elec. Co., 30-20 Thomson Ave., Long Island City, N. Y., is available in three "Colorado" Cabinets of Walnut Bakelite, Ivory Plastic, and Ivory Plastic trimmed with gold. Six tube ac-dc superhet, beam output, tuning range 535 to 1720 kc. Model 20 V illustrated.

Model 200, master and remote inter-communicator by Conversaphone, Inc., 23 W. 60th St., New York, lists at \$23.50. Designed for privacy at both ends. With this system the master can never listen in to the remote station unless remote station closes two-way switch. Master only illustrated.



CONVERSAPHONE

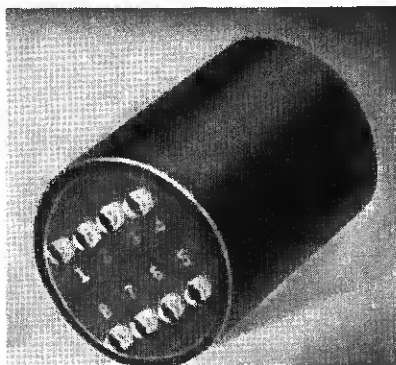
Model C-121, 30 to 41 watt unified sound system by Transformer Corporation, 69 Wooster Street, New York, is handsomely finished in duo-tone platinum gray and slate gray chassis. Features are: beam tubes, dual stage reverse feedback, luminous glo-dials, multi-impedance output transformer.



CLARION

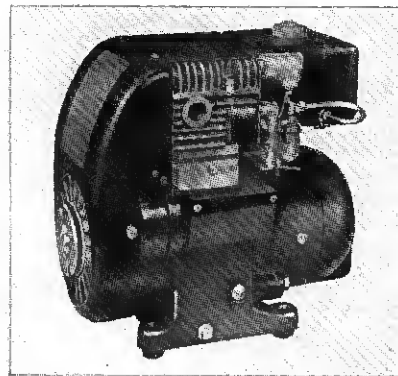
Radio Merchandise

OUNCER transformers by the United Transformer Corp., 72 Spring Street, N. Y., weight approximately one ounce. Dimensions are $\frac{7}{8}$ in. diam. by $1\frac{3}{16}$ in. high. Available for all types of service, such as input, interstage, output and mixing.



UTC

Gas electric plant by D. W. Onan and Sons, 43-51 Royalston Ave., Minneapolis, Minn., is available in two sizes. Model 358 delivers 350 watts, 110 volts, 60 cycle. Model 68 supplies 600 watts, 110 volts, d.c.; both units have manual starting.

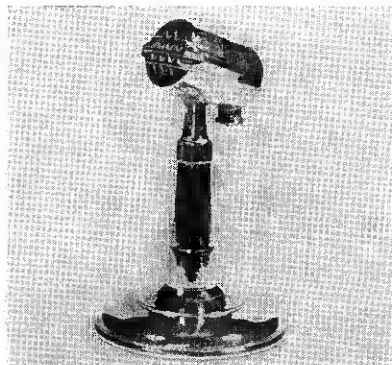


ONAN



DECO

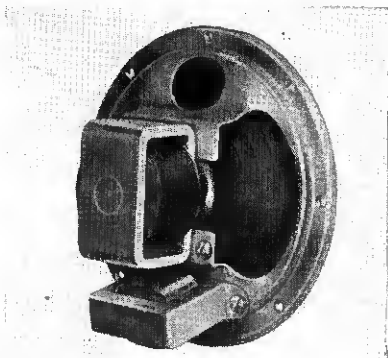
By a new method of assembling the mica section, the mica condensers now offered by Dumont Electric Co., Inc., 514 Broadway, New York City, have a spring pressure similar to that employed in transmitting condensers; ceramic case; surrounded and completely embedded in moisture proof cement



AMERICAN

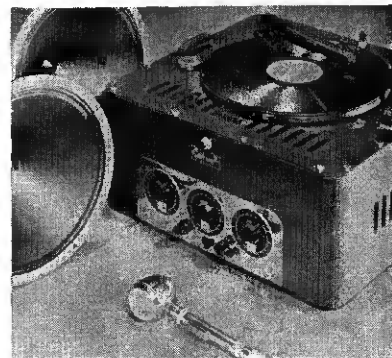
The Clipper Dynamic microphone by American Microphone Co., Inc., Los Angeles, California, claims light-weight and compactness for a true dynamic type. Weight is $8\frac{1}{2}$ oz., diameter $1\frac{1}{2}$ in., output 55 db. Available in high impedance 10,000 ohm type, or 50 ohm low impedance type. Lists at \$22.50 and \$20.00 respectively.

New series "S" speakers by Jensen Radio Mfg. Co., 6601 S. Laramie Ave., Chicago, Ill., are available in 5, 6 and 8 in. sizes for field replacement use. Available with fixed or adjustable output transformers and various field coil impedance.



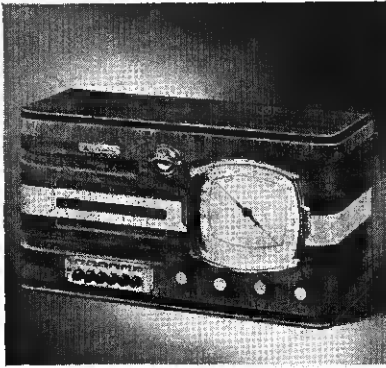
JENSEN

Combination mobile sound system by Bell Sound Systems, Inc., Columbus, Ohio. May be used on 6 d.c. or 110 a.c., permanent magnet speakers, separate power switches for turntable, plate voltage and filaments. Suitable for crowds up to 8,000 or 10,000 people



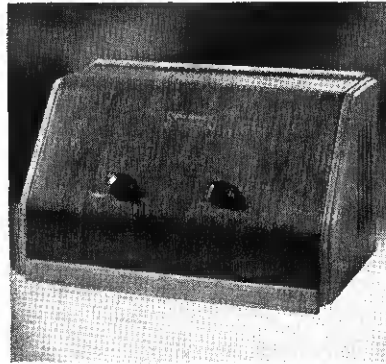
BELL

PREVIEW OF NEW RADIO MERCHANDISE



FREED

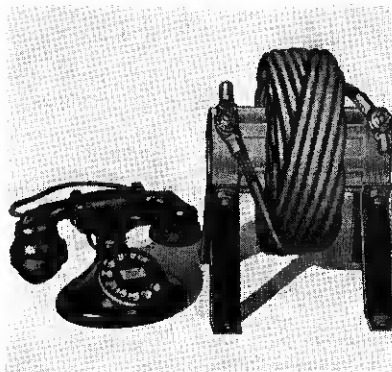
Electric push button tuning for five stations is incorporated in model 88 just released by Freed Mfg. Co. Inc., 44 W. 18th St., New York City; 7 tubes; shortwave and standard American reception; electric eye tuning; hand polished walnut veneer cabinet with mahogany inlays; \$49.95 for ac or ac-dc operation



SOUND PRODUCTS

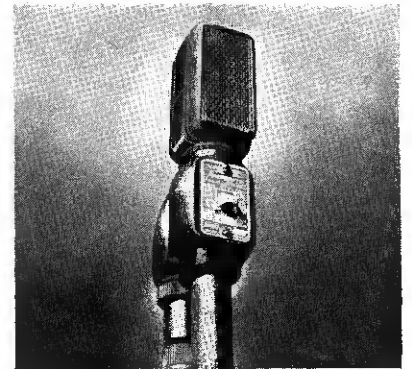
Sound Products, 704 N. Curson Ave., Hollywood, Calif., has placed on the market the illustrated 20 watt amplifier contained in a walnut cabinet; it has inputs for phonograph and microphone, \$60; this company also makes radiotelephone equipment for use on any boat from a small yacht to an ocean liner

The heavy duty duo-lateral wound radio interference choke shown is claimed to be the largest of its type ever wound; especially useful in installations of large electric signs; rated at 150 amps. with a 2 volt drop across winding; J. W. Miller Co., 5917 S. Main St., Los Angeles, Calif.

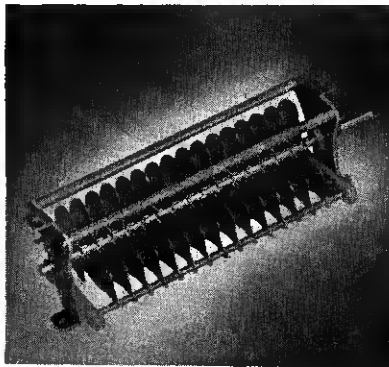


MILLER

Its compact velocity microphone is the smallest complete velocity ever made, claims Amperite Corp., 561 Broadway, New York City; output, -70 db open line; response from 60 to 7500 cps ± 2 db; can be used for speech or music; low or high impedance; size of head, $1\frac{1}{4} \times 2\frac{3}{8} \times 1\frac{3}{8}$ in.; \$25

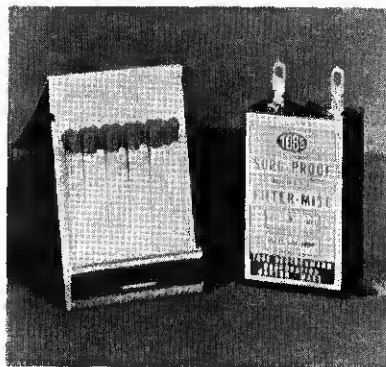


AMPERITE



BDD

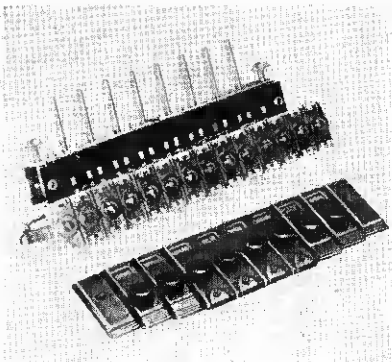
A Junior line of transmitting condensers has been brought out by Bud Radio, Inc., 5205 Cedar Ave., Cleveland, Ohio; to conserve weight and space, plate spacers have been eliminated; brass stator and rotor plates are electro-soldered to their respective shafts, permitting a permanent low resistance connection



TOBE

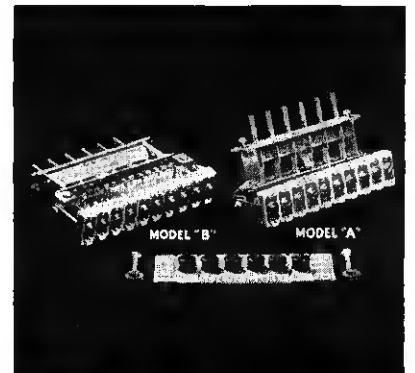
The extreme compactness achieved in the Surgproof Filtermite paper condenser developed by Tobe Deutschman Corp., Canton, Mass., is indicated by the photograph showing a $\frac{1}{2}$ mfd. 1,000 volt unit in comparison with a book of paper matches; capacitances between .05 mfd. and 4 mfd. are available in 1,000 and 600 v. dc ratings

"Push-A-Button" automatic tuners, adaptable to any superhet radio, may be obtained from Autocrat Radio Co., 3855 N. Hamilton Ave., Chicago; only five wires which connect to variable condenser; master control switch for manual tuning; two types (each available for 6 or 8 button operation), \$7.50 and \$9.50



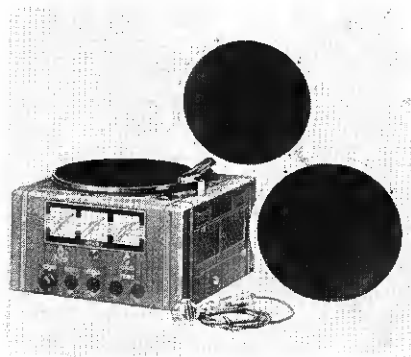
AUTOCRAT

Fress-A-Button automatic tuners to modernize any radio may be obtained from Hetro Electrical Industries, Inc., 4611 Ravenswood Ave., Chicago; may be attached to superhets using either 2 or 3 section tuning condenser; easily installed; no motor; selects five stations; \$7.50



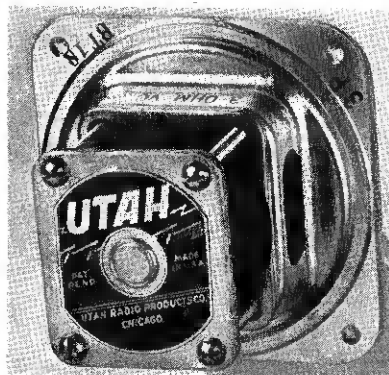
HETRO

PREVIEW OF NEW RADIO MERCHANDISE



OPERADIO

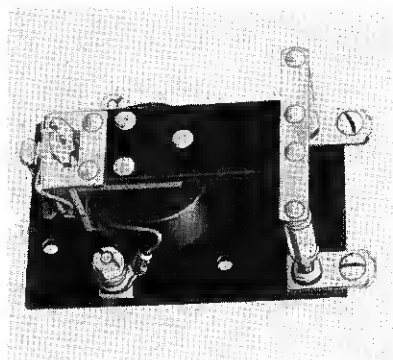
Model 172 Mobile sound system by Operadio Manufacturing Co., St. Charles, Illinois, may be used on ac or dc. Complete with latest type dynamic microphone; provision for remote volume control, headphone and meter monitoring; 25 watts output.



UTAH

Utah Radio Products Co., 812 Orleans St., Chicago, Ill., announces two new 3 1/2 in. speakers. One, a P.M. type is illustrated, the other is electro dynamic. The electro dynamic has a power capacity of 5 watts, voice coil 3 1/2 ohms, field 450 ohms, frequency range is 200 to 800 cycles. The P.M. type is identical except for field specifications.

New grid-controlled rectifiers for high power stations necessitated the development of this new keying relay by Ward Leonard, Mount Vernon, N. Y. Single pole normally open double break contacts; silver to silver contacts; 5000 volts insulation 6-8 volts d.c. field.

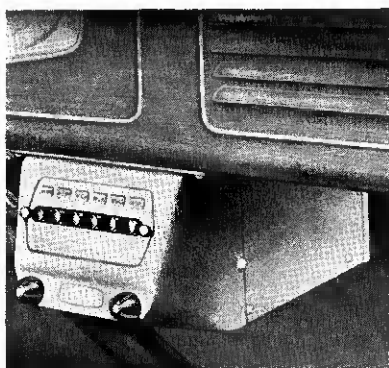


WARD LEONARD

Demand for a popular priced small radio-phonograph combination is met by Model 531 of Fierce-Airo, Inc., 440 Lafayette St., New York City; radio operates on ac or dc; phono on ac; synchronous RCA motor and electric pick up; plays any record up to 12 in. without removing phonograph lid; \$49.95

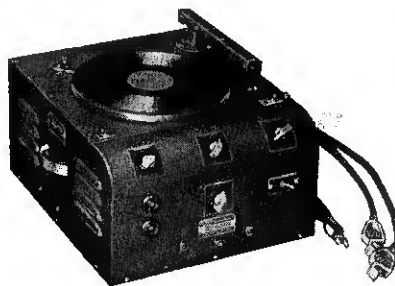


FIERCE AIRO



ARVIN

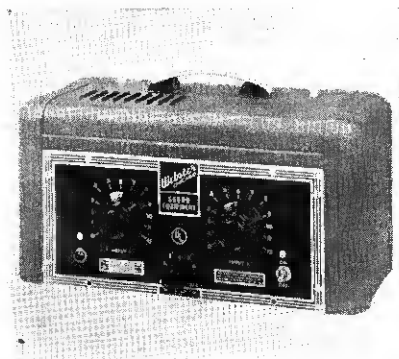
Push-button automatic tuning is used in the new Model 6 auto set of Noblitt Sparks Industries, Inc., Columbus, Ind.; no dial to distract driver's attention; "Station Variator" increases tuning range so two additional stations may be obtained on either side of each of 6 push button settings; single compact unit; 5 tubes



VOCAGRAPH

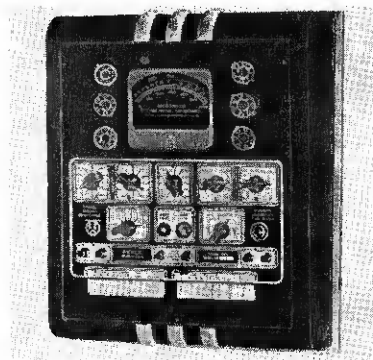
Operating from either 6 volts dc or 110 volts ac, model 30-M30 mobile amplifier by Vocagraph Sound Systems, 164 N. May Street, Chicago, Illinois, delivers 30 watts output. Single switch changes from ac to dc. Built in phonoplugs and complete accessory equipment optional; amplifier unit \$109.00 list.

Webster-Chicago, 5622 Bloomingdale Ave., Chicago, Ill., introduces a 7 watt combination paging and inter-office system. This new system has been built with the amplifier separate from the desk master unit.



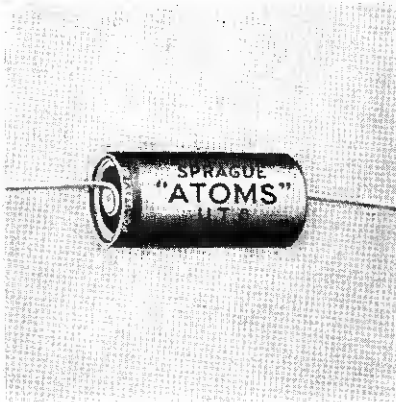
WEBSTER-CHICAGO

Patented Dynamic Mutual Conductance Tube Tester by Hickok Elec. Inst. Co., Cleveland, Ohio, makes use of square meters with translucent, illuminated meter dials. Checks all type tubes, counter type unit shown; portable model available also.



HICKOK

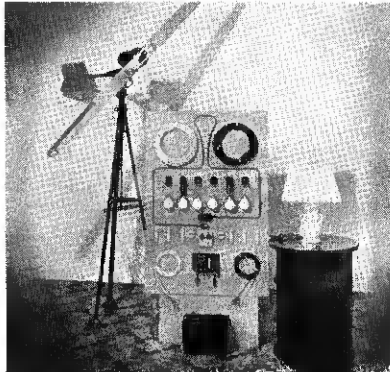
PREVUE OF NEW RADIO MERCHANDISE



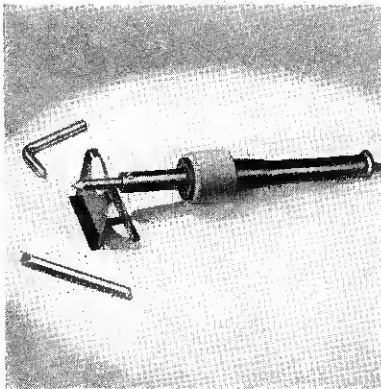
Atoms, a new line of small etched foil electrolytics by Sprague Products Co., North Adams, Mass., measure $\frac{3}{4}$ in. in diameter and $1\frac{1}{8}$ in. long for an 8 mfd. 450 volt unit. List price \$.60. Available in all standard sizes and voltages.

SPRAGUE

An economy lighting outfit consisting of a heavy duty battery, complete wire and wiring, 6 electric lights, 2 wall outlets, a table lamp and a 6 volt Deluxe Wincharger may be obtained from Wincharger Corp., Sioux City, Iowa; with this outfit farm homes can be easily modernized



WINCHARGER



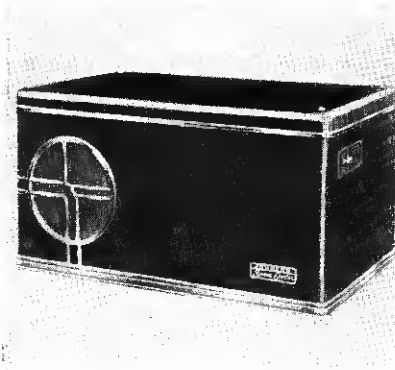
Twenty-five watt $\frac{1}{4}$ in. tip soldering pencil by Jackson Electro Corp., 625 Broadway, New York, has brass wound mica covered element, three tips and stand. Complete with 6 ft. rubber cord. \$1.50 list. Also available in 40 watt model.

JACKSON

A new series of full nickel plate flashlights is announced by Bond Electric Corp., New Haven, Conn.; corrugated to provide strength and handling security; Bond also offers a Super Service Mono-Cell flashlight battery with the new, patented moulded Safety Seal top; each battery is dated to assure freshness



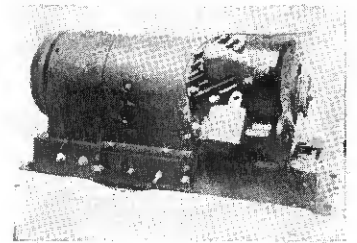
BOND



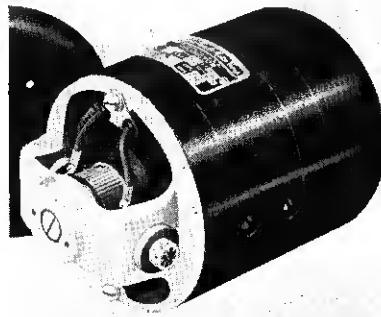
With the snap of a switch, cool air begins to pour out into any office, bedroom or apartment from the Space Cooler by Johnson Motors, Refrigeration Division, Galesburg, Ill. Installs on the window sill with a simple bracket system.

JOHNSON

Katolight model 21A furnishes 300 watts of 110 volts 60 cycles ac and 25 amperes dc, at six volts. Quiet operation, self cranking when connected to a 6 volt battery, speed 1800 r.p.m., radio filter and shielded ignition. Kato Eng. Co., Mankato, Minn.



KATO



Pincor Silver Band Dynamotors are favored for their high efficiency, regulation, and low commutator ripple; manufactured by Pioneer Gen-E-Motor Corporation, 466 West Superior Street, Chicago, Illinois, they are available in various sizes and capacities for aircraft, police and portable radio equipment use.

PIONEER

For localities where electric circuit voltages are below the correct value for electric refrigerators and other appliances, Jefferson Elec. Co., Bellwood, Ill., has designed a voltage corrective transformer, switch permits selection of 3 different voltage taps with an "off" position for disconnecting, keyhole slot for easy mounting



JEFFERSON

NBC

THE MARCH OF TIME

NBC

NBC

THE GUIDING LIGHT

NOW THERE ARE

2

GREAT RADIO SHOWS

Featuring Servel Electrolux

Any family anywhere is a prospect for this different refrigerator; runs on gas, kerosene, or bottled gas

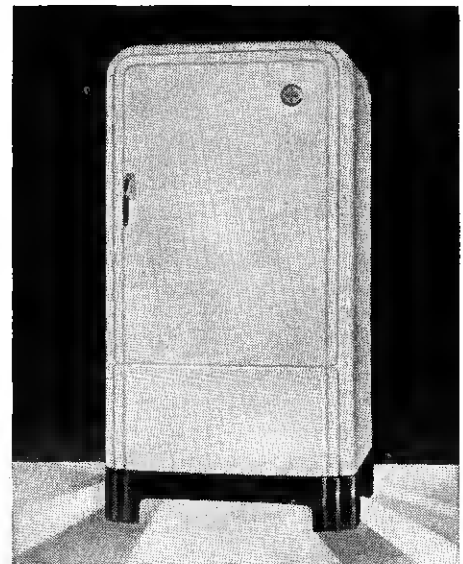
FIRST—"The March of Time." Sponsored by Servel, this outstanding dramatic hit is telling the story of the different refrigerator to 20,000,000 or more listeners a week, is building prestige for the Servel Electrolux dealer.

And *now*—the merchandising tie-up of the year! Commencing May 20, Servel Electrolux will be prominently featured on Procter & Gamble's "Guiding Light" program, a top-ranking daytime radio serial of real-life problems, and in all magazine and newspaper advertising devoted to Procter & Gamble's aggressive contest

for its White Naphtha Soap.

The "Guiding Light" program will reach an area containing 22,000,000 radio sets! Magazines will reach nearly 17,000,000 readers! Newspaper advertising will reach an inestimable total of additional readers.

Remember—Servel Electrolux has models that run on gas, kerosene, or on bottled gas. Any family anywhere is a prospect. For further information about this great radio contest—and about available Servel Electrolux franchises, write to: Servel, Inc., Servel Electrolux Sales Division, Evansville, Indiana.



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

NEWS

June Meetings Gather Radio Interests at Stevens, Chicago

Many groups to stage meetings concurrently with parts show.

CHICAGO—The annual conclave of the entire radio industry will occur again here during the week beginning June 7. The fourteenth annual RMA convention, opening June 7, and the national parts trade show beginning June 8, both at the Stevens Hotel, promise to rally all radio interests. Exhibit space for the parts show, sponsored jointly by the RMA and the Sales Managers Club, has been sold out. The annual RMA membership meetings will be held Tuesday and Wednesday, June 7-8. A "radio special" train will be run from New York on June 7.

The annual radio industry banquet, another "RMA Cabaret-Dinner" for Association members and guests, will be on Wednesday evening, June 7, in the Grand Ball Room. The two days of the RMA annual convention will be featured with many important business meetings. An interesting program is being arranged by President Leslie F. Muter of the RMA and the convention and entertainment committee. A. S. Wells of Chicago is chairman of the committee and will be assisted by the following directors: Paul V. Galvin, Peter L. Jensen, James S. Knowlson, Ernest Alschuler, J. J. Kahn, and Paul B. Klugh.

All four RMA general Divisions, of set, tube, parts, and amplifier manufacturers, will hold meetings and elect chairmen and executive groups for the coming year. There will be meetings also of all major committees of the Association and of many engineering groups. Election of a president, directors, and other officers of RMA also will be held during the convention, including two meetings of the RMA Board of Directors. Also during the parts show there will be meetings of the Sales Managers Club, the Radio Servicemen of America, and other allied industry organizations.

A large luncheon meeting on Tuesday, June 7, combining the annual business meeting of RMA members, will be held. President Muter and directors will tender a complimentary luncheon to the official delegates, alternates, and guests. At the conclusion of the luncheon the annual

business meeting of the membership will be held and annual reports received from president Muter, treasurer Fred D. Williams, and other association officials. Annual meetings of all divisions will follow the luncheon.

RMA Plans Weekly Statistics

Members to exchange data on set sales, finished goods inventories, movement of merchandise to wholesalers and retailers.

NEW YORK—Prevention of over-production of receiving sets is the major object of a plan adopted by the Radio Manufacturers Association directors at a meeting held April 21. Intended as a confidential exchange of information between Association members, the statistical project was suggested by a special committee of which Henry C. Bonfig of Camden, N. J. is chairman and including James M. Skinner of Philadelphia, James S. Knowlson of Chicago and S. T. Thompson of Long Island City.

Weekly statistics are to be gathered, covering factory production periods from Saturday morning through each Friday night, inclusive. Statistics developed from

these reports will include figures on weekly sales to retailers; wholesalers and branch inventory; factory finished goods inventory and factory shipments to wholesalers and wholesale branches together with total factory cabinet commitments. These will be broken down into four groups: electric and battery operated table models and electric and battery operated console models including phono-radio combinations. There will, also, be separate groups covering automobile radio.

Through the use of these weekly statistics RMA members will check their market requirements more closely and avoid merchandising difficulties including "dumping".

Parts Show Interest High

Exhibits surpass last year in number, hotel reservations flooding management. Ambitious program announced.

CHICAGO—From S. N. Shure, president of the Radio Parts Manufacturers National Trade Show to be held at the Stevens Hotel June 8-11 comes word that the project is already an assured success. More exhibitors have actually leased space than



FIRST 100 HARDEST—At an employee-tendered dinner celebrating Weston's 100th year in business, left to right: H. L. Gerstenberger, sales manager; W. M. Goodwin, Jr., chief electrical engineer; Edward F. Weston, president; E. R. Mellen, treasurer; Caxton Brown, vice-president and secretary and T. L. Evans, assistant secretary and comptroller

ever before, more total exhibit space has already been assigned. And more hotel reservations have been made than in any past year. Jobbers, representatives, parts dealers and servicemen are obviously planning to attend in force.

Tentative program of the National Radio Parts Trade Show, conventions of the Radio Servicemen of America, The Representatives, Sales Managers Club and the RMA is as follows:

Tuesday, June 7
 1:00 p. m. Registration, National Radio Parts Trade Show.
Wednesday, June 8
 9:00 a. m. Registration, National Radio Parts Trade Show.
 10:00 a. m. Board of Directors, RSA.
 2:00 p. m. Trade Show opens.
 6:30 p. m. Annual RMA banquet.
 8:00 p. m. Technical session, RSA.
 10:00 p. m. Exhibits close. (Demonstration rooms remain open)
Thursday, June 9
 9:00 a. m. Registration desk opens. RMA golf tournament.
 10:00 a. m. Meetings: The Representatives, Sales Managers Club, jointly with Trade Show.
 2:00 p. m. Exhibits open.
 7:30 p. m. Technical session, RSA.
 8:00 p. m. Sound equipment symposium. Engineering session, Chicago section, IRE.
 10:00 p. m. Exhibits close. (Demonstration rooms remain open)
Friday, June 10
 9:00 a. m. Registration desk opens.
 2:00 p. m. Exhibits open.
 7:30 p. m. Technical session, RSA.
 8:00 p. m. Engineering session, Chicago section, IRE.
 10:00 p. m. Exhibits close. (Demonstration rooms remain open)
Saturday, June 11
 10:00 a. m. RMA service section.
 2:00 p. m. Exhibits open.
 7:30 p. m. Technical session, RSA.
 9:30 p. m. National Radio Parts Trade Show closes.

From Perry Saftler, 53 Park Place, New York, comes word that The Radio Industries Special Train, carrying jobbers, representatives and others to the Show will leave Grand Central Station June 7 at 4:10 p.m. (Daylight Saving Time), arriving in Chicago next morning. A car is being made up in Boston, will be picked up by the special at Albany. Enroute west, representatives and jobbers will board the train at other principal cities, probably requiring an additional car at Cleveland.



NOW ON RR—Lee Robinson, "Radio Retailing's" new sales manager

Robinson Rejoins McGraw-Hill

Appointed *Radio Retailing* sales-manager May 10

NEW YORK—Lee Robinson, for over twenty years identified with radio and allied line trade publications in important executive capacities, has rejoined the McGraw-Hill Publishing Company, Inc., with whom he originally started his publishing career.

Effective May 10, Robinson became salesmanager of *Radio Retailing*, making his headquarters in the executive offices of the publication at 330 West 42nd Street, where he will work in close coordination with the editorial and field staffs. He plans to spend the greater portion of his time visiting the trade and cooperating with manufacturers in every possible way.

Said *Radio Retailing's* manager H. W. Mateer, in announcing the staff addition: "The addition of Lee Robinson to the staff is in line with our policy of continuing to

improve our service to the industry and reflects the faith and confidence of the McGraw-Hill Publishing Company in the permanent stability and prosperity of this field."

Burns Acquires Lifetime Interest

Will actively direct firm's sales and advertising policies

TOLEDO—Gere Burns, formerly with Grigsby-Grunow, Hygrade-Sylvania and more recently sales promotion manager for the International Radio Corporation, has acquired an ownership interest in the Lifetime Corporation of this city, will actively direct this firm's sales and advertising program.

From Lifetime's president William H. Manoff it is learned that in addition to completely reorganizing the firm's policies governing sales and advertising in connection with its present line of popular microphones Burns is laying plans for presentation of other sound equipment.

Lifetime will exhibit at the Chicago Show next month, is working on an unusual microphone display which will be made available to dealers shortly.

Zenith Table Models Out Early

CHICAGO—In the midst of sectional distributors meetings as we go to press is the Zenith Radio Corporation, flashing a line of pre-season table models in advance of its regular annual convention and complete line. Featured is a molded-cabinet, ac-dc model with 6-tubes, a 5-inch speaker, at \$14.95.

Chicago saw the new table models April 29-30; New York May 2-3; Atlanta 6-7; Salt Lake City 6-7; Dallas 9-10, Portland (Ore.) 9-10. San Francisco was scheduled to glimpse them May 12-13.

Weintraub Buys Into Sonora

NEW YORK—Max Weintraub, veteran phonograph merchandiser and radio manufacturing official, has purchased an interest in the Sonora Electric Phonograph Company, will serve as secretary and treasurer of this company. Milton Benjamin is president.

Price Leaves Utah

NEW YORK—J. B. Price, for the past eight years eastern sales manager of the Utah Radio Products Company of Chicago, resigned May 1. "J.B.," who is widely known in the radio industry and who was the first president of "The Representatives," will continue to maintain his offices at 12 East 41 Street, is now negotiating with a number of well-known firms to represent them in the eastern territory. He will announce his new connections in the near future.



RIGHT WITH RADIO—From George S. Kaufman's play, "I'd Rather Be Right," comes this shot of the on-stage Supreme Court, using Philco receivers to listen to the President's fireside chat

"RCA Victor" Tubes Announced

Will go in all company sets, to trade through wholesalers handling same receiver brand. Radiotron, Cunningham distribution unchanged.

CAMDEN—Nipper, the world-famed fox terrier who became one of the best known trademarks in advertising history as he sat in front of an early Victrola, will grace another product soon in the new RCA Victor radio tube, according to an announcement by George K. Throckmorton, President of the RCA Manufacturing Company.

Tubes bearing this trademark, Throckmorton explained, will be sold exclusively through RCA Victor wholesalers handling similarly branded radio receivers, Victrolas and records. The new product will in no sense supplant either the RCA Radiotron or the Cunningham radio tubes now being merchandised through other channels.

Beginning with the 1938-39 series, all RCA Victor radio receivers and RCA Victrolas (Phonograph-Radios) will be equipped with the new tubes, which will be available in all of the current receiving types in which the other RCA tubes are now made. Quantities of the new product will reach the public through retail stores and radio servicemen around June 1st, the announcement added.

An elaborate advertising and merchandising program for the new brand product is being prepared and will be ready for presentation to the wholesalers at the Company's national convention, which takes place in Atlantic City, May 19th, for the Eastern part of the country, and on June 2nd in French Lick, Indiana, for the rest of the country.



NEW JOB FOR "NIPPER"—Long-famous Victor trademark, RCA's dog gets his picture on the cartons of a new line of tubes

Orchid For Servicemen

Mallory-Yaxley lauds group in "Fortune" ad

INDIANAPOLIS—Many types of repair men—doctors, dentists, auto mechanics—have been lauded by advertisers in newspapers and periodicals. "Consult your doctor"; "See your dentist twice a year"; "Ask the garage man"—are terms read by the consuming public at every turn of the page. In the April issue of the magazine "Fortune", P. R. Mallory & Co., Inc., glorified the radio repair man with an ad entitled: "It Stops . . . He Looks . . . You Listen."

Proofs of the ad, together with the front cover of the magazine in full color, have been mailed Mallory-Yaxley distributors by wholesale division manager Howard W. Sams, with the recommendation that these be used in display windows.

Four More Chapters For RSA

Houston, Rockford, Buffalo, Jamestown Groups Affiliate

CHICAGO—From headquarters of Radio Servicemen of America, Inc., comes word that four service groups hitherto independent have affiliated.

The National Radio Service Association of Houston, Texas voted to join RSA at its April meeting. C. L. Robertson is chairman, J. L. Stone, secretary-treasurer. The Rockford, Illinois Chapter of the RSA was officially established April 7, at which time leading radio service dealers of the town voted for this move. Officers of this new group, one of the strongest yet to come in under the RSA banner, are: Frank N. Welzen, chairman; E. S. Ary, secretary and A. L. Hissong, treasurer. The Associated Radio Service Engineers of Buffalo, New York, one of the oldest and most progressive groups in the country, voted April 5 to join RSA. Anthony Schreiber is chairman, Vincent E. Ball, treasurer and Frank Bestine, secretary. The Jamestown (N.Y.) Association of Radio Service Engineers have also voted to join RSA. Lawrence Babcock is chairman, Richard L. Bonsteel, treasurer and C. Leonard Johnson, secretary.

RSA national headquarters is planning to stage a Better Radio Reception Week in the Chicago area, in cooperation with local broadcasting stations. Results will be carefully checked for possible use in other districts.

Utah Officers Re-Elected

CHICAGO—At the annual meeting of the stockholders of Utah Radio Products Company, eight of the nine directors in office during the preceding year were re-elected. Robert M. Felsenthal was elected to bring the board to the full number.

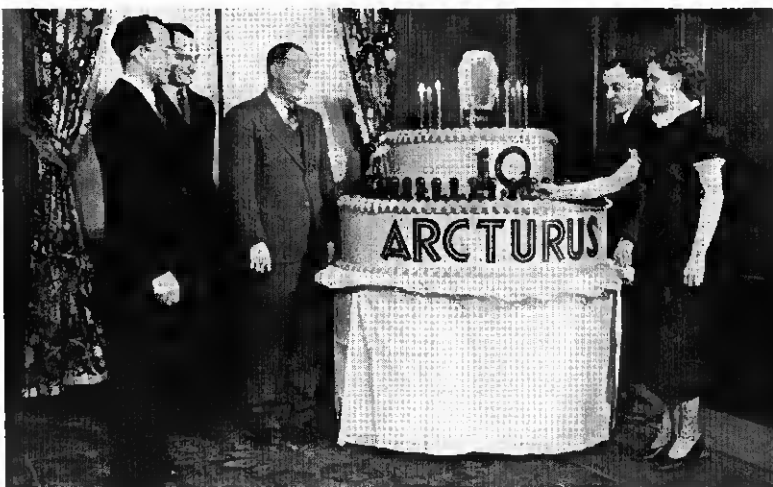
At the subsequent director's meeting, the following officers were re-elected: G. Hamilton Beasley, president; John A. Snyder, first vice president; E. L. Barrett, vice president in charge of development and engineering research; W. Dumke, vice president in charge of production and H. S. Neyman, secretary-treasurer.

Radiobar Comes East

PHILADELPHIA—From Los Angeles to this city moves the factory of the Radiobar Company of America, of which E. J. Krause is president. All models turned out by this concern use Philco chassis.

Standard Warms House

CHICAGO—Standard Transformer held open house April 30 at its new 1500 North Halstead plant. Jerry Kahn celebrated by blowing himself to a swanky new LaSalle. The office floor, according to our correspondent, looked like a florist's shop, what will all the flowers sent by Chicago and mid-western notables.



QUICK 'EATERS—To Arcturus jobbers and representatives late last month went slices of this giant cake made by a Newark baker to celebrate the tenth anniversary of the firm's revolutionary quick-heating a.c. tube. Left to right: A. Feindel, chief engineer; A. E. Lyle, plant superintendent; J. A. Stobbe, vice president and general manager; Jack Geartner, sales manager (who estimates quick-heating tubes of the type used to decorate this cake have saved listeners 736,111 hours) and Stella Saunders, the operator who turned out the first 7-second type '27



New composition element positively moisture-proof.

Metal parts heavily cadmium-plated against corrosion.

Casing properly fitted to keep out dust and dirt.

Smaller controls for bigger work.

● CLAROSTAT engineers have developed a new element that's immune to humidity and other climatic conditions. Our humidity tests prove it. And from now on, our new Midget Controls, working in all climes, will confirm it.

Free! New 208-page pocket-sized CLAROSTAT SERVICE MANUAL is yours for the asking. And if you get to the Chicago Paris Show, visit with us at 208 Steinmetz Ave.

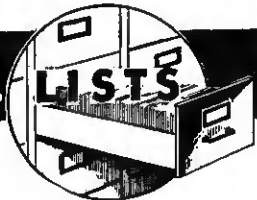
CLAROSTAT *Manufacturing Co. Inc.*

285-287 NORTH SIXTH STREET
BROOKLYN, NEW YORK, U.S.A.

• OFFICES IN PRINCIPAL CITIES •

McGraw-Hill

DIRECT MAIL



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

What Selection Do You Want to Reach?

- Radio Wholesalers
- Radio Dealers
 - Larger Dealers
 - Smaller Dealers
- Occupational Groups
 - Automotive Stores
 - Central Station Stores
 - Hardware Stores
 - Etc.
- Radio Service Dealers and Service Men
- Geographical Selections
- Population Groups

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



DIRECT MAIL DIVISION . . .
McGraw-Hill Publishing Co.
330 W. 42nd STREET NEW YORK, N. Y.

**NO FINER SPEAKERS
WERE EVER BUILT!**

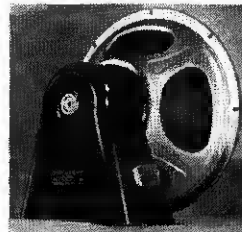
Utah
**NEW 15 INCH
HIGH FIDELITY
SPEAKERS**

TYPE H15-25

- * 15 INCH
- * 2500 OHM FIELD RESISTANCE
- * 45 WATT PEAK
- * 30 WATT
- * HIGH FIDELITY
- * LIST PRICE \$28.50
- * ALSO AVAILABLE WITH 5000 OHM FIELD RESISTANCE. SPECIFY TYPE H15-50

Complete with line or universal Transformer, or less Transformer.

DYNAMIC



TYPE G15-25

- * 15 INCH
- * 2500 OHM FIELD RESISTANCE
- * 30 WATT PEAK
- * 20 WATT
- * HIGH FIDELITY
- * LIST PRICE \$24.50
- * ALSO AVAILABLE WITH 5000 OHM FIELD RESISTANCE. SPECIFY TYPE G15-50

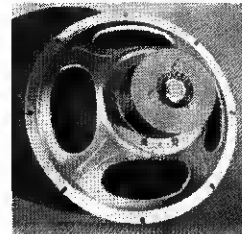
Complete with line or universal Transformer or less Transformer.

PERMANENT MAGNET

TYPE H15 UP

- * 15 INCH
- * 45 WATT PEAK
- * 30 WATT
- * 7 LB. PERMANENT MAGNET
- * HIGH FIDELITY
- * LIST PRICE \$38.50

Complete with UNIVERSAL Transformer



TYPE H15 LP

- * 15 INCH
- * 45 WATT PEAK
- * 30 WATT
- * 7 LB. PERMANENT MAGNET
- * HIGH FIDELITY
- * LIST PRICE \$38.50

Complete with LINE Transformer

Tone such as you've never heard before! Brilliant highs! Better lows! All around performance that is absolutely unsurpassed—a triumph in speaker engineering such as only Utah can produce.

Both P.M. and Dynamic type show brilliant response from 50 to over 8000 cycles without the use of tweeters or cut off networks. See your jobber or write Utah today for complete specifications.

Visit the Utah Exhibit, Booths 113 and 115 Marconi Blvd., Chicago Radio Parts Show.

UTAH RADIO PRODUCTS CO.
CHICAGO, U. S. A.

BUENOS AIRES — UCOA RADIO PRODUCTS CO.
Cable Address "UTARADIO" Chicago

"16 YEARS OF LEADERSHIP"

Detrola's Ross Makes Davin V.P.

DETROIT—From John J. Ross, president of the Detrola Corporation, maker of the currently popular "Pee-Wee" model radio, comes word that James J. (Jim) Davin, Sr., has joined the firm as vice president in charge of sales. Davin, one of the industry's real old-time merchandisers, came up through the phonograph business, was with Grigsby-Grunow during the height of its "Majestic" brand business, leaves General Household Utilities, where he was sales promotion manager.

Davin plans to build up a strong distributor-dealer organization for Detrola, will stage a special showing of new set models sometime this month.



NEW CONNECTION—Jim Davin, now with Detrola

New Detrola Export Man

DETROIT—Frank Harris, formerly with Emerson, has been appointed export manager of the Detrola Corporation, will be assisted by Rhudy Blanck.

Ormont Takes Over Federated

NEW YORK—Dave Ormont has taken over the reins of Federated Purchasers, Inc., 25 Park Place and at 343 Boulevard of the Allies, Pittsburgh.

Stromberg Transfers Bond

ROCHESTER—Charles H. C. Bond has been transferred from Stromberg-Carlson's California sales department to the export department of the home office here.

Shy 45c

The "Irwin" camera illustrated on page 26, April issue, lists at \$12.95 and not at \$12.50, as indicated.



BANQUETEER—At the Eastern Industrial Advertiser's Philadelphia meeting: Dave Finn, RCA's assistant advertising manager



NEW KIND OF CADDY—Henry Forster of Radio Speakers, Inc. and Bill Tewksbury of Anaconda take it easy after a strenuous round of golf. Bill shot a 73, is set for a famous industry foursome . . . himself, E. C. Anderson of RCA, P. S. Billings of Belmont and Les Muter

New Bittan Address

NEW YORK—The D. R. Bittan Sales Company is now located at 53 Park Place. Phone number: Barclay 7-2790-1.

Survey Shows Newsprint Lineage

NEW YORK—Radio set makers spent much money in 1937 to popularize their wares. *Media Records, Inc.*, in a survey of newspaper lineage in 103 cities, produced the following figures:

	Total Lineage
Philco	2,095,653
R. C. A.	1,219,501
G-E (Radio only)	1,165,332
Zenith	817,926
Stromberg-Carlson	153,618
Fairbanks-Morse	128,114
Westinghouse	115,160
Sparton	64,525
Midwest	64,330
Emerson	60,541
Stewart Warner	51,979
Crosley	46,319
Motorola	38,004
Grunow	27,139
Majestic	12,637
Kadette	8,002
Lafayette	5,652
Fada	5,381
Howard	3,247
Delco Auto Radio	2,693
Little Giant	2,313

READING and REFERENCE

ENCYCLOPEDIA, SECOND EDITION—Worth much more than the \$3 at which it lists, even to technicians who have last season's original volume is the Mallory-Yaxley "Radio Service Encyclopedia," second edition, just off the press. Over 17,000 radio receivers (500 more than last year) are analyzed to show type of volume and tone controls, condensers, vibrators used, how they are used and available replacement types. Included also are receiver tube lineups, i. f. frequencies and power transformer circuit details. Charts, data sheets and formulae included in the first edition are continued, added to. And a new chapter giving mechanical and electrical details of existing automatic tuning systems (the most complete work on the subject we have seen) appears. Sound men particularly will appreciate a chapter dealing with audio amplifier design and use.

LIGHTS FOR FARMERS—Dealers in the rural areas will be interested in looking over a new catalog by the *Ruralite Engineering Company*, of 2700 Hawkeye Drive, Sioux City, Iowa. Contains complete dope on a well-priced line of 32-volt batteries designed to supply heavy-duty juice when operated in conjunction with wind or gas chargers.

FLASHES GUARANTEE—Lithographed in three colors on heavy cardboard equipped with cord for hanging it on the wall and with an easel for window and counter work is a new *Hygrade-Sylvania* sales aid sign reproducing the company's well-known guarantee certificate.

"BEAVERS"—New, tiny etched-foil condensers bearing this name, made by *Cornell-Dubilier*, are described in a flyer labelled 154-A. So are type 2R silver-plated mica capacitors. Write to South Plainfield, N. J.



SELLS FOR BELL—R. E. Potts, who has just joined Bell Sound Systems, will fill the newly created position of sales manager. President Floyd W. Bell formerly handled this work

MIDDLEMEN of the MOMENT

STROMBERG-CARLSON — *Gross Sales, Inc.*, New York and New England representative, has appointed M. Dribbon sales representative for its Long Island territory, contacting dealers in Queens, Nassau and Suffolk Counties.

LIFETIME—Has appointed the following representatives: A. T. R. Armstrong & Co., Toronto, covering all of Canada; M. H. Gray, Springfield, for state of Ohio; David Klein, Metropolitan, N. Y.; J. J. Perlmuth, Los Angeles, southern Calif. and Ariz.; Segelsound, Inc., Gardner, Mass., New England states; Henry Spolane, Chicago, for Indiana, Illinois, Kentucky and Wisconsin; Joseph Topping, Jr., San Francisco, for northern Calif.

VOCAGRAPH—*Henry Segel* and *James Vawter* have been appointed eastern reps. Segel, of Gardner, Mass., will cover the New England states while Vawter handles New York state out of Buffalo.

VIBRAPOWR—*Frank Max, Nebrock Company* has this line in Hamilton, Ontario. Also represents General Cement, Transducer.

ONE TO CANVASS

(Continued from page 15)

do society a favor by taking men off the street and giving them jobs.

So there is your two-man sales force. The supervisor makes the men work and the men make the supervisor work. The men work regular hours and feel as if they have a job. The supervisor works long hours but his work is more congenial, the kind of work he wants to do, is capable of doing, and should be doing.

The men are held together by the moral support of their supervisor. They've got a discouraging job; they find a lot of women who say they need certain things and want certain things, but all these women say they can't afford them. And yet, doesn't that supersalesman of theirs, their supervisor, go back and sell a lot of these people? (And the supervisor is not a super-salesman—he's simply in a different frame of mind. He is merely a good salesman who knows the business, and is doing the work he should be doing.)

The supervisor, who doesn't want to canvass and shouldn't do it anyway because his time and experience and talents are far too valuable to be

spent in such a manner, is given work worthy of him, by the canvassers.

And the canvassers, who cannot sell—due to inexperience primarily, but due also in many cases to such circumstances as lack of native selling ability, lack of a car and mental attitude, make up for their shortcomings by canvassing five hours a day, and the good prospects they do locate are worked on by a good salesman and given all they're worth. *Mutual benefit.*

Mutual benefit? Not only mutual benefit but *the most effective use of man-power.* The only way to use inexperienced man-power, and the best way to use experienced man-power.

RECORDING AS A BUSINESS

(Continued from page 21)

different types and grades of material for this purpose to choose from and the size of the studio plus the size of the budget will serve to dictate the type and grade to be used.

The studio may have a room separated by a double plate glass window the recording equipment itself, thus giving the installation a professional appearance as well as providing adequate separation between recording machines and microphones. This will preclude any pickup of amplifier or machine noises by the microphones.

A recording studio should be located in a noise-free building, away from thoroughfares where street cars and automobiles pass.

Question No. 7—When a radio or sound dealer ventures into the recording field, what are the most profitable sources to which he can look for his clientele and income?

Answer—Music Schools, Dramatic Art Schools and Public Speaking Schools, Law Schools, Law Offices and Court rooms for recording important testimonies and verdicts.

It is desirable for music instructors to insist upon their pupils being recorded at least once a month beginning with the first lesson and continuing throughout the entire term of lessons. This will assist the instructor in detecting and correcting any deficiencies which have become apparent in the student's performance. This also enables the pupils to "hear themselves as others hear them" and helps to increase their enthusiasm, which is necessary for rapid progress.

Matured concert artists very often

want a personal record made before playing or singing publicly in order to correct any existing faults in technique or musicianship before public performance.

In Dramatic Art and Public Speaking Schools, recording also serves a fine purpose as an aid to budding actors, actresses and orators in correcting whatever errors they may have in English diction or foreign diction, voice inflection and modulation. In the study of foreign languages a record is indispensable in aiding correct pronunciation of words.

Law Schools will welcome the personal recording as an aid to students who are engaged in the study of either criminal or corporation law which calls for many dramatic sessions in court, for through recordings the students are able to acquire the ability to sway a jury in prosecution or defense.

Question No. 8—What is considered to be the most ethical price range governing the making of 8, 10, and 12 inch personal recordings?

Answer—The prices of personal records depend upon four things: (1) The quality of the recording apparatus used. (2) How good your studio and piano is. (3) How much knowledge and experience your recording technician possesses. (4) Whether you care to devote the time required to make a really good record.

The prices which are most commonly charged for quality work are as follows: An 8-inch disc, 2½ minutes playing time each side, both sides, \$2.00. A 10-inch disc, 3½ minutes playing time each side, both sides, \$4.00. A 12-inch disc, 5 minutes playing time each side, both sides, \$5.00.

The average cost of acetate blanks of highest quality is: 8-inch blanks, 55¢ each, 10-inch blanks 80¢ each, and 12-inch blanks \$1 each, 16-inch blanks \$2 each. All prices quoted are net. The 10 and 12-inch blanks are used most extensively.

It is considered good business to charge a nominal fee for rehearsals before the actual recording is done. This charge is made primarily in order to help defray the expense of equipment and to prevent people from using your facilities gratis whenever they feel so inclined. The standard fee as charged by most recording studios is \$1.50 per half hour. However, when a client signs a contract for a quantity of record-

RECORDING AS A BUSINESS

(Continued from page 37)

ings the rehearsal fee should be omitted.

Question No. 9—What is the basic difference between a phonograph record and an electrical transcription?

Answer—Phonograph records are divided into two classes: (1) classical and popular music records for purchase by the general public, (2) instantaneous or personal recordings for pleasure or self-betterment. Both types are recorded at the standard phonograph speed of 78 r.p.m. and are to be reproduced on an electric phonograph.

Electrical Transcriptions differ from the universally known phonograph record due to the fact that they are 16 inches in diameter and are recorded and played at a speed of 33½ r.p.m., thus affording a playing time of 15 minutes per side. The standard phonograph record affords a maximum playing time of 3½ min. per side on 10 in. discs, or a playing time of 5 min. per side on 12 in. discs.

Reproducing apparatus for playing electrical transcriptions must be of

the same quality and heavy construction as the recording machines and should be equipped with an oversized 33½ r.p.m. synchronous motor, a heavy, well-balanced turntable and two oil-damped transcription pickups, one for lateral and one for vertical. High grade playback equipment can be used very successfully for "dubbing" or re-recording.

Question No. 10—How can I obtain transcription business?

Answer—The problem of locating a suitable clientele in this field can best be solved by contact with various radio advertising agencies in your locality and actors' clubs furnishing talent.

Average prices of electrical transcriptions are: For instantaneous discs \$8.00 per side for 15 minutes or \$16.00 per half hour. Prices for masters are necessarily higher because of greater care which must be used in their recording and processing. The prices generally governing the production of masters are as follows: A 10-in. master is \$30.00 per side, or \$60.00 double, with not less than 25 pressings at .75 each plus one pressing free. A 12-in. master is \$45.00 per side, or \$90.00

double, with not less than 25 pressings at \$1.00 each.

All 10-in. and 12-in. records are double faced. A 16-in. master is \$75.00 per side, with one pressing free. In pressing transcription masters of dramatic shows or skits only single-faced discs are made so that when a show is transcribed at a broadcast station the change from one disc to another is accomplished without a break of any kind to mar the program. Every radio station is equipped with two or more transcription turntables for immediate transcription changing.

There are two materials from which masters are made, namely wax and acetate. The acetate disc was developed to reduce initial cost of making a master as against using a wax plate. If the proper care is exercised, a very good quality master may be cut on acetate. Wax, however, still remains the most flexible and dependable material on which to cut masters, wax entails a far greater financial layout and much more operating experience. The beginner should not venture beyond recording on acetate discs at least until he is well versed on this subject.



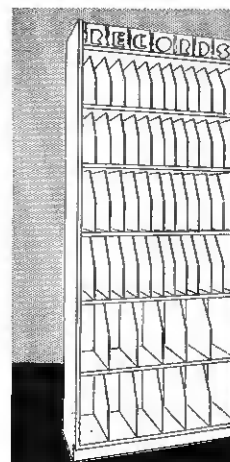
KOOLROOM—the MAGNET For Those "Hot Weather" Sales!

Offer Real Air-Conditioning For **\$175**

Scores of radio dealers find KOOLROOM pays for itself by preventing the customary summer slump in sales. Home owners will refuse to swelter when relief can now be had so inexpensively. **SELL KOOLROOM NOW! WIRE FOR FRANCHISE!** Koolroom is the all-purpose air conditioner . . . it cools, it dehumidifies, it purifies, it ventilates, it circulates. There are nine models, from a 1/3 ton capacity model at \$175 up to a 5-ton capacity model at \$1350. (Prices slightly higher west of the Rockies) *Write or wire for the Koolroom franchise for your community.*

KOOLROOM Division of Indian Products Corp.

2340-F INDIANA AVE., CABLE: "TRAILCO CHICAGO", U. S. A.



TAKING ON RECORDS?


More radio and music dealers are selling phonograph records and expanding record departments.

Adequate attractive display, storage, demonstration booth, and counter equipment is important to sales.

Standard and special equipment available in different wood finishes. Prices extremely reasonable.

We invite your correspondence.

A. BITTER CONSTRUCTION Co.
27 OIBRIDGE PLAZA No.
LONG ISLAND CITY N.Y.



Licensed by A.A.&K., produced with typical CORWICO attention to scientific detail. Warranted to banish man-made static on broadcast as well as shortwave frequencies. Write for information regarding this and other CORWICO units. . . .

MADE BY ENGINEERS FOR ENGINEERS
Booth 204, Marconi Blvd.
Chicago Trade Show

CORNISH WIRE CO., Inc. 30 Church Street New York City

CHANGING YOUR WINDOW

(Continued from page 22)

inside all the time. If any tint, such as green or orange for instance, seems desirable, just spray the inside of the top section.

In the shorter column, and in the bottom of the taller one, it will be seen that four lamps are required. The upper one is red, and the bottom one is blue. These two stay on all the time. The two center lamps are white and are attached to a simple flasher.

The oversize record is just a disc of compo board, painted black with dull gray lines to simulate a real record. A label is mounted in the center, and then the whole is sprayed with glossy varnish or colorless lacquer. It may be well nearly to imitate a Red Seal record in outline and color scheme. Red on black is always good, and is particularly so in this instance. The large record is set on a wooden easel.

For a large window we suggest the following sizes: Make the record 4 feet in diameter, the short column 3 feet high and about 20 inches in diameter. The tall column is 4 feet 6 inches by 15 inches. If your win-

dow is small, cut off 25 per cent from these measurements, except in the tall column, which should be very little less than 15 inches in diameter, although it should be proportionately shortened.

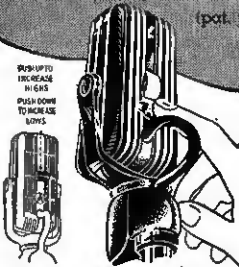
A few tips: Cut several holes in the rear of each column for ventilation. Do not use a lamp-socket flasher, but place your flasher in the wall plug. Use a good flasher of the fast-acting type. Be sure both flasher-controlled white lights (in both columns) are wired to the same flasher, and that the flasher is rated

for the wattage it governs.

Lamiluxe is manufactured by the Rhinelander Paper Company, Rhinelander, Wis., with stock and sales offices at 667 Washington St., N. Y., 228 No. LaSalle St., Chicago, 820 McGarry St., Los Angeles. Art supply stores almost everywhere stock white and several colors. For the purpose of this display we suggest No. 530G which is a 200-lb. whitish stock. This comes in rolls 52 inches wide, and dealers cut it as required. The cost of the paper in this display will run between \$2 and \$3.

AMPERITE offers "ADJUSTABLE RESPONSE"

... made possible by THE ACOUSTIC COMPENSATOR (pat. pend.)



*Higher or lower pitch with the same microphone.

With the flip of a finger you can now (1) lower or raise the response of the microphone. . . (2) adjust the microphone for most desirable response for close talking or distant pickup. . . (3) adjust the system to any "taste", room condition, or equipment.

MODELS RBHk, RBMk, with Acoustic Compensator, frequency range 40 to 11000 cps, output, -65 db., complete with switch, cable connector and 25' of cable. \$42.00 LIST

NEW LOW-PRICED CONTACT "MIKE"

Model SKH (hi-imp); SKL (200 ohms) \$12.00 LIST

MODELS RAH-RAL, excellent for speech and music. Reduce feedback. \$22.00 LIST

Write for Complete Illustrated Bulletins and Valuable Sales Helps.

AMPERITE Co. 581 BROADWAY, N. Y. Cable Address: Alcom, New York

AMPERITE Velocity MICROPHONE

PARRIS-DUNN NEW HY-TOWER AGAIN YEARS AHEAD

in Design Performance Durability

RETAINING FOUR LEGGED TOWER

HY-TOWER New 1939

steel built Hy-Tower charger. New patented pivoting point with shock absorber vibration.

10 FEET TALL

The Proven "slip the wind" governing principle that made Hy-Tower famous the world over is retained and

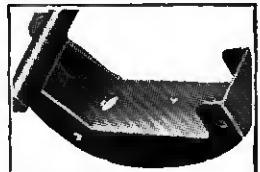
is Approved by AMERICA'S LEADING RADIO MANUFACTURERS

WRITE OR CABLE TODAY FOR COMPLETE INFORMATION

PARRIS-DUNN CORP. CLARINDA IOWA

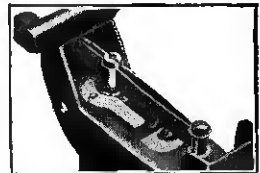
New

Main Frame, compact, all steel, lighter — stronger — indestructible.



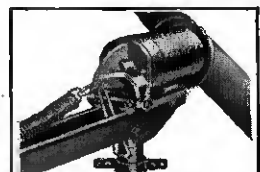
New

Improved life-time, full floating, self-adjusting, carbonless, non-arcing collector ring.



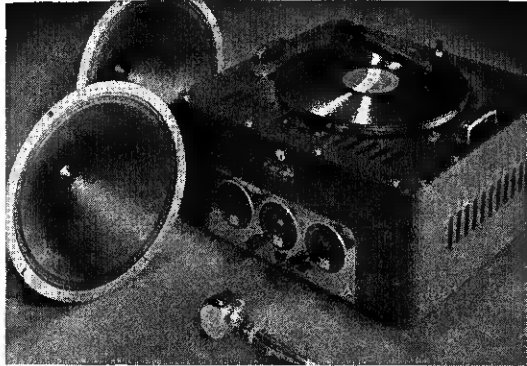
New

Heavy Duty Shielded Air-Cooled Three-Brush Generator with new patented rear pivot shock absorber mounting.



BELL COMBINATION MOBILE P. A. SYSTEMS

MANUFACTURED UNDER
LICENSE ARRANGEMENT
WITH E. R. P. I.



For 6 volt D.C. or 110 volt A.C. operation. No power packs to interchange. 24 watts output. Two 12" auditorium type permanent magnet speakers reduce battery drain when operated on D.C. Three input channels—two for microphones—one for phono. Beam power output tubes. Base and treble compensating controls reduce feedback to a minimum. Plug-in type crystal microphone permits easy adaptation to pedestal or other type stands. Modern in appearance, easily portable and easy to service and built to Bell's usual high standards of quality. Model M-24 is a truly modern, reasonably priced Mobile System, that's easily portable and easily serviced. Write for details on this and other Bell models.

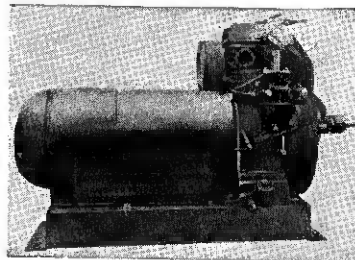
Visit Our Booth at the National Trade Show

BELL SOUND SYSTEMS, INC.

65 East Goodale Street Columbus, Ohio

Export Office: 308 W. Washington St., Chicago, Ill.

110 VOLTS AC ANYWHERE!



With KATOLIGHT. Furnish standard 60-cycle AC for operating sound truck equipment, AC radios, transmitters, flood lights, motors, moving picture projectors, etc.

A Few Popular Sizes
350 Watts AC, 1RA3, \$89.50
500 Watts AC, JR55 \$130.00
1000 Watts AC, 26AL \$228.00

A complete line of light and power plants ranging up to 10,000 watts. Also 6, 12 and 22 volt battery charging plants, Diesel plants, rotary converters, and frequency changers.

KATO ENGINEERING COMPANY
Mankato, Minn., U. S. A.

New B9 Crystal Microphone



List Price
\$22.50
8' cable and
plug

A small, lightweight, crystal microphone, with good response and high output. It is semi-directional and notably free from feedback. This unit has a wide range of applications, enhanced by the available accessories. The B9 is singular in that it is equipped with a plug at the microphone, thus making cable replacement a simple operation. Chrome finish. Complete with plug and 8' cable. Standard 3/4-27 fitting.



Request Catalogue #27
for Complete Details

All crystal microphones licensed under patents of
The Brush Development Co.

AMERICAN MICROPHONE CO., INC.
LOS ANGELES, CALIFORNIA

HORTON • first every time

IN A MODERN, up-to-the-minute factory . . . with completely streamlined production facilities . . . craftsmen schooled in the quality traditions of 67 years . . . build America's top line of washers and ironers—Horton.

The in-built quality in every Horton product is assurance of satisfied customers. Write now for details of the Horton proposition.

finest every way • **HORTON**

HORTON MANUFACTURING CO., FORT WAYNE, INDIANA

A GOOD NAME GOES A LONG WAY



The Good Name, Ken-Rad, attracts customers. For dependable radio reception and complete customer satisfaction, handle Ken-Rad Tubes.

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

KEN-RAD
DEPENDABLE RADIO TUBES

Janette Rotary Converters

Are Recommended By
PHILCO RADIO & TELEVISION CORPORATION
who is one of the many internationally known manufacturers who recommend Janette converters.

—TO ALL PHILCO DISTRIBUTORS—

"We have had a lot of experience with rotary converters used with radios and we recommend that you use Janette rotary converters . . . PHILCO radios will give entirely satisfactory performance with these converters" . . .

Why Experiment—Insist on a JANETTE

Ask for bulletin No. 13-25

Janette Manufacturing Company

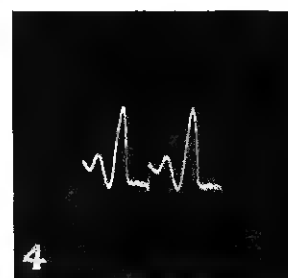
556-558 West Monroe Street Chicago, Ill. U. S. A.
BOSTON - NEW YORK - PHILADELPHIA - CLEVELAND - MILWAUKEE - LOS ANGELES
DETROIT - SEATTLE

TECHNICAL TOPICS

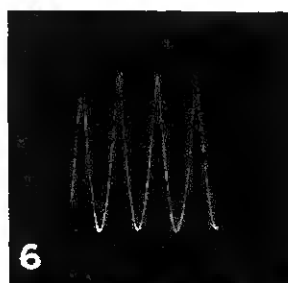
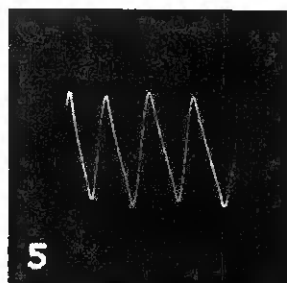
SERVICE • SOUND • CIRCUITS • INSTALLATION • PARTS



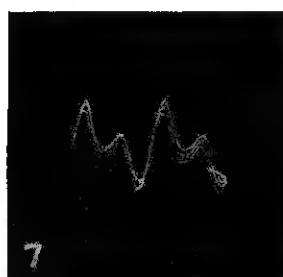
Waveform of a typical synchronous vibrator. Flat-topped curve indicates points making good contact (1). Same as (1) with one-half buffer condenser open (2).



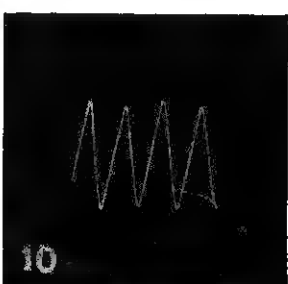
Vibrator at approximate end of life. Ragged edges in horizontal trace mean pitted contacts (3). Single-footing vibrator (4) due to worn contacts or low supply voltage.



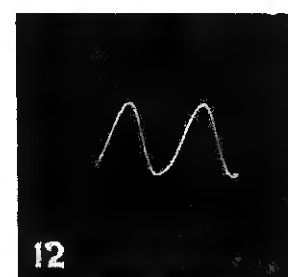
Ripple across input filter capacity (5). Ripple across input, no input filter capacity in circuit (6). Note leveling effect of input capacitor



Ripple across output filter capacity (7). Ripple across output filter, no input filter. Vertical gain increased in both cases.



Ripple across output, no output filter capacitor (9); note similarity to (7). Ripple across filter choke, vertical gain reduced (10).



Half-wave rectifier shows ripple curve like (11) across input filter. With vertical gain increased output ripple is as in (12).

To test auto-radio vibrators (1 to 4 above), connect full primary voltage of the vibrator transformer to the vertical amplifier post of the oscillograph. The time-axis oscillator may be set at either 30 or 60 cycles.

Open buffer condensers are indicated by long vertical traces above the horizontal flat-top or, the absence of

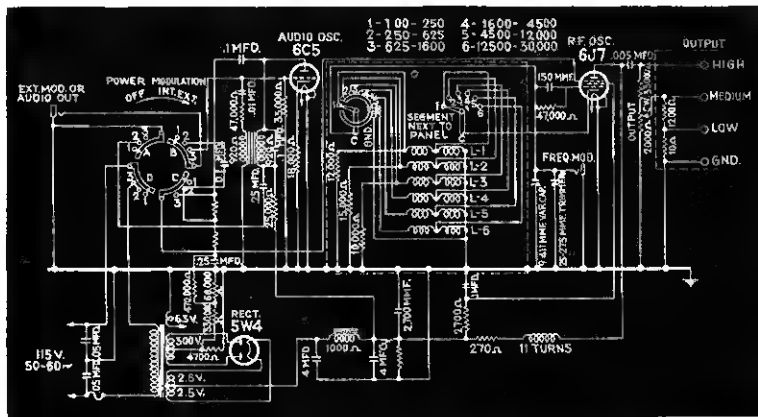
vertical traces connecting the flat-tops. In either case they represent fast voltage changes, resulting in r.f. interference.

A.C. power supply filters may be checked by referring to oscillograms 5 to 12 above.

Vertical posts of the oscillograph are connected across the section under test; such as input condenser, choke, or out-

put condenser. Set the time-axis oscillator at 30 cycles. In the above, vertical gain was adjusted so as to make all traces approximately the same amplitude. In (7) above, the triple lines have no particular significance. The image was not synchronized properly when the plate was exposed; actually it's three exposures.

● TESTING VIBRATORS AND A.C. SUPPLIES ●



A. C. Signal Generator

The circuit above shows RCA's new self-contained signal generator. Fundamental output from 100 kc. to 30 mc is provided in 6 ranges. High stability is provided by a 6J7 electron-coupled oscillator. Modulation of 30 per cent at 400 cycles is accomplished by a 6C5 audio oscillator.

Two jacks on the front panel permit either external frequency modulation for oscillograph alignment or amplitude modulation of a different frequency than the standard modulator built-in.

High, medium or low output ranging from .000004 volt on the low scale to 1.0 volt maximum may be obtained from the three tip jacks on the panel. The impedance of these three output terminals is 4000, 750, and 10 ohms respectively. Calibration accuracy is \pm 2 per cent.

Automatic Tuning Auto Radio

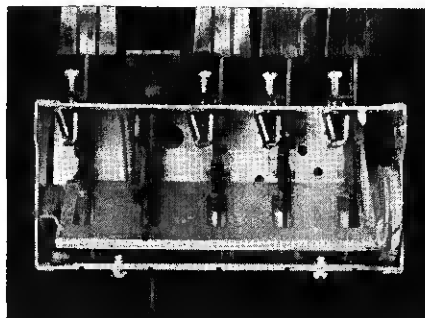
A simplified system of automatic tuning for auto sets has been developed by Crosley. A view of the chassis is shown below. Five push-buttons below the tuning dial are mechanically coupled to the tuning condenser through a pair of gears.

As illustrated in the right photo, the push-buttons actuate a flat metal strip

directly below the buttons. On this strip is the drive gear for the tuning condenser also. Thus, as the strip twists on its pivots, the tuning condenser is made to turn.

The amount of movement that the strip makes is governed by the throw of the lever incorporated in the push-button shaft. This is adjusted by the set screw directly under each button.

To align the set, the only tool necessary is a small screwdriver. With any of the push-buttons depressed, adjust the setscrew until the desired station is received. Any button may be tuned to any part of the band. However, it is more logical to set the buttons up in order. A counterbalance on the condenser shaft keeps the assembly from moving when it is jarred. In addition, a bi-metallic trimmer shunts the oscillator coil, compensating for temperature changes.



New Tubes

902—A high-vacuum cathode ray tube with 2 inch screen. Electrostatic deflection, greenish hue pattern; electrically interchangeable with the 913 provided the anode voltage is 400 volts or more.

Heater Voltage.....	6.3	6.3 volts
Heater Current.....	.6	.6 amp.
Anode #2 Voltage.....	400	600 volts
Anode #1 Voltage (focusing electrode).....	100	150 volts

Control Electrode (grid) Voltage.....	Never positive
Grid Voltage for Cutoff.....	-80 volts
Peak Voltage Between Anode #2 and any other Electrode.....	350 350 volts
Deflection Sensitivity (Plates D1 and D2).....	.28 .19 MM/volt
Deflection Sensitivity (Plates D3 and D4).....	.33 .22 MM/volt
Overall Length.....	7 1/4 in.
Maximum Diameter.....	2 1/8 in.

6K8—A triode-hexode by RCA, primarily intended for use as a converter in superhet receivers. It is characterized by improved frequency stability on the high frequency band.

Characteristics are:

Heater Voltage (A.C. or D.C.).....	6.3	Volts
Heater Current.....	0.3	
Direct Interelectrode Capacitance (Approx.)		
Hexode Grid No. 3 to Hexode Plate.....	0.03	uuf
Hexode Grid No. 3 to Triode Plate.....	0.01	uuf
Hexode Grid No. 3 to Triode Grid.....	0.1	uuf
Triode Grid to Triode Plate.....	1.1	uuf
Triode Grid and Hexode Grid No. 1 to Hexode Plate.....	0.05	uuf
R-F Input.....	6.6	uuf
Osc. Output.....	3.2	uuf
Osc. Input.....	6.0	uuf
Mixer Output.....	3.5	uuf

Converter Service

Hexode Plate Voltage.....	100	250	Volts
Hexode Screen Voltage.....	100	100	Volts
Hexode Control-Grid Voltage.....	-3	-3	Volts
Triode Plate Voltage.....	100	100	Volts
Triode Grid Resistor.....	50,000	50,000	Ohms
Hexode Plate Resistance (Approx.).....	0.3	0.3	Meg.
Conversion Transconductance.....	360	400	Micromhos
Hexode Control-Grid Bias (Approx.) for Conversion Transconductance = 2 micromhos.....	-30	-30	Volts
Hexode Plate Current.....	2.3	2.7	Ma.
Hexode Screen Current.....	6.9	6.5	Ma.
Triode Plate Current.....	3.5	3.5	Ma.
Triode Grid Current.....	0.15	0.15	Ma.

RK-11—A triode with thoriated tungsten filament and isolantite base. Designed by Raytheon for use as r.f. power amplifier, oscillator or frequency multiplier. Amplification factor is 20.

Characteristics for Class C Telegraphy

Filament Voltage.....	6.3	6.3	volts
Filament Current.....	3.0	3.0	
Plate Voltage.....	500	750	volts
Plant Current.....	100	105	ma.
Grid Voltage.....	100	120	volts
Grid Current.....	21	21	ma.
Driving Power.....	3.1	3.2	watts
Power Output.....	35	55	watts

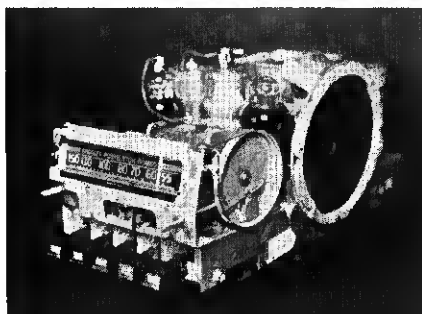
RK-52—A high-mu triode by Raytheon with thoriated tungsten filament, carbon plate, hard glass bulb and isolantite base. It is designed for use as an a.f. or r.f. power amplifier, oscillator or frequency multiplier.

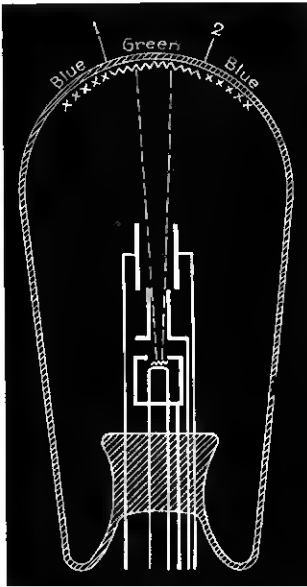
Class B A.F. Amplifier (2 tubes)

Filament Voltage.....	7.5	volts
Filament Current.....	3.75	amps.
Plate Voltage.....	1250	volts
Grid Voltage.....	0	volts
Plate Current.....	40-300	ma.
Grid Current.....	100	ma.
A.F. Driving Power.....	7.5	watts
Load Resistance (plate to plate).....	10,000	ohms
Power Output.....	250	watts

Class C Telegraphy

Plate Voltage.....	1250	1500	volts
Grid Voltage.....	120	120	volts
Plate Current.....	150	130	ma.
Grid Current.....	41	40	ma.
Driving Power.....	7.4	7	watts
Power Output.....	130	135	watts





Color Changing Tuning Eye

A novel electronic tuning indicator has been announced by DuMont. Its internal construction is similar to a standard cathode ray tube; consisting of a heater and cathode, beam element, deflecting plates, and fluorescent screen.

The screen is divided into two parts. In operation, the center of the screen between points 1 and 2 in the drawing, produces a greenish fluorescence due to the zinc silicate deposited there. The area from this section to the outer edges of the screen is coated with calcium tungstate. When the electron beam strikes this section it produces a blue glow.

Carbon with synthetic "B" batteries show that the following resistances have to be added to the circuit to stimulate the internal resistance of a 22½ volt "B" battery.

Voltage per Section of "B" Battery	Resistance Added to Simulate Int. Resistance of "B" Battery
24	0
22½	0
20	10 ohms
17	15 ohms
15	110 ohms
12	250 ohms

Vacuum tube manufacturers recognize a working range of 2.2 to 1.8 volts for two volt series of tubes. The correct series resistance to start the tube off at 2.2 volts with a fresh air sell "A" battery may be found in Fig. 1.

In the early days, "B" battery life ended at 17 volts per 22½ volt section. With better tubes, batteries and circuits in the past several years this point may be extended down to 12 volts. However, to take full advantage

high biased stages. Likewise the reverse of this is true when "C" voltage decreases before "B" batteries have reached their end-point.

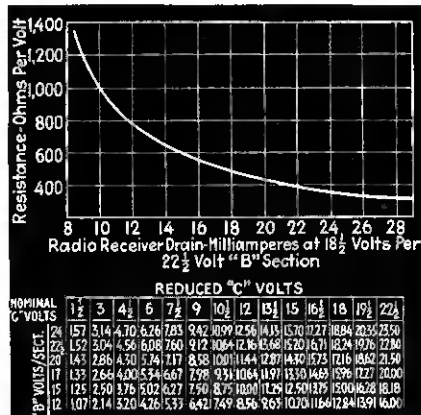
The recommended method of reducing the bias voltage with falling "B" voltage is by means of a bleeder resistor connected through a separate section of the off-on switch so as to load the "C" battery only during operating periods. The correct value of this resistance is shown in Fig. 2. This value will provide the optimum economy when heavy duty "B" batteries. For example, a set taking 15 ma. at 18½ volts per "B" section would require a "C" battery bleeder of 600 ohms per "C" volt or 9900 ohms for a "C" battery of 16½ volts.

Lab Type Service Tester

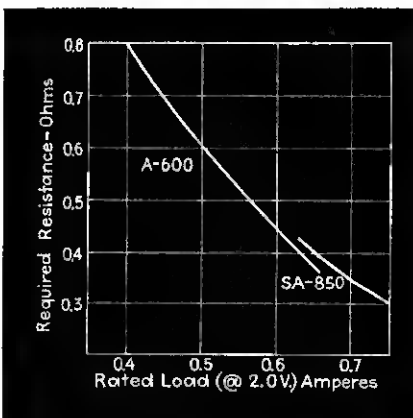
Digressing from standard portable service equipment, the model 860 volt-ohm-millimeter by Precision is designed to be mounted on a test bench panel or in a standard 19 inch relay rack. A 9 inch 'D'Arsonval type meter permits readings at greater distances than usual; thus allowing the serviceman to watch the meter readings from almost any point on the bench.

Voltmeter ranges are from 10 to 1500 volts, either ac or dc at 1000 ohms per volt. The ohmmeter readings beginning at ¼ ohm, run up to 10 megohms; power is from a self-contained battery. Six dc current ranges from 1 ma. to 10 amps are incorporated. In addition, 5 decibel ranges include from -10 to +59 db.

Meter sensitivity is 400 microamperes with an accuracy of 2 per cent. Each meter is individually calibrated.

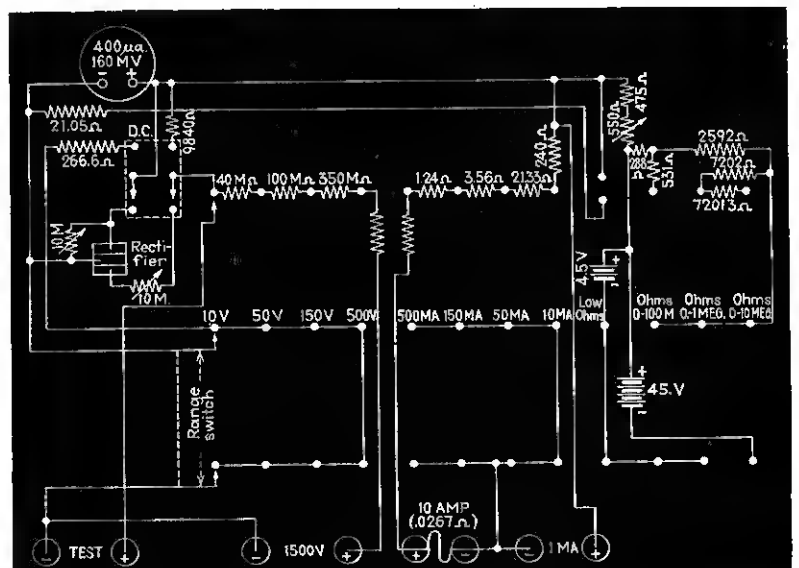


of this point careful consideration must be given to the "C" battery also. If this does not fall with the "B" voltage poor performance will result due to

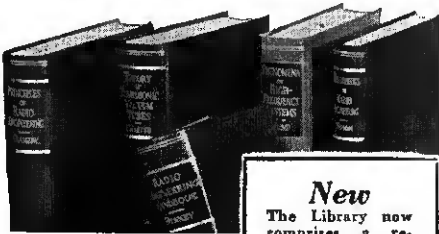


Battery Radio Design

The internal resistance of dry cells increases as they are discharged; in the case of "B" batteries this becomes a significant factor when these are used down to relatively low voltages. Experiments performed by National



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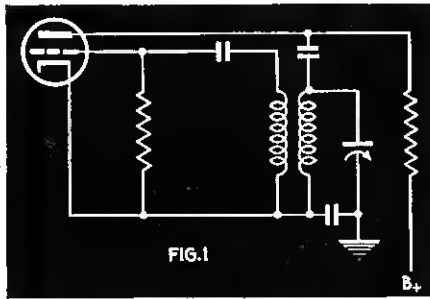
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Oscillator Circuits for Frequency Converters

The local oscillator in a superheterodyne circuit is, although comparatively simple in itself, one of the major problems in receiver design. In this country the trend has been almost universally toward a tuned grid type of oscillator, while in transmitter design and many foreign receivers the tuned plate oscillator is favored.

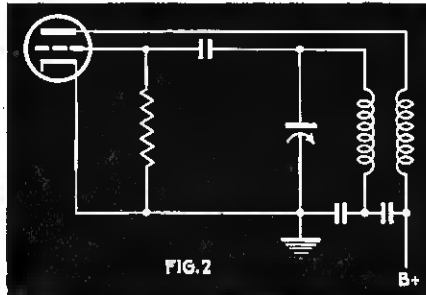
As long as the Q of the coils is greater than 10 the grid voltage will be substantially 180 degrees out of phase with the a-c plate current regardless of the type of oscillator. However, in the case of the tuned grid circuit the plate load is highly reactive. When the grid circuit takes power, as is the case in any normal oscillator, this reflected or transfer resistance becomes rather small due to loading the grid coil. An effective working Q of 20 or lower is not unusual in this circuit. Not only the resistance of the grid leak, but the a-c resistance of the tube with the grid considered as a diode must be considered as a load on the grid coil, as outlined in a bulletin by Sylvania.

This extremely low load impedance in the case of the tuned grid oscillator not only makes for low power efficiency but poor oscillator voltage amplitude as well. In order to have a large a-c plate voltage component or voltage change across the load, when the load is small, a large current is required. The current which can be drawn through any vacuum tube is limited so that, with the small currents available, a low plate load impedance means a small plate voltage swing and in turn a low grid excitation or oscillator voltage. A tuned grid oscillator amounts to coupling a high impedance generator into a low impedance, variable, inductive load.

In the case of the tuned plate oscillator the plate load is practically a pure resistance at the resonant frequency of the tuned circuit. For the same coil used to present the data on the tuned grid oscillator the plate load impedance would be about 17,000 ohms

when used in a tuned plate circuit at the same effective Q as for the other case. With the lower inductance tickler in the grid circuit the reflected reactance into the plate load becomes negligible at all conditions of loading.

A plate tuned oscillator is characterized by a high plate load impedance, good efficiency, plate voltage in phase with the current and 180 degrees out of phase with the grid voltage. (See Figs. 1 and 2) Thus, the plate voltage variation is greater than in the case of the tuned grid oscillator and is in the proper phase relationship so that all of it is effective in causing feedback. As a result greater oscillator grid voltage is realized. Since it is resistive in character the load line is straight and the harmonic content is comparatively low. The harmonics that are present are bypassed directly to ground because of the low impedance of the



tuned circuit to all frequencies, except the fundamental.

Experimental data show that a tuned plate oscillator will have a greater frequency stability than is commonly obtainable with the tuned grid type. This feature becomes of major importance on the high frequency bands. Frequency drift is explained, in part, by

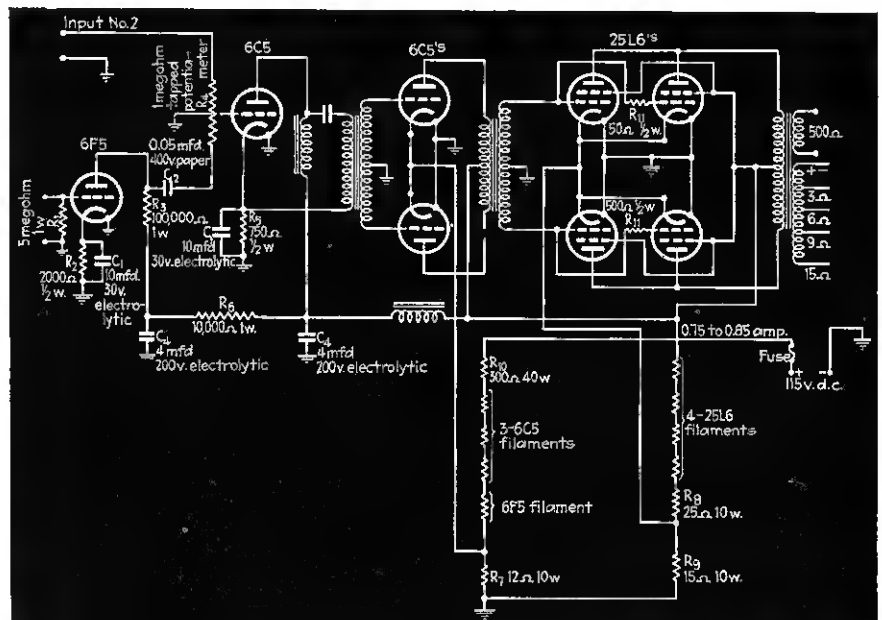
the shift in loading on the grid circuit when a-v-c line voltage changes occur. Any change in the bias voltage will change the apparent load, the Q , and the frequency of the oscillator to a much greater degree if the tuned circuit is in the grid lead rather than in the plate circuit. In the latter case only a very small fraction of the disturbance is transferred from the grid to the tuned circuit.

10 Watt D.C. Amplifier

Eliminating the use of a converter, this strictly d.c. amplifier by Jefferson supplies 10 watts of usable audio power. Since the pushpull-parallel 25L6 output tubes are easy to drive, the 6F5, 6C5 and pushpull 6C5 stages permit an overall gain of 139 db.

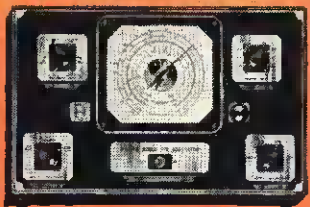
Referring to the diagram, a double input is provided. High gain is obtainable at input No. 1. Gain is controlled on this stage by the "fader" potentiometer in the grid circuit of the following 6C5 stage. Input No. 2 is used for medium output devices such as phono pickups.

The plate of the 6C5 second audio is impedance coupled to the following pushpull 6C5's. This allows better frequency response since it prevents saturation of the pushpull interstage transformer by removing the d.c. from the primary. The pushpull 6C5 stage drives the four 25L6 tubes. In order to prevent parasitic oscillation, since the 25L6's are paralleled, a 50 ohm resistor is inserted in the grid lead of the second set of tubes.

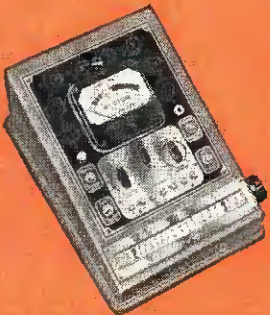


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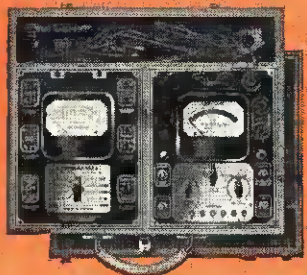
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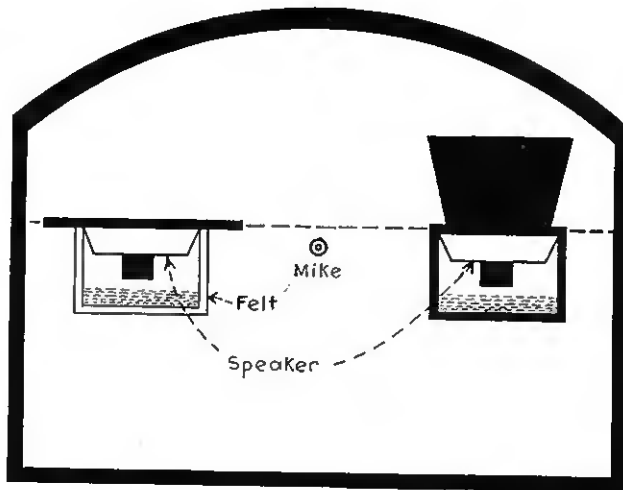
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THE INSTALLATION of 2 to 3 inches of felt is recommended in baffle enclosures to absorb and deaden backwaves which tend to introduce feedback. If possible, microphones should not be placed in front of the broken line.



Speaker Placement For Good Sound

MANY volumes could be written upon the selection of loud speakers and placement for best results. Each installation offers an individual and distinct problem in acoustic conditions, and other pertinent requirements of the sound installation.

To treat upon the most important practices for successful operation of permanent and temporary installations will be the desire of this article. Acoustics will be overcome by the soundman after the system has been installed, minor changes being necessary or advisable, in the placement of various speakers.

Selection of high power speaker equipment will soon be learned by the soundman after working with medium powered systems, which will be the main basis for discussion. The medium powered systems ranging from 12 to 30 watts are used for practically 75% of sound requirements, and are within the reach of every dealer and soundman in soliciting permanent and rental installations.

Loud Speaker Types

Rapidly gaining the approval of amplifier manufacturers as well as soundmen is the permanent type speaker. It does away with field supplies and consequently is much lighter in weight, easier to install, due to only two wires for the voice coil from the amplifier output. Field supply hum is also absent which can be readily appreciated when necessity makes necessary the installation of speakers in the proximity of the audience.

P.M. speakers must not be installed nearer than $1\frac{1}{2}$ " to 2" from any metal housing as the magnet replacing the conventional field coil will become deadened to a certain extent, losing carrying power of the speaker. A dis-

By

ROBERT S. NASH

tinct advantage is the two wire cable which does not easily sag in long stretches in transmission.

Supplanted more or less by the P.M. type above, electric dynamic speakers are still preferred by many soundmen for permanent installations having a larger bass response without large baffles. Four wire cable is necessary for connection. This speaker, however, is more difficult to handle and install on rental work especially in long distance locations involving four wire cable, splicing and consequent drop.

While magnetic speakers are a decided improvement over early type of radio speakers, unfortunately since no field power or magnet replacing same is used, power handling ability is very small. Its chief use is in small systems of the annunciator type.

The logical speaker for the soundman to use in rental work is the permanent magnet type. For permanent installations, the P.M. type or the electric dynamic may be used, depending upon the price of the installation and also the degree of fidelity required.

Speaker Requirements

Power handling ability of a speaker must be taken into consideration. A fairly accurate powerhandling range of speakers follows:

- 8" size, 6 watts continuously, 10 watts peak
- 10" size, 10 watts continuously, 14 watts peak
- 12" size, 14 watts continuously, 18 watts peak

This is merely an average coverage of speakers in the respective sizes of a

medium priced line. Speaker manufacturers give an accurate rating for each of their speakers. Speaker output continuously means the recommendation of the manufacturer for continuous power duty. Peak power, means intermittent surges, as in reproduction of dance music, and is not to be misconstrued as power that may be applied to a speaker for periods of ten or fifteen minutes at a time. The 10" and 12" types, lend themselves admirably to all amplification and reproduction needs.

The 500 ohm output impedance is most commonly used by P. A. men, having the advantage that additional speakers may be accommodated easily. Many amplifiers offer 250 ohm output which can be used on 500 ohm speakers when a large number are required, as tables below show:

250 ohm speaker output	
2 speakers, transformer at speaker tapped for 500 ohms.	
4 speakers, transformer at speaker tapped for 1,000 ohms.	
6 speakers, transformer at speaker tapped for 1,500 ohms.	
8 speakers, transformer at speaker tapped for 2,000 ohms.	
500 ohm speaker output	
2 speakers, transformer at speaker tapped for 1,000 ohms.	
3 speakers, transformer at speaker tapped for 1,500 ohms.	
4 speakers, transformer at speaker tapped for 2,000 ohms.	

One of the major speaker companies manufactures a tapped line transformer which facilitates any changes according to the above tables. These transformers are standard equipment on several medium priced speakers, forming a necessity for rental work, no resoldering of connections is necessary, just removal and reinsertion of a spring clip for the desired matching impedance.

Parallel connections of transformers at the speakers offer a unique arrange-

ment for hooking up amplifiers, in that any speaker may be "switched" to the common lead from the amplifier. Instead of several lines from the amplifier, just one or two are necessary, dependent upon the direction of the speakers.

High fidelity enters into reproduction in speakers as in the amplifier, the speaker being the final component of the system.

In a standard fidelity speaker the frequency cut-off is approximately 4,500 cycles. This is suited for any reproduction work, including phonograph and radio tuner. For extreme high fidelity work, the frequency cut-off in some speakers is approximately 7,500 cycles. However, as explained further, this is not suited for any reproduction work due to the high tonal range.

The audible tonal cycle spectrum that may be heard by the average human ear extends from approximately 50 cycles to 17,000 cycles. Any sound above or below this range cannot normally be heard by the human ear. Many persons cannot hear within 7000 cycles of the high end of this range. Modern amplifiers have a tonal range of 40 to 10,000 cycles or better; this is ample fidelity for any reproduction and amplification need.

In broadcasting all turntable equipment is filtered to cut-off, that is to block all frequencies above 4,500 cycles to reduce scratch noises. Contrary to popular belief, scratch and background noise in reproducing records is not in the low frequency range as the low sound might indicate. It is of the high frequency above 5,000 cycles that produces the "s-s-s" sound in a phonograph record.

High-fidelity speakers will reproduce some of the scratch, if it is not carefully filtered in an amplifier. In a standard fidelity speaker, as the tonal range closely coincides with that of standard phonograph filters, record scratch will be little.

The average soundman will find quite a bit of use for high fidelity speakers in theatre stage systems, and systems for the average orchestra, so the simple change of speakers for the occasion, either voice or record, will ably handle this problem.

Acoustics

Celotex and other composition boards of this type will give bass response to an amplifier which is desirable in some cases when reproducing phonograph records, especially the swing type, giving an agreeable "bounce," rendering the music reproduction more lifelike. However, in some installations, bass response will naturally be present, due to the room conditions.

In an outside installation, the sound is picked up, amplified and delivered to the audience by means of high power loud speakers; the original intensity of

the sound being comparatively small. On the inside in auditoriums, halls, etc., the original sound is of some importance and plays a large part in covering the listening audience. Inside systems reënforce and add to the original sound, rather than completely replace it as in the case of outside work.

Outside power is relatively higher in comparison with the inside for the area covered. Inside audiences being smaller, noise level lower and a large part of the sound being reflected from the walls, adding to the intensity of the sound.

Speaker placement plays probably the most important place in an amplifying set-up. Speakers when being installed must be placed as far ahead of the microphones as possible and incidentally, as high in the air as practical or possible, pointing in the direction of the audience. Criss-cross coverage will take the place of many speakers as shown in the diagram and forms the easiest efficient method of distribution sound output.

In all speaker installations it is desirable to use two or more speakers in preference to a single speaker, no matter how high the power handling of the single speaker. Two speakers will also aid in distribution of the sound, in overcoming feedback problems which would arise with one speaker.

Speaker housings are dependent upon the type of work necessary. In rental work it is necessary that all equipment be as compact and portable as requirements and limitations of equipment will allow. For medium sized work, the combination speaker and amplifier carrying cases lend themselves admirably to portability by the operator and give the audience and client professional appearance of the installation. Permanent public address installations, are just the opposite being designed for maximum possible requirements.

Trumpet speakers are the most directional speaker on the market today. As the speaker is complete, unit and baffle in one, they are a necessity for stage work of large proportions on the inside, and high power work on the outside. The cost of the speaker and housing runs in the neighborhood of \$50.00 net each, so for the most part, these speakers are not used for small rental work as they are also difficult to mount. The bullet type of horn and the newly developed "infinite-baffle" type are commonly employed for installations on the medium scale. The infinite baffle is difficult to install in the open, so the

A SIMPLE METHOD of insuring full coverage of any auditorium with two speakers. "Criss-cross" coverage in this instance eliminates a center speaker and gives the same efficient coverage. The graph lines merely show the strong diffusion of sound which radiates over the entire area.

bullet type appears to be the logical housing for use in the medium powered range. The infinite baffle is especially convenient on the other hand for stage work as they are completely enclosed in the rear and sides.

Speakers on sound trucks form a difficult problem. New clamps, inexpensive to buy, offer an easy solution and do not damage the car or truck roof top. PM speakers are generally used in "bullet" housings, no field power is necessary, eliminating a drain on the battery. If electric dynamic speakers are preferred, the field should be 6 volt d.c., which can be taken from the car battery.

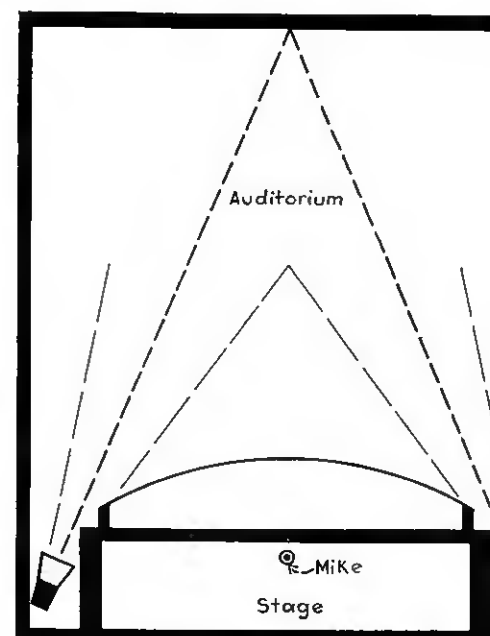
Installation Problems

Feedback is caused by waves of sound emanating from the speaker housings reaching the microphone; also by front speaker waves resounding off walls and the ceiling, reverberating back again into the amplifier through the microphone. Feedback is not usually present in a large audience or a closely seated group, as the sound is absorbed by the mass. On outside installations, there is usually less feedback trouble because of the absence of large reflection surfaces which tend to throw the sound back again into the microphone. Acoustical feedback is looked upon by those inexperienced in sound equipment as a defect in the apparatus, the assumption of course, being entirely wrong, as no amplifier or system, yet designed will eliminate acoustical feedback.

It is desirable with any type of housing to install a 2" felt in the rear of the compartment to trap all back waves which form the feedback, through the microphone and by reflection of sound from walls.

The more simpler methods or eliminating and reducing feedback follow:

(Continued on page 53)



TRICKS

ACRATONE 2

No reception . . . due to the shallow sub-base of chassis, parts mounted close together frequently short to one another. Inspect first for this trouble.

ARVIN 19, 29, 39 AUTO RADIO

Raspy noise when dialing . . . remove ground finger springs at each end of gang condenser rotor and replace with new type of heavier construction.

ARVIN 1237, 1427

Dead . . . look for shorted moulded bakelite plate bypass in first i.f. transformer. Also replace 1000 ohm plate dropping resistor in this circuit.

ARVIN 81M

Hum . . . remove p.p. audio input choke from top of chassis and mount underneath. Try rotating at different angles while the set is operating to find lowest hum position.

ATWATER KENT 667

Heavy bass . . . Improve tone by replacing C12 .02 mfd. on 2A5 to .006 or .01 mfd.

CHEVROLET 601038

Intermittent . . . replace 30,000 ohm screen grid dropping resistor (R2).

CROSLY 706

Intermittent . . . screw on aerial terminal works loose due to worn threads. Solder small length of wire to lug under screw and attach aerial to other end of wire instead of to terminal.

EMERSON 5A AUTO RADIO

Insensitive, poor a.v.c. action . . . replace cathode bias resistor on 85 tube with 14,000 ohm unit. Also replace 10 mfd low voltage condenser in same circuit.

G. E. E126

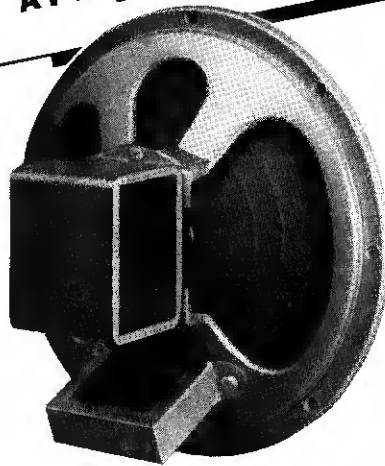
Insensitive . . . look for shorted .05 mfd bypass in plate circuit of 6L7 mixer. Also burned 2200 ohm resistor inside first i.f. transformer.

KENNEDY 20

Signal fades out and loud hum appears . . . poor connection in the filament lug connector on the power transformer. Resolder all transformer lug connections.

Jensen New Replacement Line of QUALITY SPEAKERS AT LOW PRICES 5" . . . 6" . . . 8"

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



NEW SERIES "S" with PERMANENT MAGNETS

Adding to the Series "S" line of 5", 6" and 8" field coil replacement speakers, Jensen now makes the same line available with permanent magnets.

Service dealers now have a full line of high quality replacement speakers to meet every demand of your trade.

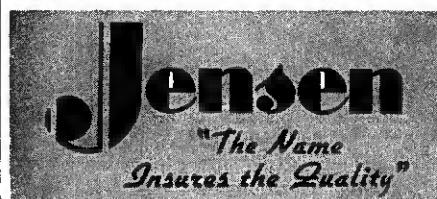
This new Jensen low price line is opening up new opportunities for dealers in service and repair and in many cases for additional speaker or sound outlets.

Write to Jensen or see your distributor for complete information on these new speakers. Remember—it is no longer necessary to jeopardize your reputation by offering an ill-fitting, poorly designed replacement part or a nondescript complete speaker to meet the owner's demand for low price.

PRICES:

WITH PERMANENT MAGNETS		WITH FIELD COIL	
PM5-FS	\$2.70 less Transformer	H5-S	\$2.30 less Transformer
PM6-ES	3.30 less Transformer	H6-S	2.70 less Transformer
PM8-DS	4.65 less Transformer	F8-RS	3.90 less Transformer

BE SURE to see all the latest developments in Sound Reproducers Visit Jensen's booth 202-204 Coulomb St., Chicago Radio Parts Show.



Jensen Radio Manufacturing Co. RR-538
6601 S. Laramie Ave., Chicago, Ill.

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

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Address
City State

TRICKS



PRESTO RECORDING CORP.
New York, N. Y.
Gentlemen:
We wish to thank you for the lead on a prospective purchaser of a Presto Recorder . . . the writer immediately called and closed the sale. We are forwarding our order for two more machines . . .

TAKEN from a dealer's letter written one week after he took on the Presto line.

He is one of the growing organization of Presto dealers who now receive over 400 factory leads each month on radio stations, schools, advertising agencies, industrial concerns and individuals who are considering the purchase of Presto sound recording equipment.

You owe it to yourself to get information on the sound recording business . . . a business that has almost doubled in the past year in spite of current business trends.

Send for free bulletin "How to Sell the Presto Sound Recorder." It tells the whole story.

PRESTO RECORDING CORPORATION
143 WEST 19th St.
NEW YORK, N. Y.

PACIFIC 34

Weak on broadcast, O.K. on S.W. . . . open primary of broadcast antenna coupling coil.

PHILCO 38-12

Intermittent . . . look for shorted oscillator trimmer located on top of gang condenser.

PHILCO 71

Broken dial cable . . . On this set a woven dial cable is used. On the dial where the cable fastens there will usually be found a sharp edge. If a cable is too tight this edge cuts the strands. To remedy: place a small section of Scotch Tape over the edge. This tape is flexible, transparent and may be obtained at almost any stationery store.

PHILCO 87

Crackling, noisy . . . replace 3785 ohm section of R8 with 20 watt 3000 ohm and 750 ohm units in series.

PILOT 293

Insensitive . . . poor contact in band switch. Clean all contacts with carbon tetrachloride.

RCA 330, 331 (G. E. K-78, K-79)

Oscillation blankets reception when volume control is adjusted near maximum setting . . . suspect open in 4 mfd. condenser, component of a 10.4 mfd. electrolytic block located under power transformer.

RCA 381

Intermittent crackling noise . . . replace both 6.3 volt dial light as the originals are arcing in the filament wire.

RCA VICTOR 9K, 9K1

Dead at 550 kc end of dial . . . replace the small condenser on top of condenser gang and connected to grid of 6J7 oscillator with a .0001 mmf mica.

RCA 9K1

Intermittent, tuning eye operative even though set cuts off . . . replace .01 mfd. audio coupling condenser between 6F5 plate and 6F6 grid.

RCA 9K2

Intermittent operation, operation restored if set is jarred . . . replace audio coupling condenser between 6F5 and 6L6 with .1 mfd 600 volt.



Model 430
DEALER
Price ONLY

\$19.80

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

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

Readrite

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

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

Dealer Price \$15.90

A MODIFIED EMISSION TYPE TESTER APPROVED CIRCUIT

COMPLETE SHOWING, 1938-'39 Meters and Testers, Booth 215, Steinmetz Avenue JUNE PARTS SHOW—CHICAGO.

READRITE METER WORKS, 520 College Ave., Bluffton, Ohio

Please send me more information on Model 430

Name _____

Address _____

City _____

State _____

TRICKS

RCA R-17-M (G. E. BX)

Hum, no reception . . . check tubular electrolytic condensers for open or decreased capacity. Oscillation with signals heard in background . . . also caused by same trouble.

U. S. 24

Intermittent . . . check top i.f. transformer at rear of chassis for poor connection between trimmer and grounding lug.

SPEAKER PLACEMENT

(Continued from page 50)

Reduce volume on gain control until this condition subsides. Turning control of tone, towards bass. When volume is reduced, it is usually necessary to open the tone control towards treble position, giving a slightly clearer higher pitched reproduction. If this does not adequately reduce feedback, changing of speakers will be necessary, keeping the microphone out of the direct or reflected field of the speakers, if possible.

Also, increasing direction of sound output trumpet or housing will aid in developing better reproduction with feedback eliminated. It may be necessary to add additional speakers to the installation and place in strategic locations, operating each at a lower output.

In some cases, if the amplifier is placed directly in front of the loud speakers the tube elements become microphonic and cause feedback. Speaker supports will also transmit vibrations back to the microphone in some cases.

In any case, the actual elimination of feedback is dependent upon the "trial and error" method.

The operator of a sound system does not always have a view of the microphone or the opportunity of hearing the program through the speakers, and it is often convenient and essential to have a pair of earphones or a monitor speaker to gauge the reproduction of the program and prevent possible overloading. This is a simple installation in the output circuit with a suitable volume control connected in series with one of the output leads, not connected to any speaker. The resistance is not critical and may be in the neighborhood of 50,000 ohms.

Too much stress cannot be made upon the firm installation of speaker equipment on rental installations as every speaker constitutes a public liability against the management and in turn the operator. A few minutes spent in securing a speaker firmly will be more than repaid with the feeling of satisfaction that no mishaps will occur. With this in mind, it is always good policy to keep the speakers away from the audience, especially overhead types.

STROMBERG-CARLSON 130, 140

Weak . . . This is common on new sets. The sensitivity control is on the back of the chassis. The purpose of this is to limit local signals, preventing overloads in the r.f. stage. For increased sensitivity turn the knob clockwise.

STEWART WARNER 900

Intermittent fading . . . check the .25 mfd r.f. bypass condenser. This is the green lead on the condenser block.

SILVER MARSHALL MODEL R

Insensitive, especially on low frequency end of broadcast band . . . replace R8, 80,000 ohm cathode resistor on detector. Also R7, 3500 ohm cathode resistor.

ZENITH 4P26

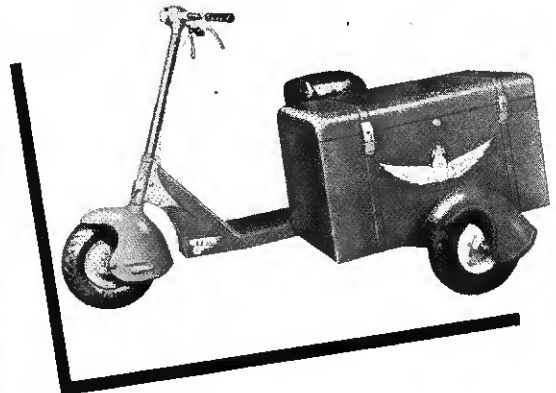
Low volume, oscillation, signal cuts out when volume control is opened more than half way . . . open 2 mfd. screen bypass condenser on the 6A7.

MOTO-SCOOT FOR SERVICE CALLS

FREE THE National Union WAY

● Here's a grand idea for quick low cost transportation for the service engineer. The Moto-Scoot with side van attached, provides ideal transportation facilities for test equipment, tools or radio chassis.

The Moto-Scoot is safe and easy to operate and unbelievably economical to run. You can get about 120 miles to the gallon of gasoline. The unit is supplied complete, ready to go with no accessories to buy. It is completely equipped with a powerful lighting system. Get it FREE for your business. Ask your distributor for complete details or write.



USE

NATIONAL UNION

QUALITY TUBES

QUALITY CONDENSERS

● Thousands of topnotchers in Radio Service are depending on National Union Quality. These tubes and condensers have the kind of precision and value that makes good friends for you too.

● National Union will help you to own "the finest radio service lab in town." Everything you want is offered you on a "Free Deal" Plan. It will help you to get the equipment you need now to do better work and faster work and make more money. That's the National Union way. Over 100,000 completed deals . . . for more details, just write . . .

SEE US AT BOOTHS 205-207—HERTZ AVENUE
CHICAGO RADIO PARTS SHOW

**THE ROAD TO
BETTER BUSINESS**

1. Full guarantee on highest quality radio tubes

2. Cut price business not solicited.

3. Price Protection

4. N. U. jabber stocks are complete. No hunting for odd types.

5. Timely business building aids.

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Newark, N. J.

RR-538

Please send me more information on
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 Other N. U. "Free" Offers

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Address.....

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

FORWARD IN JUNE WITH "RADIO RETAILING"

JUNE, with its new lines of radio merchandise, its awakened interest on the part of distributors, dealers and servicemen, its quickening of the buying tempo, sees a definite up-swing in the radio business. It has been so for years . . . — and, unless all signs fail, it will be true this year!

Two powerful factors speed this up-swing:

- (1) *The National Radio Industry Parts Show in Chicago, June 8-11th.*
- (2) *The June "Radio Industry Trade Show & Directory Issue" of RADIO RETAILING.*

In its June Issue, RADIO RETAILING becomes the Industry's "National Trade Show" IN PRINT . . . the meeting place of makers . . . of radio merchandise . . . of sellers and servicemen . . . the Radio Industry's TRADE EXPOSITION between the covers of the Trade's preferred radio publication.

A "Convention" Between Covers

Figuratively, the big June issue of RADIO RETAILING takes its army of readers by the hand, leads them from "floor to floor," "exhibit to exhibit," starting with receiving sets, going on to parts, sound systems and accessories, testing equipment, accessories, etc.

Actually, this June number becomes the Industry's "Pictorial Directory of New Products" . . . a combined Catalog, Directory, Reference Book and Buyers' Guide . . . listing all products, specifications, prices, trade-marks, manufacturers' names, addresses and other essential data.

As such, the June "Radio Industry Trade Show & Directory Issue" will enjoy long and useful life among its regular 25,000 reader audience and the 100,000 and more "pass-on" readers who will use this issue as their industry "reference directory" and "sales manual."

Regular Editorial Features, Too —

In addition to its wealth of product information and its other timely special statistical and news highlights, the big June Issue will contain these popular regular RADIO RETAILING features:

Business Barometer.

Photoshots of timely sales ideas.

"How-to" Articles on Selling: A lead story on "Selling the Farm Market" . . . "Selling Service in the Evening" . . . "Outside Selling," etc.

Current News of the Industry.

An Enlarged Technical Section: Special technical story on Sound . . . Servicing communication receivers, etc.

Servicing Short-Cuts.

Tricks of the Trade.

RADIO

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Special "Show" Distribution —

This year, the June "Radio Industry Trade Show & Directory Issue" of RADIO RETAILING will be distributed to the Radio Industry's leaders at the Chicago "Parts Show," June 8-11.

Not a "special Show supplement" or a "Show section," but the complete big June book . . . containing new product data and specifications, etc., received by the editors right up to the last minute before closing. This is a publishing achievement of the greatest trade and business publishing house in the world — McGraw-Hill — which puts all its resources and facilities behind this June issue to make it more useful and valuable to its readers and advertisers.

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— to build good-will and create confidence among the trade —

— to let the radio industry know you are doing business on a permanent basis —

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place your sales message in RADIO RETAILING's "Radio Industry Trade Show & Directory Issue."

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The June "Radio Industry Trade Show & Directory Issue" of RADIO RETAILING offers the advertiser exceptional opportunity to invest his advertising dollars where they will pay *immediate and deferred dividends*.

That is because he pays no premium for the extraordinary editorial background for his sales messages provided by the June Issue — features which give his announcements extra long and useful life — or for the special distribution at the Chicago "Parts Show," and the coverage provided by RADIO RETAILING'S regular 25,000 *selective distribution*.

The June Issue puts his sales messages in the hands of the influential trade leaders at the time when they are shaping their buying plans . . . when they are in most receptive mood . . . most readily influenced by his sales appeals . . . and when the powerful force of advertising in RADIO RETAILING gives greatest help to his salesmen.

The June "Radio Industry Trade Show & Directory Issue" of RADIO RETAILING is the year's most opportune "plus" advertising value! Don't fail to take advantage of it!

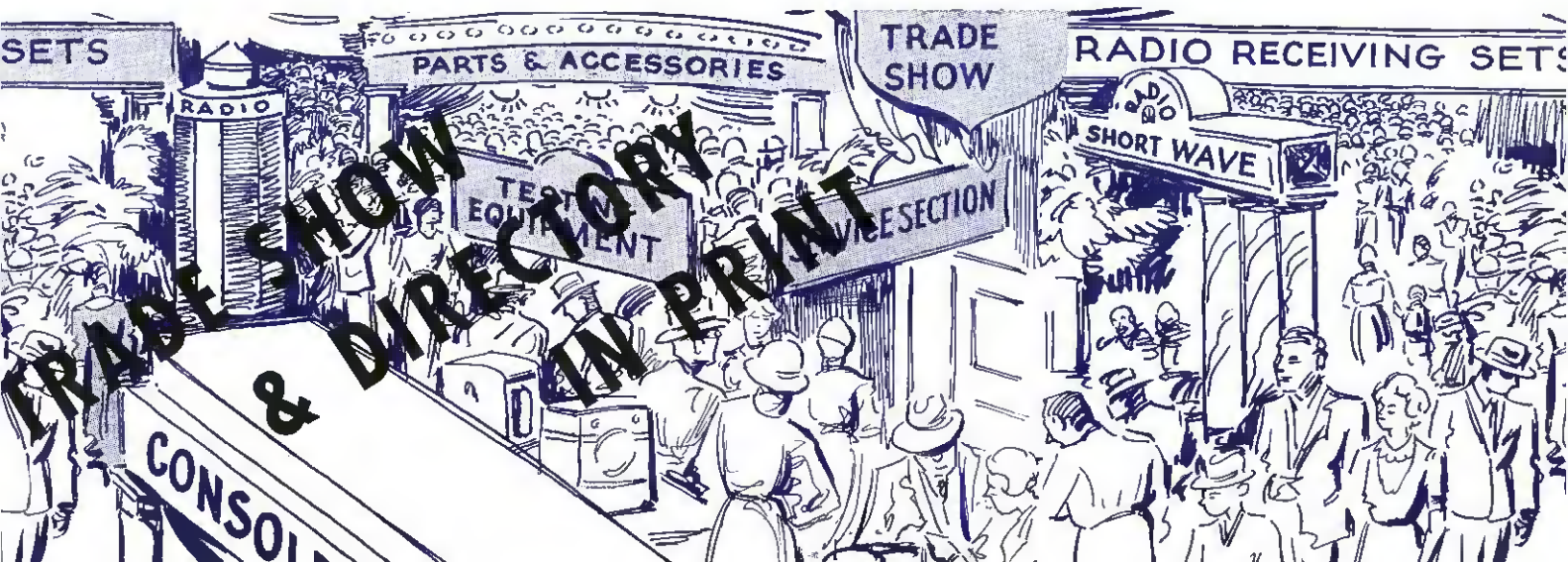
RADIO RETAILING

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Special Closing Dates

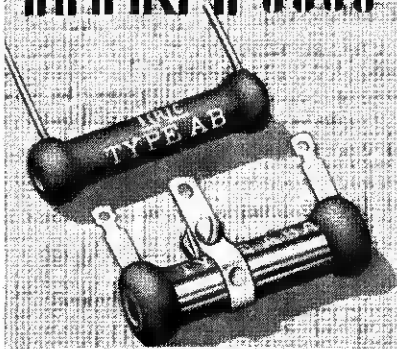
TRADE SHOW EDITION: Where copy is to be set, show proofs, May 23 • No proofs guaranteed, May 25 • Complete plates, May 31.

REGULAR EDITION: Where copy is to be set, show proofs, June 1 • No proofs guaranteed, June 6 • Complete plates, June 8.





SERVICE HINT



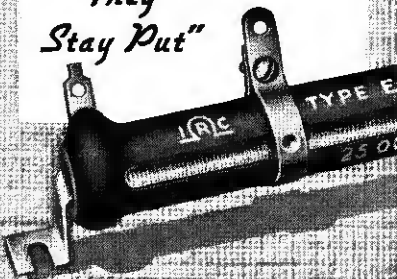
... for hundreds OF RESISTOR REPLACEMENTS

... up to 10 Watts

... No need to keep complete stocks of 1/4, 1/2, 1, 2 or 3 watt resistors! No lost time or lost motion! Just carry a few IRC 10-watt fixed and adjustable Cement Coated Power Wire Wounds and you'll be prepared for hundreds of replacements—almost anything up to 10 watts. A small stock of IRC Type ABA Adjustable units gives you dozens of ranges. Simply set the adjustable slider on the exposed track of wire to tap off any desired resistance value up to the maximum range of the unit. Additional taps can be used to make one resistor do the work of two or more.

FREE! Write for the new IRC Resistor and Volume Control Catalog listing the complete IRC line for radio service, amateur, engineering and "lab" work.

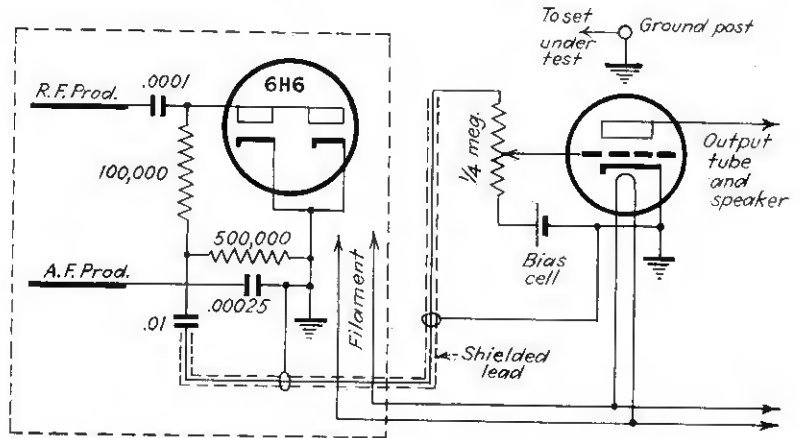
"They Stay Put"



INTERNATIONAL RESISTANCE COMPANY

401 N. Broad St., Philadelphia, Pa.
In Canada, 187 Duchess St., Toronto, Ont.

SHORTCUTS



Signal-Chaser Finds Trouble

By Anthony J. Zugel

An all-round radio tester is the signal-chaser shown above. It is an extremely simple circuit and should prove very popular with servicemen.

It consists of a diode detector built into the end of an extension cord, on the other end of which is an audio amplifier. Two prods are built into the test head; one measures r.f., the other a.f.

In testing a circuit, start at the antenna. Touching the r.f. prod to the high end of the antenna coil should supply a signal if the coil is not defective. Work up stage by stage through the r.f., mixer and i.f. The tester will also show the amount of gain in each stage. When the second detector is reached, use the a.f. prod, working through each a.f. stage direct to the voice coil. With this method a dead set can be tested from antenna coil to voice coil. If no signal is picked up in one particular stage the condition can be remedied by carefully examining that stage with the tester connected to the output.

In the construction of the unit, the section of the diagram within the broken-line box is contained in the test head. This consists simply of a small octal socket for the diode, plus a few resistor and condensers mounted in the brass shell of a pull-chain socket. From this unit runs three wires: two for heater voltage of the diode and a third shielded lead for rectified r.f. and audio voltage. Be sure to ground the shield at both ends as this is one side of the signal circuit.

These leads feed into a revamped midget receiver. All r.f. circuits of the receiver were removed. A 1/4 meg of potentiometer was mounted on the panel to control the volume fed to the a.f. amplifier by the diode head.

When using the tester, be sure to

ground the radio under test to the revamped midget. In addition, a 6E5 may be incorporated in the unit to show a.v.c. operation.

The values of the parts necessary are shown in the diagram. All resistors are 1/4 watt.

Shop Kinks

By James A. Nash

Before going on a job to erect an antenna, I find it time-saving to wind the coil as it comes from the jobber on a flat piece of wood, two or three inches wide and about a foot long. I experience no trouble, then, when out "on location" in unwinding the wire from the stick. On the other hand, the ordinary coil tangles easily.

When an owner of a so-called compact or midget radio (with inbuilt aerial) voices disappointment in the failure to give added volume and bring in more stations after connection to an outside aerial, the trouble is usually easy to correct. Since practically every receiver of this type has a tuned first r.f. stage factory adjusted to the inbuilt aerial, altering the aerial in any way detunes the stage. By merely adjusting the trimmer condenser on this stage after connecting the longer aerial, the additional volume and pickup reasonably expected will be obtained.

AC-DC sets of the cheaper variety often develop whistles or squeals when their tuning condenser trimmers are adjusted for maximum sensitivity. By enclosing the grid leads of the r.f. and detector stages in shields of wire braid and grounding the shields, the tendency to oscillate is minimized.

STARTLING



SMALLER . . . METAL SEALED

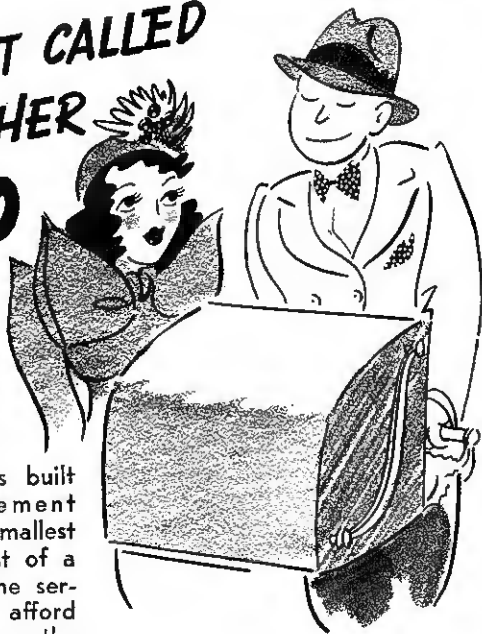
Solar engineers have been the pioneers in advanced methods of making radically smaller dry electrolytic capacitors. "little giants", introduced three years ago, were the original ultra-compact dries. Now . . . SOLAR MINICAP Dry Electrolytic Capacitors occupy less space, cost less, have longer life because of permanent sealing, are used in single units to simplify both production and stock-keeping, and are "standard" parts. You will find them in thousands of radio sets—and they will stay there.

Details upon Request.

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**HE FIRST CALLED
TO FIX HER
RADIO**

SHE liked his work so called him back again and again. That is how a permanent business is built up. Replacement parts are the smallest part of the cost of a service call. The service man can't afford to use other than the most dependable. That is why Ward Leonard is enjoying ever increasing demand.



Visit us at Booth 113 Bell St., Stevens Hotel,
Chicago, June 8-11

WARD LEONARD ELECTRIC CO.
35 SOUTH STREET, MOUNT VERNON, N. Y.
Please send me Price List Bulletin 597A.

Name
Address
City State
Jobber's Name

**RADIO TUBES
and
COD LIVER OIL**



The radio service man who finds drug stores, stationery stores and a dozen others featuring tubes might try selling some of their lines—but, we wouldn't advise it. We doubt if he'd make any more money on cod liver oil than they do on cut-price radio tubes.

Here's a better suggestion. Sell the tube that protects the dealer with a sound merchandising plan. The tube proposition that guarantees full profit on every sale—without investment. Under the Tung-Sol Consignment Plan reputable dealers, who can qualify, receive a stock of dependable tubes without paying a cent—they sell the tubes, collect the profits and then remit once a month.

Think of the benefits this practical plan holds—freedom from losses through price reductions and obsolescence—no price-cutting competition—and what is more, you pay no premium for the financing of your tube stock.

Write our nearest sales office for details and necessary qualifications.

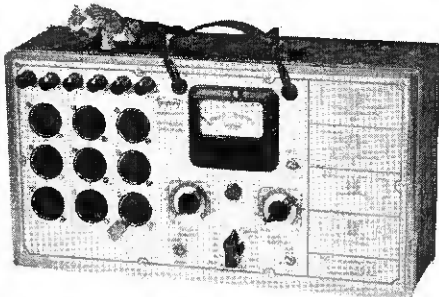
Dept. B

TUNG-SOL

Flow Radio Tubes
TUNG-SOL LAMP WORKS, INC.
Radio Tube Division

Sales Offices: Atlanta, Boston, Chicago, Dallas, Kansas City,
Los Angeles, Detroit, New York. Gen'l. Office: Newark, N. J.

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GIVE YOUR CUSTOMERS BETTER SERVICE with

Model 1670 VIBRATOR-TESTER

An Approved DeLuxe Model

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

- Tests All Types 6 V. Vibrators
- Three Scale Triplett Instrument
- Uses Approved 5000 Ohms Load

★ Vibrators should never need replacement until the contacts are worn to the extent that the output of the power packs is unsteady or the vibrator fails to start properly on a low "A" battery.

This new Triplett Vibrator Tester has been constructed with the engineering cooperation of leading manufacturers of vibrators. It will test all types and makes (6 volts) as used in automotive and home battery receivers. A load of 5000 ohms recommended by vibrator engineers is applied. The 3-meter scales are: 0-10 volt scale shows voltage input to the vibrator; the GOOD-BAD scale shows output; scale marked 0-100 per cent shows per cent of output voltage as reflected by change in input voltage. Low damped meter permits needle to follow voltage fluctuations caused by faulty vibrator contacts. Sold with complete instructions on how to test.

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

Model 1670 in Portable Leatherette Case with Removable Cover and Compartment for Accessories . . . DEALER NET **\$28.00**

SEE THE NEW TRIPLET 1938-39 LINE AT THE CHICAGO JUNE RADIO PARTS SHOW BOOTH 213-15—HENRY AVE.



The Triplet Electrical Instrument Co.
205 Harmon Dr., Bluffton, Ohio

Please send me more information on
..... Model 1670 Vibrator-Tester.
..... I am also interested in.....

Name

Address

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

SHORTCUTS

Locating Auto-Radio Noise

By F. C. Daly

It is common practice when testing for noise in auto-radio to disconnect the antenna to see whether the noise is picked up in the antenna system or in the chassis. This usually eliminates the noise, even though the antenna is not at fault. Noise induced by chassis pickup disappears also, thus there is no indication as to whether the noise is picked up by the antenna or chassis.

A better method of performing the above test is to disconnect the antenna and in its place connect a 4 ft. piece of shielded lead. The inner conductor should be shorted to the shield at the far end.

If, when performing this test, noise does not disappear when the antenna is disconnected and the shielded lead substituted, it is a good indication that noise is resulting from chassis pickup and not the antenna system. This can be corrected by grounding the chassis thoroughly, also by checking the cabinet cover for good contact with the rest of the chassis. Sometimes an r.f. filter is necessary in the hot "A" lead.

bench. In cases of this type it is almost impossible to locate and remedy the trouble. A common sign flasher may be used to advantage in breaking down defective parts.

Connect the set to the power line through a flasher button and let it run till things start happening. Also, it is a good idea to apply the same procedure on doubtful sets. After finishing repairs for a critical customer, let the set run on the flasher for an hour or so.

Curing Oscillator Dead-Spots

By Gerald Evens

On sets using 77, 6C6, and other similar detector-oscillator combinations, dead spots will often occur from 550 to 800 k.b. In cases of this type check connections to the tuned tank coil. The return from the stator of the gang condenser usually connects to the chassis or a padding condenser.

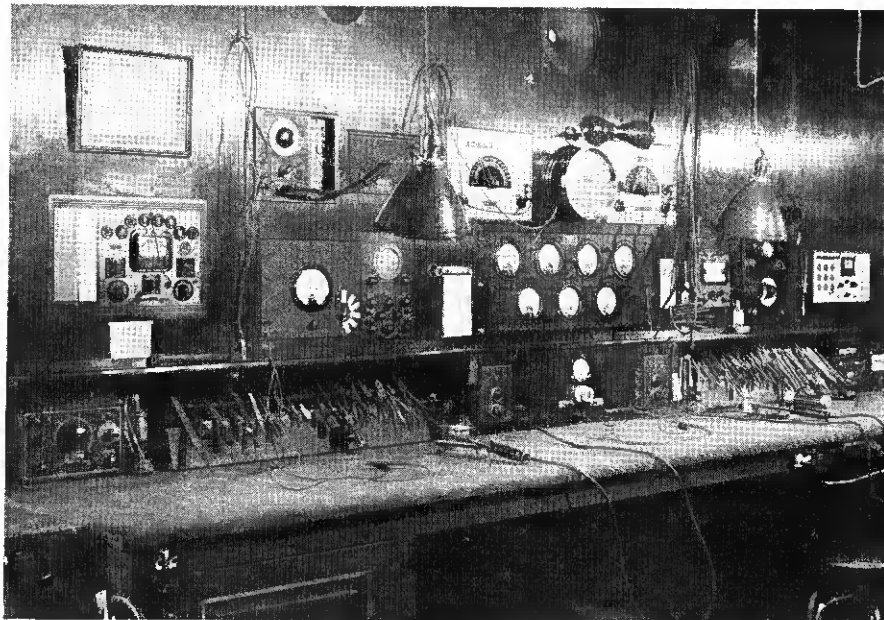
If any resistance is present at the coil terminals, erratic operation may be expected at the low frequency end of the dial.

Sets employing oscillator coils with the ground end connected to the spade mounting bolt are the worst offenders. Inspection should be made to insure good contact at this point.

Locating Intermittents

By T. Henshaw

Most intermittent sets have a habit of operating properly when on the test



MAGNETIC TOOL RACK—Modern test bench of Russel S. Morton, Salem, New Jersey, boasts of a novel tool holder of Model T magnets stacked together. The magnets are tilted to provide easy access to tools. In addition, a complete set of test instruments are built into overhead panel.

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SEARCHLIGHT SECTION

SELLING OPPORTUNITIES OFFERED—WANTED

Selling Agencies—Sales Executives
Salesmen—Additional Lines

OPPORTUNITY WANTED

SALES MANAGER with several years experience in the Swedish radio market wishes to represent as sole agent make of well-known radio and supplies. First class references upon request. Answer to "t.h." Tornbloms Annonsbyra, Stockholm, Sweden.

VACUUM CLEANERS FOR REBUILDING

Large stock of many makes and models.
Trade-ins. Clean and Complete.

Prices on Request

TALLEY ELECTRIC CO.
510 S. Tryon St. Charlotte, N. C.

New "SEARCHLIGHT" Advertisements

must be received by the 23rd of the month to appear in the issue out the following month.

Address copy to the
Department Advertising Staff
Radio Retailing

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OVER 10,000 PARTS FOR VACUUM CLEANERS AND WASHING MACHINES

24-HOUR SERVICE!

Attach this "Ad" to Your Inquiry and Receive
"Special Inventory Reduction Prices Sheets"
Manufacturers Factory Representatives
MIDWEST APPLIANCE PARTS CO.
2722 W. Division St. CHICAGO, ILL.

RADIO IN IT'S ENTIRETY!

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

COMPLETE CATALOG AVAILABLE

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

STOP SEARCHING! HERE IS YOUR "GUIDE"

LOWEST PRICES

SEND FOR YOUR COPY NOW!

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

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

FASTEST SERVICE

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



R A D O L E K

601 W. Randolph St., Dept. A-19, CHICAGO

Name

Address

Serviceman? Dealer? Experimenter?

Rely on Radolek for "Everything in Radio"

Audio Frequency...

Net Prices For Sound

Many sound equipment manufacturers quote 60 per cent off list not only to jobbers who refrain from selling at a discount to the general public, but also to outlets which would certainly be classified as retailers in any other field. As a result, instead of a normal and legitimate profit for both jobbers and retailers of sound equipment engaged in their professed branch of the distribution system, the industry is confronted by a situation in which dealers and jobbers find themselves in costly competition for the same consumer's dollar.

In view of the competitive situation faced by sound equipment manufacturers, I see little immediate possibility of correcting this condition by more careful scrutiny of jobber-dealer classifications. Why not discontinue the list price method carrying 60 per cent discount for jobbers and 40 per cent for dealers, substituting in its place net prices for sound dealers and 33½ per cent discount for jobbers?

The only disadvantage which I see in this plan would occur where the ultimate consumer was acquainted with the merchandise or had seen it cataloged. A jobber, in this instance, would not be in a position to show the consumer that he was getting a discount off the list.

KANSAS CITY

R. COMMACK

Weight

Due to the fact that customers are unfamiliar with the shipping weight of merchandise advertised in radio publications and supply catalogs, I believe it would be a benefit to all concerned to list this weight. Then the customer could add the weights given for each mailable article and by referring to a parcel post and zone table add enough for postage to insure complete and prompt delivery without the nuisance of due-slips.

DAVID CITY, NEB.

J. C. THOMAS

Magazine or Manual?

The circuits you publish in the Technical section of *Radio Retailing* are very good, but why don't you print diagrams of complete new receivers instead of just parts of them?

KANSAS CITY

R. COMMACK

Most new receivers use conventional circuits and are as much alike as peas in a pod. Suppose we published as many as 10 complete circuits per month. At the end of the year we would have covered only 120. And in this period thousands of models would have appeared on the market.

We feel that this important but routine job is adequately handled only by circuit manuals. When a receiver embodying many radically different design features comes out we do publish the complete diagram. For example, we published all ac-de set circuits, complete, when this in-

novation first came along because we knew servicemen would encounter them before manuals could obtain wide distribution. We frequently publish complete diagrams of new test apparatus, print circuit diagrams of new automobile ignition systems every year. Ordinarily, however, we feel it is our major function to show just those parts of receiver circuits whose principle of operation may not be familiar to our readers.

In order to make our partial circuit selection each month, we must carefully study every detail of every new receiver circuit released by all manufacturers. This is hard work and it would be much easier to just publish a few impressive-looking two-column complete diagrams plus manufacturers service instructions and let it go at that. Naturally, there would be less space for detailed analysis. Is this what you want?

Tip For "False Whiskers"

"False Whiskers": I read your peeve in February's issue (about stationary test equipment) and since I can't bear to see you suffer longer, feel sure you'll be glad to know you are about to get relief.

In a Chicago factory recently I saw just what the doctor ordered. Write me and I'll be glad to give you his name.

EVANSTON, ILL.

"DAVE"

North Shore Home Appliance Company

Wants Lectures About Dollars

In your February issue I read the letter of Bob Russell of Amherst, Mass., with much interest. The conditions he complains of (price-cutting, discounts) are general throughout the radio industry. Everybody in the radio retail business admits such conditions should be corrected, but how?

The jobber alone is not to blame. Most of us must put our own house in order before we start pointing the finger at anyone on particular. I am confident that the

majority of radio servicemen are capable of doing a good job of service and instead of technical lectures what we need is a few lectures on costs and business management. I am sure that is where most of us miss the boat.

PEORIA, ILL.

FRED E. DEGENFORD

United Auto Radio Service

President, Peoria Chapter, RSA

Pu-r-r-r

I have recently subscribed to a publication which I thought at the time to be the best obtainable for its helpful contents. The only regret is that I hadn't become acquainted with *Radio Retailing* before I did as the magazine I first subscribed to is similar but not up to your publication in its wealth of information.

PHILADELPHIA

EDMUND F. RIDDLE

Recently I got hold of a General Motors set with a bad case of fading and if it had not been for something I found in "Tricks of the Trade" I might have been working on it yet!

RICHMOND, IND.

EVERETT R. BOLANDER

I have received two copies of *RR* and don't want to ever be without it again.

LOS ANGELES

GUTHRIE HAYNES

Most of the members of this firm have been readers of your valuable trade journal, *Radio Retailing*, for a long time. Many of the news items, editorials, and articles therein have been of genuine interest and value to us.

LOS ANGELES

RON MERRITT

Radio Specialties Company

We regularly receive *Radio Retailing* and find it a most interesting and valuable guide to retail trends and of much help to us in contacting the retail outlets to whom we sell.

LONG BEACH, CALIF.

HAROLD H. SCOTT

Scott Wholesale Radio Co.

I have found very much useful information in your magazine and hope you will keep the good work up. Your radio technical department is excellent.

ASHTABULA, OHIO

J. B. KOHUT

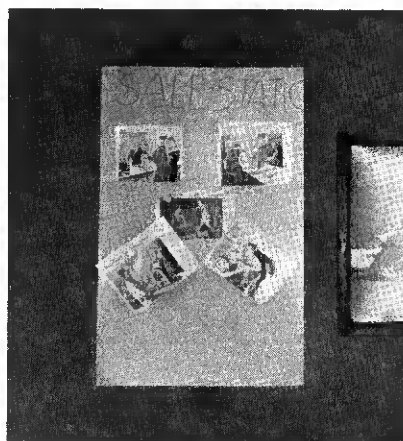
We enjoy your publication and have subscribed for it since making its first appearance and received much valuable information during all these years.

All important items we file under a given title for ready reference and the service tips we cut up and paste on receipt cards and file them in a drawer in alphabetical order and whenever a job comes in we first look the cards over for that particular model and it has saved us much time and work.

IRVINGTON, IOWA

E. H. THOMAS

Thomas Radio Service



CARTOONS AT WORK — Our "Sales Static" cartoons are posted on the wall by Barry & Cortley, Bronx, New York retailer. The boss says they kid a lot of customers into giving him the breaks

EVERY POLICE OFFICIAL PRAISES

any device that promotes safe driving. Here is an auto radio that can be tuned without taking eyes off the road. You push when you listen as you watch where you drive.

CROSLLEY PUSH BUTTON RADIO

Now obsoletes all auto radios which do not have the amazing Crosley positive push buttons. Think of what this means to thousands of car owners who want better radio reception—to all careful drivers—to everybody who will buy a new auto radio,

or replace an old one! It's almost unbelievable. Price, plus cleverness, plus a quality radio, makes this the fastest selling item in your field today—it's a great Crosley achievement!

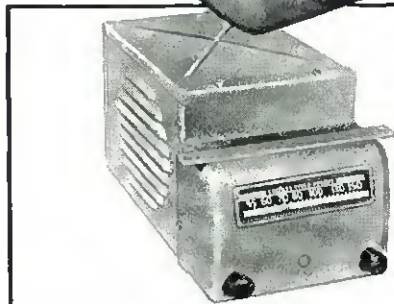
5 TUBE *Safety-tune* ROAMIO \$24.95



Easily and quickly installed in any car. Adjustable from the driver's seat. Any button can be set on any station—at any frequency.

It is a 5-tube superheterodyne, sensitive and efficient. Signal-to-noise ratio is highest of any 5-tube set. That assures enjoyment of radio at all car speeds. Push button tuning is instantaneous and positive. The tone is excellent. Get a Safety-tune Roamio on your own car as quickly as possible. They sell on sight!

AS EASY TO TUNE AS SOUNDING YOUR HORN



Lowest priced auto radio. Crosley Roamio Fiver most successful seller—now improved—unmatchable — at no increase in price.

\$19.99

QUICK PROFITS

can be made with this fastest of selling items. Don't delay. Use coupon and MAIL TODAY!

THE CROSLLEY RADIO CORP.
Cincinnati, Ohio

RR-508

Have nearest jobber show me this new push button Roamio and tell me how other dealers are selling them like hot cakes. I like to make money too.

NAME

ADDRESS

COMING

IN JUNE

THE *Scoop Line* OF

1939



RADIO

G-E Radio shows the way *again* with the most PRECEDENT-BREAKING and SALES-COMPELLING features in our history. More Value • More Features • New, Powerful Advertising • Sales-making Promotions • and a Great Merchandising Plan; providing a Generous Profit Opportunity for Dealers Everywhere.

**WATCH FOR ANNOUNCEMENT OF DEALER PREVIEW SHOWING
FROM YOUR GENERAL ELECTRIC RADIO DISTRIBUTOR**

GENERAL  ELECTRIC