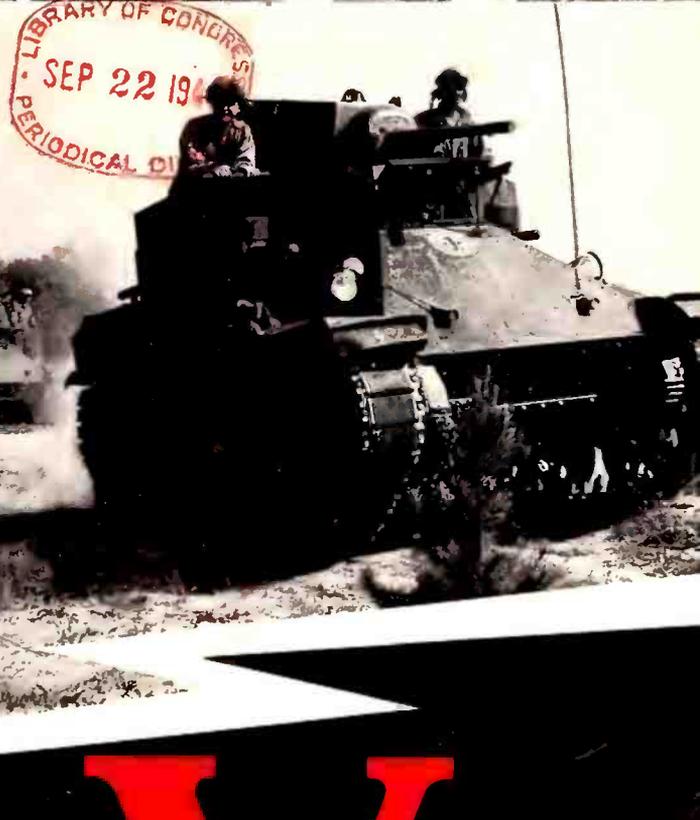


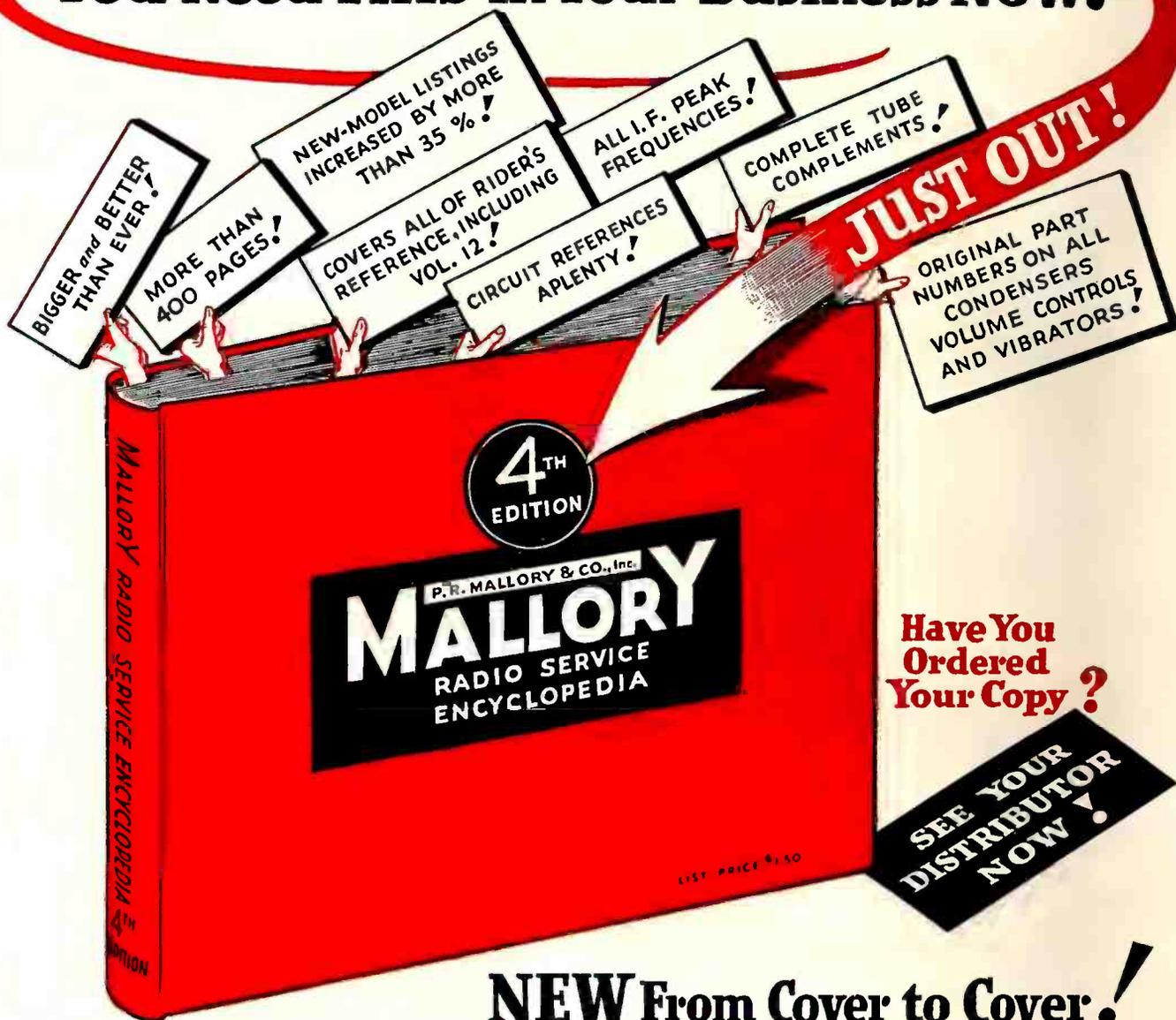
RADIO *and Television* TODAY



Radio Will Win the War!

SEPTEMBER

You Need THIS In Your Business NOW!



Have You Ordered Your Copy?

SEE YOUR DISTRIBUTOR NOW!

NEW From Cover to Cover!

Here's a Volume Control That's *Something!*



... a real contribution to the speed and quality of your service work. New mechanical and electrical precision. Rugged! An A-C switch that snaps on and stays on. Quiet! Start using them *today!*

Mallory Replacement Condensers are Tops!



More service engineers are using more Mallory Replacement Condensers than ever! Save time and protect your reputation with Mallory Replacement Condensers!

Save your old Aluminum parts. It is patriotic to give them to National Defense.

You better order your copy of this new, 4th edition MYE *right this minute!* Because our Mallory distributors tell us that they're practically sold out. And, Mister, you're going to kick yourself, if you don't get a copy. You need this MYE in your business—and you need it **NOW!**

So *now* is the time to order. Pick up the phone and call your Mallory distributor . . . tell him you've GOT to have a copy of the new, 4th edition MYE!

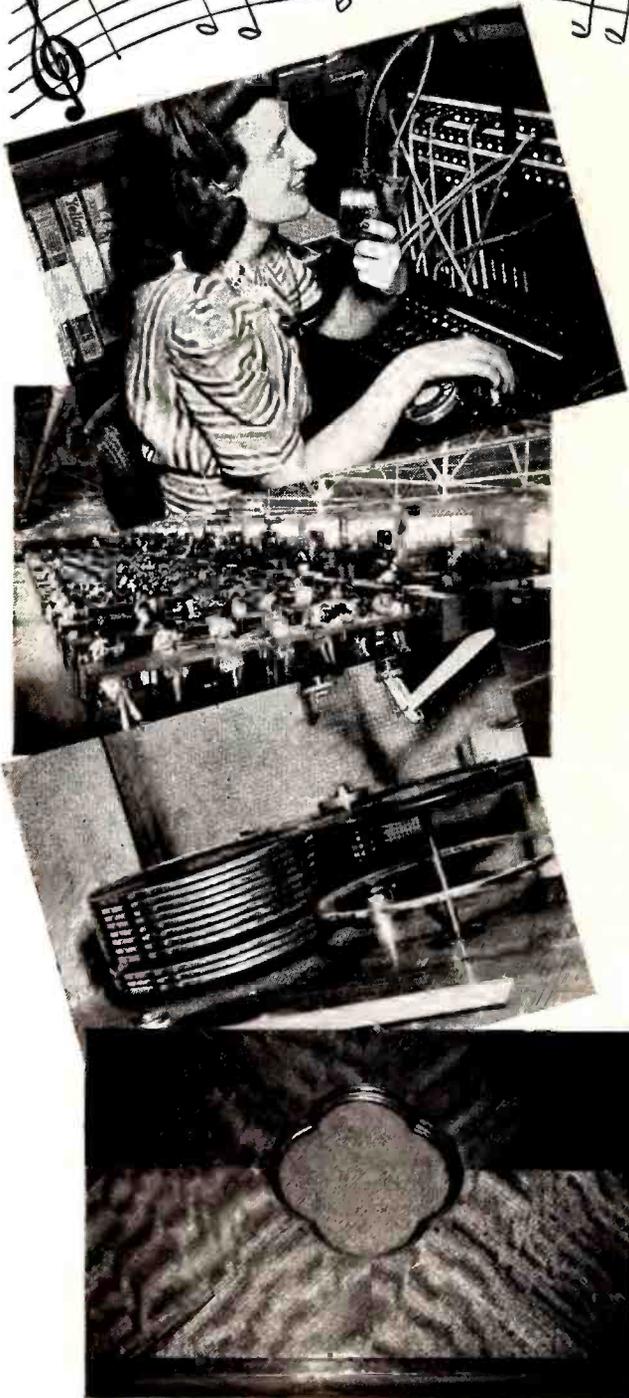
P. R. MALLORY & CO., Inc., INDIANAPOLIS, INDIANA

**More than ever
—INSIST ON**

P. R. MALLORY & CO. Inc.
MALLORY
APPROVED
PRECISION PRODUCTS

VIBRATORS • VIBRAPACKS • CONDENSERS •
VOLUME CONTROLS • ROTARY SWITCHES •
SINGLE AND MULTIPLE PUSH BUTTON SWITCHES
• RESISTORS • RADIO HARDWARE

Little things that Count **Music While They Work**



ASSEMBLING a radio tube is as exacting and taxing a craft as exists. The tolerances are so fine, the parts so delicate, that it is vital for those who put the parts together to be completely at ease.

In all the Hygrade Sylvania factories soft, as well as brisk and buoyant music accomplishes relief from the tension of very careful work. The vast, airy assembly rooms are filled with cheery melody—relaxing the minds and the hands of the women who are engaged in the important work.

It may seem a “little thing” . . . this music . . . but it’s a “little thing that counts” heavily in the unfailing quality of Sylvania Tubes. By such attention to little things, Hygrade Sylvania is constantly adding to the accuracy of its manufacturing methods—and, in so doing, adding to the ever-increasing reputation of Sylvania Tubes.



Sylvania Radio Tube Division

HYGRADE SYLVANIA CORPORATION **EMPORIUM, PA.**

500 FIFTH AVE., NEW YORK • SALEM, MASS. • ST. MARYS, PA. • IPSWICH, MASS. • TOWANDA, PA.
Also makers of Hygrade Lamp Bulbs, Hygrade Fluorescent Lamps and Miralume Fluorescent Light Fixtures

NEW FARNSWORTH MODELS

ARE THE HIT OF THE YEAR

EVERY MODEL A DISPLAY MODEL

Radio men looked over the ten new Farnsworth combinations at the shows in New York, Chicago and San Francisco—and pronounced them “tops.”

They said it in the most convincing way there is—with orders. Shown here are three of the ten which drew special praise.

All offer features that lead to quick sales and real profits. Superb styling. Rich cabi-

nets, the new Farnsworth Colortone control, foolproof and service-free Farnsworth record changers, phonograph engineering that has become known for tone, plus all the usually accepted quality features including hermetically-sealed, high fidelity crystal and record-playing stylus.

Don't lose a day in getting in touch with your distributor about these wonderful new Farnsworth radios and phonograph-radios. For in these times, of course, it is impossible to estimate how long the supply will last. Call your distributor, or write, wire or phone Farnsworth Television & Radio Corporation, Fort Wayne, Indiana.



◀ *The Chippendale* (CK-111).

In every respect it is a true reflection of the 18th Century charm so distinctive of Chippendale design including door covered grille. Available in selected walnut or mahogany. 11-tube AC Superheterodyne. Three gang variable condenser. Dual “baton” Colortone controls. Seven push buttons. Bilt-In-Tenna. Deluxe Farnsworth Automatic Changer. Tuned radio frequency on all bands. Sapphire stylus—every Deluxe feature!

The Companion (CK-73).

Offering the utmost in luxurious listening comfort, this charming version of a chairside combination is a beautiful example of Farnsworth modern styling available in Walnut or Golden Harvest finish. 7 tubes (including rectifier tube and 2 multiple purpose tubes), providing 9-tube performance. Farnsworth “Velvet Action” Record Changer. Permanent record-playing stylus.



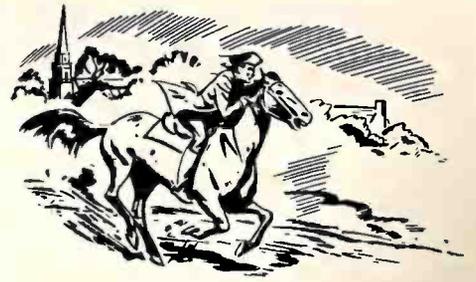
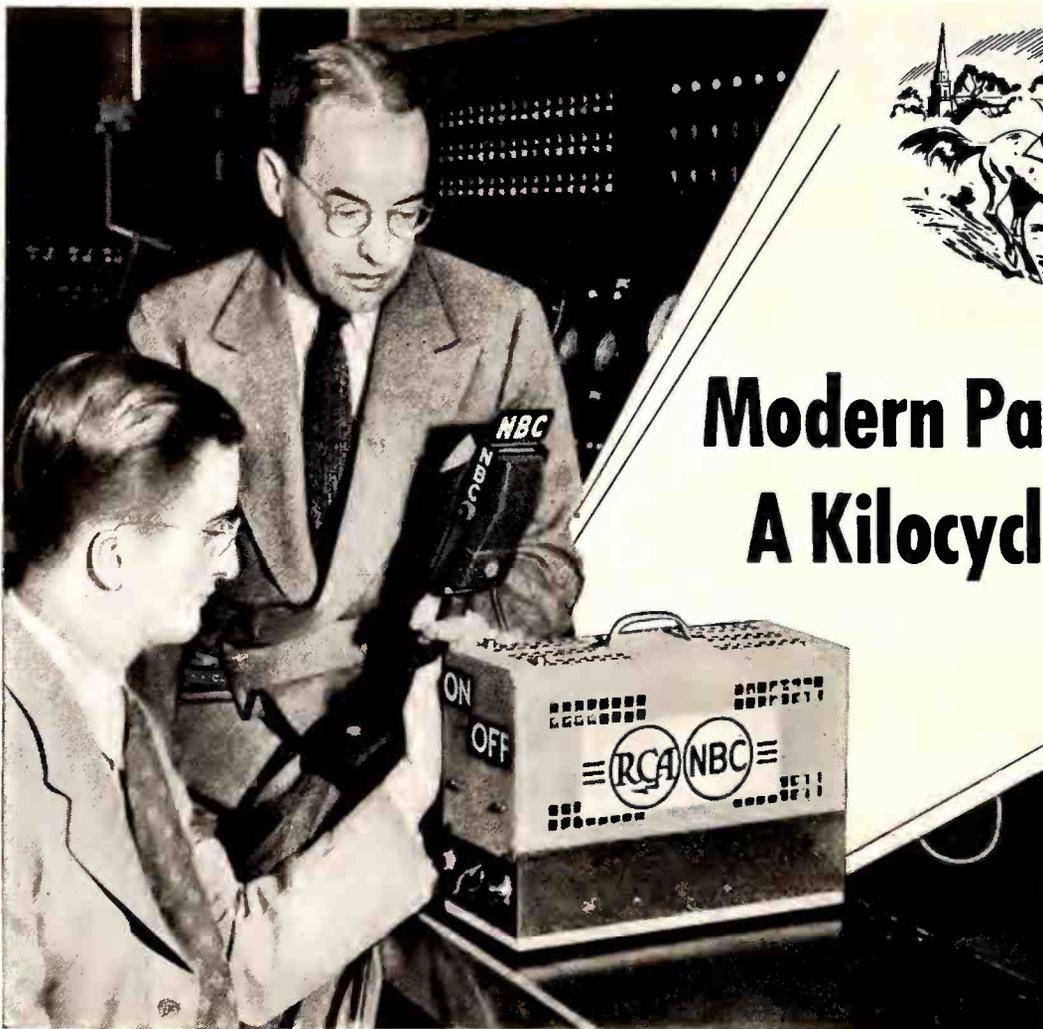
◀ *The Washington* (CK-75).

Meets the long-felt need for an attractively designed cabinet in Walnut or Golden Harvest finish which can be placed anywhere—in alcove, library, dining room or den. 7 tubes (including rectifier and 2 multiple purpose tubes), which provide 9-tube performance. Farnsworth “Velvet Action” Record Changer and record storage compartment. Permanent record-playing stylus.



Farnsworth
KNOWN FOR TONE

MAKERS OF RADIO AND TELEVISION TRANSMITTERS AND RECEIVERS, THE CAPEHART, THE CAPEHART-PANAMUSE AND FARNSWORTH PHONOGRAPH-RADIO COMBINATIONS



Modern Paul Revere A Kilocycle Rider!

Newest development of RCA Laboratories, the RCA Alert Receiver is about the size of a portable radio set and as easy to carry. It operates from an ordinary light socket, either AC or DC, and can be switched to batteries in the event of damage to power lines

NEW RCA LABORATORIES DEVELOPMENT...

*RCA Alert Receiver a notable contribution to civilian defense.
Turned on and off by broadcasting station!*

An emergency warning signal is flashed through space by a radio station. Instantly and automatically, the new RCA Alert Receiver in the home leaps into action, ringing a bell or sounding a siren.

Sleepers are aroused. Listeners are summoned. And then, through its loudspeaker, this modern Paul Revere brings them air-raid instructions or other important messages with the speed of light.

Amazingly simple in design and construction, the RCA Alert Receiver can be produced at a cost approximating that of the average low-priced table model radio. Requiring very little power for oper-

ation, it can be used with surprising economy, 24 hours a day over a long period of time.

Even more simple is the transmitting apparatus, which consists of a vacuum tube oscillator generating two sub-audible frequencies. One turns the receiver on, the other turns it off. Installation requires no change in normal broadcast station wiring.

The RCA Alert Receiver is important to National Defense because it makes possible a local, regional or nation-wide instantaneous radio call service. With this new development, the public service of radio is once more expanded—thanks to RCA research.



RCA LABORATORIES

A SERVICE OF THE RADIO CORPORATION OF AMERICA

*Other RCA Services: RCA Manufacturing Co., Inc. • Radiomarine Corporation of America
R. C. A. Communications, Inc. • National Broadcasting Co., Inc. • RCA Institutes, Inc.*

**RINGLING BROS and
BARNUM and BAILEY**

**THE GREATEST
SHOW
ON EARTH**

Depends on

**RAYTHEON
TUBES**

WHAT A THRILL!... when you hear the Ringling Bros and Barnum and Bailey announcer say L-A-D-I-E-S and G-E-N-T-L-E-M-E-N. Then you know you are about to witness The Greatest Show on Earth... a circus that is known to every man, woman and child in America.

When on tour the Ringling sound system is packed and unpacked twice each day... it is a gruelling test on radio tubes—always subjected to sudden shocks in transportation from truck to train... but twice each day the sound system goes into perfect operation because RAYTHEON TUBES are always on the job!

Ringling Bros, like thousands of radio servicemen, wanted a radio tube that will stand up no matter what the operating circumstance... that's why they choose RAYTHEON!

Your RAYTHEON distributor has an interesting offer... it will pay you to ask him!

RAYTHEON PRODUCTION CORPORATION

NEWTON, MASS. NEW YORK CHICAGO
LOS ANGELES ATLANTA

RAYTHEON
MAKES THEM ALL

WORLD'S LARGEST

EXCLUSIVE RADIO TUBE MANUFACTURERS

How to sell an FM radio-phonograph

"You'll want your new set to get FM, as well as standard broadcasts!"

Remind your customer that with a long-time investment like a new radio-phonograph he can't afford *not* to provide for the new and growing Frequency Modulation broadcasting.

"And you will want to get all of the benefits of Frequency Modulation."

Point out that virtual elimination of static and interference, with FM under the Armstrong system, is only part of FM's advantage. Just as important is FM's enormous musical scope. A Stromberg-Carlson, with the widest range of natural tone, gives full enjoyment of FM.

"This exclusive Stromberg-Carlson device eliminates 'radio-set boom.'"

Explain that a Stromberg-Carlson's exclusive Acoustical Labyrinth blots out wild tones in both radio programs and records. The result is concert-hall clarity and naturalness. And the exclusive "full-floating," tone-true Speaker prevents tone distortion at any usable volume.

"Play these records and hear the difference for yourself!"

Have handy a clean set of good records, all of same tone characteristics, with good program variety. Invite your customer to play them on the automatic record player of the Igor Stravinsky Autograph Model.* Call attention to the permanent point pick-up — *no needles to change!*

"Stravinsky, famous composer, favors this set!"

Your customer will be interested that the great musician is enthusiastic about how perfectly a Stromberg-Carlson captures music lost by ordinary radio-phonographs. For years to come your customer will know for himself why "*There is nothing finer than a Stromberg-Carlson!*"



STROMBERG-CARLSON

ROCHESTER, NEW YORK

A FINER RADIO FOR STANDARD PROGRAMS • THE ONLY RADIO FOR FM AT ITS BEST...

*Licensed under Armstrong FM Patents

RADIO *and Television* TODAY

RADIO FIGHTS ON MANY FRONTS!

New Engineering Uses in Defense and War

Trade readers of RADIO TODAY have thought of radio chiefly as a powerful propaganda weapon. They know that the hundreds of transmitting stations and 54 million receiving sets now in operation in the U.S.A. constitute a tremendous tool for building public opinion and morale.

* * *

But radio engineers see also the many uses of radio apparatus in actual Defense operations. Every ship, boat, plane, tank and army truck is today equipped with radio transmitting or receiving apparatus. Commanding officers issue orders from radio-equipped mobile headquarters, which can go anywhere in the field. Even the infantry has its "walkie-talkie" transceivers, as pictured on our front cover.

Radio methods detect enemy planes, discover hidden mines, transmit maps and photographs, afford remote control for aircraft, ships and torpedoes.

And behind the lines, radio waves are surface-hardening the toughest of steels for shells and for airplane gears; facilitating airplane riveting; speeding up production; making manufacturing methods automatic and so releasing manpower.

* * *

Radio and radio men will be busy as long as the Emergency lasts.

And out of all this Defense activity will come vital new services and devices to build and sell to the public when peace returns to our war-torn world.

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ington Ave., NEW YORK.
N.Y. Telephone PLaza 3-1340.
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it Bureau Circulations. Vol. 7,
No. 9. September, 1941

RADIO'S TRENDS

Parts Manufacturers May Get A-10 for Defense Needs

Analyzing the problems confronting the radio parts industry, the Sales Managers' Club of Chicago appointed a priorities committee consisting of S. N. Shure, W. J. Halligan, and H. E. Osmun. This committee retained Kenneth G. Prince as its counsel to prepare a brief on behalf of the radio parts industry and present it in Washington.

Working in unison with the RMA Priorities Committee the brief asked for an allocation of sufficient raw materials to enable radio parts manufacturers to fabricate replacement parts for repair and maintenance of existing receivers. It is necessary that the industry furnish OPACS with figures showing the exact tonnage of each type of scarce material used by the industry annually, so that OPACS can know precisely how much of each raw material to allocate. OPACS realizes the difficulties which would be encountered in attempting to collect this information in order to allocate to the radio parts manufacturers approximately 60 per cent of the raw material used by them in 1940 for the fabrication of repair and maintenance parts.

The committee was advised that manufacturers of radio parts might obtain an A-10 rating for that portion of the raw materials used to manufacture radio parts or accessories which found their way either directly or indirectly into Defense Supplies. It is estimated by the Committee that approximately 20 per cent of all sales made by jobbers are now going into Defense Supplies and that if the jobber keeps accurate records, as the committee will later recommend, a manufacturer can, in turn, receive an A-10 rating of 20 per cent of his raw material requirements which will put him in a position to restock the jobber.

Curb on Consumer Credit

Although radio sales plans were not greatly disturbed by the new curbs on instalment selling, many radio men listened carefully to the official warning that further restrictions may be forthcoming. Chairman Eccles of the Federal Reserve System Board of Governors said that additional curbs will be made if conditions make them necessary.

In the consumer credit regulation, effective Sept. 1, radio receivers,

phonographs and combinations fall into group C; the maximum maturity period is 18 months and the required down payment is 20 per cent.

Retailers are automatically granted a "general license" to do instalment business for the rest of this year. But before Dec. 31 they must register with the local Federal Reserve Bank or branch, to be licensed for 1942. There is also a regulation on instalment sale records, and copies to be given the buyers, effective Oct. 1, 1941.

Engineering Progress Interpreted by "Radio Magic"

To explain to the public the many advances being made in radio engineering and in applications of electronic devices, the "Radio Magic" program is heard weekly over the NBC Blue network at 7:15 p.m. Eastern Time (6:15 Central Time) with WJZ, New York, as key station.

These Radio Magic programs, now nearing the hundred mark, are conducted by Editor Caldwell of RADIO TODAY. Besides reporting on new discoveries in radio and electronics, and interpreting these to a large popular audience over some 60 stations from coast to coast, helpful suggestions are given regarding home radios, replacement of tubes, and how to get radio sets repaired by neighborhood radio men.

Topics ahead include:

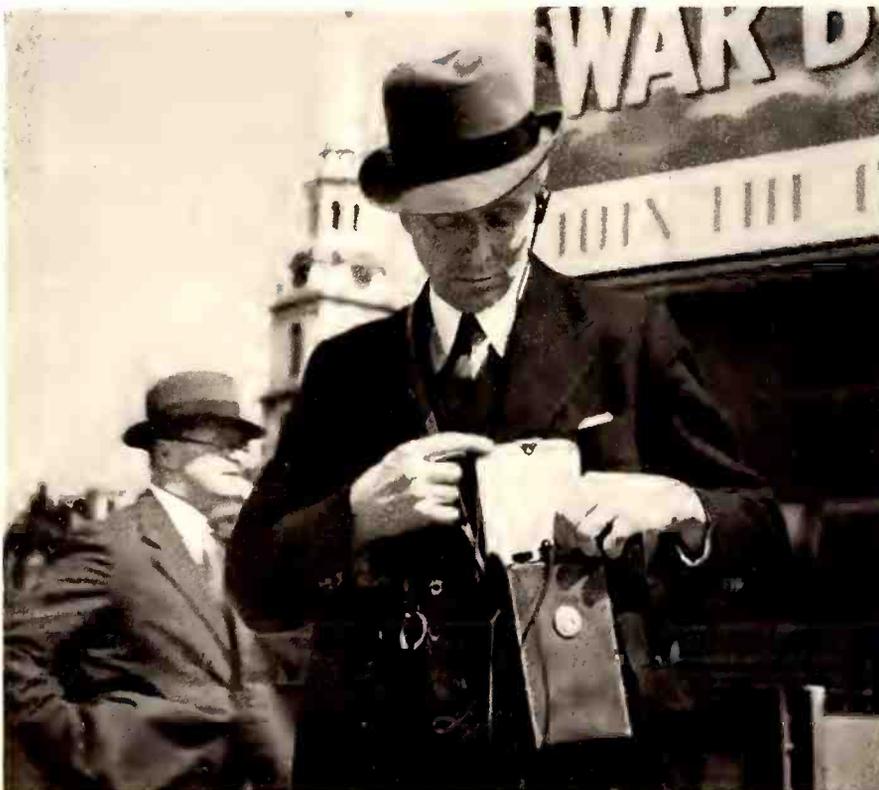
- Sept. 19. Radio in Defense.
- Sept. 26. Music by Wire.
- Oct. 3. New Materials for Old.
- Oct. 10. The First Radio Signal.
- Oct. 17. Recruits for Radio Magic.
- Oct. 24. Radio and Living Things.

Milwaukee Merchants Protest Shortages

Radio and appliance men in Milwaukee, Wis., are launching an aggressive protest against the threat of merchandise shortages. The move is reported by the Wisconsin Radio, Refrigeration and Appliance Association, and is based on the fact that the rumored cut of 50 per cent in merchandise production would certainly cripple the dealers and distributors.

The Association says that business men in Milwaukee are as patriotic as any other group of citizens, and they realize that restricted production of their products may be necessary to the cause of national defense. But they do not believe that the situation can possibly warrant a reduction to the extent of 50 per cent.

Mayor Carl F. Zeidler of Milwaukee is active in the protest, and reports are that it may become national in scope. Merchants are being urged to write to their Senators and Congressmen.



Now you know how some Britishers manage to tune in during the confusion of war-torn London. Photo shows a 3-lb. receiver with headphone for convenience and quiet listening—a refinement which U.S. engineers seem so far to have overlooked.



L. E. Gubb, new chairman of the board of Philco Corporation, who will formulate policies.

Philco Announces Promotions

Larry E. Gubb, well known as executive vice-president of Philco Corp., has been elected to the post of chairman of the board. Other key promotions announced at the same time included the election of John Ballantyne as vice-president in charge of operations; Thomas A. Kennally as vice-president in charge of sales;

W. R. Wilson as treasurer; and James H. Carmine as general sales manager.

As chairman of the board, Mr. Gubb will have increased responsibilities in formulating Philco policies in defense work, radio, refrigeration and air conditioning.

James T. Buckley, who has been associated with Philco since 1912 and has been its president since 1939, will continue in that office.

Radio Will Win the War

On the front cover of this issue, readers will see how the skilled hand of the U. S. radio engineer is designing us into the strongest possible wartime position. And it is pointed out that this extraordinary development work will certainly result in improved radio devices for domestic sales and service after the trouble is over.

Besides the new installations in the planes and tanks, radio is doing a job in the command car, providing mobile communication for roving officers. Also, there's the "walkie-talkie" aboard the corporal's back, connecting him with others within a six-mile radius. It all adds up to an unbeatable network with the "V" mark on it. Photos are those of the U. S. Army Signal Corps.

Broadcasters Seek 500 kw

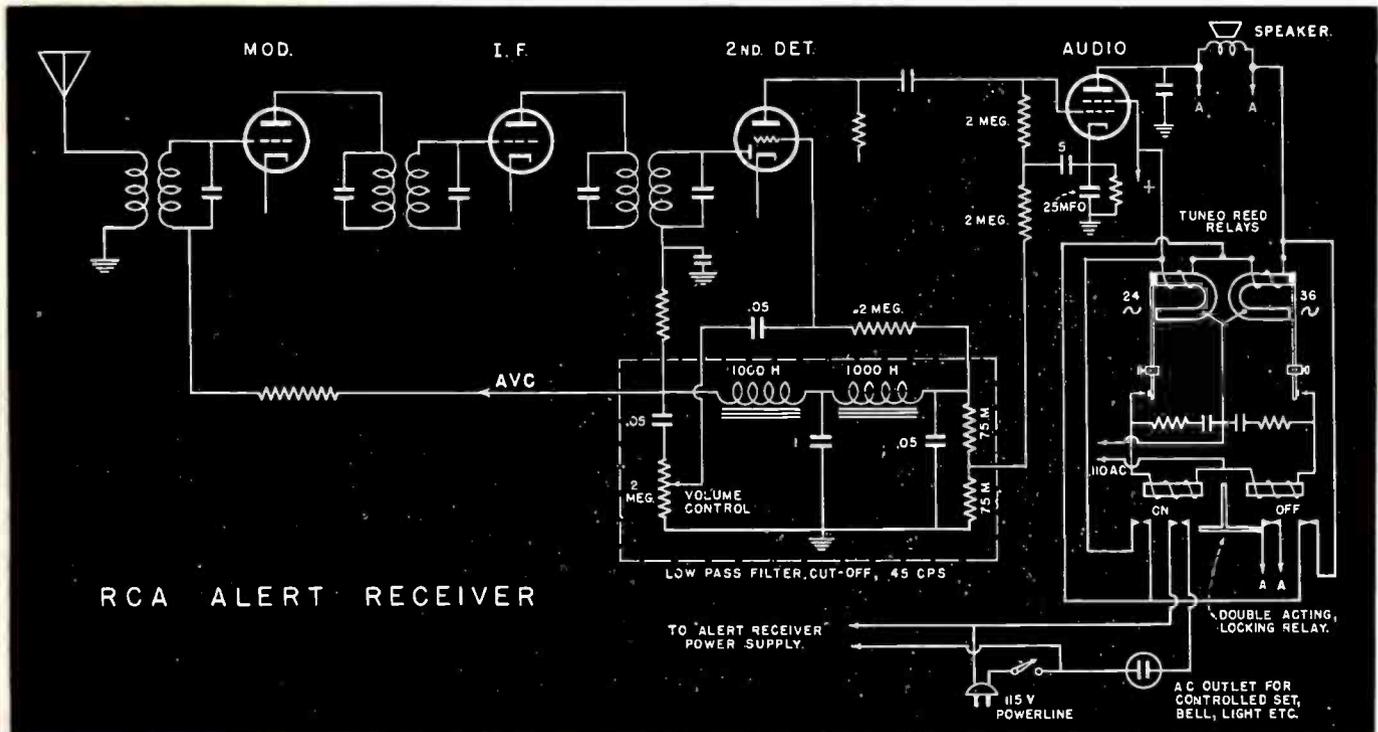
Pointing out that higher powers than the 50-kw transmitters to which broadcasters are now limited, would override static and bring clear radio reception to large rural areas, three



Dr. W. R. G. Baker of GE, head of RMA Engineering Division, which has set up new bureau to study substitutes.

stations are now asking FCC for powers of 500 kw or more.

The Crosley station, WLW, Cincinnati, Ohio, which operated on 500 kw for a time but was afterward cut back to 50 kw (except during early morning experimental hours), is now asking for 650 kw.



Radio receiver circuit controlled from broadcast station by sub-audible frequencies (24 and 36 cycles). Originally designed by License Laboratory engineers for announcing

special programs and news features, the circuit has now been applied to Defense uses as an alarm for Defense workers and the general public. See page 28.



SURPRISING SUBSTITUTES

ENGINEERS CONSIDER NEW MATERIALS FOR RADIO PARTS
RAPID CHANGES MADE NECESSARY BY DEFENSE PRIORITIES

"There'll be some changes made!"

That is the theme song of the radio industry and trade—at the present time, and for the duration of the Emergency!

For, with existing shortages of aluminum, nickel, steel, copper and plastics due to the Defense program, a remarkable lot of new substitutes are now being experimented with by radio engineers in laboratories all over the nation. And surprisingly enough, some of this research in substitutes is revealing new materials which seem even better adapted to the purpose than the familiar substances long used in the past!

Aluminum, nickel, steel, copper and plastics are the materials from restrictions on which radio is chiefly suffering—and in the order named.

Such shortages are due to three primary causes:

1. Actual shortages in the material itself, because of diversions to Defense uses.
2. Bottlenecks in production plants and shortages in fabricating machinery because of use of such plant equipment in other processes of manufacture for Defense needs.
3. Psychological or "scare" shortages, due to over-demands by official and non-official authorities, resulting in setting up great hoards and storage piles of raw materials for De-

fense, far beyond any possible needs for many months to come.

RMA MATERIEL BUREAU

But whatever the *causes* are of these shortages in radio's key materials, the *realities* of the situation soon become apparent in the dwindling supplies on hand in factory stockrooms. And so radio engineers have gotten busy, looking for new materials to use, materials not involved in the Priorities situation. This flexibility-of-mind of the engineers in charge of radio design and manufacture, has been one of the saving factors in the present difficult situation, which might have floored an older, more conservative industry. But radio engineers are mostly young or middle-aged men who have already witnessed such rapid changes in the art that they keep open minds for even the most radical substitutions.

An expert industry organization for the study of radio materials and substitutes, has recently been set up by RMA in its Materiel Bureau. This has been launched under the direction of the RMA Engineering De-

Savings in copper and aluminum are possible where molded powdered iron cores and casings are used with radio coils.

partment, of which Dr. W. R. G. Baker is chairman, and has the cooperation of the principal engineers of the radio industry and of specialists in all fields bearing on radio materials. Two avenues of approach to the Materiel Bureau's problem were pointed out by Dr. Baker in his opening announcement: One, the more efficient use of normal material that may be available; the other, substitution of materials, with precautions against new shortages. Standardization of types is involved in



Some Substitutes Under Study—

- Gold-plated grids in tubes.
- Silver-plated iron wires.
- Porcelain chassis pans.
- Metallized-paper shields.
- New PM-speaker steels.
- Electrolytics of niobium.
- Powdered-iron transformers.
- Mica-cement molded parts.
- Silver metal solder.
- Paper and glass records.

both divisions of the Materiel Bureau's work.

For example, with steel limited for chassis pans, radio engineers are now studying such substances as porcelain and metallized paper for chassis use. Porcelain, covered with a conducting sheet, would make a pretty heavy chassis, it is true. But porcelain is free of priority restrictions, and as one engineer remarked "There are unlimited tons of yellow dirt over in New Jersey which may some day become home radio receivers!"

Metal-coated paper fiber is also being studied, as coated by a new metallizing process in which the metal is first vaporized, and then projected electrostatically in a powerful beam (like a cathode-ray lens system) onto the paper which is thus metallized more effectively than by any other process.

SILVER AND GOLD

Silver-coated iron conductors are finding use as substitutes for copper wire. Such conductors have strength and for high frequencies particularly, the outside silver coating provides high conductivity just where it is needed for currents traveling chiefly near the surface. And silver, of course, is available in unlimited quantities.

Gold-plated grid wires in tubes, to reduce contact potential, offer another innovation. Gold with its excellent work-function characteristics, or low electron emission, so desirable in a grid, makes a durable, effective surface for a cheap grid structure.

The nickel shortage has worked a temporary hardship on tube manufacture, though here the resort has been to steel as the substitute. But the difficulty has been to get the right steel properly rolled into the thin sections required for tube parts. So acute has this shortage become that the tube people may have to acquire and set up their own rolling mill for the sizes and quantities needed.

PM'S AGAIN OK

Permanent-magnet speakers seemed on the way out a few weeks ago, because of the nickel and aluminum shortages. But suddenly there has been developed a new heat treatment or tempering process, which, for the same magnetic properties, requires only one-third as much of these precious Defense materials as was before needed. As a result the PM speaker is again in good standing, and on the up-and-up!

Aluminum has already vanished from the stators of radio tuning condensers, and may soon disappear generally from the condenser *rotor* plates as well, being replaced by steel sheets coated to prevent rust and deterioration. Already some remarkable fabrication of all-steel tuning condensers has been achieved, even in tiny condensers for small personal radios.

NEW CHEMISTRY OF ELECTROLYTICS

For electrolytic condensers aluminum has seemed to be utterly indispensable for the electrode foil, because of its remarkable film-forming properties. But research is already showing that other elements in the periodic family associated with aluminum have somewhat similar characteristics. So now laboratory studies are being made of tungsten, tantalum, vanadium, bismuth, niobium, and antimony to see whether any of these can be developed for electrolytic-condenser purposes.

In radio transformers, designing engineers are turning toward the powdered-iron closed-core type, because of the greater permeability of its magnetic path, as well as its self shielding due to the core enclosing the coils. In this type of core, the iron is first reduced to almost molecular dimen-

sions, and then mixed with a synthetic resin which on solidifying holds the iron particles in suspension. This construction eliminates need for aluminum shields, and also saves copper because of the low-reluctance path due to the presence of the powdered iron. In the case of tuned radio transformers, movable powdered iron cores accomplish the tuning without need of variable condensers, thus saving aluminum or steel.

PLASTICS AND FORMALDEHYDE

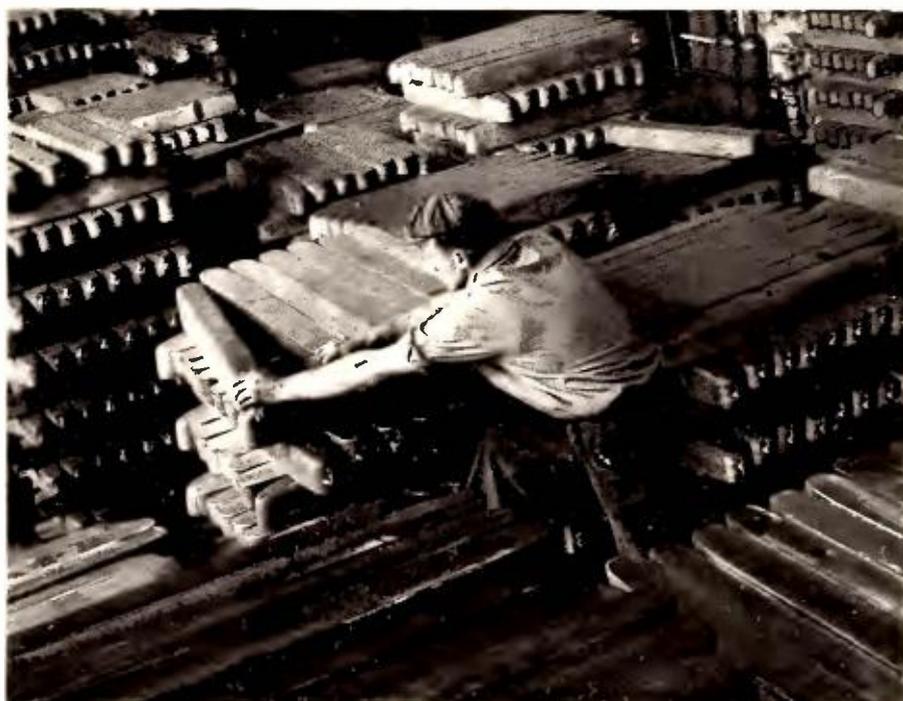
Shortage in plastics has been ascribed by some to the demand for plastics for the "fins" on tracer bullets, now being produced in huge quantities. Probably another cause has been the restricted production of formaldehyde needed for producing plastics. Much of the plant capacity heretofore employed for formaldehyde manufacture has had to be diverted to explosive-making. Result, less formaldehyde and so, less plastics, even though there is no shortage of the basic plastics material itself.

Silver solder; metallized-paper shields; molded chassis bases of mica particles and a stone-like binder; paper and glass-based recording disks; steel-tube auto antennas—these are some of the other substitutions already being carried out.

BETTER RADIOS MAY RESULT

With engineers working individually and collectively to lick the problem of substitutes—and "substitutes for substitutes"—it is apparent that America is not going to lack for radio sets in 1942. Indeed as a result of all these new components the radio industry and trade may have better products to offer than in the past.

Piles of copper bars assembled for Defense uses—land, sea and air.





Alongside this ship's gyro-compass, with continuous electrical make-and-breaks, ordinary radio reception was impossible. But this Armstrong-FM set (a Freed) solved this problem.

ELEVATE RECOGNITION OF FINE RADIO

Arthur C. Ansley
President, Ansley Radio Corp.

When Major Armstrong first introduced FM into the radio picture, it seemed to me and to many others in the industry, that here at last was something that offered an opportunity to elevate the public idea of radio reception and to establish radio's claim to recognition as an instrument for the really satisfying reproduction of fine music.

The broadcasters are doing their part by providing constantly improved tone quality to utilize the full possibilities of the new system. Most receiver manufacturers also have striven to associate FM with everything that is best in radio reproduction.

I suppose it is inevitable that a few companies should try to take advantage of the growing tendency of the public to accept this conception of FM, and to offer cheap sets that will receive FM signal without taking advantage of FM's noise reduction and fidelity of tone. Every effort should be made by the industry as a whole to uphold the attempt of Major Armstrong to keep FM out of the cheap midget-radio class.

DEALERS MUST BE ON THEIR GUARD

Arthur Freed
Gen'l. Mgr., Freed Radio Corp.

With every fundamental advance in radio there are those who endeavor to take a free ride. Yet never has a free

"WHAT FM MEANS TO ME"

Based on nearly two years' listening to FM, winter and summer, day and night, Editor Caldwell of RADIO TODAY, in last month's issue, reported on his personal experiences with FM, its advantages and drawbacks. As cited, FM's points were:

1. Perfection of reception.
2. Absence of static and interference
3. Fidelity of reproduction.
4. Superb life-like reproduction of speech.
5. Wide range of volume intensity.
6. Receiver silence during intermissions.
7. Separation of stations without "crosstalk".
8. Need for patience and accuracy in tuning.
9. Need of outdoor antennas in outlying districts.

Difficulties with polarization differences, and the limited number of FM programs yet on the air, were also mentioned. But the statement in the main was a plea to radio men to protect FM's great merits, for the benefit of the public. Editor Caldwell urged that each FM installation be carefully studied, to insure the individual customer's getting *all*—and not just a part—of FM's great possibilities.

Radio men who have played a part in developing FM were invited to express their own views on the present FM situation, and these comments appear herewith.

ride brought success to a hitch-hiker, the industry or the dealer. This has been proven time and time again during the twenty years I have been associated with the manufacturing of radio receiving sets.

It would be expecting the millennium to hope that things would be different with Frequency Modulation.

The industry will have to face the fact that there will be sub-standard equipment available for sale. Dealers will have to be on their guard against receivers that receive FM programs without FM's fundamental advantages. Frequency Modulation is too fine a contribution to radio reception and reproduction that the public *can* and *will* be educated on what to expect when they buy a radio or combination that is labeled an FM set.

This I believe to be the answer to any present or future confusion—*public education through advertising*.

Of course who shall underwrite the campaign is a matter to be settled between the inventor, licensees and the dealers. However, it also is a matter which has been settled without too much difficulty in the past and will be settled again.

DEALERS SHOULD PROTECT PUBLIC

G. V. Rockey,

Vice-pres. Meissner Mfg. Co.

FM got off to a good start. Only excellent sets combined the FM band. All of them used the Genuine Armstrong Circuit with limiters. Every one who bought an FM set could take it for granted that he would get the superb reception capable with true FM.

But already there have appeared on the market, sets which, while advertised as having an FM band, do not employ the Armstrong system, do not have limiters, do not have adequate audio and speaker systems, definitely do not permit the purchaser to receive the standard of FM performance which he has been led to expect.

Dealers selling FM sets employing the Genuine Armstrong system have the assurance that they are offering FM as it should be without apologies. Of course, not all Armstrong licensed sets have the same standards of performance, and here price is the guide.

It would be a shame if such an advance in radio reception should be undermined by a few opportunist manufacturers unscrupulous enough to take advantage of a public who have long been educated to believe advertising claims.

The radio dealers of America have it in their power to maintain the present position of FM as the finest reception possible, by simply insisting that any FM set offered to them employ the Armstrong system.

LOW PRICES GIVE IMPETUS TO FM

Sayre Ramsdell

Vice president, Philco Corp.

While FM broadcasting is still limited to a small number of cities, the recent increase in sales of FM receivers would seem to indicate that the general public is becoming aware of the advantages of this kind of radio service. It is reported that more FM receiving sets have been sold in the past three months than in the entire preceding period since frequency modulation was first publicized. While it is not always possible to assign a cause and effect relationship to such a marked increase of public interest in a scientific development, there may be significance in the fact that it has coincided with the introduction of the first low-priced radio sets capable of receiving FM.

Some observers of the radio industry believe that the availability of low-priced FM receivers will give the same stimulus to frequency modulation that the famous "Baby Grand" sets of 1930 provided for standard broadcasting. If such should be the case, important benefits would naturally accrue to the public, radio dealers, FM broadcasters, and the radio set manufacturing industry. Now that low-priced FM receivers are available, it is possible for large numbers of people to enjoy this new and improved type of radio reception for the first time.

Notwithstanding the air of mystery that has, consciously or unconsciously, been thrown around FM by some of those who have been actively promoting it, the fact is that FM is not new and it is not complicated. Certain basic principles incorporated in what is now

(Continued on page 38)

DEMONSTRATIONS WILL RELEGATE CHEAP SETS TO SCRAP-HEAP

L. L. Kelsey

Radio Mgr., Stewart-Warner Corp.

Some thought has been given to the best means of insuring to the radio purchaser the maximum benefits obtainable under the Armstrong System of frequency modulation. As one of the early licensees and having done a good deal of continuing development work with FM, we are convinced that through no other method can the results, which the public has been told it can receive from frequency modulation, be placed in their hands.

Current attempts to circumvent the Armstrong System do not seem to us to be leading toward maximum benefits to the industry or to the public. We do not today believe in attempting to put out any cheap versions—believing to the contrary that the industry will benefit as will the public if high-

(Continued on page 39)

LATEST ENGINEERING FEATURES OF FM

Lee McCanne

Asst. Gen. Mgr., Stromberg-Carlson Co.

We are heartily in accord, of course, with the first 7 points in your list of 11 points concerning your personal experience with FM. But I should like to comment on your remaining points as follows:

No. 8: I believe the manufacturers can make it just as easy to tune in FM stations as AM, and we have been working to that aim. We are now be-

ginning to ship our No. 935 Series of models which feature the following:

- When you push a button, it tunes in the station you want, and automatically switches to AM or FM band.
- The push buttons are set up from in front with a screw-driver, in less than 15 minutes.
- We believe in a tuning-eye tube not only for accurate indication on manual tuning, but also as a help and time-saver in setting up push-buttons. We think more FM manufacturers should include this tuning eye, despite their excuse that AM

(Continued on page 39)

QUALITY, NOT PRICE SHOULD CONTROL

E. F. McDonald, Jr.

President, Zenith Radio Corp.

Genuine Frequency Modulation, in my opinion, is the greatest development in radio since the introduction of the superheterodyne. Frequency Modulation means to the radio industry what closed cars meant to the automobile industry. With genuine FM, the music-loving public can now virtually "move into" the studio, concert hall or opera house and enjoy static-free, faithful reproduction. There is no question in my mind but what, as FM increases in circulation, it will result in a definite rise in appreciation of the American public for good music.

As a manufacturer, I believe that quality, not price, should be the controlling factor in the production of receivers using this new art which gives the public faithful reproduction and thus enhances its appreciation of fine music.

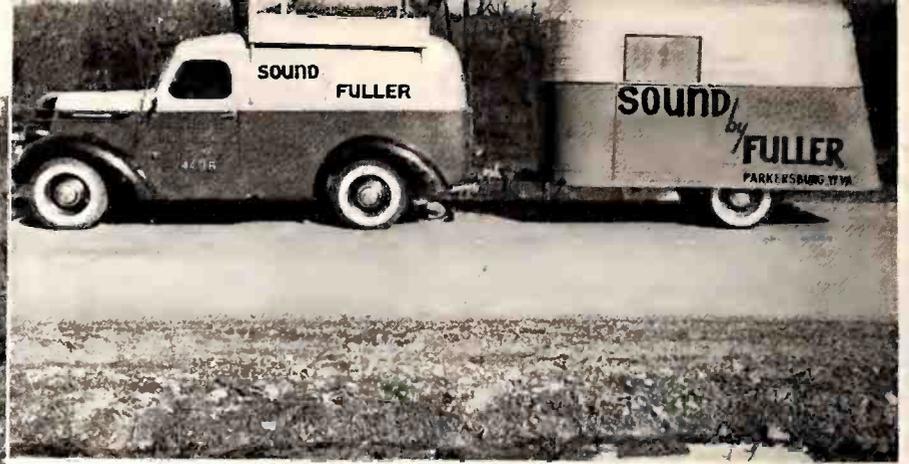
Simulating lightning this board demonstrates FM's fidelity and freedom from static.



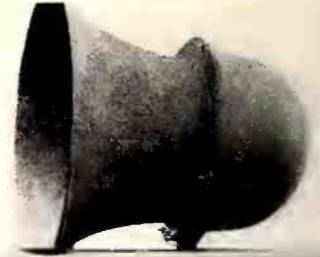


Speakers shown above call out "all aboard" for the Mt. Washington, N. H., cog railroad.

SOUND IN ACTION



The sound truck and trailer shown above are operated by W. L. Fuller, Parkersburg, W. Va. Had 16-week booking with traveling show.



The completely equipped sound truck above is one of fleet of 18 for service in South America. RCA equipped with radio, phono, driver's mike.



The unique mobile speaker-tower shown above and at right uses extension ladders for the tower, and 6 University Labs. LH projectors. Owner is Jack Kyler, Evansville, Ind.





View of Sun Deck atop the Atlantis restaurant on Coney Island's boardwalk. Atlas Sound reflex projector can be seen in foreground.

P. A. LAYOUT

Engineered P.A. system brings profits to owner and sound specialist.

Remembering the valuable watchword, "sound knows no season," p. a. expert Ray Raymow of the Benray Distributing Co., Brooklyn, N. Y., was able to build up the prospective sale of a small outfit into an actual installation of a centralized sound system by demonstrating to a restaurant owner how sound builds profits. It all started when the Atlantis Restaurant of Coney Island, N. Y., telephoned this sound man for a "cheap and small microphone system."

PLANNING THE LAYOUT

This clever sound salesman, however, insisted on surveying the location and to his surprise found that the Atlantis was a brand new restaurant the like of which has never been seen on the famous Coney Island Boardwalk. As Ray saw the job, this location needed "triple-decker" sound on the top Sun Deck, in the Musical Bar on the boardwalk level, and in the cafeteria on the beach under the boardwalk.

The owner of the Atlantis explained that the Musical Bar on the boardwalk would be open all year. Realizing that this was not just another "summer job," Raymow went to work with plans for the following layout which he eventually sold:

(1) 50 watt dual channel amplifier with 3 microphone inputs, and 1 phono input all with individual controls. The

amplifier also had a built-in radio tuner.

(2) 25 watt dual channel auxiliary amplifier which can operate in conjunction with the main amplifier, or individually. Exact operation of No. 2 Amplifier will be explained later.

(3) 3 "PG" dynamic microphone, and 1 Kontak microphone for the piano. (2 mikes in Musical Bar, 1 mike on Sun Deck).

(4) Speaker Equipment: 1 Atlas Sound DR-72 "Dynamic Reflex" projector and 20-watt P. M. driver unit (mounted on Sun Deck). 1 Atlas Sound L-360SL "Chandelier" Speaker (above the bar). 2 "Music Box" Acoustic enclosures and PM speakers (rear of the bar). 1 "Music Box" and PM speaker (lower cafeteria).

(5) Wiring consisted of about 3000 ft. which had to be concealed, and out of sight in the modernly furnished restaurant.

SYSTEM COVERS ALL NEEDS

The "DR" projector is used to distribute sound to the customers at the tables. The main purpose of this projector, however, is to furnish music to bathers on the beach and strollers on the boardwalk. The music played through this single projector originates from either the orchestra which plays from the Sun Deck, from the Musical Bar orchestra, from phono records, or from radio music.

The No. 2 amplifier is used for the Sun Deck orchestra exclusively and when it is not considered desirable to "pipe" music from the Musical Bar.

The main system in the Musical Bar is the most useful. The 50-watt amplifier feeds orchestra music, phono, or radio whenever wanted. Two microphones on the stage are used for amateur shows on Friday nights, and the Kontak mike on the piano is used whenever the band is present. One of the mikes comes in handy for the accordion solo of a performer who usually joins the patrons in a "community sing."

The speaker in the lower cafeteria obtains the full benefit of any musical program that happens to be on.

SOUND KNOWS NO SEASON

During the winter months, the owner of the Atlantis will use the "DR" projector to attract crowds from the local subway terminal which has four lines stopping there from all parts of New York City. In other words, the projector will be turned away from the beach and boardwalk to lure the winter visitors to this Coney Island attraction.

The owner of the Atlantis is gratified with the success of his restaurant in the first year of business. He sincerely believes that the musical appeal to his place, interpreted through "perfect p. a." was largely instrumental in popularizing the Musical Bar and Sun Deck.

As a matter of fact, he was so delighted with the sound system that he invested further in an internal call system which connects the upstairs and downstairs bars, the kitchen, the boardwalk refreshment stand, and the lower cafeteria.

DEFENSE JOBS, TOO

Ray Raymow sees "selling sound" as highly profitable, if tackled in an intelligent manner. The Benray Distributing Company's success in selling the better sound jobs, he believes is due to an understanding of the equipment available, combined with an earnest effort to do an intensive selling job.

You can bet that Ray will land plenty of the local defense plant sound contracts. He's got several prospects interested, and this interest is bound to end up in sound sales.

New Jensen Booklets

New literature from Jensen Radio Mfg. Co., 6601 S. Laramie Ave., Chicago, Ill., is contained in 3 different booklets. No. 125 catalog describes new Hypex projectors, co-axial speakers and reproducers with high frequency control. Form 126 is a treatise on "Hypex Horns." Form 127, "Loudspeakers for Speech and Music Reproduction," analyzes the requirements for speech and music reproduction.



A dealer gives his sales force new "selling orders" for the emergency

INSTRUCTIONS TO SALESMEN

Dear Bill:—

Retail business is good, but it is changing fast.

Our country is fighting a "production" war now. It is arming for a possible shooting war. And planning for an economic war to follow.

We all have a new job to do.

Radio manufacturers' plants and materials are needed to help produce the instruments of war. Many factory departments are busy with electronic devices vital to American defense. Because of this and because of shortages in raw materials, production of radios will be restricted.

More and more, as time goes on, we'll have to concentrate on the sets we already have on hand.

"SELL WHAT WE HAVE"

So here's some advice on handling customers who come into our store to buy radios.

Promises of future deliveries may not be worth a dime a dozen. So don't take an order for a radio model we don't have! **Sell** a set we **do have**. Explain the situation honestly—make the customer want it, buy it, and like it.

Don't let the customer think that the shortage of any particular model is your fault—or our fault—or is any real hardship to him. Point out sincerely that the reduction in the number of models, and in the total production of radio, is the patriotic contribution of the radio industry and of our store, to the quicker and better fulfillment of our Defense program. Let the customer see that his cooperation is important to the common good.

AS TO TRADE-INS

When you accept a trade-in of a set on a sale, "tops" is 25 per cent. Discounts, long trades, are out. Before you make a deal, place a price on the trade-in that you feel sure **you** can sell it for. Then ask "service" to estimate what it will cost to put it in first-class condition. Divide your price by two and subtract the service charge. This is your allowance, but never more than 25 per cent of the price of the new set.

Sell up? Yes, we've all got to do it as never before. **Think up, talk up, sell up**, everlastingly. Make every sale count for as much as you possibly can.

If we want to continue in this business, this is the only way we can do it, "for the duration."

(Signed) THE BOSS

Sales are Booming!

ARVIN

Radios

Never before has there been such a demand for Arvin Radios. More dealers have sold more Arvins this year than in any previous year. And here are some of the "hot numbers" they are selling—

1 MODEL 422—Smallest and lowest priced Arvin, but a mighty good little set. Built AC-DC superhet. Unbreakable cabinet—5" x 5 1/2" x 4 1/4"—brown finish. Attached aerial. One year factory-to-user service guarantee. Model 422A ivory finish.

2 MODEL 524A—A 5-tube AC-DC superhet. Attractive, unbreakable cabinet, ivory finish. 7 1/2" x 5 1/2" x 4 3/4"—20 foot extension aerial with set. Model 524 brown.

3 MODEL 532—The "beauty contest" winner, 5-tube AC-DC superhet with performance that matches its beauty. Cabinet of Catalin, the jewel of plastics—rich burr only. Ivory knobs and grille. Size 6 1/2" x 6" x 5 1/4". Model 532A in Orva Catalin cabinet, amber grille and knobs.

4 MODEL 616A—The price and value leader of 6-tube sets. AC-DC superhet. Attractive ivory plastic cabinet. 9" x 6" x 5 1/4". Built-in loop antenna. A beautiful set and a splendid performer at a low price. Model 616 walnut plastic.

5 MODEL 722A—Finest radio most people want or need. 6-tube AC-DC superhet. Attractive ivory plastic cabinet. 12" x 7" x 7". Built-in loop antenna. Tone control and other deluxe features. Convenient carrying handle. Model 722 walnut.



• This fast-selling, low-priced line includes 15 models. And every one is outstanding in performance and appearance—especially when you consider the low list price, the good discount and the fast turnover. It's a big job to keep up with the demand for Arvin Radios now—but we are doing our best to supply the requirements of Arvin jobbers and dealers. Your Arvin jobber will be pleased to serve you.

NOBLITT-SPARKS INDUSTRIES, INC. • COLUMBUS, INDIANA

Free . . . while supply lasts
... this fine floor display with an order
for one each of six Arvin models. Ask
your jobber.

The Fast-Selling Low-Priced Line!



The Magic Brain Roll-Out record changer and the Magic Tone Cell are featured in RCA's Model V-215. A Jewel-Lite scanner of the flexible tone bridge eliminates all needle changing. Has 9-tube radio, with 3-band chassis. Built of matched walnut and mahogany veneers or all mahogany.

AUTUMN RADIO MODELS



GE L-915

★ A console chest-on-chest type 9-tube receiver. American walnut cabinet. Three bands—550-1700 kc, standard; 1.7-5.2 mc. police; and 5.2-18 mc. international short-wave. 2-built-in beamscope antennas. FM-phono key. 6-electric tuning keys, 14 in. dynamic speaker. General Electric Co., 1285 Boston Ave., Bridgeport, Conn.—RADIO TODAY.



Motorola phonograph

★ A wireless automatic record changer concealed in a "Pull-Out Drawer" is No. WR5. Walnut finish cabinet holds 6 to 8 record albums. Plays ten 10 in. or eight 12 in. records. Galvin Mfg. Co., 4545 Augusta Blvd., Chi., Ill.—RADIO TODAY.



Philco combination radio

★ An 18th Century, walnut Georgian cabinet houses model 1015, 12-tube combination radio. Photo-electric phono reproducer. Automatic record changer plays 10 and 12 in. records. Stroboscope pitch and tempo control. Tilt-front cabinet. Built-in super aerial system. Philco FM system with separate built-in FM aerial. Elec. push button operation. 4 tuning bands. Electro-dynamic speaker. \$300. Philco Corp., Tioga and C Sts., Philadelphia, Pa.—RADIO TODAY.

Westinghouse table model

★ Model WR-290, an AC superheterodyne has 3 bands—standard, police and foreign shortwave. 6 station push buttons. Electro-dynamic speaker, phono jack. AVC, 5½ w. push-pull output. Edglighted angle vision 3-dimensional glass slide rule dial. Walnut "waterfall" design cabinet. Westinghouse Elec. Supply Co., 150 Varick St., New York, N. Y.—RADIO TODAY.



Admiral FM-AM combo

★ An automatic phonograph combo, 4207-B10 with 3 tuning bands, 545 to 1630 kc, 9.3 to 9.75 mc and FM 42 to 50 mc. band. Slide-A-Way automatic record changer plays 10 and 12 in. records. 10-tube FM-AM superheterodyne receiver. Aeroscope and FM antenna. Electro-dynamic speaker. Walnut cabinet. Self-starting heavy duty phono motor; lightweight tone arm. Walnut cabinet. FM-AM, \$144.95; AM only, \$129.95. Continental Radio and Telev. Corp., 3800 W. Cortland St., Chicago, Ill.—RADIO TODAY.

Zenith's new luxury model, Concord (22H699), a phono-glide combo, receives American, foreign and genuine Armstrong FM. Genuine mahogany in Hepplewhite.



**FIVE REASONS WHY
PHILCO
IS THE MOST
VALUABLE FRANCHISE
IN THE RADIO TRADE!**

The features that Philco gives you to sell are *exclusive... only Philco has them!* They are the *modern* features which the public demands today... the big *sell-up* features which make Philco the *profit line* of the radio and phonograph industry.

- 1. Music on a Beam of Light**
- 2. Philco Automatic Record Changer**
- 3. Stroboscope Pitch and Tempo Control**
- 4. New 1942 Philco Tilt-Front Cabinet**
- 5. Exclusive New Philco FM System**

**SEE YOUR PHILCO
DISTRIBUTOR NOW!**



Philco All Year 'Round for Profits All Year 'Round

MORE NEW ONES



Sonora mahogany console

★ A 9-tube phono-radio-recorder combo has 2-bands, broadcast and foreign. Automatic phonograph plays twelve 10 in. and ten 12 in. records. A recorder and public address system. Storage space for albums, discs and mikes. Built-in Sonorascope loop. 6-station automatic push-button tuning. 12 in. dynamic speaker. Crystal recording head and playback crystal pickup. Sonora Radio & Telev. Corp., 325 N. Hayne Ave., Chi., Ill.—RADIO TODAY.



Pilot 18th Century model

★ An AC combination radio-phono with FM, AM and shortwave. 17 tubes. One 12 in. and one 5 in. speaker. Eight push buttons. Built-in loop for AM broadcast. Provision for external doublet antenna for FM and shortwave. Mike recorder, phono and telev. connections. Automatic record changer plays ten 10 and 12 in. records. Cabinet comes in mahogany, M-205, or walnut, W-205. \$350 list. Pilot Radio Corp., 37-06 36 St., L. I. City, New York.—RADIO TODAY.



A 7-tube chairside combo with automatic changer and record storage compartment. Designated as Model CK-73, it is available in both walnut and blond finishes. Farnsworth Radio & Telev. Corp., 3700 Pontiac St., Fort Wayne, Ind.



Olympic 3-way portable

★ PQ-61, a 6-tube superhet with cut-away drop down removable front cover, brass lock and key, tan simulated leather cover. Cowhide handle. AC-DC-battery operation. 5 in. heavy P.M. dynamic speaker. Built-in loop. Automatic power shift. \$34.95. Hamilton Radio Corp., 142 W. 26 St., New York, N. Y.—RADIO TODAY.



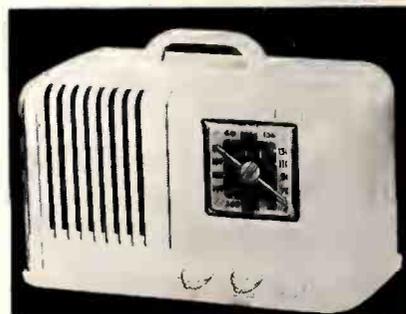
Howard 14-tube phono-radio

★ An FM-AM phono-radio combination, Victory model, 718FM-C. Tunes 4 bands. 3-gang tuning condensers. Special 12 in. speaker. Automatic record changer, light weight pickup. Album compartment. Housed in a stump walnut or diamond matched mahogany Chippendale Period cabinet. Howard Radio Co., 1731 Belmont Ave., Chicago, Ill.—RADIO TODAY.



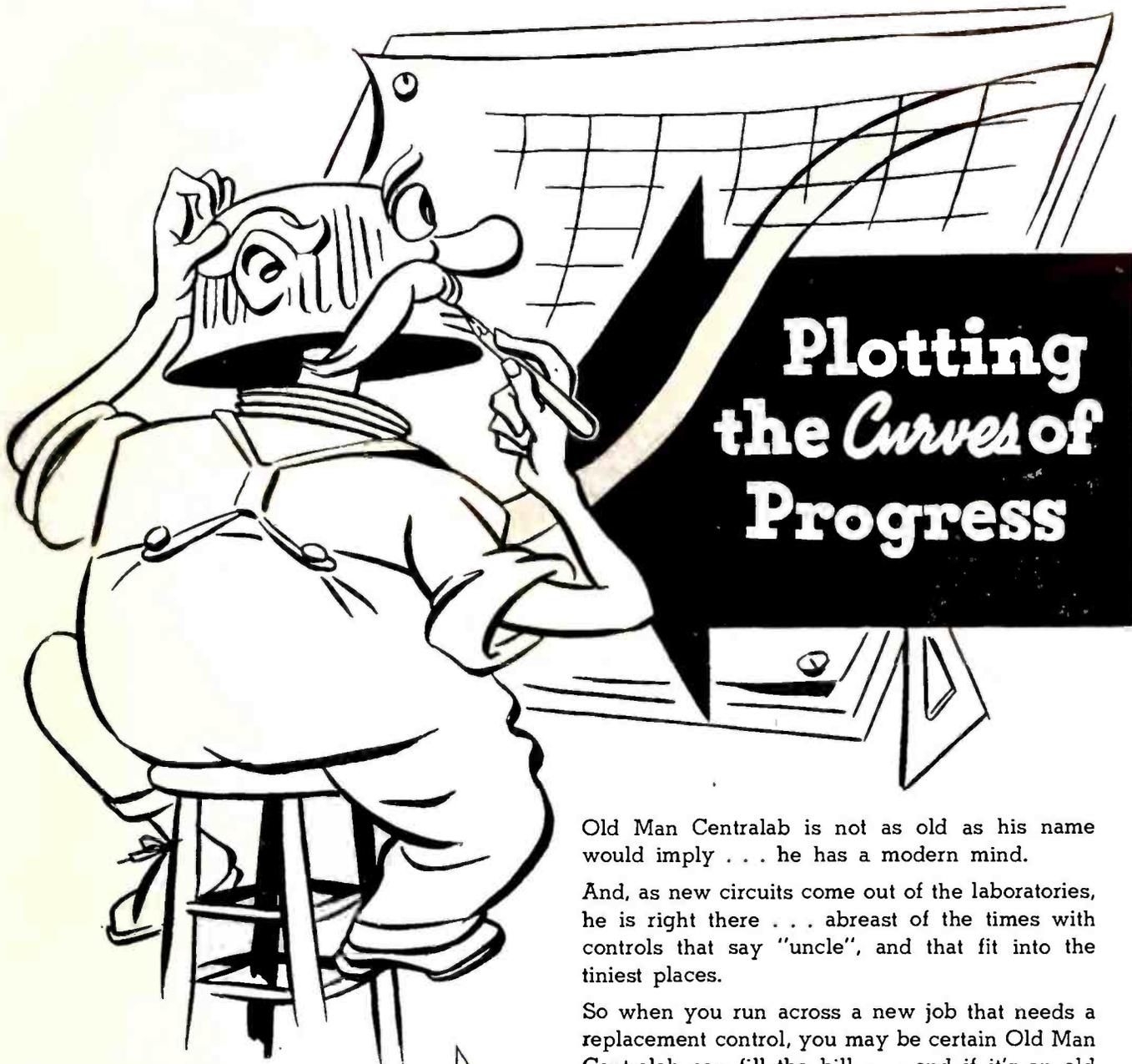
Emerson table combo

★ A 7-tube superheterodyne radio-phono has an automatic record changer which will handle twelve 10-in. or ten 12 in. records. Crystal pickup. Butt walnut cabinet. 13 in. high, 18½ in. wide and 16¼ in. deep. Emerson Radio & Phono. Corp., 111 8th Ave., New York, N. Y.—RADIO TODAY.



Arvin ivory plastic

★ Model 722A, a 6-tube AC-DC superhet with convenient carrying handle. Covers 540 to 1700 kc. Has loop antenna, Hi-Flux speaker. 12¾ in., 7¼ in. high, 7 in. deep. Comes in 2 plastic finishes—ivory and walnut. Noblitt-Sparks Industries, Inc., Columbus, Ind.—RADIO TODAY.



Plotting the Curves of Progress

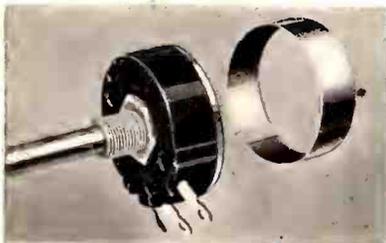
Old Man Centralab is not as old as his name would imply . . . he has a modern mind.

And, as new circuits come out of the laboratories, he is right there . . . abreast of the times with controls that say "uncle", and that fit into the tiniest places.

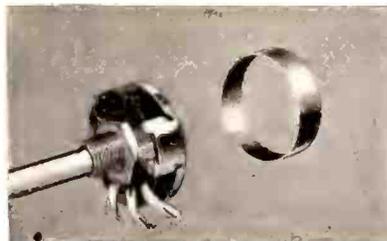
So when you run across a new job that needs a replacement control, you may be certain Old Man Centralab can fill the bill . . . and if it's an old "bloop" . . . there are any number of controls available that will make it "work like new". Old or new . . . there is invariably a CENTRALAB RADIOHM replacement that will do as well, or better than the original. "ALWAYS SPECIFY CENTRALAB".

CENTRALAB: Division of Globe-Union Inc.
MILWAUKEE WISCONSIN

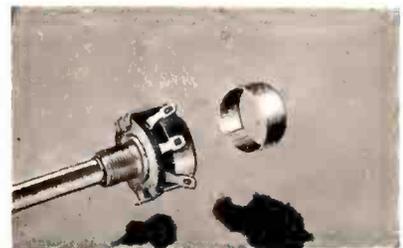
Centralab RADIOHMS



STANDARD: Wall type resistor hugs inner circumference of black moulded bakelite case. Exclusive non-rubbing contact band for quiet, smooth rotation and long life. 1 3/8" diameter x 9/16" deep. Available single, twin, or triple, plain or taped with one or two taps . . . with S.P.S.T., D.P.S.T., or S.P.D.T. Metal shaft extends 3 3/8" from case.



MIDGET: Companion to "Standard" . . . small size but large control efficiency. Available single, dual or triple . . . plain or one, two or three taps . . . with S.P.S.T., S.P.D.T., or D.P.S.T. Moulded bakelite case, 1 1/8" diameter, 1/4" metal shaft 3 3/8" long.



ELF: Small, but also features the long, straight resistor strip. Available plain or tapped with S.P.S.T. Switch . . . with or without dummy lug. Switch rated 2 Amps. 125 V. Underwriter's approved. Bakelite case 57/64" diameter, 17/32" deep (less switch) 25/32" deep with switch.

DESIGNED FOR DISCS

Technical improvements in record players and changers provide a special impetus for disc business this Fall.

The merchandisers of records now have a new force behind them. It's a really big help, in making a sales appeal to the disc-buying public.

For when you think of all the dramatic improvements in record-playing instruments, introduced recently, you realize that the immediate prospect of selling more and more records is greatly improved.

Did you realize what it means to your record volume, that your customers can now play both sides of a record without turning it over; that sapphire points are now designed to float more gently and efficiently over the records; that "music on a beam of light" is finding wide favor; that the new lightweight pickups are better and cheaper at the same time; that other smashing improvements in both reproduction and convenience are being offered?

MULTIPLE MARKET

All these developments, when you link them with the fact that "war time" is naturally a time to sell more records, add up to an exceptional merchandising opportunity for the dealer. The fact is that the public is not only being intrigued by new and interesting record releases, but it is also being attracted by new and exciting devices to play them on. It's a situation to seize the attention of every retailer who has the slightest taste for extra profit.

The classical music lovers will very likely enlarge their libraries because they can get near-perfect reproduction, long service from both the needle and the disc, and elegant new styling. When they buy records, they should be reminded of this.

Plenty of fans, both classical and popular types, are investing in instruments with automatic record changers, and they can be sold more groups of records in place of single discs. Several records to be played in series are a natural result of popular acceptance of the automatic jobs.

Time was when retailers were glad enough to sell single discs to customers who went home and unhappily

At top, Admiral's Slide-A-Way changer shown with demonstrator motor which keeps it sliding. Next you see Crosley's Jewel in the act of Floating, and below that the RCA Tandem Tone Arm ready to play both sides of the record. Second from bottom, Philco's new changer and "Beam of Light" pickup; directly at left, Motorola's smooth-working Pull-Out Wireless Changer.

scratched them out on a cheap player while turning over records and changing needles. But times have changed. And it is up to the dealer to point this out, as new and finer players hit the market.

So merchants had better get wised up to such terms as Velvet Action, Tandem Tone Arm, Beam of Light, Floating Jewel, Stroboscope Pitch, etc., and think about what they mean to disc volume today. It's all free. Designers of new record-players now occupy key places in the sales organization promoting records, so to speak.

MORE ROOM

There's another new adjunct to merchandising platters, and that has to do with the 1941 construction of radio-phonograph combinations. They're built to encourage the use and the storage of more and more records.

Certainly the roll-away features and the slide-out advantages of the improved units are a factor. They have been designed up to a fresh peak in ease and convenience. It means that more records can be handled more often by more people who will show up more frequently at the record counter. When a record fan takes a look at one of these numbers, he does not think in terms of a single record, he is apt to think about how easily he can now play all the records he has ever wanted.

The enlarged record storage space,

BEST-SELLING RECORDS

Listed for RADIO TODAY in order of importance by Alex A. Gettlin, publisher of Recordaid.

GREEN EYES—Jimmy Dorsey on Decca 3698.
TILL REVELLE—Bing Crosby on Decca 3886 and Kay Kyser on Columbia 36137.

BLUE CHAMPAGNE—Jimmy Dorsey on Decca 3775.
LET ME OFF UPTOWN—Gene Krupa on Okeh 6210.

DADDY—Sanity Kaye on Victor 27391.

I DON'T WANT TO SET THE WORLD ON FIRE—Horace Heidt on Columbia 36295 and Tommy Tucker on Okeh 6320.

YOU AND I—Bing Crosby on Decca 3840 and Glenn Miller on Bluebird 11215.

I GUESS I'LL HAVE TO DREAM THE REST—Glenn Miller on Bluebird 11187.

TIME WAS—Jimmy Dorsey on Decca 3859.

THIS LOVE OF MINE—Tommy Dorsey on Victor 27508.

IN APPLE BLOSSOM TIME—Andrews Sisters on Decca 3622.

MARIA ELENA—Jimmy Dorsey on Decca 3698.
PIANO CONCERTO—Freddy Martin on Bluebird 11211.

CHATTANOOGA CHO-CHO—Glenn Miller on Bluebird 11230.

YOURS—Jimmy Dorsey on Decca 3657.

to be found in the new units, is another important factor. In the past this matter has been a bit of a problem. Manufacturers admittedly were designing the combinations in the pure form; there was some room for records but certainly not enough for the average person who had been willing to invest in a full size combination. A lot of them were forced to buy additional record cabinets, at considerable extra cost.

Storage space is now actually being featured by a number of manufacturers. In fact, one manufacturer has built his instrument so that the entire lower section is just for the records. This trend has turned out to be a very practical and tangible attraction for record fans. At least there is room for favorite discs most often played and the others could conceivably be kept most anywhere.

The final flip in this situation comes from the fact that there will probably be more of the good news. Manufacturers are emphasizing larger sets because when shortages are a problem the available materials may well go into more profitable merchandise. An apparently one of the very best bets among the larger units in the radio-phonograph combination. This emphasis may result in even more sensational improvements, and even more good fortune for the record man.

Walco Products in Expansion

The Electrovox Co., makers of an expanded line of Walco products, has moved their general offices to the firm's big plant in New Jersey, at 356 Glenwood Ave., East Orange.

New Walco products include the WN-55 straight shank genuine sapphire needle priced at \$1 and rated at 10,000 good plays, a jewel point one-ounce pickup with the "tru-tangent" feature for \$6.50, and a complete line of recording blanks for all studio and home recording work.

Bitter Offers Improved Bars for Any Size Store

A move to help the merchandisers of records to get exactly the right fixtures in their stores, has been announced by A. Bitter Construction Corp., 27-01 Bridge Plaza North, Long Island City, N. Y., makers of the "Record Bar." The company now features three general sizes of installations, each centered around the Bar.

The first is the compact "Record Dept." costing as low as \$300, adaptable to whatever small space a retailer can spare for demonstration and stocking of smaller inventories. The second is the "Popular" type—any installation still under \$1,000 but providing complete facilities for full stock, multiple demonstration, effective display and aggressive merchandising of records and accessories. The third type is the "Deluxe" one, the custom built fixtures styled according to order, tailored to "class" trade.

A. Bitter, head of the company has
(Continued on page 36)

MERCHANDISE "ON ORDER" THREATENS BUSINESS TODAY



Recordio dealers will cope with this situation because of Wilcox-Gay's H. U. S. sales policy.

Wilcox-Gay recognizes two responsibilities in the present situation. First, the manufacturer's responsibility to the defense effort. To this project Wilcox-Gay is now devoting a considerable portion of its manufacturing facilities.

The second responsibility is that of the manufacturer to his dealership organization. Wilcox-Gay was fortunate in having a proven sales policy which fulfills this responsibility and requires no radical revision to meet the present crisis. H. U. S. stands for "higher-unit-sale." The H. U. S. sales policy has been effective during normal periods. It will prove more effective now. The H. U. S. sales policy works because it is founded on a product of proven quality which is supported by a fast-growing quality-conscious market.

Recordio acceptance is solid and bankable. It becomes a valuable property to the dealer faced with merchandise "on order." For Recordio dealers can depend on sustained sales volume through fewer but larger sales. More people are buying higher priced merchandise this year. They represent the Recordio market.

Consider the logic of Wilcox-Gay's H. U. S. policy. Realize, too, that it is a long-range policy that will outlive the present crisis.

SELL WILCOX-GAY RECORDING DISCS

This fast-growing market offers steady, substantial year around profits. Consider these advantages:

SMALL INVESTMENT • Like "five & ten" merchandise, Wilcox-Gay discs produce volume and quick turnover on a small investment.

CONSISTENT TRAFFIC-BUILDER • Disc buyers are steady customers. They afford a valuable contact for additional sales.

READY-MADE MARKET • A huge disc market exists and is expanding rapidly in stride with home recording.

Wilcox-Gay is the world's largest manufacturer of recording discs. Investigate Wilcox-Gay's new disc-merchandising program. Contact your Wilcox-Gay distributor or write the factory.

WILCOX-GAY RECORDIO
RECORDER-RADIO-PHONOGRAPH COMBINATION
WILCOX-GAY CORPORATION • CHARLOTTE, MICHIGAN

REPAIRMEN ROAR!

OUTRAGED SERVICERS HIT "GYP" CHARGE

A great volume of comment—ac- cord, compromise, praise—has poured in concerning the "Faithful Servicing—" article in the August issue of RADIO TODAY.

From active servicemen, organized groups of servicemen, and leaders in the radio industry, have come the ideas and suggestions which the individual serviceman can use in his defense against the "gyp" charge made by Readers Digest.

"IN THERE 100%"

Van R. Gibson,
Alden Radio Sales & Service Co.

I have just read "Faithful Servicing Gets a Black Eye" in current RADIO TODAY. I think that article is "in there 100 per cent," and that the public should get a chance to see the other side of the story. Would suggest that it be placed in the hands of the Editor of "Readers Digest" for reprint!

DIGEST OUTRAGES SOUTHWEST

Porter T. Bennett,
Secretary, Dallas Radio Service Assn.

In canvassing the servicemen in this trade territory, we find we all agree on one thing, and that is, that our sense of fair play has been outraged. Servicemen admit that there are definite grounds for such an investigation and that there is no objection to an investigation being publicized. But the rank and raw manner in which this publicity was presented rather outrages a sense of decency which we in

the Southwest still attempt to maintain.

While admitting that the publicity was unfair, let us view the subject from another angle. We are in this business to make a living and most of us got into it because we liked it, being more or less adept at the art of fixing the intricate electric circuits that make any radio what it is.

Business that is healthy is not conducted in a shady manner. The public has a right to be treated honestly. We have that obligation on our shoulders. We failed to maintain our reputation when we failed to solidify into a strong national institution dedicated to selling service in the interest of the public. We have been individualists trying to do a national job, each in his own bailiwick, and none of us doing anything that advanced us farther than our own immediate city domain. Even the prophecies of well-known business men who have been thoroughly conversant with the national service picture have fallen on vacant ears.

STRONGER ORGANIZATION

We are not damning the serviceman nor holding him accountable for his present condition. Part of his condition has been aided and abetted by the rest of the radio industry. The serviceman has lost out over the entire nation, as a group, when he could, by the application of foresight and ethical business principles, have been a recognized professional adjunct to the national radio structure. We have much ground to cover before we can

achieve the successes that a few have envisioned, and it is possible that an article like the Readers Digest "gyping" story can be the very thing to spur our lagging spirits and rocket us up the path to achievement.

BLAMES THE PUBLIC

John Rider

"These men are not gyps," says John Rider. "I know because they have told me about their businesses. They are hardworking, sincere fellows who are up against one of the most vicious conditions that could confront a skilled workman."

HARMS BROADCASTERS AS WELL

"If a high percentage of servicemen are unethical gougers, I wonder how the last United States Census got its figures to show that the gross income of radio servicemen ranges only between \$1,900 and \$900 a year."

Readily conceding that a small percentage of the servicemen everywhere, as with any other group, may overcharge, the castigation of an entire industry is decidedly unfair to the remainder upon whom 50,000,000 radio set owners must depend for repairs and expert diagnosis. Already many individuals have said that they will hesitate hereafter to submit their sets for repairs on minor troubles fearing overcharges and intentional further mutilation of their sets.

However, there is a solution, according to Mr. Rider. The servicemen in each community should form a co-operative group which collectively would guarantee the service work performed by any of its members. The idea was first broached in 1933 but was not considered seriously until a few years ago. It is now being worked out in Boston with great success.

Repair Charges Recommended by RMS.

The standard RMS service charges listed below include only the work done on a radio in the shop or in the home. On outside service calls an additional charge is made for traveling time and for transportation, depending upon distance and the number of trips required to complete the work. On automobile radios brought to shop in cars an additional charge of \$1.00 will be made for removal and reinstallation.

REPLACEMENTS AND REPAIRS

These standard charges cover service only and include all testing required to locate trouble. Prices for materials used are extra and are listed in the Philco Catalog of Parts, Accessories, Tubes and Batteries.

Aerial (Built-in Loop)—replacement or repair	\$3.00
Audio Amplifier—realtor or condenser replacement, wiring repairs	2.50
Audio Transformer—replacement	3.00
Automatic Frequency Control System—realtor or condenser replacement, wiring repairs	3.00
Automatic Record Changer—cleaning, adjustment and lubrication	3.50
Automatic Volume Control System—realtor or condenser replacement, wiring repairs	2.75
Batteries (Portable Radio)—replacement	1.00
Condenser (Main Filter)—replacement	2.50
Condenser (Compensator)—replacement	3.00
Condenser (Tuning Gang)—adjustment	2.50
Condenser (Tuning Gang)—replacement	3.50
Detector Circuit (First)—realtor or condenser replacement, wiring repairs	2.50
Detector Circuit (Second)—realtor or condenser replacement, wiring repairs	2.75
Dial Drive Cable—replacement	1.75
Dial Drive Mechanism—replacement or repair	1.50
Dial Lamp—replacement	.50
Dial Pointer—replacement	.50
Dial Scale—replacement	1.00
Discriminator Circuit—realtor or condenser replacement, wiring repairs	3.00
Discriminator Transformer—replacement	3.50
Filter Choke—replacement	2.25
Intermediate Frequency Amplifier—realtor or condenser replacement, wiring repairs	2.00
Intermediate Frequency Transformer—replacement	2.50
Intermediate Frequency Transformer—replacement, wiring repairs	2.00
Intermediate Frequency Transformer—replacement, wiring repairs	2.25
Oscillator Coil—replacement	2.75
Oscillator Motor—cleaning and lubrication	2.75
Phonograph Motor—replacement	2.00
Phonograph Pickup—replacement	1.75
Power Supply Circuit—realtor replacement, wiring repairs	3.50
Power Transformer—replacement	2.50
Radio Frequency Amplifier—realtor or condenser replacement, wiring repairs	3.00
Radio Frequency Transformer—replacement	2.50
Realtor (Voltage Divider)—replacement	2.00
Shadow Tuning Meter—replacement or repair	2.00

Speaker Cone—recentering	1.00
Speaker Cone—replacement	2.00
Speaker Field Coil Assembly—replacement	3.00
Station Selector System (Mechanical)—adjustment and lubrication	1.50
Switch (Off-On)—replacement	1.50
Switch (Push Button)—cleaning and lubrication	2.00
Switch (Push Button)—replacement	2.75
Switch (Radio-Phono)—replacement	1.75
Switch (Wave Band—Single Section)—cleaning and lubrication	2.00
Switch (Wave Band—Single Section)—replacement	2.75
Switch (Wave Band—Multiple Section)—cleaning and lubrication	2.50
Switch (Wave Band—Multiple Section)—replacement	4.00
Tone Control—replacement	2.25
Tube—replacement	1.00
Tube Socket—replacement	3.00
Tube Socket—repair contacts	2.00
Vibrator—replacement	1.50
Volume Control—replacement	2.25
Volume Expansion Amplifier—realtor or condenser replacement, wiring repairs	3.00
Wireless Remote Control Amplifier—realtor or condenser replacement, wiring repairs	3.50
Wireless Remote Control Transformer—replacement	4.00
Wireless Remote Control Stepper—replacement	4.50

ALIGNMENT OF TUNED CIRCUITS Including Dial Calibration

Intermediate Frequency Stages	.50
Intermediate Frequency Stages (High Fidelity)	1.50
Standard Broadcast Band	1.00
Short Wave Band (each)	1.00
Automatic Frequency Control	2.50
Wireless Remote Control Amplifier	2.50
Frequency Modulation System	3.00

AUTOMATIC TUNING ADJUSTMENTS

Push Button Type	1.50
Motor Operated Type	2.00

The above prices are based on the correction of trouble that appears continuously and without interruption. For correcting trouble which occurs intermittently, requiring additional testing over a period of time, prices will be higher than those listed, depending upon the amount of additional time required.

All parts, tubes and batteries replaced are returned to customer—be sure to ask for them.

A VOLTMETER AND . . .

Donald Stover,
Executive Secretary, RSA

We thought you would be interested in a part of the interview between RSA's Executive Secretary and this serviceman, who was quoted in the Digest as saying, "That stuff makes a beautiful display, but all you need is a voltmeter and a few other little things," since it is especially revealing of the methods of Reader's Digest in their survey and article:

Stover: "Were you correctly and completely quoted in the Reader's Digest when they quoted you as saying, 'That stuff makes a beautiful display, but all you need is a voltmeter and a few other little things'?"

Madison Serviceman: "Well—to a certain extent. You know those 'few other little things' can cover a lot. I just said it more in a kidding way.

RADIO TODAY

MINIMUM CHARGES

\$1.00 ON ALL RADIOS BROUGHT TO SHOP
\$1.50 PLUS TRANSPORTATION ON OUTSIDE CALLS

CONVENIENCE

the NEW Meissner

ANALYST



—has it!

The NEW Meissner ANALYST, with Direct Reading Electronic Voltmeter, is designed for the Modern Service Bench. Built for SPEEDY trouble-shooting, its carefully planned convenience will save EXTRA time . . . when time counts! You can get those RUSH jobs out in really short order—and know they're right!

Convenience is built into the ARRANGEMENT of controls on the new panel! Each Channel has its own separate section, plainly marked, and every control is right where you would expect to find it! No groping around the panel (or back of the cabinet) for a switch or jack connection . . . it's right there on the panel . . . where it belongs!

For that matter, ALL controls and jacks are ON THE PANEL! If you want to mount this instrument in your wall rack . . . that's your business . . . you won't have to turn the ANALYST around after it's plugged in!

Complete with tubes . . . ready to operate Model 9-1040 ANALYST, Net . . . \$96.25

SEE YOUR JOBBER—TODAY!



NEW INSTRUCTION MANUAL

F-M Data and valuable service information in addition to instructions on all Meissner Kits and equipment; 168 pages!

Only 50c Net

WRITE FOR FREE 48-PAGE CATALOG!

Dept. T-9



SEPTEMBER, 1941

Of course, as I told him, a fellow can service with just a voltmeter, but it would waste a lot of time and money for the customer."

Stover: "Then they didn't quote you accurately or completely?"

Madison Serviceman: "No."

Stover: "Do you yourself think the test Reader's Digest applied was a fair one to determine either the competency or the honesty of radio servicemen?"

Madison Serviceman: "No. Both the radio and auto troubles were things that do not happen. I've never experienced a tube coming out of the socket in a modern portable.

This serviceman's shop—far from having only a voltmeter and a few other little things—has among other equipment: Jackson tube tester with large display meter; Clough-Brengle service laboratory, including a cathode ray oscilloscope, audio and radio frequency signal generators and a frequency modulator, all mounted in a rack for convenience, for display, and to protect the equipment; JFD ballast tube tester; numerous analyzers and meters in all parts of the shop; complete set of twelve Rider's service manuals; etc.; etc. When asked whether he used all this equipment in servicing, he said he did whenever its use saved time or made possible a better job—the answer of every competent and trained serviceman.

Our object in this investigation has been to convince Readers Digest that they have not helped RSA's purpose of directing the radio public to the honest, competent, and well-equipped servicemen. However, it seems improbable that they will right the wrong they have done honest servicing. It is up to each serviceman to publicize RSA's Code of Ethics to the public as his personal business principles. Tell them how YOU stand.

SERVICEMEN HURT BY SURVEY

Quoted from New York Sun

The radio serviceman—that ingenious chap who locates the faulty tube or condenser of your radio set and then restores the instrument to its proper operating conditions—is not by any means the rascal he was painted in a recent magazine story, according to champions of the 25,000 or more individuals who comprise this class of repairmen. The article, based on a survey in many states, inferred that well over half of all the servicemen encountered were "gyp artists." Already, it is said, the appearance of the survey figures has affected the income of servicemen everywhere but because the latter are generally unorganized, they are incapable of presenting their case to the public at large.

RADIO TODAY, trade paper of the industry, has taken up the fight for the accused group in its current issue, by criticizing the procedure used in the magazine's survey.

RMS RECOMMENDS CHARGES

The RMS service organization of the Philco Radio Co., has brought up to date and expanded its list of standard service job charges. The list printed on page 24 is the one which appears on the back of a new billhead available to RMS members.

Announcements about the new charges are being mailed to members by RMS.



THE FUTURE IS NOW

This great new plant* is the dynamic evidence of SONORA's progressive present and SONORA's faith in the future. Planned along streamlined, straight-line modern production methods, it provides adequate capacity for SONORA's expanding business, for defense activities and for progressive growth in the future.

Yes—"the future is now"! This is a fundamental SONORA belief—a concept toward which every SONORA plan and effort is directed . . . a policy that keeps faith, that is enthusiastically endorsed by our loyal trade . . . a policy that is sure to merit and win the confidence of an ever-growing SONORA jobber organization . . .

*Illustration shows but a small section of the production lines.



SONORA
RADIO & TELEVISION CORP.
CHICAGO

SERVICING DETECTORS

PART 2. Operating conditions and characteristics for multi-element detectors. Bias, grid-leak, and infinite impedance circuits.

In the August issue of RADIO TODAY, the principles and characteristics of diode detectors, or demodulators, were discussed. Also prominent in the receiver field, especially among the older models, are the triode and other multi-element detectors.

These triodes may be operated in several classes: grid-leak, bias type, plate, and infinite impedance detectors.

A triode circuit that is occasionally found in old TRF sets is the grid-leak arrangement. This circuit is especially sensitive but suffers several handicaps.

VARIABLE BIAS

In Fig. 1, the similarity of the grid-leak triode and the conventional diode is shown. By considering the grid circuit alone, that is the portion of circuit which includes the input transformer, the grid resistor and condenser, and the grid and filament elements of the tube, the similarity to the diode rectifier is apparent. In diagram A, the various voltages present in the circuit are indicated. The voltage e_c is the instantaneous value from grid to ground. It is made up of the e_g AC signal voltage and the DC bias component E_c . The voltage across the load resistance e_b is an instantaneous quantity made up of the DC drop across the load, and the amplified AC signal voltage.

The grid characteristics of Fig. 1B show how the modulated signal varies the grid current to produce a "bias" voltage that varies in accordance with the audio signal.

DETECTOR FACTS

1. Average (DC) plate current of grid-leak detectors decreases when signal is increased.
2. DC plate current of bias detectors increases when signal increases.
3. No signal voltage present in plate circuit of infinite impedance detector.

The curved line represents the conditions between grid current and grid voltage for every instantaneous value of the RF carrier. The straight line characteristic must represent the relation between the average grid voltage and current where the average is taken over the RF cycle only. At zero carrier, the average and instantaneous conditions are one and the same, therefore, the intersection of the two curves represents the no-signal condition. The bias on the grid is equal to E_c .

When a carrier voltage is applied to the grid circuit, the average grid current increases due to the "bend" in the characteristic curve. This is

the result of the partial rectification of the carrier which increases the average DC grid current. This increased DC grid current flows through the grid leak to produce the new bias, E'_c . This bias is the axis about which the carrier operates. As the carrier magnitude increases, the new bias E'_c increases. Therefore, the grid current and consequently the grid bias vary in proportion to the modulating signal which changes the amplitude of the RF carrier.

AUDIO AMPLIFICATION

Fig. 1C is the dynamic characteristic of the detector as a triode amplifier. The I_b - E_b line is the relationship between the DC plate current and voltage for a particular value of R_L . The grid bias which is varying in proportion to the audio signal is represented by the curve $i_c \times R_g$. As the bias changes the plate current, the signal is reproduced across the load resistor. The normal amplification of the tube is thus utilized in the process of detection.

The drawbacks of grid-leak detection are similar in some respects to those of the diode circuits. Fundamentally, the grid-leak detector is a square-law device with the accompanying second harmonic distortion. This type of distortion also happens to diode detectors that are operated at low signal input levels; under 10 volts peak.

AUDIO DISTORTION

In the case of diode detectors, the square-law distortion is overcome by increasing the input signal voltage. What happens when this is tried on grid-leak detectors?

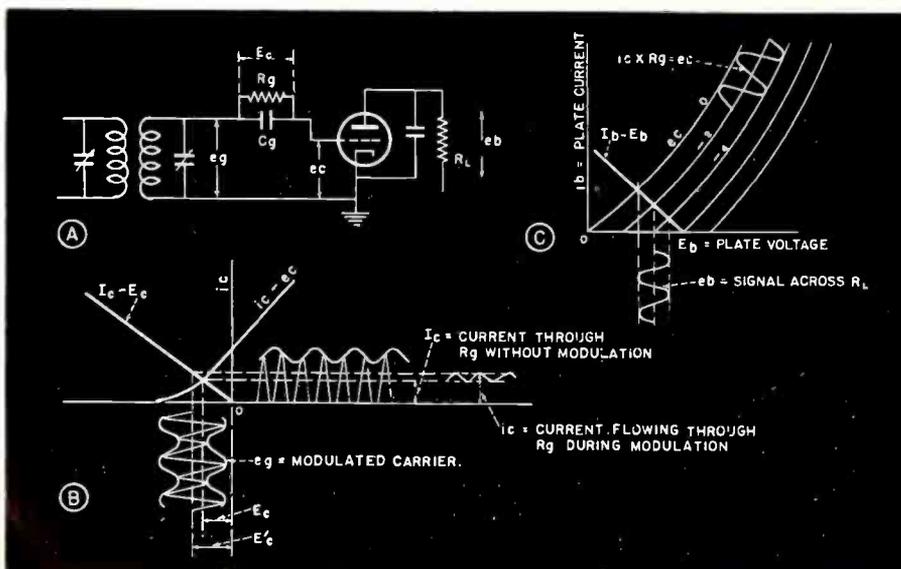
If the input signal voltage is increased beyond the square-law limit, overloading and distortion take place. Remember that the average grid bias is increased on large signal levels. This means that the bias for correct amplifier operation of the tube will be right for only one input signal level. As this bias is increased, the amplifier action no longer takes place on the straight portion of the curve with resulting distortion.

BIAS TYPE DETECTOR

The fixed bias type of detector is of more recent vintage than the grid-leak type. It is most commonly found in those early supers. See Fig. 2.

The bias detector may be operated either as "square-law" or "linear." The bias is supplied by a cathode resistor, or in some cases by a fixed bias supply. The bias voltage is of such a value as to reduce the plate current to practically cut-off. The

Fig. 1—The grid-leak detector rectifies the modulated signal in the grid circuit and amplifies the changing bias voltage that has the same frequency and wave shape as the audio signal if there is no distortion.



cathode current or plate current in these circuits is usually adjusted to 0.2 ma. for no-signal input.

Fig. 2B shows what happens in the bias detector circuit. The cathode condenser C_c is large enough (1 mfd. or more) to by-pass both RF and audio currents around the bias resistor. The plate by-pass condenser is usually about 0.0001 mfd. and shunts only the RF currents around the audio transformer.

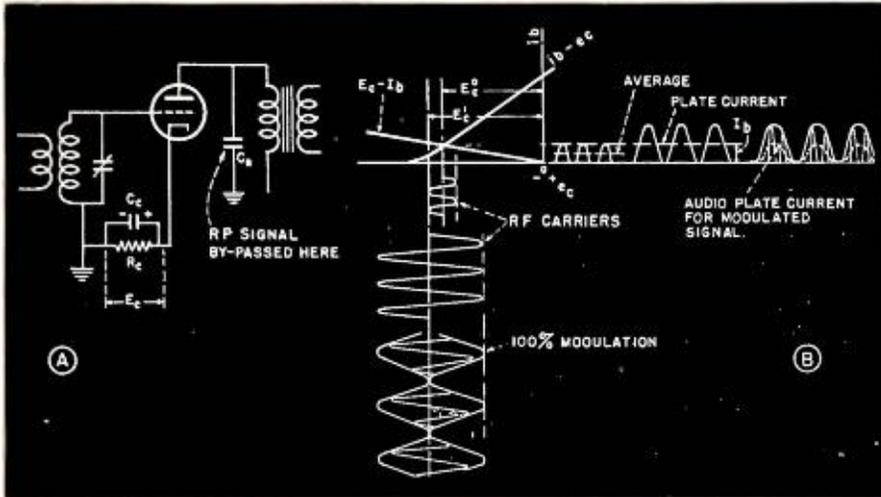


Fig. 2—The bias detector is adjusted to approximately cut-off by the no-signal plate current of 0.2 ma. The modulated signal is rectified half-wave in the plate circuit. Average values of RF current cycles is audio wave.

The E_c-I_b line shown on the graph is the cathode resistor relation. The intersection of this line and the grid-voltage, plate current curve gives the initial bias on the tube which is practically cut-off.

PLATE CURRENT INCREASES

Two amplitudes of RF carriers are shown on the graph, along with a 100 per cent modulated RF carrier. It will be noted that the average value of the plate current increases as the amplitude of the carrier increases. The detector rectifies the carrier approximately half-wave, which means that the average current is approximately one-third of the peak current. This increase of average plate current with signal amplitude is one of the means of indicating resonance with tuning meters, etc., or for indicating output during alignment.

The bias detector is usually transformer coupled, but may also be resistance coupled. Transformer coupling permits higher plate voltages with better performance on large signal inputs.

The chief differences between the grid-leak and bias detectors are: (1) the grid-leak detector does the detection or demodulation in the grid, or input circuit, while the bias detector does the detection in the plate circuit. (2) The average plate current in the grid-leak detector decreases as the signal increases, while the average plate current of the bias detector increases. (3) The grid circuit of the leak type detector draws current from the input source, thus loading and broadening the tuning; the bias

type detector does not draw current from the input and thus reduce the selectivity. (4) The grid-leak detector is more sensitive, but less able to handle overloads, than the bias type detector.

INFINITE IMPEDANCE

A special type of bias detector recently introduced in PA tuners, and high fidelity AM sets is called the in-

section of the cathode load is by-passed for RF currents only, and the 20M section is not by-passed at all, and thus gives a certain degree of degeneration.

CATHODE LOAD

The principal of operation is that the cathode bias is developed across the 100M ohm resistor in proportion to the audio signal. The bias voltage which appears across this resistor thus has the same wave shape as the audio signal and can be taken off from this point in the circuit for further audio amplification. The operating curve of Fig. 3 shows how the bias is adjusted automatically to keep the positive peaks of the carrier just slightly above the cut-off bias line. The average plate current of the tube increases slightly with an increase in carrier voltage. On 100 per cent modulation, the cathode bias will equal the cut-off bias on positive peaks of the audio cycle. On negative peaks, the instantaneous bias may be several times the cut-off value.

LOW DISTORTION

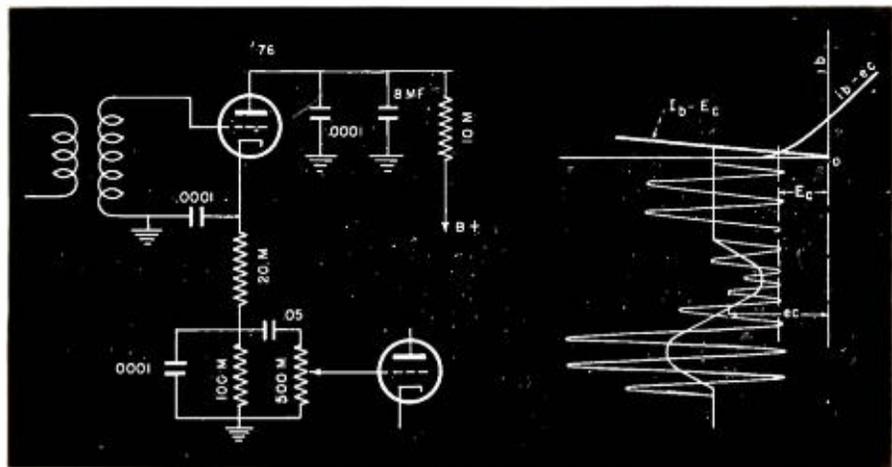
The advantage of this detector system is that it can handle high level carriers without distortion. This can be understood because a high value of carrier only increases the bias on the cathode. Since no AVC voltage is furnished by this, or the other two types of detectors discussed, separate diode rectifiers are occasionally used to supply this voltage.

OTHER DETECTORS

The screen grid versions of the grid-leak and bias detector are more common than the triode types especially in the cheap TRF compacts. The sharp cut-off tubes such as the 57, 6J7, etc., are quite efficient as bias detectors because of the high amplification factor.

Testing and servicing methods for the types of detectors already discussed will be included in another issue of RADIO TODAY along with special detector actions such as clipping of television pulses, etc.

Fig. 3—Infinite impedance detectors develop high cathode bias voltages which vary in proportion to the audio signal. The positive RF carrier peaks are allowed to come up only to approximately the cut-off point.



SERVICE NOTES

Alert Receiver Controls Signal Devices by Radio

A new radio device recently demonstrated before defense officials by RCA engineers has many applications in war-time civilian alarm, as well as peace-time "radio headlining."

The new "alert" receiver, as the unit is called, is a radio receiving set with additional selective circuits that will receive inaudible impulses from a broadcasting station and turn "on" or "off" a warning bell, light, or another receiver for the reception of special announcements, warnings, or instructions. The "alert" receiver may be incorporated as a part of a standard receiving set or it may be just the off-on control for other receiving sets, or signals.

The principle of operation is one of transmitting and receiving two sub-audible frequencies which can be differentiated between by tuned relays to turn a signal device either on or off.

In the particular model demonstrated by RCA, a 24 and a 36 cycle pulse are used to turn equipment "on" and "off" respectively. These two pulses are transmitted simultaneously but without any interference to any program the broadcast station happens to be carrying.

VIBRATING REEDS

In the "alert" receiver, these two frequencies and the audio program are separated from the carrier by the detector. In the output circuit of the second detector a low-pass filter network separates the 24 or 36 cycle pulse from the remaining audio program. This filter has an upper cut-off limit of 45 cycles which prevents its interference with low audio tones.

The "off" or "on" pulse is amplified through the conventional audio system of the receiver and is fed to

series connected solenoids. Near the pole-face of each solenoid is a metal reed which is tuned mechanically to vibrate at a frequency of either 24 or 36 cycles, depending upon which frequency it is supposed to respond to. These reeds carry contacts which energize a double acting relay that carries the contacts for the alarm device and also the contacts for shorting out the solenoid section which was last energized so that the next incoming pulse of the other control frequency will be applied to only the solenoid which it is supposed to operate. This allows the full voltage of the control signal to be applied to its associated tuned reed relay.

The control signals are added to the station carrier from a push-button controlled oscillator. The control signal level is adjusted to produce about 5 per cent modulation of the carrier.

Rochester RTG Plans 3rd Annual Info-Meet

Sunday, November 9, is the date for the third annual get-together of servicemen planned by the Rochester, N. Y. section of the Radio Technicians' Guild. As last year, the Info-Meet will be held in conjunction with the Fall I.R.E. meeting which comes on the three following days. Both events take place at the Sagamore Hotel in Rochester.

Chairman of the Info-Meet Committee is Bertram Lewis, president of the RTG group. Walter R. Jones, Sylvania engineer, is one of the important speakers scheduled for the meeting.

The Info-Meet is open to all servicemen interested in attending.

SW Portable Has Dry- Battery Charger

A special circuit for re-juvenating ordinary dry batteries is used by Stewart Warner in portable models with

chassis 207C and 206G. The accompanying diagram shows the circuit for 207C.

The charging circuit consists of a 35Z5 rectifier, filter and voltage divider to supply the proper potential for the 9-volt A battery and 90-volt B battery. A three-pole-three-throw switch makes the proper connections for running the set from either batteries or AC/DC power line, and for charging the batteries without operating the receiver. The switch is shown in the AC/DC position where the batteries are also charged, but at a very slow rate.

A separate 35Z5 rectifier supplies the current for plates and filaments on AC/DC operation. Notice that the series filaments are shunted with resistors to prevent the tube burn-out trouble experienced on un-protected series strings.

NEON INDICATOR

An oscillating neon tube circuit is connected across the B batteries to indicate their potential. With full voltage batteries, the neon bulb will light about three times per second. When the voltage falls to about 72 volts, the tube glows about once each second and the set should not be operated from batteries beyond this point. The condition of the batteries can only be indicated when the set is operating from them, as the voltage across the batteries in the "charge" and AC/DC position is higher.

In the "charge" position, the rate of charge is approximately one third the set drain, or discharge rate. The batteries should be left on "charge" for at least twice the time the batteries were used. Best results are obtained if the batteries are charged immediately after being used. When the batteries fail to give more than two hours from a full-charge, they should all be replaced.

Book Review

RADIO TROUBLE-SHOOTER'S HANDBOOK

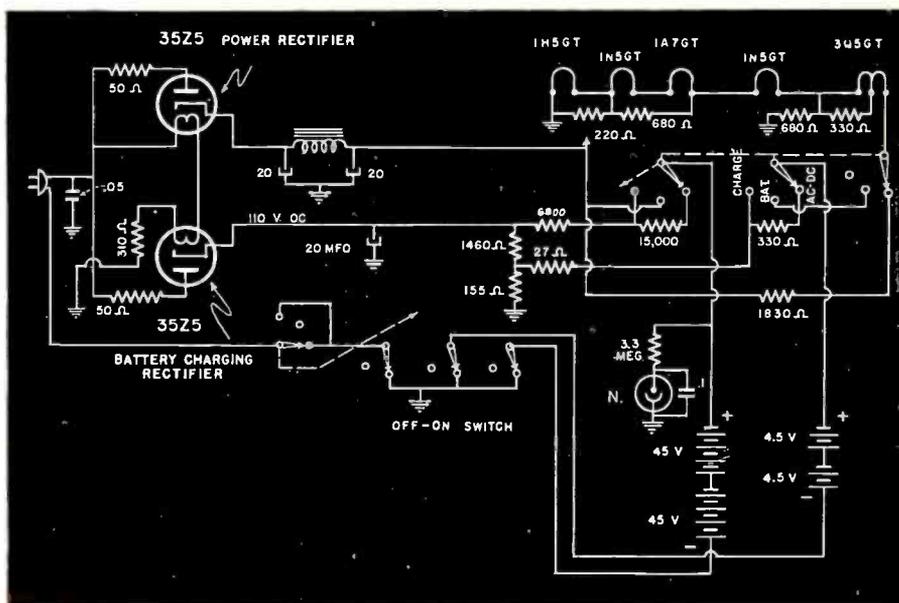
by A. A. Ghirardi

Radio & Technical Publishing Co.
45 Astor Place, New York, N. Y.

The new, revised second edition of this well known book has just been announced and includes many new features. Over 200 pages of receiver case histories, charts, and tabulated data have been added to bring the book up to 710 pages. Fifty pages of IF peaks for practically every superhet, sixty pages of charts and data for the auto radio specialist, replacement battery charts for 1250 portable radio models, and 20-page tube characteristic chart giving information on every type of American receiving tube are but a few of the features which will prove to be of continuing value to the serviceman.

The charts include data on ballast resistors, dial lamps, wire, coils, grid bias resistors, color coding, series circuit network calculations, and many other needed factors.

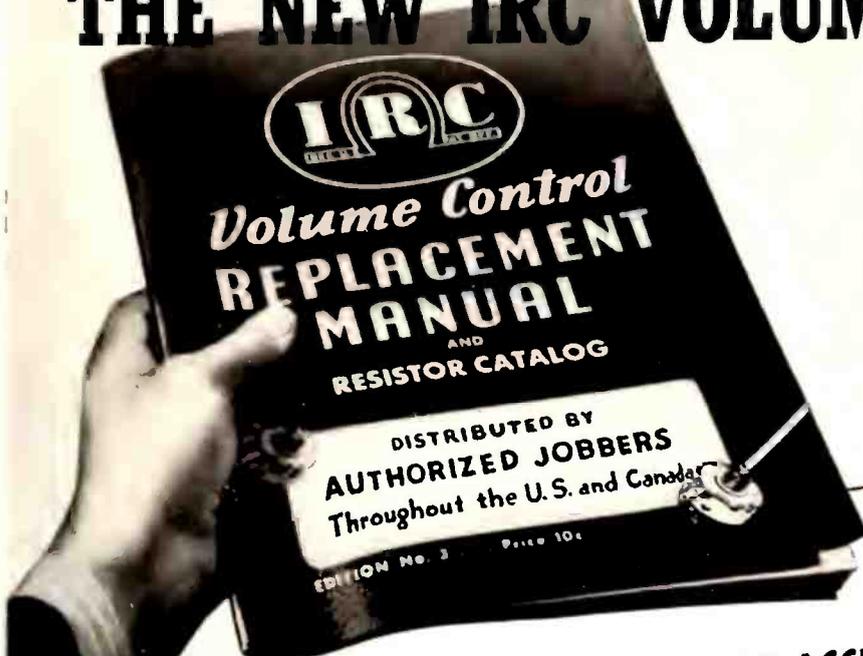
The volume is 8 1/2 x 11 inches, bound in Fabrikoid, priced at \$3.50.



Power supply circuit with dry battery re-charging rectifier as used in Stewart Warner model 207C. N is neon tube in oscillating circuit which gives indication of voltage. Switches shown in AC/DC position.

THE NEW IRC VOLUME CONTROL MANUAL IS HERE!

(3rd Edition)



35% MORE LISTINGS—MORE ACCURATE—EASIER TO USE

- ★ The finest, most complete manual of its kind ever published. Unexcelled in its helpfulness to every serviceman who makes control replacements.
- ★ Lists correct controls for over one-third more radio receiver models than ever before.
- ★ Every replacement recommendation checked and double-checked against manufacturers' drawings, revised specifications or latest engineering data, etc.
- ★ Gives everything you need to know about a control *at a glance*—from manufacturers' original part number to Rider's Manual reference, price, switch data, etc.
- ★ Trade and brand names listed *alphabetically* so that you can find them quickly.
- ★ Auto radios listed the logical, easy-to-find way—by make of car.
- ★ New, large 8½" x 11" size with 136 pages and many new features including a handy information section, charts and formulas and complete IRC Control and Resistor catalogs.
- ★ The latest, most up-to-the-minute Manual of its kind on the market—now available through IRC Volume Control Jobbers.

Don't Miss It . . . Get Your Copy Today!

STANDARDIZE ON TYPE D CONTROLS! ... IT PAYS!

Except for the necessary "specials", etc., this new IRC Manual is based entirely on the use of Type D Controls with Tap-in Shafts—IRC's famous small-size "Universal" Controls that have been breaking one sales record after another for more than two years. They are fully dependable—easier to install—more efficient. Tap-in Shafts frequently avoid the use of more costly "specials"—and a small, inexpensive control stock equips you for the big majority of all jobs. "Streamline" your work by using Type D's.

18 Controls, 6 Switches, 5 Special Extra Shafts—to handle 60% to 75% of your control needs—all included in the attractive IRC Metal Cabinet for only \$14.97 net, \$24.95 list.



INTERNATIONAL RESISTANCE CO.

401 N. Broad Street • Philadelphia, Pa.

SERVICE NOTES

"Brain" Demonstrations From Coast to Coast

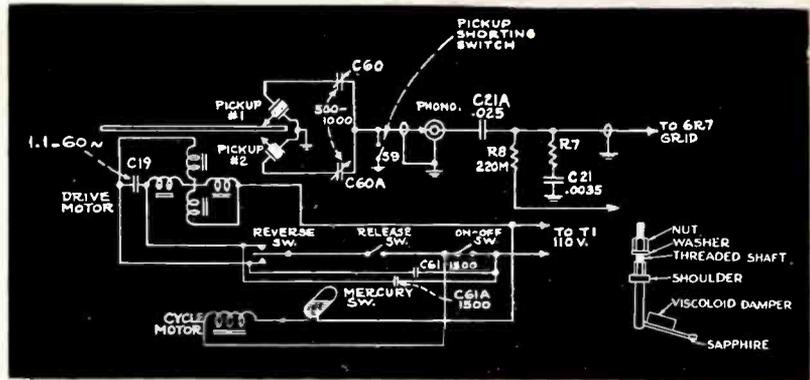
Meetings for dealers and distributors throughout the U. S. from Camden, N. J., to San Francisco, by RCA Victor execs explaining the operation of the new "Magic Brain" automatic record-playing mechanism have just been completed. Appearing at the meets were Benjamin R. Carson, Allan B. Mills, John Allen and Warren Kimball, with expert first-hand information on the new development.

SERVICE LECTURES

The service lectures given by Mr. Kimball covered the technical features and adjustments of the RP-151 two-side record changer and the RP-160 standard changer.

The Magic Brain changer RP-151 which plays both sides of 15 10-inch records without turning them over, uses twin tone arms mounted one above the other in "jaw" fashion. The record to be played is dropped from a stack supported on the usual separating knives. A 2¾-inch diameter turntable, with only the short center pin of single-record players, is rocked until the dropped record is centered on the pin. If the top side of the record is to be played, the turntable and record rotate in the normal clock-wise direction and the top tone arm is lowered to the record. If the bottom is to be played, the turntable reverses and runs counter-clockwise while the lower tone arm comes up against the bottom side of the record. The upper and lower tone arm pressures are about 1 ounce each, thus the weight of the record is enough to keep it from being lifted when being played on the bottom.

Two motors are used in the mechanism. One high-torque motor separates



Wiring diagram of two motors and twin crystal pick-ups used on RCA two-side record changer. C60 and C60A balance pick-up outputs.

the record from the stack, runs the cycling mechanism, and tilts the turntable so that a played record is deposited into a pit below the changer. A separate constant speed motor which is reversible, runs the turntable as its only job.

The main elements of the two-side mechanism are a main cam and gear, and a slide bar. The main cam and gear controls the motion of the tone arms and the reversing of the turntable, while the slide bar moves whenever a record is brought down from the stack and the turntable tilted to deposit a record into the pit. The slide bar is connected to the main cam and gear all the time that the records are played on the top only which is one of the manual options. If the changer is to play both sides, the slide bar is alternately latched and unlatched from the main cam to allow the record to be played on the lower side before being tilted into the storage bin.

The two crystal pickups are connected in parallel through a pair of trimmer capacitors. These 500 to 1000 mmfd. capacitors are used to balance the output of the crystals so that no

great difference in volume is noticed. The trimmer on the "weakest" crystal should be at maximum capacity and the adjustment made by cutting the output of the "strong" crystal with slightly less capacity in its trimmer. The wiring diagram of the changer is shown.

The sapphire needle is attached to a small stiff wire which in turn is attached to the post that actuates the crystal. This is the Jewel-Lite Scanner and is shown in the wiring diagram illustration.

New Test Equipment Announced by Precision

New and more versatile test instruments are being announced by Precision Apparatus Co., 647 Kent Ave., Brooklyn, N. Y. Characteristic of the new equipment are the features of compactness, greater number of ranges, and unique simplified switching circuits.

A new instrument, series 834 is a completely self-contained 31-range AC/DC tester. The basic movement of this instrument is a 400 microampere 3¼-inch meter. A total of 31 ranges are incorporated including 6 AC and 6 DC voltage scales to 6000 volts at 1000 ohms per volt on both types of current. Direct current is measured to 600 ma. Built-in 3 and 45-volt batteries give ohmmeter ranges to 5 megs. By use of a special switching circuit, all normal tests are made through the same two tip jacks. The 1200 and 6000-volt tests are made through two separate high voltage jacks. This meter, series 834, is housed in hardwood case 7 x 4½ x 3 inches.

A new group of industrial circuit testers will prove themselves to be popular and useful instruments. Available in three classes, 1000 ohms per volt in 844J, 5000 ohms per volt in 845J and on priority order, 20,000 ohms per volt in 856J.

The series 845J has dual range sensitivity on DC, 1000 and 5000 ohms per volt. The AC sensitivity is 1000 ohms/volt. DC current can be measured to 12 amps and AC current to 60 amps on the separate AC ammeter included in the industrial tester. Voltage may be measured to 6000 AC and DC. Resistance measurements are covered by 4 ranges up to 20 megs.

The twin AC and DC instruments making up the industrial tester may be had in a portable case or in a panel mount for rack use.



Cinaudagraph speakers for Navy shipboard use are operated under water in tough test. A general PA line of similar speakers with Mallard trade name is planned.

Busy days are here...

FOR SERVICEMEN

**Keep them profitable
with dependable
test equipment!**

Today, as never before, the American public *wants radio* and can afford to pay for radio. Proof is that the demand for new sets has virtually doubled. But with long deliveries prevalent in so many fields, more old sets probably will be retubed and repaired than ever before. » » » A period like this is *made to order* for the servicemen with WESTON Test Equipment. For WESTONS help produce greater profit on every job. Measurements are simpler, surer . . . trouble can be spotted quicker . . . when these basic, direct-reading instruments are used.

But the *big profit* from WESTONS is shortly to come; for FM and television are rapidly getting into stride. *These same WESTON Test Instruments fully meet the new servicing problems involved. No new and expensive equipment will be needed for the job.* Thus it *pays . . . and continues to pay . . .* to use dependable WESTONS for all servicing needs. Weston Electrical Instrument Corporation, 597 Frelinghuysen Avenue, Newark, N. J.

**NOW AVAILABLE
FOR FM AND TELEVISION**

WESTON
Model 787
UHF Oscillator

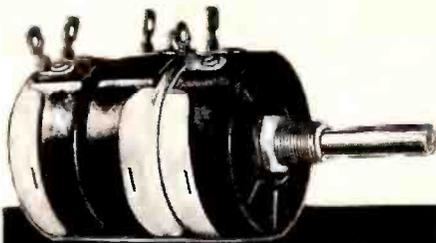


Fundamental frequency coverage from 22 to 150 megacycles. No harmonics . . . no band switching. Used with portable antenna or standard output leads. Reads 40 kc per division at 40 mc. Self contained battery operation; compact and extremely portable.

WESTON

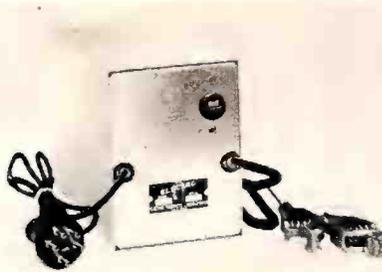
Test Instruments

NEW



P - A Controls

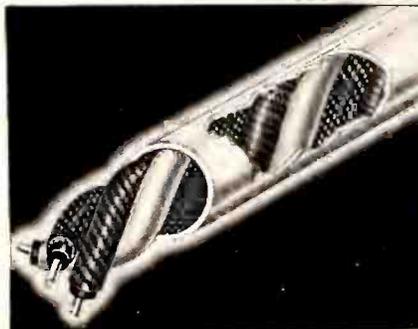
- ★ Of course the real money is in sound systems—anything from P-A and theatre-sound systems to high-fidelity amplifiers for proper FM reception.
- ★ In this regard don't overlook Clarostat sound-system controls. The wire-wound constant-impedance Series CIT-58 T-pad shown above, is typical. Also L-pads, mixers, constant-impedance output attenuators, etc. All are included in the Clarostat COMPLETE line.
- ★ Interested? Just ask our local jobber for data. Or write direct to Clarostat Mfg. Co., Inc., RT-7, 285-7 N. 6th St., Brooklyn, N. Y.



Electro Prods. model 2500

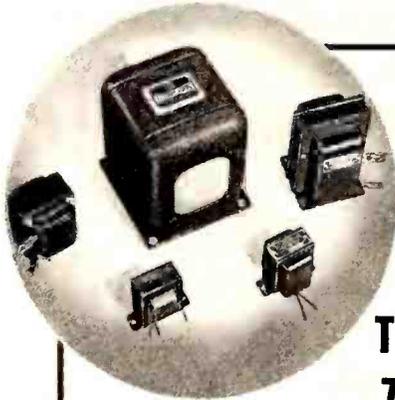
★ Vibrator type power supply which furnishes 300 v. at 100 milliamperes DC from a 6 v. storage battery. Complete radio-audio filter system, input and output battery cable, plugs, clips and fuses. Net price, \$12 f.o.b. Chicago. Weight, 8 lbs. Electro Prods. Labs., 549 W. Randolph St., Chicago, Ill.—RADIO TODAY.

Precision tube wire



GI 2-speed recorder

★ Dual-speed recorder phonograph. Self-starting, rim-drive "Smooth Power" motor. Speed change dial, record cutter and separate crystal pickup. Model No. GI-R90 with low pressure pickup. Cuts up to 10 in. records at either 78 or 33 1/3 rpm. The General Industries Co., Motor Division, Elyria, Ohio—RADIO TODAY.



Dependable Replacements with THORDARSON Transformers!

Replacing with Thordarson Transformers means replacing with accuracy! Use Thordarson time-tested transformers on your next replacement job and know the value of using a quality unit with long, trouble-free operating life.

See your Thordarson distributor for details on the most dependable transformer replacement line and your free copy of the Thordarson Replacement Encyclopedia No. 352F.

THORDARSON

ELECTRIC MFG. CO.

500 W. Huron St.

Chicago, Ill.

TRANSFORMER SPECIALISTS SINCE 1895



In the entire history

of the electrical industry there is no more sensational success story than the position attained by Simpson instruments in less than five years.

Behind this success is the advanced construction and extra value of Simpson instruments . . . and behind the instruments is the experience that reaches back to the days when Ray Simpson and a group of associates, who are still with him, maintained the high standard of Jewell instruments throughout their long and successful career.

The recognition of Simpson value, and the requirements of the defense program, have momentarily taxed even the greatly increased facilities of the new Simpson plant. But today we reaffirm the pledge we made when Simpson instruments were first announced—to build ever greater value in panel instruments and radio testing equipment.

SIMPSON ELECTRIC CO.

5208-18 Kinzie Street, Chicago, Illinois



Simpson

INSTRUMENTS THAT STAY ACCURATE

THINGS

Aerovox capacitors

★ Type 1478, midget molded-in-bakelite mica capacitor. Its body measurements are 1 1/16 in. long by 7/16 in. wide by 3/16 in. thick. Same casing is used for type 1479 with silvered mica section. 1000 v. DC rating. Type 1478 available from .0001 to .002 mfd., while the silvered mica type comes in .0001 to .001 mfd. Aerovox Corp., New Bedford, Mass.—**RADIO TODAY.**



Sprague Koolohms

★ Type VD Koolohm resistors supplied in compact 10 or 15 w. sections with ball and recess interlock feature. Prevents turning and automatically connects the units electrically in series when mounted on a threaded steel rod which is provided. Similar assembly may be made insulated electrically by means of ceramic spacers. The Sprague Specialties Co., N. Adams, Mass.—**RADIO TODAY.**



Thordarson field supply

★ The flexibility of this field supply makes it adaptable to any loudspeaker equipped with a 2500 ohm field. Switch permits operation of two 2500 ohm fields requiring 14 watts; four 2500 ohm fields requiring 8 w., or eight 2500 ohm fields requiring about 4 w. 110-120 v., 50-60 cycle current. Thordarson Elec. Mfg. Co., 500 W. Huron St., Chicago, Ill.—**RADIO TODAY.**



Duo-tone sapphire needle

★ New duraluminum shaft sapphire playback-needle is curved to meet the record without drag. The effect is to reduce surface noise. Lists at \$5. Duo-tone Co., Inc., 799 Broadway, New York, N. Y.—**RADIO TODAY.**

Here's the Point

about

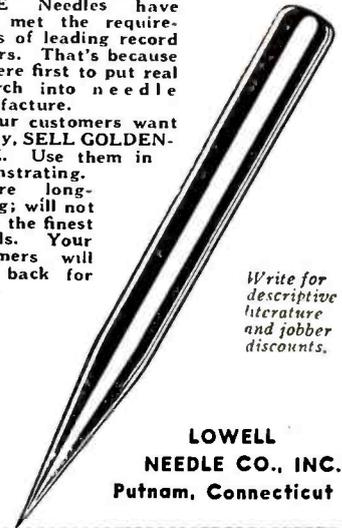
GOLDENTONE

The 100% Quality Needle
PRECISION-MADE

● For years, GOLDENTONE Needles have fully met the requirements of leading record makers. That's because we were first to put real research into needle manufacture.

If your customers want fidelity, SELL GOLDENTONE. Use them in demonstrating. They're long-lasting; will not injure the finest records. Your customers will come back for more!

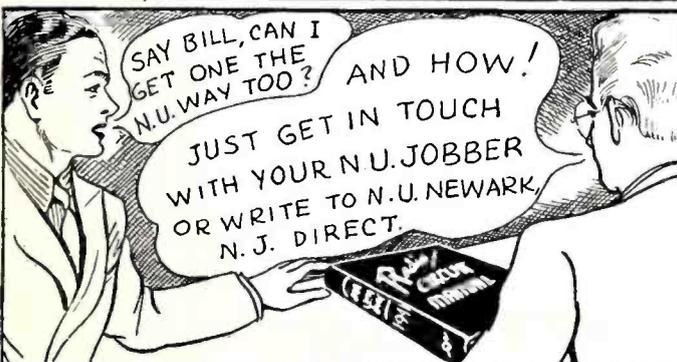
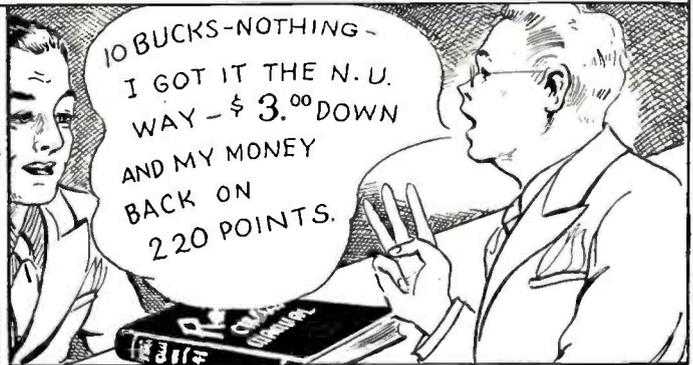
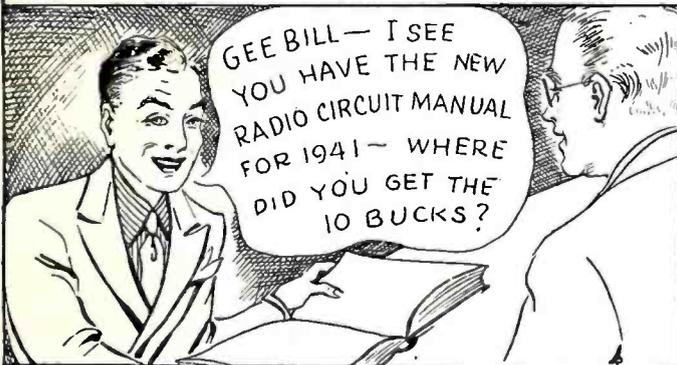
Write for descriptive literature and jobber discounts.



LOWELL
NEEDLE CO., INC.
Putnam, Connecticut

The Best Equipped Shop in Town

"GETS THE BUSINESS"



NOT ONLY MANUALS BUT ANY PIECE OF EQUIPMENT TUBE TESTER, OSCILLATOR, METERS, ETC. ANY MAKE ARE AVAILABLE THE EASY N. U. WAY.

*Oh Boy!
Why didn't
someone tell me
before!*



NATIONAL UNION RADIO Corp.
57 STATE STREET, NEWARK, N. J.

NEW THINGS



Of course the real money is in sound wave—anything from P-A and their second extreme to high-fidelity amplifiers for proper FM reception.

In this regard don't overlook Clarostat sound system controls. The wire-wound constant-impedance series C17-80 T pad shown above, is typical. Also L-pads, mixers, constant-impedance output attenuators, etc. All are included in the Clarostat COMPLETE line.

Interested? Don't see our local dealer for data. Or write direct to Clarostat Mfg. Co., Inc., RT-7, 283-7 N. 6th St., Brooklyn, N. Y.



Electro Prods. model 2500
 * Vibrator type power supply which furnishes 300 v. at 100 milli-amperes DC from a 6 v. storage battery. Complete radio-audio filter system, input and output battery cable, plugs, clips and fuses. Net price, \$32 f.o.b. Chicago. Weight, 8 lbs. Electro Prods. Labs., 549 W. Randolph St., Chicago, Ill.—Radio Today.

Precision tube wire



* New product consists of metal shielding of any type and insulated wire or wires with either seamless aluminum or copper tubing. Lengths up to 50 ft. and may be had in a variety of sizes. Precision Tube Co., 2824 Terrace St., Philadelphia, Pa.—Radio Today.



GI 2-speed recorder
 * Dual-speed recorder photograph. Self-starting, rim-drive "Smooth Power" motor. Speed change dial, record cutter and separate crystal pickup. Model No. GI-820 with low pressure pickup. Cuts up to 10 in. records at either 78 or 33 1/3 rpm. The General Industries Co., Motor Division, Elyria, Ohio—Radio Today.

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Here's the Point about **GOLDENTONE**

The 100% Quality Needle PRECISION-MADE

* For years, GOLDENTONE Needles have fully met the requirements of leading record makers. That's because we were first in our research into the art of needle manufacture. If your customer wants quality, SELL GOLDENTONE. Use them in demonstrating. They're less likely to get lost, and they'll get the most records. Your customers will come back for more!

Write for descriptive literature and jobber discounts.

LOWELL NEEDLE CO., INC. Putnam, Connecticut

Dependable Replacements with **THORDARSON Transformers!**

Replacing with Thordarson Transformers means replacing with accuracy! Use Thordarson time-tested transformers on your next replacement job and know the value of using a quality unit with long, trouble-free operating life.

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THORDARSON
 ELECTRIC MFG. CO.
 500 W. Huron St. Chicago, Ill.
 TRANSFORMER SPECIALISTS SINCE 1895

In the entire history of the electrical industry there is no more sensational success story than the position obtained by Simpson instruments in less than five years.

Behind the success is the advanced construction and extra value of Simpson instruments... and behind the instruments is the experience that reaches back to the days when Roy Simpson and a group of associates, who are still with him, maintained the high standard of jewel instruments throughout their long and successful career.

The recognition of Simpson's value, and the requirements of the Defense program, have momentarily laid even the greatly increased facilities of the new Simpson plant. But today we reaffirm the pledge we made when Simpson instruments were first announced — to build ever greater value in panel instruments and radio testing equipment.

SIMPSON ELECTRIC CO.
 3708-18 Kinzie Street, Chicago, Illinois

Simpson
 INSTRUMENTS THAT STAY ACCURATE

The Best Equipped Shop in Town "GETS THE BUSINESS"

GEE BILL - I SEE YOU HAVE THE NEW RADIO CIRCUIT MANUAL FOR 1941 - WHERE DID YOU GET THE 10 BUCKS?

10 BUCKS - NOTHING I GOT IT THE N. U. WAY - \$3.00 DOWN AND MY MONEY BACK ON 220 POINTS

LET ME TELL YOU THE N. U. WAY TOO? AND HOW!

JUST GET IN TOUCH WITH YOUR N. U. JOBBER OR WRITE TO N. U. NEWARK, N. J. DIRECT

NOT ONLY MANUALS BUT ANY PIECE OF EQUIPMENT TUBE TESTER, OSCILLATOR METERS, ETC. ANY MAKE ARE AVAILABLE THE EASY N. U. WAY

Oh Boy! Why didn't someone tell me before!

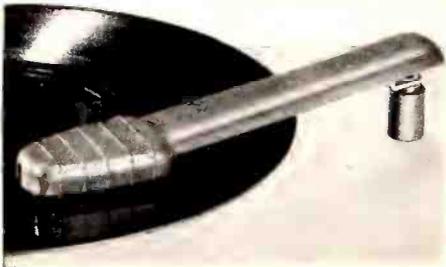
NATIONAL UNION RADIO Corp.
 57 STATE STREET, NEWARK, N. J.

MUSIC

as true as life itself

You "ain't heard nuthin'"
till you hear the marvelous
tone fidelity of a

Webster Electric MODEL AJ1 Crystal Pick-Up



Here is thoroughly modern tone reproduction with a new light weight tone arm, balanced so that there is only 40 grams (less than 1½ oz.) pressure on the needle. It captures overtones and harmonics that older pick-ups miss—makes recordings sound more lifelike than ever before.

Faultless Tone Reproduction

Surface noise is reduced to a new minimum, and the built-in mechanism completely eliminates undesirable tone arm resonance. Balanced octave response gives most pleasing musical reproductions.

Prolongs Record Life

A new long-life needle plays thousands of records—yet is easily changed. The streamlined bakelite tone arm fairly "floats" over the record surface, reducing wear and prolonging record life.

Bring Older Machines Up To Date

Combination owners welcome the chance to bring their outfits up to date with the same equipment used on many of the best, most expensive sets. Replacement business is easy to get, and profitable for you. Easy to install, too—no soldering necessary.

Order a stock of Webster Electric AJ1 Pick-Ups today, display and demonstrate them in your store; have service men demonstrate them on calls. The volume you can get from this one item will amaze you.

(Licensed under patents of the Brush Development Company)

WEBSTER ELECTRIC COMPANY
Racine, Wis., U. S. A. Established 1909
Export Dept.: 100 Varick St., New York City. Cable Address: "ARLAB", New York City



WEBSTER ELECTRIC

"Where Quality is a Responsibility
—and Fair Dealing an Obligation"

Sonora's New Factory Doubles Space

The recent removal of Sonora Radio and Television Corp. to a larger, modern plant at 325 North Hoyne Avenue, Chicago, doubles the capacity of that company, it is announced by Jos. Gerl, president.

The expansion move is the result of six months of intensive pre-planning, which is reflected in the remarkable arrangement and efficiency of this new plant. The factory is one story in height, with 28-ft. ceilings, and is laid out for straight-line production. Of enormous floor length, the plant is arranged so that all operations are so routed and directed that there is a continuous flow of production, from the receipt of new materials at one end of the floor to the shipment of finished radio receivers at the other end. Conveyor belts contribute to the smooth operation of all production activities. Inspection stations check each phase of production.

RADIO TODAY's artists have made decorative use of a photo of the new Sonora plant on page 10 of this issue.

Farnsworth Winds Up 1942 Shows

Showings of the Farnsworth 1942 line of radios and combinations have been completed for distributors, with the holding of the last regional meeting in San Francisco. Sales plans for the new season were outlined by Ernest H. Vogel, vice president; John S. Garceau, advertising manager; and E. J. Hendrickson, sales manager of the Farnsworth division.

Mr. Hendrickson has also announced the appointment of 14 new jobbers, in 11 different states, to distribute the Farnsworth line.

Kopetsky to Oxford Tartak

A newcomer to the executive staff of the Oxford Tartak Radio Corp., Chicago, is Karl A. Kopetsky, formerly managing editor of *Radio News* magazine. In announcing the appointment, Paul H. Tartak said that Mr. Kopetsky's duties will include coordination of the firm's expanding activities, including National Defense work.

Built for PUNISHMENT



Popular Supreme Model 542 and Model 543 in a Blitzkrieg dress — used by the army—and telephone companies—where hard knocks are the rule rather than the exception. *Built for Punishment.* Heavy steel cover protects meter—snaps into place. Full protection without the inconvenience of the old style lid. Large, sturdy leather handle, but still small enough to slip in your pocket. Size 3½" x 6¼" x 2¾". Wt. 2 lbs. 2 oz. See your jobber or write Dept. RT-8 for information.

Notice—Model 542-543 Supreme Owners. You can secure this new type case for your present instrument at the small cost of \$2.25.

SUPREME

GREENWOOD, MISSISSIPPI, U. S. A.

KEN-RAD

You can depend upon profits and satisfied customers when you handle and recommend Ken-Rad Radio Tubes. Hundreds of users write us in this vein: "We are receiving programs we never dreamed of getting before. Foreign countries come in like local stations."

KEN-RAD TUBE & LAMP CORPORATION, INC.
OWENSBORO, KY.

Makers of Ken-Rad Radio Tubes and Ken-Rad Electric Lamp Pulls



Dependable Radio Tubes

Nickerson & Rudat Are New Reps in Pacific Area



E. C. Nickerson, a new manufacturers representative in San Francisco.

To serve radio men in northern California and western Nevada, a new manufacturers representative organization has been formed by E. C. Nickerson, with headquarters at the San Francisco Warehouse Co., 383 Brannan St., San Francisco. The new firm is called Nickerson & Rudat, and it will be the rep for Burgess Battery Co., and other associated lines. Mr. Nickerson was for four years distributor sales manager for Burgess, and Dan J. Rudat, the junior partner of the new firm, was a district representative for the same company. Both have a wide acquaintance among leading accounts and industrial organizations of their area.

Akeroyd Named Raytheon Tube Manager

A. E. Akeroyd is the new manager of the replacement tube division of Raytheon Production Corp., with headquarters at the New York sales office, 420 Lexington Ave., New York City. Mr. Akeroyd was previously assistant manager for Raytheon, and his total experience with the firm adds up to nearly 10 years.

The new appointment follows the resignation of Earl Dietrich as replacement manager, who left the company Sept. 1 to enter another industry.

Clarostat Supplies Power Cords

A statement by Clarostat Mfg. Co., 285-7 N. 6th St., Brooklyn, N. Y., declares that it still has "a dependable and adequate supply of resistor power cords required as replacements for AC-DC set repairs," in spite of a general shortage of such items. A choice of the cords, both special and univer-

sal types, is offered through Clarostat jobbers.

Clarostat also reports that the Greenohm construction and materials used in its power resistors have passed tests which give them a rating of Navy Approved Class 1, Grade 2. Greenohms are being made according to Navy specifications R1C-13A-372J.

Hannon to Mart

The Victor Hannon Co., Los Angeles and San Francisco manufacturers' representatives, has moved its San Francisco office and showroom from 420 Market Street to the Western Merchandise Mart, 1355 Market St.

Belden Names Defense Directors

Two new company officials have been appointed by Belden Mfg. Co., to facilitate further cooperation with the Defense program, according to Belden president Whipple Jacobs. E. V. Blake, eastern manager for the firm, has been named Defense Co-ordinator, and J. V. Van Buskirk of the sales department heads the Priorities Division of the company.

Belden, with plants in Chicago and in Richmond, Ind., is one of the largest makers of wire for specialized uses, and does work as a sub-contractor for manufacturers of planes, tanks, half tractors, signal equipment.

SERVICING by SIGNAL SUBSTITUTION

As Simple As AA BB CC

Alert service engineers acclaim this simplified method of dynamic receiver analysis ...

Because "S-S-S" requires NOTHING COMPLEX TO LEARN ... IS UNIVERSAL...NON-OBSOLESCENT...

Cost is low, Performance high ... "S-S-S" employs ONLY BASIC TEST EQUIPMENT ... NO EXTRAS ...

Every necessary facility for modern servicing (AM & FM) can be provided by a proper selection of ONLY 2 BASIC TEST INSTRUMENTS. Signal Generator (such as PRECISION Series E-200) ... Tube Tester and the multi-range meter (such as PRECISION combination Series 920).



E-200 SIGNAL GENERATOR

Featuring a Simplified Method of Dynamic Receiver Analysis "Servicing by Signal Substitution"

Not only an efficient laboratory Signal Generator, but ALSO specifically designed for complete, systematic dynamic signal analysis of every receiver stage from loud speaker to antenna post, regardless of age, make, type. "Servicing by Signal Substitution" provides a new high in simple, rapid localization and determination of receiver troubles with a minimum and economical selection of Basic test equipment.

Series E-200, illustrated above...\$39.95



ELECTRONOMETER Series 920

Dynamic Mutual Conductance Type Tube, Battery and Set Tester

An indispensable, single compact instrument for both field and service laboratory ★ 33 AC-DC set testing functions to 3000 Volts, 10 Megohms and 12 Amperes ★ Provides the individual functions of tube tester, battery tester and multi-range meter ★ Permits simplified, rapid check of tubes, voltage, current, resistance, etc., in troublesome stages, quickly localized through "Servicing by Signal Substitution."

Series 920P, illustrated above...\$59.95

Now in its THIRD printing, and FREE to all purchasers of Series E-200, an illustrated text book describing this amazingly simplified speed approach to receiver adjustment problems, "Servicing by Signal Substitution." Also available at your local distributor or direct from factory at only 35¢.

See the more than 40 Precision 1942 models at your local distributor. or write for new catalog

PRECISION TEST EQUIPMENT

Standard of Accuracy SEE THEM AT YOUR JOBBER

PRECISION APPARATUS COMPANY • 647 KENT AVENUE • BROOKLYN, N. Y.
Export Division: 458 Broadway, New York City, U.S.A. Cable Address: Morhanex

Improved Record Bars for All Stores

(Continued from page 23)

also announced a big expansion of the Long Island City manufacturing facilities, increasing production space by a third and providing storage capacity needed in times of Emergency. In modernizing the offices, Bitter has designed a "model store" which will show off the "Bar" under actual conditions, between fluorescent lights and rich carpets. Record men are invited to visit the showrooms.

New Stroboscopes

National Recording Supply Co., Hollywood, is now offering packaged strob-

oscopes to the trade in 6½" sizes, ten to a box. Yellow cardboard is used, "in line with recent developments where yellow light bulbs are recommended to lessen eye strain."

New Review Service for Record Dealers

Now available to record dealers who are anxious to direct new and personalized mailing pieces to their disc-buying customers, is an authoritative record review service offered by Alex A. Gettlin, 1616 Walnut St., Philadelphia, Pa., publisher of "Recordaid."

The new service will be exclusive to one dealer per area, the monthly handling, mailing, postage, addressing-

etc. to be done by Gettlin. Dealers submit their mailing lists to him, and the rest is automatic. The service comes on a yearly subscription basis.

The address side of the folder carries the individual imprint of the local dealer, and there is space for a monthly ad, to spotlight whatever merchandise the dealer picks each month. Review material covers all makes of records and is designed to stimulate new buying. Critical comments are made by the musical authority, Joseph E. Barone; both classical and popular releases are treated in a lively manner.

Cold Pressing for Recordings

New on the market, and to be distributed through trade channels, is a new instantaneous recording disc that can be cold pressed. These blanks are marketed by Rainbo Record Co., Los Angeles, and are made of flexible fiberized board base with surface coating of cold pressed nitro cellulose. It is reported that since stock announcements and music can be cold pressed on the disc, still providing space for personal messages, the product may attract national advertisers who are interested in distributing bulk lots of the records.

One group of consumers who are showing interest in recordings are the boys in the Army camps. Many are recording personal messages to send the folks back home.

Admiral Ads Get Big Break

Sept. 20 is the date for the opening gun of Admiral's big Winter ad campaign in national magazines—and the company gets a special break then because the full-page color ad appears in Collier's along with the second of the series being written by President Roosevelt. The President's five articles are expected to put Collier's in peak demand. Replicas of the ad, on color display cards are being issued by Admiral.

The ad drive also includes Sat Eve Post and Esquire, total estimated readership of 182,500,000.

New Stylus Patented

A patent for the rounded-tip sapphire stylus of large radius, which is the principal feature of the Crosley Floating Jewel Tone System, has been awarded by the U. S. Patent office to John D. Reid, Mount Healthy, Ohio. The patent has been assigned to The Crosley Corp.

Recoton Expands

New and larger quarters have been taken by the Recoton Corp., makers of Recoton Phonedles, at 21-10 49th Ave., Long Island City, N. Y. Recoton recently introduced the louder-tone "Concerto" needle, and in the midst of a Fall promotion campaign on both cutting and playback points.

More Sales O.K. "Smooth-Power" Phono Motors

G. I. "Smooth-Power" motors help your phonographs and combinations to produce record tone that *sells*—by delivering smooth, vibrationless turntable speed.

"Smooth Power" in G. I. changers, recorders and recorder-and-changer units make easier demonstrations and sales for you. Customers like the simple operation of a G. I. *one-lever* changer mechanism . . . like the simplified, streamlined G. I. recorder.

General Industries makes the most complete line of phono power mechanisms obtainable from one manufacturer. Fill your requirements with G. I. full-line service. Get replacement and rebuilding units through your Jobber.

Catalog and prices on request.



NEW! G. I. "Smooth Power" dual-speed recorder and phono-graph assembly. 78 and 33½ RPM. Self-starting, dynamically balanced rim-drive motor. Weighted turntable. Streamline plastic trim on cutter and pickup arms. Walnut grain finish base plate. Ready to install.



Model CX
"Smooth-Power"
Motor.



The **GENERAL INDUSTRIES CO.**

DEPT. 15

ELYRIA, OHIO

Order your Cutting and Play-Back Needles from our Affiliate
GENERAL PHONOGRAPH MFG. CO., INC., PUTNAM, CONN.

Vita-Tone Home Sets in Promotion

Continued emphasis on the 1942 Motorola home radio line has been announced by Galvin Mfg. Corp., 4545 Augusta Blvd. Chicago, who has introduced the 3-Dimension "Vita-Tone" in all home units. The line includes all types of table models, including automatic phono-radios and battery sets, along with a variety of consoles and the self-tuning "Clock Radio." Also featured are the two and three-powered personal portables; "rapid popularity" is reported for the "Play-mate" portable with the "Hi-Tenna" Airplane Loop in a detachable lid.

Wide acceptance has greeted the new WR5 wireless automatic record player concealed in a pull-out drawer, says Motorola, and cites additional success for the roll-away conveniences of the 81F21 combination.

Extensive advertising on the home line will be run by Motorola throughout the Fall and Winter.

Stromberg Appoints Head of Radio Division

C. J. Hunt has been named manager of the radio division of Stromberg Carlson, according to word from SC general sales manager L. L. Spencer. Mr. Hunt has for the past two years been head of the distributor division of the company, and has wide acquaintance among dealers and jobbers.

S. H. Manson, recently appointed sales promotion manager for Stromberg, will team up with Mr. Hunt on national sales promotions. The company has begun deliveries on its 1942 "Igor Stravinsky" autograph models, and will shortly begin shipment of English regency units.

Coogan Again RMA Export Head

W. A. Coogan, foreign sales manager of Hygrade Sylvania Corp., has been re-appointed chairman of the R.M.A. export committee. This group holds meetings for discussion and cooperative action on such matters as Foreign Exchange, Quotas, Priorities, Licenses, etc. Under Mr. Coogan's chairmanship, the policy of delegating to sub-committees the analysis of the more pressing radio export subjects will be continued. Sub-committees active at present are, Ocean Freight Traffic Committee, Webb-Pomerene Act Committee, and The Priority Committee.

Mayerson to St. Louis Store

Max Mayerson, well known as a radio buyer and a popular sportsman, has been named buyer for the Radio section of the big St. Louis department store Stix, Baer & Fuller. The section had previously been leased to an outside firm, but has now been taken over by the store. Mr. Mayerson was formerly radio buyer for the Boston Store, Milwaukee, where he also had extensive experience in the Controller's office. On Labor Day, the young exec brought his cruiser from Lake Michigan to St. Louis.

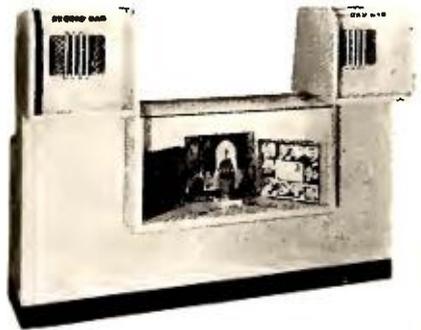


**BIG
RECORD
YEAR
AHEAD!**

RECORD BAR*

Helps You Sell More Records and Albums!

"Your best bet for bigger record volume and simplified record selling" . . . that's what enthusiastic users call RECORD BAR*. Why? — because it's compact, roomy, attractive and above all, it assures highest quality reproduction. Take advantage of the coming boom in records . . . install RECORD BAR* today!



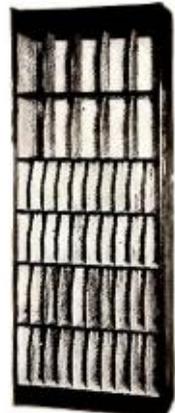
*Reg. and Copyrighted U.S. Pat. Off. 1940

Everything for the Record Seller



RECORD STOCK CABINET #100

May be used independently or as unit of department. Holds 500 10", 500 12" records, 75 album sets. Compact, attractive.



RECORD BOOTH B-1

Standard Construction. Built in sections. Easily erected by handy-man. Beautifully finished.

WRITE FOR FREE ILLUSTRATED BOOKLET

A. BITTER CONSTRUCTION CORP.
Brewster Building Long Island City, N. Y.



*A few good territories
still open for factory
representatives.*

HOW'S YOUR STOCK OF FIBRA NEEDLES?

NOW! FIBRA offers the
Only Cactus needle for
AUTOMATIC Record Changers!

A Complete line of Cactus, Steel,
Sapphire and recording needles—
All mounted on dignified Counter
Cards to sell themselves, for you...

FREE! Humorous Booklets for your
Customers with every order!

FIBRA Development Co.

1600 Broadway, New York City



SAVE YOUR OLD RADIO TUBES

• They're worth money to you under General Electric's New Radio Tube Merchandise Award Program.

Ask your G-E Radio distributor or write direct for further information. General Electric Co., Radio and Television Dept., Bridgeport, Conn.

GENERAL  ELECTRIC

FM Comments by Sayre Ramsdell of Philco

(Continued from page 13)

known as FM were the subject of patents issued as long ago as 1905.

Whereas the public has been led to believe that it is necessary to pay at least \$150 for a set capable of receiving FM, such is not necessarily the case. The primary question is, How much does one want in his FM set? FM is no different from AM in that the power and sensitivity of receiving sets are determined in considerable part by the number of tubes they contain and the elaborateness of their construction. The prospective purchaser should determine his particular needs as regards antennas, distance from the broadcasting stations he wishes to hear, proximity to sources of electrical interference, and power output desired, and then decide how expensive and elaborate an FM set he should purchase.

For the needs of the average radio listener, it is now possible to obtain a receiving set capable of giving satisfactory FM reception, as well as reception of standard broadcasts and short wave programs, for as little as approximately \$60 or less.

The reason that it is possible to produce FM receivers for the volume market for prices as low as this is because it is not necessary to have an entirely new and different instrument for FM service. All that is required is an additional band on the radio set to supplement the much more general AM service. Only when this became appreciated did the possibility of FM for the general public become a fact.

There is no question but that the new low-priced FM sets will provide adequate and satisfactory service for the great majority of radio listeners. The situation as regards the listening areas served by the low-priced and high-priced FM sets can be indicated graphically by drawing, with the same center, two circles, one somewhat inside the other.

With the FM broadcasting station at the center of the circles, listeners within the inner circle will obtain satisfactory service from a receiving set costing less than \$60. Since practically all FM broadcasting stations now operating are in large cities, this means that approximately 85 per cent of the public within

**DEFENSE MAKES 'EM
MORE ESSENTIAL
THAN EVER!
RCP TEST INSTRUMENTS**

The boom is on in radio servicing! With radio so vital in American homes today, and fewer new radios available, the service business leaps ahead. Cash in on this defense demand—use the instruments that offer most, at lowest cost. RCP Test Equipment means faster, better work—longer profits.

RCP-803 COMBINATION Tube and Set Tester

Portable "service shop" tests all the latest tubes . . . all filament voltages. Hot interelement short and leakage tests for individual elements. Individual section tests on multiple-purpose tubes. Line voltage regulation 103 to 135 volts, meter indication. Noise test for tubes which otherwise test good. Complete ready to use with test leads. Net Price **\$36.50**



RCP-702 SIGNAL GENERATOR

Latest circuit and mechanical design. Continuously variable 95KC to 100MC, direct reading. Unmodulated or modulated 300 to 400 cycles. Five-step calibrated attenuator, 1 to 500,000. No dead spots, ripple or feedback **\$25.95** through Line. Net price

SEND AT ONCE for free catalog. Get the facts on the complete RCP line of dependable test equipment.

RCP
dependable
TEST
instruments

**RADIO CITY
PRODUCTS CO., INC.**
88 PARK PLACE • NEW YORK, N.Y.

Another Sensational Service for Record Dealers! . . .

"RECORD REVIEW"

A direct-mail suggestion-service to help you stimulate sales through monthly home-hints on records to buy.

"RECORD AID"

Helps you speed up selling. An extra record "clerk" with all records of a title shown at a glance.

• The publishers of "RECORD AID" now offer "RECORD REVIEW", a sparkling, illustrated monthly review of new releases . . . From you to your customers, under your own name, with a powerful urge to buy . . . Exclusive to you in your territory . . . Compiled and written by Joseph E. Barone, outstanding author, editor and symphonic director . . . Also includes your full page advertisement spotlighting something new or different each month . . . Printed and mailed to your list of names . . . Price? So low you'll be amazed.

Write for sample and complete details TODAY, before the rights for your territory are snapped up by another dealer.

Alex A. Gettlin • 1616 Walnut Street • Philadelphia, Pa. • Dept. R7-9

the area served by the station will have its need met by the new receivers. For many of the remaining 15 per cent or thereabouts (represented by the ring-shaped area between the circles), it is possible with the aid of an FM outside antenna still to obtain satisfactory results.

In addition to sensitivity, FM receivers in different price classes, like every other manufactured product, tend to vary in the nature and extent of the service they provide. For persons able and willing to make the necessary investment in the more elaborate receivers there will be resulting gains in the quality of reception provided, greater absence of noise, and wider range of volume intensity.

The increasing interest in FM that has become apparent during recent months bids fair to open up a new period of growth and progress for the entire radio industry. While FM broadcasting service is still limited and purchasers of receiving sets should not immediately expect the number and variety of programs they have come to expect on AM, the prospect is that rapid growth in this field will take place in the near future. Such a development will in turn stimulate interest in and demand for FM receiving sets.

FM as Seen by L. L. Kelsey, Stewart Warner Corp.

(Continued from page 13)

quality receivers, priced consistently with their performance, are placed on the market, and that store demonstrations will quickly relegate inferior or cheaper versions to the scrap heap.

The dearth of conventional AM merchandise on the market, together with the increasing difficulties in the procurement of material, is undoubtedly discouraging to many concerns which would otherwise be more active in FM. The advent of a greater number of good FM stations putting out good quality programs will undoubtedly do more than could be accomplished in any other way to interest both the public and the manufacturers in renewed activity. Collectively, we are undoubtedly under-estimating the demand.

However, our problem today, as radio manufacturers, is to supply our distributing organization with merchandise that can be sold anywhere in

the U. S. Because of priorities on materials and not being able to manufacture as many radio sets as we can sell, we feel that our problem for the immediate future is to produce sets that all of our distributors can sell. Because of the material shortage, the distributor has a problem keeping his organization together.

Therefore, we do not contemplate introducing any FM models for 1942—concentrating alone on sets that can be sold by every distributor and dealer throughout the country.

FM Viewed by Lee McCanne of Stromberg Carlson

(Continued from page 13)

set-owners and dealers no longer demand it.

- d) **Thermostatic Drift Compensation:** Regulating drift is one of the hardest things in FM sets, especially push-button FM sets. We have done the best we have known how, burning up several watts to bring our drift compensator up to temperature quickly and keep it there.
- e) **Easy-Action Push Buttons:** Direct action, mechanical type, that center accurately on the station whether you approach it from either direction. Another good feature, we think, is that our manual tuning knob is always engaged, ready to sharpen up the tuning or bring in another station whenever you touch it.
- f) **Three-gang tuning and T. R. F. Stage:** In the New York area you need good selectivity already on FM, and this need will increase as FM dials become filled up with stations across the country. As you know, some last-year makes of FM sets had one-gang FM selectivity—a single iron core adjustment to tune the oscillator stage. A great many 1942 FM sets have two-gang tuning. Strong FM stations come in at an excessive number of repeat points on such sets—and this should be even more aggravating since some of those sets depend on manual tuning without FM push buttons.
- g) **Less knobs, nothing new to learn:** The 935 Series appear to have just two knobs (one the on-off switch and volume control, the other the manual tuning knob) because our

**DEPENDABILITY
QUALITY
ECONOMY**

- Fastest Selling
Condensers to the
Service Trade

**DUMONT
PRECISION BUILT
CONDENSERS**

From 6 Volts to 485 Volts



**FULLY
GUAR-
ANTEED
for
ONE
YEAR
SERVICE**

▼ Used by U.S. Government
YOUR GUARANTEE
of Finest Quality

AT YOUR JOBBER OR WRITE TO

Dumont Electric Co.
514-516 Broadway, New York
MICA · PAPER · ELECTROLYTIC

HOWARD Spotlights the "FM" Market with the New "VICTORY" Model 718X-FM-C

This new 14 tube HOWARD Automatic Phono-Radio Combination is a positive sensation in beauty, performance and value. Its list of sales compelling features is truly amazing. Model 718X-FM-C has a powerful R. F. Stage effective on ALL FOUR BANDS—shortwave, standard broadcast and FM; bass and treble tone control; push-pull 10 watt output; special 12" Jensen FM speaker and improved automatic record changer with light weight pick-up.

The beautiful Chippendale period cabinet, custom made in HOWARD'S own factory, is available in Stump Walnut or Diamond Matched Mahogany. Has spacious compartment for record albums. The depth, color and range of tone is a revelation to every music lover. You'll find the new HOWARD 718X-FM-C unchallenged in its performance and unmatched in its ability to provide real profits for you. Write today for complete particulars about the valuable HOWARD selling franchise. You'll find it well worth while.

America's Oldest Radio Manufacturer

HOWARD RADIO COMPANY

1731-35 Belmont Av., Chicago, Ill. - Cable Address: HOWARDCO, USA



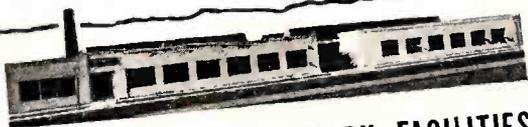
Safeguard your service work

use OHMITE parts

There is no question of dependability when you replace "summer-killed" resistors with Ohmite Dividohms or Brown Devils. They're veterans of service in every kind of climate—in home receivers as well as in National Defense equipment. Keep a few 10-watt Adjustable Dividohms or 10 and 20 watt Brown Devils handy in your kit. Ask your Jobber or write for Free Catalog 18.



Send 10c in coin for handy Ohmite Ohm's Law Calculator



OHMITE EXPANDS FACTORY FACILITIES

Here, at Ohmite, factory size has been doubled, production facilities have been greatly increased—everything possible is being done to provide Ohmite parts for everyone's needs.

OHMITE MANUFACTURING COMPANY
4876 Flounoy Street, Chicago, U. S. A.



BE RIGHT WITH
★
OHMITE
Rheostats
Resistors
Tap Switches

AUTO-RADIO

at its Best



• That choice of types precisely fitted to different phases of the noise-suppression job, is provided by more than a dozen and a half different Aerovox types. Also the necessary choice of capacities and voltages. And each unit is designed and built for the severe-service conditions of the auto-radio installation. ★ Ask your jobber for latest catalog and check over our auto-radio condenser line. Or write us direct for a copy.

AEROVOX
CORPORATION
NEW BEDFORD, MASS.

IN CANADA: AEROVOX CANADA, Limited, Hamilton, Ont.

University

Sound Systems for National Defense

A New Era in the field of public address work.

WHY you should concentrate your Sound Sales in the National Defense Field
1. Your cooperation with the National Defense Program is a "MUST."
2. This field has the "BUYING POWER" to keep your organization intact.
3. This field has the greatest possibilities for future sales.
4. Almost all National Defense sound sales are made through the well known distributors in local area.

WHY University Reflex Speakers are being specified on most National Defense installations.

1. Years of reputation as the best type of speaker for all difficult installations
2. Higher efficiency and power output than any other type of speaker.
3. The only type of speaker which will give perfect speech intelligibility with high background noise.
4. Years of reputation as the most rugged type of speaker.
Assured delivery for all National Defense orders—Maximum cooperation on all civilian orders.

UNIVERSITY LABS.
195 Chrystie St., N. Y. C.



range shifting is handled automatically by the push buttons and the separate bass and treble tone controls have indicating-type levers that blend into the dial.

h) Numerals on the FM dial correspond to the numerals in FM commercial station call letters—a scheme which our Dr. Manson, I believe, originated and proposed through FMBI to the FCC.

Thus, we have tried to make FM tuning as easy as AM tuning. Incidentally, our lower-priced 925 Series of FM-AM 1942 sets have all the above features except automatic range shift,—that is done by the usual range switch knob. I mention this not to tout our own receivers, but because we would like to see all FM receiver manufacturers make FM tuning just as easy and as accurate as AM tuning.

OUTDOOR ANTENNAS

No. 9: I am not personally familiar with New York listening conditions, but I know that an owner in Havana, Cuba, picked up Alpine, N. J. and Nashville, Tenn., on the simple bent di-pole built into our last year's 535-M set. In the new models we have stepped up the sensitivity around ten times, and adopted cascade limiting for quieter reception out at the fringe of the station's range. I believe that listeners located within the licensed service area of an FM station won't need an outdoor antenna with these receivers on FM, even though they may need an outdoor antenna on AM.

No. 10: Somewhere I have read that Zenith's W51C is the only commercial FM station that hasn't switched over to horizontal polarization. Several experimental stations still use the vertical, of course. Our built-in bent di-pole should pick up both types though we think that vertical FM polarization is passing out of the picture.

As to your point No. 11, I attach a list of 53 FM Commercial Stations authorized, with the new K59L St. Louis CBS outlet now No. 54. Only 14 of these are on the air as yet, plus 15 experimental stations plus a few school transmitters but at least 20 more should start broadcasting this year. In addition, there are 55 applications on file and the list may grow by leaps and bounds when the newspaper-radio ownership controversy is settled.

NEARLY ALL NOW HORIZONTALLY POLARIZED

Dick Dorrance
FM Broadcasters, Inc.

Only two FM stations in the country today are using vertical radiators. This is in the order of 7 per cent or 8 per cent, and certainly such a minority as to remove the subject of polarization from the category of a "difficulty" in the industry. Furthermore, there is no indication that any of the 39 FM stations now being built have included vertical polarization in their plans.

It is not the intention of FM Broadcasters, Inc., to recommend either system. We merely wish to point out that horizontal polarization is almost uniformly employed, and that the subject is no longer any cause for concern on the part of prospective FM set-owners.

Extra Salesmen Ready to Work

Manufacturers are now offering an exceptional crop of colorful displays for dealers' stores. Many of the new "sales helps" point up the new features of timely merchandise and actually amount to extra "salesmen."

Emerson has a new floor display stand for eight sets, a neat job of wood, emphasizing more sets per home.

Philco is offering a new full-length, "girl" display to be used next to a console, giving a striking accent to three exclusive features.

From Hygrade Sylvania Corp. comes an eye-getting window trim on the football theme, including a double easel display and a wide streamer in 8 colors.

Burgess Battery offers a full-color counter card in connection with a "gift hit" of the year—a flashlight with matching penlight—gift wrapped but flexible for year 'round appeal.

Webster-Rauland in New Home

Webster-Rauland, sound equipment manufacturers whose big-scale operations have hitherto included three different plants, have now moved to a new and modern factory at 4245 Knox Ave., Chicago. Engineering and production now come under one roof, and the firm plans a bigger part in Defense work, as well as better service in regular business channels.

The Rauland Corp., recently bought the sound division of the Webster-Chicago Corp., becoming one of the largest companies in the field. The firm was started in 1929 by E. N. Rauland, pioneer expert in sound, to specialize on audio communications and special p.a. products.

Consolidated Wire Expands

The production and general office lay-out of Consolidated Wire & Associated Corporations, Chicago, has been moved to new and larger quarters at 1635 S. Clinton St. The firm's treasurer, J. G. Mann, said that with all facilities grouped under the one roof, faster shipment of orders will result. Consolidated products include radio, electrical and automotive wires, aerial wires and kits, resistors, volume and tone controls, radio coils, test equipment, fluorescent lamps, etc.

Radio Pioneers Elect

Radio Pioneers of Southern California have held their annual election and have named the following officers: president, George Tivy; first vice-president, Jack Magner; second vice-president, George Marshall. Secretary J. J. Perlmuth, whose new address is 942 Maple Ave., Los Angeles, was re-elected for the 5th year. Pioneers' membership is limited to manufacturers, jobbers, dealers and reps actively in the radio business since 1924.

What are the Customers saying?



HOMER G. SNOOPSHAW, B. R. S. (Battery Replacement Specialist), reports: "That's what users say . . . that's what I hear when I put my ear to the ground, out around the trade."

But actions speak louder than words — and the test is in the turnover! When customers come in and insist on Burgess batteries — you *know* you've got a hot line! Snoopshaw sees this happening every day.

P.S. Do you get spots before your eyes, trying to keep up with the new

"THESE BATTERIES STAND UP UNDER TOUGH PUNISHMENT!"

"BURGESS FOR MINE EVERY TIME!"

models? You'll find all the answers in the "Burgess Replacement Guide to Portable Radios"—with its "Quick Reference Price List" that covers the complete line at a glance! For a free copy, see your distributor, or write to Homer G. Snoopshaw, B.R.S., care of Burgess Battery Company, Freeport, Illinois.



Homer recommends

Burgess No. F4B60 for Zenith portable models 5G401, 403, 405, L, M, Y.

One of the many units that make Burgess "The Complete Replacement Line."

BURGESS BATTERY CO.
FREEPORT, ILLINOIS

BURGESS THE Complete REPLACEMENT LINE

JUST OFF THE PRESS!

A. A. Ghirardi's
REVISED and ENLARGED
(New 2nd Edition)

RADIO Trouble-Shooter's HANDBOOK

40% Bigger!

The service man's most helpful Handbook! Thousands of repair shops have used the old edition daily in their work—this new one is 40% BIGGER and BETTER than ever.

New from Cover to Cover! Every page completely revised and brought up to date—and 202 pages of additional new material added.

Send for Trial Copy For the sake of your own business see a copy of this new Handbook without delay. Use the coupon. Our Money-Back Guarantee protects you.

QUICK FACTS ABOUT IT for BUSY SERVICE MEN:

1. Trouble "Case Histories" for 4,600 Receivers and Record Changers (largest compilation ever published)
2. Alignment Data for 20,000 sets
3. 60 pages of Auto-Radio Servicing Data
4. Battery Replacement Charts for 1,200 Portable Sets
5. 37 pages of Tube Data Charts (Covers every tube ever made)
6. 59 other invaluable Charts & Data compilations
7. All data carefully arranged and indexed for INSTANT REFERENCE



NOW INCREASED to **710 BIG** MANUAL-SIZE PAGES
CHOCK FULL OF VITAL TIME-SAVING DATA FOR 1942 SERVICING

THIS COUPON BRINGS IT TO YOU!

Make More Money by Being a FASTER Trouble-Shooter!

Ghirardi's New HANDBOOK is equal to reams of magazine clippings, service notes, manuals, catalogs, and thousands of hours of trouble-shooting experience when it comes to finding and remedying troubles quickly. You will do your trouble-shooting and repair work Easier, Better, Faster with its help. . . . Be a master of radio trouble-shooting and diagnosing.

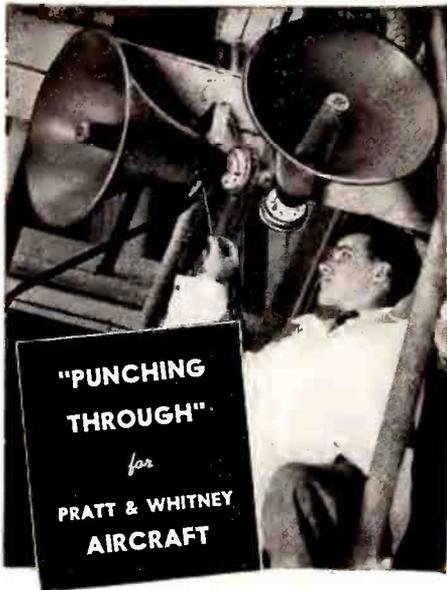
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 BOTH books at MONEY-SAVING Combination Price \$7

Name
Address
City State
YOUR MONEY BACK IF NOT COMPLETELY SATISFIED!

Check here for FREE Circulars!



ATLAS SOUND "DR" Speakers Help Defense Plant Production

THE ABILITY of the speakers to punch through all sorts of background machine noises is uncanny," reports Sceli Radio Co. of Hartford, Conn., who installed 23 "DYNAMIC REFLEX" Projectors and P. M. Driver Units in the new Pratt & Whitney Aircraft engine assembly plant. Many speakers were tested . . . but Sceli recommended Atlas Sound . . . which Pratt & Whitney selected. ★ Use **ATLAS SOUND** on your next national defense installation . . . and you can guarantee "sound" coverage.



FREE: Sound Guide F-41!
(Describes 101 p. a. products)

ATLAS SOUND CORPORATION
1448 39th Street, Brooklyn, N. Y.

FOR THOSE WHO WANT THE BEST



For **DEFENSE**
—and for you!

● Hytron holds an exciting front in the battle of democracy. Here, in the midst of a seething orderliness, every man and woman is keyed up to a triple urgency. Products for defense. Products for Britain. Tubes for the radio industry.

Hytron's share is a share that knew no limit until every capacity of the factory and the organization was utilized. Each moment has been a thrill; each bit of progress a gratification—plus a full consciousness that what we are doing for defense is also done for the ultimate security of Hytron jobbers, dealers, users—and Hytron itself.

After all, this is just what you would expect from the oldest manufacturer of radio tubes exclusively. But perhaps you may not realize that you can still get Hytron tubes the same precision-made tubes that built Hytron's 21-year reputation for high performance.

HYTRON CORP.

23 New Darby St., Salem, Mass.
Manufacturers of Radio Tubes Since 1921

Tung Sol Launches Defense Selling Plan

Pointing out that rising pay rolls mean more service jobs, the radio tube division of Tung-Sol Lamp Works, Inc., 95 Eighth Ave., Newark, N. J., has instituted a lively "Defense Selling Plan." It's a 3-way program designed to (1) Support America's Defense Program, (2) Pay tribute to Radio's part in Defense, and (3) Establish you as radio headquarters in your community.

Promotion materials include an exceptional full-color painting of the U. S. flag (without ads), two service selling cards, a "world news window paster, a U. S. broadcasting station log, and a string of direct mail folders and cards." A plan book, "Selling Radio Service" is included.

Dynaphone Appointments Announced

A number of progressive dealers in 4 different states have recently been added to the list of authorized Dynaphone retailers, according to news from Ansley Radio Corp., 21-10 49th Ave., Long Island City, N. Y. Company officials hailed the action as "evidence that merchants recognize the profit possibilities inherent in the Ansley 4-way policy of greater variety, no seasonal obsolescence, protected franchise, and customer satisfaction."

Rep Gets Bigger Lay-out

The Blair-Steinberg Sales Co., manufacturers representatives, now occupy new and larger quarters at 395 Broadway, New York City, where they will maintain stock facilities for the Eastern area. The firm now represents Cornell-Dubilier, David Bogen, University Labs, Jackson Instruments, Vaco Products, and Atlas Resistor.

Knoop Joins Du Mont

Walter A. Knoop has joined Allen B. Du Mont Laboratories, Inc., Passaic, N. J., manufacturers of cathode-ray tubes, oscillographs, television equipment and allied products, as sales engineer. Mr. Knoop will assist Len Cramer, who heads the instrument and television transmitter sales.



"On this radio we don't get Charlie McCarthy 'till Monday morning!"

NEW "BEST SELLER" IN INTER-COMMUNICATION!



Here's Talk-A-Phone's sensational new DeLuxe Intercom System—hit of this year's Radio Show! Beautifully styled in streamlined effect. Available in three types for every intercom need: (1) Master Selective—made up of Master station and Sub-stations; (2) Super-Selective—made up of Masters only; (3) Combination Selective—made up of mixed Masters and Sub-stations. Privacy headphone optional; "Silent" feature excludes noise pickup from Sub-stations; persons can answer from as far as 50 feet from units. Operates from 110 volts AC or DC. Built-right, styled-right, priced-right! Write for the profit facts today!



Also—A Complete Phonograph Line!

Talk-A-Phone also builds a complete Phonograph line—Profit-Builders all! Wired and Wireless Players, Player-Amplifiers, Automatic Changer-Players—and America's finest 2-Speed Home Recorder! Take on these profitable Talk-A-Phone lines. Prices, discounts, literature sent on request.

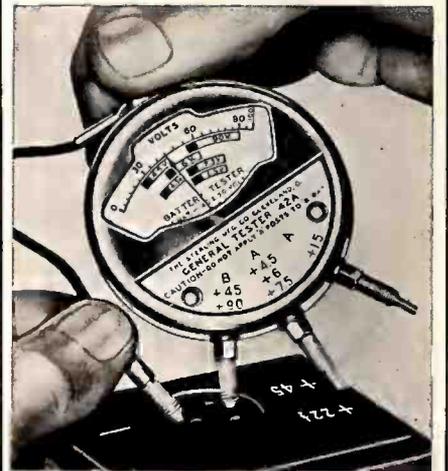
Talk-A-Phone Mfg. Co.

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STERLING'S NEWEST POCKET METERS ARE REAL ASSETS TO DEALERS AND SERVICEMEN

A complete new line for testing "A" & "B" batteries of the various types of portable radio sets. Scientifically determined loads guarantee dependable results. Flexible terminals fit all socket holes.

Featured by all leading distributors



Model 42A tests all standard portable batteries. Red and Green graphic chart gives instant readings. Net price \$3.60. Write for catalog 519-0.

THE STERLING MFG. CO.

9205 Detroit Ave. Cleveland, O.

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

NEW BOOKLETS

Available without charge from Howard Radio Co., 1735 Belmont Ave., Chicago, Ill., is an amateur folder No. 109 containing their complete line of communication receivers showing latest prices.

Miniature ac and dc voltmeters and ammeters in the 2-in. classification for general use are described and illustrated in a new 12-page bulletin. Catalog section 43-330 may be secured from Dept. 7-N-20, Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

Two new booklets from International Nickel Co., Inc., 67 Wall St., New York, N. Y., report in detail the characteristics of five different alloys for use as springs and spring contactors in Spring Alloys. Inco-Nickel Alloys gives characteristics and properties of 8 metals. Copies on request.

Fada has released some catalog sheets of their newest 1942 radio models and incorporated them in their 1942 folder. Fada Radio Co., 30-20 Thomson Ave., L. I. City, N. Y.

A 6-page tube supplement to the 5th edition, second printing of the Sylvania Radio Tube Technical Manual is offered free to all holders of the Technical Manual, through Sylvania jobbers or Hygrade Sylvania Corp., Emporium, Pa. The current Technical Manual with the new supplement in place remains 35c.

A folder from the Precision Tube Co., 3824 Terrace St., Phila., Pa. describes their metal shielded wire, a new method of protecting insulated wires.

General Elec. Co., Pittsfield, Mass., has issued a 10-page booklet with photos and charts of GE Mycalex. A technique for molding Mycalex by injection permits production of more intricate shapes.

An indexed catalog, No. 11, contains characteristics, prices and pictures of the Solar line of capacitors. Solar Mfg. Corp., Bayonne, N. J.

A new supplement No. 34 has just been issued by Leotone Radio Co., 63 Dey St., New York City, listing their best-seller stock assortment of speaker cones.

Pushbutton-frequency ranges for popular radio receivers are furnished in a 12-page booklet provided by RCA Mfg. Co., Camden, N. J.

The new Ken-Rad Essential Characteristics booklet has added technical characteristics on 128 new types, making it one of the most complete available. Free of charge to those who write to Ken-Rad Tube & Lamp Corp., Owensboro, Ky.

A 55-page loose-leaf manual from Air Associates, Inc., Bendix, N. J., contains specifications, descriptions and prices on radio communication systems for private, commercial and military aircraft operation. Available to manufacturers affiliated with the airplane industry, recognized airport operators and government dept. heads without charge.



A Sensational New SAPPHIRE Playback Needle

The needle your trade has been waiting for! A scientifically curved duraluminum shaft tipped with jewel, meets the record *straight*... no drag; highly polished Sapphire of finest quality completely eliminates surface noise without loss of high frequency. Individually packed in beautiful lucite box for FAST SALES!

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RADIO CATALOG!**

**212 PAGES—
BIGGEST EVER!**





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FREE

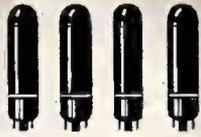
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Rush me your FREE new 212
Page 1942 Radio Catalog.

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4 STANDARD TYPES

of Amperite Regulators replace over 400 types of AC-DC Ballast Tubes now in use.

Amperites are real REGULATORS . . . have patented Automatic Starting Resistor which events initial surge and saves pilot light . . . Ask Your Jobber.

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Automobile
Home — All types
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Multiple Systems
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Made by World's Oldest and Largest
Manufacturers of Radio Aerial Systems

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55 DICKERSON STREET
NEWARK, N. J.

Crowley Expands Aluminum Substitute Work

The Henry L. Crowley & Co., West Orange, N. J., specialists in the manufacture of the high frequency iron cores which are aiding radio production during these times of aluminum shortages, has now added an extra wing to its already extensive plant. Crowley is also stepping up its custom-built ceramic or Crolite production capacity, to fill the new demands on its new developments on that score.

Mr. Crowley stated, in connection with the much-discussed shortage of aluminum, that "aluminum shields are being eliminated through the use of iron-core coils, plus iron sleeves when necessary . . . the performance and gain scored by these coils and permeability tuners will certainly affect the trend of radio receivers hereafter."

Typical example of the closed-core RF or IF coil is pictured on page 10. The molded hf iron parts are Crowley products.

Rep Offers Catalog Series

The Herb Erickson Co., manufacturers' representative, whose new address is Flanders Ave., Hendersonville, N. C., is now announcing a series of 1942 catalogs for dealers and servicemen. Those in North Carolina, South Carolina and Tennessee, who request the catalogs and send the names of their jobbers, may get the new books on Atlas Sound accessories and Cinaudagraph speakers. Those in the above states and in Alabama, Florida and Georgia may similarly get new catalogs on JFD products; Masco amplifiers and intercommunicators; Premax ham, marine and police antennas and ground rods; Radio City test equipment; Sonora radios, phonographs and combinations; and Turner vibrators.

Sales Managers Club Names New Chairmen

The newly elected chairman and vice-chairman of the Sales Managers Club, Western Group, are respectively, S. N. Shure of Shure Bros. and Jerome J. Kahn of Standard Transformer Corp. They succeed John J. Robinson of Crowe Name Plate & Mfg. Co., and W. S. Hartford of Webster-Chicago.

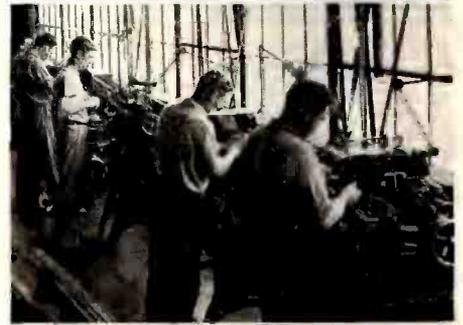
Part of Ham Band to U.S.

Extra activity in the short waves due to military radio operations has made it necessary for the Army to use 300 kilocycles of the 80 meter ham band. About September 1st, the territory between 3800 and 3900 kc. will be turned over to the Army. On January 1st, 3900 to 3950 kc and 3750 to 3800 kc. will be occupied. The final 100 kc. between 3650 and 3750 will be taken about March 15th.

In connection with this allocation, the Federal Communication Commission has allotted a 50 kc. section of the 40-meter ham band for radiotelephone use.

ANSWERS By

TRIPLET



The need for controlled processes and uniform quality in parts has been answered by Triplett in setting up manufacturing facilities that make the company practically self-sustaining in the fabrication of instrument and tester components.

Shown here is a view of one section of the automatic screw machine department in the modern Triplett plant where essential parts—some as minute as the smallest used in watches—are turned out 24 hours a day. More and more, Triplett has turned to wholly automatic fabrication of materials to speed up production and to eliminate any possibility of human error. To assure parts best suited for Triplett needs, company engineers have pioneered in the design and manufacture of countless fabricated materials including switches, bar knobs, resistors, jacks, special adapters, etc.—a complete service intended to give each user the fullest measure of satisfaction.

THE TRIPLETT ELECTRICAL INSTRUMENT CO.
Bluffton, Ohio

The Nationally Advertised Phonograph Needle

Sell Fidelitone Floating Point Phonograph Needles for greater profit, faster turnover and complete customer satisfaction.

PERMO PRODUCTS CORP.
6415 RAVENSWOOD AVE., CHICAGO, ILL.

Manufacturing  Metallurgists



WE RATHER SURPRISED OURSELVES!

It was embarrassing.

We didn't know our own stren'th, honest!

We knew the new Magic Brain RCA Victrola (Model V-215) was the hottest piece of merchandise we ever had to offer you. We knew your customers would go for them like a hungry bass for June bugs. But even *we* were surprised at the way you, and dealers all over the U. S. A., soaked up all we had to offer like a thirsty sponge and yelled for more.

Doggone, we wish we could ship you all you want. But, as you know, some of the strategic materials which go into these magnificent Magic Brain RCA Victrolas are getting scarce as hen's molars.

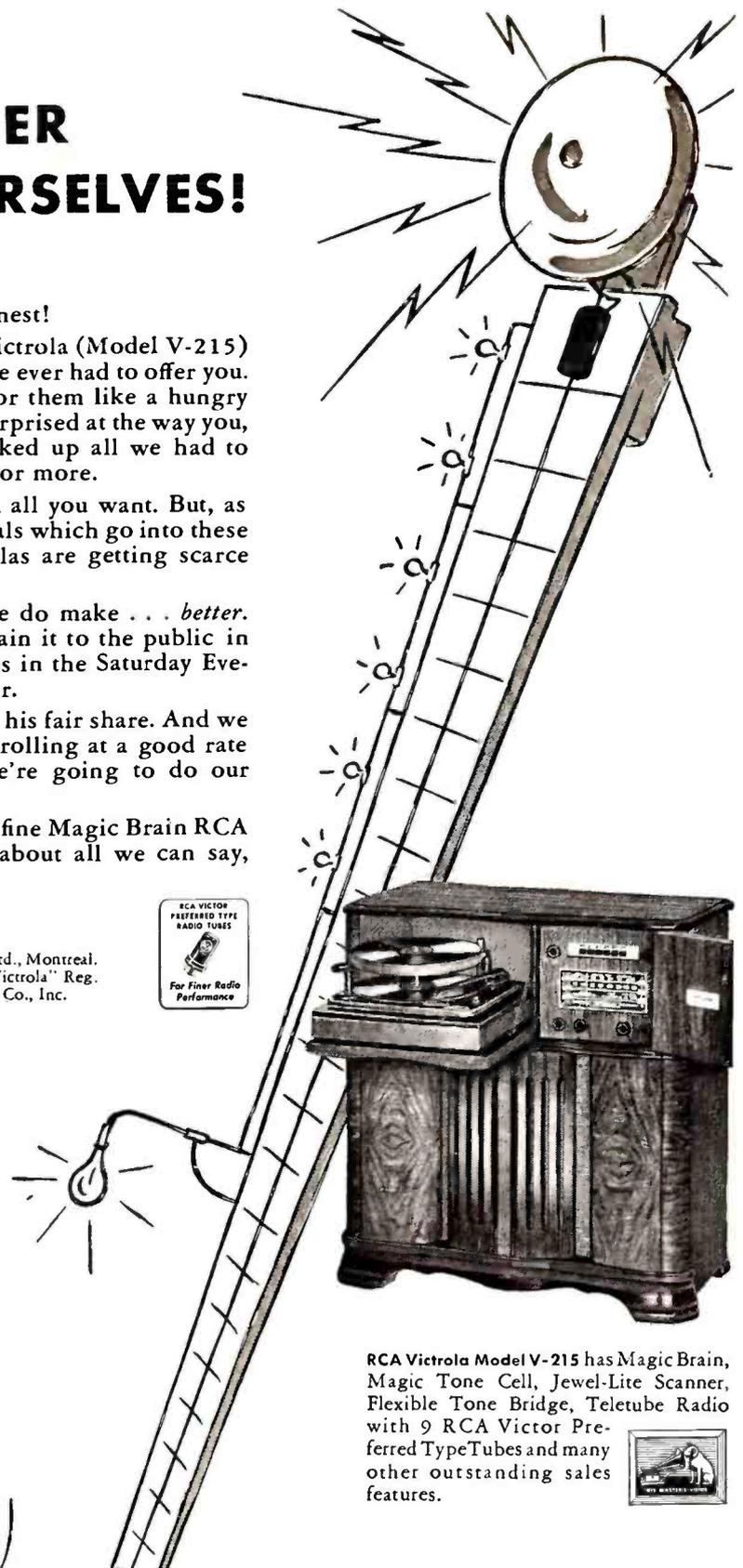
About all we can do is make what we do make . . . better. "Fewer but Finer" is the way we explain it to the public in our big advertising campaign that runs in the Saturday Evening Post, Life, Time and New Yorker.

We try to see, too, that each dealer gets his fair share. And we hope to be able to keep our shipments rolling at a good rate throughout the months to come. We're going to do our durndest.

If you can't always get as many of these fine Magic Brain RCA Victrolas as your customers request, about all we can say, brother, is:

It burns us up as much as it does you!

In Canada, RCA Victor Co., Ltd., Montreal.
 Trademark "RCA Victor", "Victrola" Reg.
 U. S. Pat. Off. by RCA Mfg. Co., Inc.



RCA Victrola Model V-215 has Magic Brain, Magic Tone Cell, Jewel-Lite Scanner, Flexible Tone Bridge, Teletube Radio with 9 RCA Victor Preferred Type Tubes and many other outstanding sales features.



RCA Victor

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A Wonderful RECORD CHANGER IN THE 1942 *Motorola* PHONOGRAPH RADIO

♥ Here's the record changer that changed 30,171 records, non-stop without cracking or chipping a single record. Its patented roller release insures smooth, noiseless action. In combination with the powerful 8 tube Motorola radio it makes a musical instrument unbeatable at anywhere *near* the price. For music lovers who know performance the superbly engineered Motorola HEART (the works) delivers extreme sensitivity, greater selectivity and the amazingly life-like 3-Dimension VITA•TONE!

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Full pages in color in the Saturday Evening Post, color ads in LIFE, Collier's and Movie-Radio Guide . . . *plus* a big space campaign in big city newspapers will make Motorola the most advertised name in Home Radio. The Motorola national outdoor advertising and point-of-sale display program is larger and harder hitting than ever. Join the 1942 Motorola Profit Parade.



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 OR DIRECT TO ↓



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