Radio Service Dealer

In This Issue:
Grid-Biasing Methods—Multi-Testers
Electronic Conference Exhibitors
Television Survey—Industrial Sound

October, 1944
25¢
To Help You
Replace Volume Controls
in Screen Circuits with the
10,000 Ohm Linear Units

In screen voltage control circuits, the action of the control is similar in most respects to the action obtained by controlling the bias of the tube. The mutual conductance (plate current to grid voltage trans-conductance) of the tube varies with the screen voltage.

When you must make a replacement and are unable to match the value and taper of the original control, try whichever of the four suggestions listed here fits your particular job. The suggestions are purposely general—to show the possibilities of wartime radio servicing. In cases where you feel you require additional assistance, send your problems to Mallory Technical Information Service. We'll be glad to help you find solutions.

P. R. MALLORY & CO., Inc.
INDIANAPOLIS 6
INDIANA

Buy More War Bonds

Mallory Helps for the
Radio Service Engineer

MALLORY Approved Precision Products

Approved Precision Products

MALLORY & Co. Inc.
The wisest thing Abraham Lincoln ever said was: "This, too, will pass." I forget what he said it about. But it was some kind of trouble.

The smartest thing any of us can say about this war is: "This, too, will pass."

If we're wise, we'll figure on still being in business at the same old stand with the same old customers, and some new ones that the satisfied old ones have sent in.

So let's be reasonable. Reasonable (to ourselves and to our customers) in prices. Reasonable in our attitudes. Reasonable in our conduct toward our public.

If possible, we should make some money. There is no point to pleasing customers if we aren't going to be here when they come back for more. We're all entitled to fair mark-up on our merchandise.

I like to see even my competitor make money. It's better for two of us guys to be making honest money in a community than for both of us to go broke in a big way.

On the other hand, nobody ever got rich selling the Brooklyn Bridge. There's no future in it. If we overcharge anybody during the war, we'll never see him after that armistice.

"This, too, will pass." Let's be here with a lot of old and new friends, when it does.

No. 8 in a series of special messages prepared by America's famous business writer, humorist and cartoonist, Don Herold... in sponsoring these Don Herold "broadcasts," IRC pays tribute to the thousands of Radio Service Men who, whenever possible, specify and use IRC resistance units in their work.
**WARD LEADS THE WAY in the Antenna Field...**

**WARD PRODUCTS CORPORATION** has long been the leader in the design and manufacture of antennas for automobiles and home radios. Since its beginning, WARD has been the recognized pace-setter. Many important design changes, pioneered by WARD, have become accepted standards in the industry. All products bearing the WARD name are quality products, workmanship of craftsmen using modern equipment under ideal conditions. For finest antennas for all automobile and home applications, look to WARD!

**BUY WAR BONDS**

**THE WARD PRODUCTS CORPORATION**
1523 E. 45TH STREET - CLEVELAND 3, OHIO
radio service dealer

Covering all phases of radio, phonograph, sound and electrical appliance merchandising and servicing.

VOLUME 5, NUMBER 10

OCTOBER - 1944

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SANFORD B. COWAN, Editor & Publisher
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SYLVIA BORNOFF, Circulation

Copyright, 1944

COWAN PUBLISHING CORP.

Member of the Audit Bureau of Circulations.

RADIO SERVICE DEALER is published monthly at 34 North
Crystal Street, East Stroudsburg, Pennsylvania, by the Cowan
Publishing Corp., Executive & Editorial Offices: 342 MadisonAve,
New York City 17, New York. Subscription rates:— United
States and Possessions $2.00 for 1 year, $3.00 for 2 years; elsewhere
$3.00 per year. Single copies: 25c. Printed in U. S. A. Entered
as Second Class Matter October 3, 1941 at the Post Office at East
Stroudsburg, Pa., under the Act of March 3, 1879. All subscribers
should allow at least three weeks for change of address. Every-
thing concerning subscriptions should be directed to Circulation
Dept., 342 Madison Ave., New York 17, N. Y. Material submitted
must contain a self-addressed stamped return envelope. While
every effort will be made to handle articles with care, the publisher
assumes no responsibility. Material accepted is subject to any
revisions, including change to, or omission in "by-line" as well as
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Our Cover: Photograph courtesy of Sylvania Electric Products, Inc.

SAVE YOUR SUITS—WEAR Sylvania WORK CLOTHES

This service coat is a knee-length, double strength herringbone-
weave dungaree. Roomy pockets at arm's length. Can be
buttoned far down the front to protect street clothes. Available
in sizes 36, 38, 40, 42 and 44. Price each: $1.95.

This service apron, made of heavy green duck, has three
tools-and-parts pockets. Just the thing to impress

This service jacket is made of the same tough material as the
service coat. Single-breasted, three large pockets, full-length
sleeves. Just as suitable for shop wear as service calls. Available
in sizes 36, 38, 40, 42 and 44. Price: $1.75.

Order from your Sylvania Jobber or direct from Frank Fax, Department RSD-10, Sylvania

SYLVIA ELECTRIC PRODUCTS INC.
RADIO DIVISION
YOUR business demands that you always have reliable, up-to-date tube information and data at your fingertips for future planning, as well as for today's restricted operations. RCA gets this information out for you when you need it, and the way you need it... in a clear and usable form. It's one more service for which distributors, dealers and servicemen look to RCA... a part of RCA's continuous merchandising program to provide sales support for you.

Listed here are some of today's most popular RCA publications. They are all available to you—through your RCA distributor, or direct from Radio Corporation of America, Commercial Engineering Section, Dept. 62-22E, Harrison, New Jersey.


2. RCA Receiving Tube Manual (RC-14)—Basic tube theory, application data, circuits and charts on 340 RCA receiving types. 296 pages, 8½" x 11", price: 25¢.

3. RCA Receiving Tubes and Allied Types Bulletin (1275-B)—Characteristics and socket connections of RCA receiving and allied types. 16 pages, 8½" x 11", single copies free.


5. RCA Power and Special Tubes Bulletin (TT-100)—Covers air- and water-cooled transmitting tubes, rectifiers, television and oscillograph tubes, phototubes, thyratrons, voltage-regulators, and special amplifier tubes. Charts of modulator and class C amplifier data. 16 pages, 8½" x 11", single copies free.


7. RCA Radiotron Designer's Handbook—Valuable to anyone interested in principles of circuit design. Illustrated, with charts, tables, and miscellaneous data. 356 pages, stiff cover, 6" x 9", price: $1.00.

8. RCA Tube Handbook—All Types (HH-3)—Two loose-leaf volumes of data and curves on all RCA receiving, transmitting, cathode-ray and special tubes, and phototubes. Deluxe binders, 5½" x 7½". Available by subscription. Write for descriptive folder and order form.

The Magic Brain of all electronic equipment is a Tube... and the fountain-head of modern Tube development is RCA.

1919 25 Years of Progress
1944 in Radio and Electronics

RADIO CORPORATION OF AMERICA
RCA VICTOR DIVISION • CAMDEN, N. J.
LEADS THE WAY IN RADIO TELEVISION TUBES
Phonographs Records Electronics

Radio Service Dealer
with the editor ......

Tube Situation

SERVICE-DEALERS from Coast-to-Coast report that the replacement tube shortage is becoming more acute day by day. Tube manufacturers have succeeded in providing a trickle of "hot type" and a larger number of "dog type" tubes for dealer use. But the demand far exceeds the supply.

As a consequence many thousands of home receivers are going out of use daily, and no relief is in sight. Only the defeat of Germany can materially change the status quo according to tube makers and the WPB despite any optimistic publicity releases the latter may take pleasure in foisting upon a gullible public.

Dealer Potentials

BECAUSE many radio sets and electrical appliances have been forced into long disuse by the parts and manpower shortage, a large percentage have already become unrepairable as well as obsolete. Technicians will be forced to use good judgment when deciding whether or not a product has reached the don't-pay-to-repair stage.

When appliances and radios again become available the demand will greatly exceed the supply for a considerable time. Service Dealers must not go overboard on new equipment sales at the expense of their repair department because every radio set or electrical appliance unit that is kept in working condition represents future potential service work even though the unit may only be the second-of-its-kind in a home.

A long period of "sellers marketing" lies ahead. It is a dangerous period, fraught with evil for dealers who do not recognize that Good Will is a priceless asset to every business. Think! How many merchants are you now sore at because they've treated you in a high-handed manner during the recent past? Don't let your customers get angry with you or your establishment if friction can possibly be avoided. Patience, sympathetic explanations and constructive suggestions made now, in the preliminary to selling period, will go a long way in the days ahead.

Many New Lines

IN every category of radio and electrical appliance manufacturing there are now many new firms committed. Our records show that there were seventeen set makers pre-Pearl Harbor as against forty-three who have recently stated they're in the postwar home radio set manufacturing business. The same ratios exist in the appliance field.

Likewise, it is to be expected that many new dealers will soon come into the field. Dealers now operating establishments should rightfully be entitled to first crack at franchises when same are available, and manufacturers are all set to break loose right now. Franchise signing time is here. Don't delay! He who hesitates now may not be lost, but he will be working under an unnecessary handicap.

S. H. Cowan

October, 1944
To meet the need for establishing instant communication in case of floods, fires and other emergencies, the Rock Island Railway is using Motorola transmitting and receiving units. Using local, battery or gasoline generated power, radiophone contacts can be maintained between isolated points, 30 miles or more away.

Contest for Radio Service Dealers

More than 500 war bond prizes will be contributed by Sylvania Electric Products, Inc. to retail radio stores and service shops participating in a national display contest to promote the sale of war bonds during the sixth war loan. The contest will be directed by the War Advertising Council at the request of the United States Treasury. War bond prizes for the best window or lobby displays devoted exclusively to the sixth war bond drive and featuring a $100 war bond will be awarded on a state, sectional and national basis. All displays will be judged for sales appeal, attention appeal and for their artistry and originality.

Retail radio stores participating in the contest, which will begin with the announcement of the opening of the sixth war bond drive by the United States Treasury, will make photographs of their displays and send them to the Sixth War Bond Drive Display Contest Committee, care of Display World, Cincinnati 1, Ohio. Photographs should be 8 x 10 and marked on the reverse side to indicate that they are being entered in the radio stores classification; also the name of the contestant, the name and address of the store where the display is located, and the dates the display was on view to the public.

Motorola Active

Galvin Manufacturing Corporation, Chicago, announces appointment of Jones-Cornett Electric Co., Welch and Charleston, W. Va., as distributors of the company's lines of radios for home and car, FM and AM table models, consoles and automatic phonographs, AC-DC and battery portables as well as table and console models for farm areas.

Astatic Anticipates

Floyd H. Woodworth, president, announces that Astatic Corporation (Conneaut and Youngstown, O.) is retaining Ray T. Schottenberg in his position as sales manager of the jobber and public address parts division. Supplementing this activity, Mr. William J. Doyle is in charge of sales to radio set manufacturers, while Mr. Allen J. Stark will direct sales in the radio cable connector division. "This," says Mr. Woodworth, "sets our house in order, in anticipation of an early resumption of civilian product sales to jobber customers and manufacturers."

Astatic Corporation, 601 S. Desplaines St., Chicago, announces the appointment of J. D. Woodworth, president, as director of its newly organized public address department. Mr. Woodworth will be assisted by Mr. David J. Schottenberg, sales and marketing manager, and Mr. William J. Doyle, sales manager. Mr. Woodworth will direct the sales of the company's new line of public address equipment and accessories.

Electro-Voice Corporation

...is the new name of the Electro-Voice Manufacturing Co., Inc. Among recent microphone advances the company developed the T-45 or lip microphone; the 600-D, mobile communications mike; and the new 905-8 hand-held noise-cancellation mike.

According to Albert Kahn, president, the corporation's personnel and policy will remain unaffected by the change in name.

Parts Conference Exhibitors

A total of 160 booth assignments were made at the Electronic Parts & Equipment Industry Conference, Stevens Hotel, Chicago, October 19-21, according to publicity chairman Charles Golenpaul. The total was made up of practically all the manufacturers of (Continued on page 9)
Since Pearl Harbor, International Detrola research engineers have logged this amazing total in their successful efforts to develop and improve Mine Detectors, Aircraft Radio Transmitters, and Receivers, and many other important military electronic devices. The company's other engineering groups also have made great contribution to the quality and volume of electronic weapons streaming from its efficient Detroit assembly lines to the many battlefronts of Victory. The same engineering inventiveness and trained imagination will be an inseparable quality of Detrola-built Radio Receivers, Television Receivers, Automatic Record Changers, and other electronic instruments,

**BUY MORE WAR BONDS**

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October, 1944
SOME WILL BE OUTSTANDING !!!

Sure... all post-Victory radio sets will be new and different. They will be replete with enough new features, improvements and gadgets to astound most dealers... certainly all prospects. BUT (and it's a BIG "BUT") you can be sure that some will be outstanding!

You guessed it... Maguire Industries, Inc., Home Radio (Electronics Division) will have a prominent place in this outstanding group. Here's the reason: Maguire Industries' policy from the beginning has been based on the assumption that only the best research-engineering brains can conceive, design, and engineer products that will be outstanding in their field. Maguire Industries has been successful in obtaining the services of men acknowledged to be the best in the electronics field.

These scientists have produced a line of Maguire Home Radio Receivers devoid of all the common and uncommon "bugs" that harass listeners. This is a radio line you will want to display and sell. It guarantees customer satisfaction and the real profits that go with speedy sales and trouble-free operation.

Maguire Industries has won exceptional merit in wartime production... in the electronics field, in the small arms field ("Tommy" guns and other small arms); in the food processing field; in the oil producing industry. Now, Maguire Industries has turned the talents of its large staff of scientists, engineers, and technicians to creating products for after-Victory use.

A tip that costs you nothing... investigate the Maguire Home Radio Receiver Line now! You'll be surprised with Maguire Industries' liberal dealer policy as well as the exceptional radio. For full information, write Maguire Industries, Inc., 342 West Putnam Avenue, Greenwich, Connecticut today!

A NEW NOTE IN HOME RADIO

Maguire Industries, Inc.
Electronics division

GREENWICH • STAMFORD • BRIDGEPORT • NEW MILFORD • NEW YORK

Radio Service Dealer
In Trade (from page 6)

parts, electronic equipment, tubes and batteries, together with the publishers catering to the trade. An additional booth was taken by the National Electronic Distributors Association. A full list of the exhibitors begins on page 38 of this issue. Save it for reference, as a check on your sources of supply and also for catalog and other trade material.

Attention

DEALERS-DISTRIBUTORS

A nationally known manufacturer who will produce and deliver a fine, fast-selling, profitable line of

RADIO RECEIVERS
ELECTRICAL APPLIANCES
SIDE LINE ITEMS

just as soon as the "green light" is given, is now appointing distributors.... and processing dealer franchises. Complete details will be sent to you.

Are You Interested?

Write today! Give details. Describe your pre-war, present and planned postwar facilities.

All replies will be treated in strict confidence. Our present Distributors and Franchise-holders know of this advertisement.

- WRITE TODAY -

BOX F 171 — RADIO SERVICE DEALER
342 Madison Ave., New York 17, N. Y.

October, 1944
Crystal and Dynamic
MICROPHONES
PHONOGRAPH PICKUP ARMS
CARTRIDGES and RECORDING HEADS
Known for efficiency, quality and durability. Available with proper priority ratings.

In Trade
(Continued from page 9)

...individuals with initiative and imagination.
3. Recommending changes and modifications of unfavorable local rules and regulations—such as antiquated building codes, state or local trade barriers, and in general, all out-moded regulations which seem bad for the current needs of small businessmen.

Copies of this compendium of cooperation can be had from your local C.E.D. committee. There are 2,900 of them. Prime purpose of the "locals," as avowed by the announcement, "to stimulate the creation of new businesses and to help existing small businesses grow larger and stronger." Facts: There are 2 million business enterprises in this country, each with less than 100 employees average, as compared with only some 3,500 firms employing more than 1,000. So, in the aggregate, small businessmen may be the "big problem" of the post-war era.

Ross D. Siragusa
Admiral's New Executives
Ross D. Siragusa, president of Admiral Corporation, Chicago, announces Richard A. Graver, formerly midwest regional manager, is made vice president in charge of the Radio Division.
Former vice president and radio plant manager J. B. Huarisa is elected executive vice president in charge of Production and Engineering.
Irwin Mendels is elected chairman of the Executive Committee. Formerly he was president of Radio Products Corp., Chicago, which was absorbed by Admiral.
Clarence S. Tay, for the past twelve years Chicago Branch Manager of the Crosley Corporation, has been appointed Manager of Appliance Distributors, Inc., Chicago Branch of Admiral Corporation.
Dale Distributing Company, distributors for Admiral Radio, will also handle the company's refrigerators, electric ranges and home freezers for the trading areas in New York City, Hartford Conn., and Newark, N. J. Mr. Maurice S. Despres, president of Dale, is also a director of the Admiral Corporation.

(Continued on page 12)

Radio Service Dealer
When casually considered, the reproduction of speech may appear to present less exacting requirements than the reproduction of music. Yet faithful speech reproduction requires a frequency band almost as wide as for music. Amplified speech for strictly communication purposes usually presents a different requirement. Here, such matters as articulation, loudness, masking, power requirements and the ability to deliver the message through noise, become the more important considerations.

"The Effective Reproduction of Speech"—Number 4 in the series of JENSEN Technical Monographs—presents much up-to-date data on this important subject in convenient form, together with useful conclusions and practical information for everyone interested in sound reproduction. Get your copy from your JENSEN jobber or dealer, or fill out the coupon and mail it with 25c for each copy ordered.

**The Series So Far Issued**
- No. 1. Loud Speaker Frequency-Response Measurements.
- No. 2. Impedance Matching and Power Distribution.
- No. 3. Frequency Range in Music Reproduction.
- No. 4. The Effective Reproduction of Speech.

FREE to men in the Armed Services, and to Technical Schools, Colleges and Libraries.
DO 2 JOBS IN THE TIME NORMALLY REQUIRED FOR ONE!

GUARANTEED TO SAVE YOU TIME ON 4 JOBS OUT OF 5!

WHEN A SET COMES IN FOR REPAIRS... turn to this big GHIRARDI book First—Not to your tester

A. A. GHIRARDI

GHIRARDI book First—Not to your tester

Don't waste time on elaborate testing of every set that comes to you for repair. FIRST look up its model number in the big Trouble Case History of Ghirardi's completely revised, greatly enlarged 2nd edition RADIO TROUBLESHOOTER'S HANDBOOK.

Four times out of five you'll find listed there not only the cause of the trouble—but ALSO the exact step-by-step directions for fixing it. You'll save a whale of a lot of time—and make a lot more money! For example, Service-man Ralph E. Locke of Cahis, Me., says, "Ghirardi's Handook quickly gave me information I'd been looking for for two days and solved a tough job!"

"PAYS FOR ITSELF!"

Herbert Perry of Denver says, "Helped me the first evening I took it home—and the set is helping me pay for the book."

Over 400 pages of this big, 744-page massive book are filled to the brim with the Trouble Case Histories (common trouble symptoms, their causes and remedies) for over 4000 radio models of over 200 popular makes—practically every model in use today.

But this is just the beginning! There are hundreds of additional pages of priceless servicing information covering all 744 VITAL RADIO SERVICE SUBJECTS. Each page is devoted to helping you repair more radios easier and in less time. Included is the most complete tube chart ever published anywhere, covering EVERY type of tube, valuable hints on substitution of tubes and other scarce parts; 1-F alignment charts for over 20,000 superhet's; a big data section on 1-F transformer troubles and dozens of graphs, charts, and data compilations.

Remember, Ghirardi's RADIO TROUBLESHOOTER'S HANDBOOK is NOT a study book. It goes right to work for you the minute it arrives. You simply turn to it when you want the answer to a servicing problem—and there are mighty few it won't help you solve!

ACT AT ONCE!

You cannot lose! Send coupon today! Use the book for 5 days. See for yourself how it speeds up your work. The cost is only $5 ($5.50 foreign)—BUT, if you are not more satisfied, send it back and your money will be refunded cheerfully without question. Nothing could be fairer than this!

SPECIAL MONEY-SAVING COMBINATION

Have complete service data at your fingertips.

You can buy GHIRARDI'S Radio Troubleshooter's Handbook at a saving of 15c. Simply, modern RADIO SERVICING is only available from Ghirardi's RADIO TROUBLESHOOTER'S HANDBOOK (new 3rd edition) postpaid. Or, send both books C.O.D. (in U.S.A. only) for this amount plus postage. If not satisfied, you may return the book at the end of 5 days and receive your money back.

(Continued on page 31)
WHY PERSONNEL BECAME PRECISION-EL

A thousand miles from New York—200 or more from Chicago—is a little city where hundreds devote their working lives to electronics. They have developed exceptional facility, resourcefulness, and pride of workmanship. The city is Mt. Carmel, Illinois, and Meissner is its leading industry.

As the fame of Meissner personnel began to spread, a new descriptive word came into being, rapidly caught hold. Precisely describing the ultimate in ability to do precision work, it is, naturally enough, "precision-el!"

Pictured on this page are four of the many craftsmen who make Meissner synonymous with quality in the manufacture of a wide range of precision-built radio products. Conscientious, capable...they are your guarantee of lasting satisfaction.

Easy Way To "Step Up" Old Receivers!

Designed primarily as original parts in high-gain receivers, these Meissner Ferrocort L. F. Input and Output Transformers get top results in stepping up performance of today's well-worn receivers. Their special powdered iron core permits higher "Q" with resultant increase in selectivity and gain. All units double-tuned, with ceramic base, mica dielectric trimmers, thoroughly impregnated Litz wire, and shield with black crackle finish. Frequency range, 360-600. List price, $2.20 each.

MEISSNER
MANUFACTURING COMPANY • MT. CARMEL, ILL.
ADVANCED ELECTRONIC RESEARCH AND MANUFACTURE
Export Division: 25 Warren St., New York; Cable: Simotronce
ELECTRONIC WELDING
Two G-E electronic tubes make resistance welding a high-speed precision process. The ignitron is the power tube, the thyratron the precision timer.

ELECTRONIC HEATING
The G-E piobotron tube supplies the high-frequency waves used in electronic heating. Small quarts can be case-hardened in a few seconds.

TELEVISION
The G-E cathode-ray tube is the picture tube in a television receiver. After the war, G-E will produce these tubes at costs much lower than those for pre-war picture tubes.

ELECTRONIC COUNTING
The G-E phototube counts, sorts, controls—by electronics. It’s one of the busiest and most useful tubes in modern industry.

HOW
GENERAL ELECTRIC
RIGHT NOW
BUILDS NEW POST-WAR
ELECTRONIC TUBE SALES
FOR YOU

These G-E electronic tubes, which today are working miracles in war production, will be best sellers for you in the post-war era. General Electric is building this new, big market for you right now! . . . Electronics Department, General Electric, Schenectady, N. Y.

Tune in General Electric’s “The World Today” and hear the news from the men who see it happen, every evening except Sunday at 6:45 E.W.T. over CBS. On Sunday evening listen to the G-E “All Girl Orchestra” at 10 E.W.T. over NBC.

THERE’S A G-E ELECTRONIC TUBE FOR EVERY PURPOSE

GENERAL ELECTRIC
GET READY
for BIGGER SALES

Dealers who are alive to changes and get plans set now will get lion’s share of volume sales & profits.

New kinds of retailing are now being planned, and new methods of distribution from manufacturer to retailer. The dealer who thinks he can slip easily into the postwar period by merely letting more customers come in his door, and ordering more goods as he needs them, may be due for a rude awakening. Changes will not come as suddenly as an earthquake, but come they will.

New kinds of stores are now being planned and when they are set up, they will be vigorous 1947 models. Reconversion, in retailing, begins with the dealer. It affects men rather than machines, though the changes in their ideas may change their stores too.

The pull from new buying power in the public, together with the push from wholesalers and manufacturers, will demand aggressive selling. A case in point is the announcement that a new type electric iron will be launched by the manufacturer with the aid of an advertising “push” of big color ads to be run in leading popular weekly and women’s magazines. All the leading (and up-and-coming) radio and appliance manufacturers are getting mass-attention for their products through extensive national consumer and trade advertising. And, recognizing this, national magazines are themselves launching educational advertising programs in trade magazines to tell retail dealers of the job they are doing in helping to get customers to come to the stores and shops of dealers who handle the advertised brands of radios and electrical home appliances.

Profits Ahead

Planning ahead for Christmas or Easter sales is familiar to every dealer, and no new principle is involved in laying plans to fit estimates of postwar demand. A program made now, based on estimated sales volume and covering every activity of the store, can be taken up and used as needed. It will cover both merchandise and personnel, though better post-war merchandise may arrive sooner than better postwar personnel.

The store that gives recognition to its own best people will make the best people want to work there. A plan that begins with proposals for doing familiar jobs better, will get more support than a plan that sounds complicated or unfamiliar.

“How can we plan now to sell more goods?” is a question that brings postwar planning down to earth. It suggests action, not waiting—and implies plans that grow out of well-understood activities rather than a huge national blueprint. It is a plan made by the store, not a plan handed down to it from some general authority. The plan that is made will be drawn up by each store, depending on local conditions and customers. All these will differ from town to town and even from store to store.

New Goods—More Customers

Every family is within reach of a store, every store is reached by wholesalers, every wholesaler is reached by

(Continued on page 34)
B EFORE the war Clark handled radios, appliances and musical instruments in his Syracuse shop. When the war came, he started an industrial sound department. Because he concentrates on the smaller factories and on local retail storekeepers for this business, his experiences may be of some interest to other radio service dealers who are located in war production areas.

This dealer's main problem is to get the ingredients—the mikes, amplifiers and speakers—in sufficient quantities to make the business pay out. This, Clark manages somehow—picking up odds and ends of equipment in a number of ways and from various sources. In some cases retail installations are for particular seasons, so the same equipment can be used time and again with new customers. In other words, there's a turnover of a given available supply of materials—and dealers know that it's turnover that makes the dollars come into the till to show real profits.

Clark finds it pays to go after small factories employing from say, ten to fifty persons. Such plants will not usually deal direct with manufacturers (as large establishments do), nor do they have sufficient personnel to handle the installation and servicing of p.a. systems themselves. Many of them prefer to trade with a local dealer also because they know that he can be reached immediately for any urgent servicing and repairs.

As far as retail merchants go, Clark offers more than just the installation of a p.a. system. The stores are analyzed as to the type of customers, the hours at which traffic is most brisk, and the time of day when sales clerks' efficiency is at lowest ebb. He then recommends the type of musical selections to be played over the p.a. hookup and the hours
most suitable for certain recordings.

For example, a rather large local millinery store found that the busiest time was between ten and eleven-thirty in the morning.

So the playing of soft music was recommended, for ten minutes at a time, every half-hour to relax shoppers for the day’s chores. Again, a grocery store’s peak hours were to be found from four to six p.m. Customers were tired after a day’s factory or housework. And for this store, Clark recommended that certain peppy march music be played for five minutes or so, three or four times during an hour.

This dealer has developed his p.a. business with a three-point service. He plans the p.a. system, recommends the types of recordings to be featured and also supplies the records from his own stocks. The records are rented for a few weeks at a time and are kept in circulation from store to store and factory to factory until the discs wear out.

Selling p.a. systems to retailers is based on the proven fact that when played at the proper moments, music stimulates weary clerks. The shoppers prefer to go to a store where they know they can anticipate relaxing for a few moments to music of their liking. This helps store traffic and develops—in the long run—more loyal customers.

As for small factories, Clark sells p.a. systems on the basis that the music broadcasts help workers morale (a fact proven time and again in the armed forces), besides offering a quick and direct means of interdepartmental communication throughout the plants. More efficient production is, naturally, a result.

Clark’s field man visits retail merchants frequently, both to service and to sell. If a storekeeper has a p.a. system originally installed by Clark, the field man checks it, lays in a few new recordings and Irons out any bugs reported. To encourage a sale to the more skeptical retailers, Clark may offer to install a p.a. system for a week’s trial without obligation. Closings are effected in a satisfactory number of cases.

There is a good demand for p.a.’s now and according to Clark, there will be a far greater demand after the war ends. The point stressed at the present time with prospective customers is that many ex-employees will return to their store jobs, and that during their period of readjustment they may suffer from war nerves. It will be easier to make their adjustment to civilian life, to wait on trade more efficiently after their war experiences, if they are exposed to regular doses of pre-selected musical recordings during their working day.

HOW TO CONVERT

AUTO-RADIOS TO HOME SETS

By BOB SIMMONS*

I HAVE been a radio service dealer for fifteen years and take some exception to a statement made in a recent issue of Radio Service Dealer about how auto radios can be converted for use in homes. In my experience, the average auto radio with a non-synchronous vibrator is one of the easiest conversion jobs, but it must be done right.

In my practice I have found that proper conversion of auto radios for home use calls for the following materials:

* Simmons Radio Service, Santa Paula, Calif.

For model radios, the above method can be used with all types of auto radios. But synchronous vibrator sets are a little more complicated as they require the addition of a rectifier tube and socket.

I have found that a 5X6 is better than an OZ4 in a home radio, but either one works satisfactorily in the sets for which they are designed.
Through the cooperation of test equipment manufacturers we are publishing a series of hitherto unavailable schematics of their instruments. The circuit diagrams will be published without technical comment in a series of "Portfolios" of which this is a part. Subscribers desiring publication of circuits for specific instruments should write to Editor, Radio Service Dealer, for issue priority.
Philco Signal Generator & Circuit Tester (Model 048-A).

Philco Wireless Station Setter (Model 014).

Hickok Electrical Instrument Co. Vacuum Tube Voltmeter (Model 110A).

October, 1944
Grid Biasing Methods

Analyzing various methods of applying bias voltages in modern radio receivers.

by JAMES PARKER

There are more ways of applying grid bias than of any other voltage used in radio receiver systems. Often several methods are employed in a single receiver circuit, with the result that checking of schematic diagrams becomes a rather complicated operation. In some circuits the bias voltage is fixed and is derived from batteries or from bleeder resistors in the power supply, while in others bias voltage is developed by the rectified signal, or more simply by the electron emission of a tube.

In some cases the bias voltage cir-
circuits are of low resistance and relatively easy to check, but in automatic volume control and similar circuits employing high resistances, the testing of these voltages requires special attention.

Battery-operated Receivers

Bias voltages in battery-operated receivers are simplest of all, but even these must be analyzed with care. Some of the commonly used battery biasing methods are shown in Figure 1. In Figure 1a, the C battery is in series with the cathode and grid and there are no difficulties in analyzing the circuit. In Figure 1b, the situation is similar, but instead of connecting to the cathode, the positive terminal of the bias battery is tied to one terminal of the filament. In Figure 1c, on the other hand, the grid returns to a center tap on a transformer. In this case the actual bias voltage is equal to the battery bias plus one-half of the applied alternating voltage. When a rheostat is used in series with one terminal of the tube filament the voltage drop across the series resistor adds to the bias applied to the tube. This is illustrated in Figure 1d.

When tube filaments are connected in series the bias is a little more complex. In Figure 1e, for example, the bias applied to the first tube is zero. The bias applied to the second tube is minus two volts, and the negative bias on the third tube is four volts.

Line-Operated Receivers

Of course, most receivers used in homes are operated from power lines and the most common methods of attaining bias in such receivers is by utilizing the voltage drop across a resistor in the cathode circuit, as shown in Figure 2a. When the tube has no cathode, the bias resistor is placed in series with a lead connecting to the center tap on the filament supply transformer. Because the plate current must return to the cathode through the bias resistor, a voltage drop results which is of the right direction to apply negative bias to the grid of the tube. This is illustrated in Figure 2b.

In the circuits we have just discussed the bias voltage is derived from a low-resistance circuit, either a battery or from a series resistor. Often, in modern receivers the control voltage developed in the oscillator section of the pentagrid converter is divided by the resistors R2, R3, and R4; and that voltage existing at the junction of R2 and R3 is used to furnish a negative bias voltage to the signal grid of the 6SA7.

Semi-fixed Bias

In Figure 6 is shown a method of obtaining semi-fixed bias by using a divider across the filter choke in the negative leg of the power supply. This voltage is applied to the grid of the 6J5. The total voltage is applied through R3 and C2 to the grid of the output tube. Because the greatest portion of the total plate current is developed in the 2A3, this remains substantially constant whether or not a signal is received. This method of applying grid bias is called semi-fixed bias.

The foregoing systems are in general use in all broadcast receivers. The methods of measuring these voltages with precautions that must be observed, and the equipment required, will be discussed in another article.

October, 1944
Details and circuit applications of new voltage regulator, high-frequency twin triode and radio-frequency amplifier pentode tubes.

SERVICE dealers should become acquainted with these three new tubes. Type OC3/VR105 offers a practically constant internal voltage drop across which a load requiring good voltage regulation may be connected. Type 6J6 is a miniature low capacity twin-triode designed for use at ultra-high-frequencies and which can also be used as a mixer. Type 114 is designed for radio frequency or intermediate frequency amplifier service in portable equipment.

Details of the specifications, operating characteristics and circuit applications of each of the types are given below:

Circuit Application

Sylvania Type OC3/VR105 is a gas filled, cold cathode voltage regulator. It is characterized by a practically constant internal voltage drop across which a load requiring good voltage regulation may be connected.

The OC3/VR105 is mounted in an ST-12 bulb with a standard small, 6-pin octal base. The outside, cylindrical electrode is the cathode and is connected to base pin No. 2. The inner electrode is the anode and is connected to pin No. 5. The jumper within the base serves as a switch to open the power supply circuit when the regulator tube is removed from its socket, providing the proper socket connections are employed.

A current limiting resistor should always be used in series with the OC3/VR105 and the supply voltage. The amount of current drawn by the load will of course determine the size of this resistor, but it should be such as never to allow an operating current of more than 40 milliamperes to flow through the OC3/VR105 in case the load is disconnected.

To start the tube operating some definite d-c voltage must be applied to ionize the gas in the tube. This voltage is approximately 115 volts.

R-F AMPLIFIER PENTODE TYPE 114

<table>
<thead>
<tr>
<th>Physical Specifications</th>
<th>OC3/VR105</th>
<th>Specifications</th>
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<tbody>
<tr>
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Ratings and Characteristics

| Maximum Filament Voltage | 1.6 Volts |
| D-C Battery Operation    | never exceed |
| AC/DC Power Line Operation | 1.3 Volts |
| Maximum Plate Voltage    | 110 Volts |
| Maximum Screen Voltage   | 90 Volts |
| Maximum Total Cathode Current | 6.5 Ma |
| Minimum Grid Bias Voltage | 0 Volt |
| Direct Interelectrode Capacitances: | |
| Grid to Plate            | 0.010 µµf. Max. |
| Input                     | 3.8 µµf. |
| Output                   | 7.5 µµf. |

*With no external shielding.

Operating Conditions and Characteristics

| Filament Voltage | 1.4 | 1.4 Volts |
| Filament Current | 0.050 | 0.050 Ampere |
| Plate Voltage    | 90 | 90 Volts |
| Screen Voltage   | 67.5 | 90 Volts |
| Grid Voltage     | 0 | 0 Volt |
| Plate Resistance | 0.6 | 0.35 Megohm |
| Trans-conductance | 925 | 1025 |
| Plate Current    | 2.9 | 4.5 Ma. |
| Screen Current   | 1.2 | 2.0 Ma. |
| Grid Bias for 1b | 10 µamp | 6.0 | 8.0 Volts |
but should never require more than 127 volts. Once started, the tube continues to operate at some voltage within the operating range of 105 to 112 volts. The operating voltage will also be dependent upon the current passing through the tube, generally being several volts higher at 40 milliamperes than at 5 milliamperes. This difference in operating voltage on any particular tube is a measure of the regulation for that tube.

The maximum regulation is 4 volts over the operating current range. On an ideal tube the regulation would have a zero slope and the operating voltage would be constant over the operating current range. This condition is rarely obtained in actual practice. The regulation tends to improve during the life of a tube. It is important to note that individual tubes may not deliver identical voltages to the load. Nevertheless, the voltage should always be within the specified limits for operating voltage and the regulation will be 4 volts or less.

Two or more OC3/VR105 tubes may be connected in series to obtain higher voltages which are multiples of the drop for a single tube. Voltage taps may be taken from the junction points of the regulator tubes.

Circuit Application

Sylvania Type 6J6 is a miniature low capacity twin-triode designed particularly for use at ultra-high frequencies. Its small size and high efficiency make it particularly useful in compact, light weight portable equipment.

The 3.5 watts output rate above may be obtained at moderate frequencies decreasing at higher frequencies, but at 250 Mc, the output is still 1.0 watt as a push-pull oscillator with a plate voltage of 150 volts and a grid resistor of 2000 ohms common to both units.

This tube may also be used as a mixer at frequencies up to 600 megacycles.

Circuit Application

Sylvania Type 1L4 is an RF-IF sharp cutoff pentode of the miniature style of construction. It is especially designed for radio frequency or intermediate frequency amplifier service in compact, light weight, portable equipment. The high operating efficiency allows the tube to be used with extremely low B supply voltages. The construction incorporates internal shielding which is connected to minus filament, and eliminates the need for an external bulb shield in most applications. A shielded socket should be employed to obtain the extremely low plate capacity. The circuit applications are the same as those for Sylvania Types 1LC5 and 1N5GT/G.

New Communications Mike

Electro-Voice Corporation announces the placing on the market of model 500-D, a microphone designed for police, airport, utility mobile communications and portable public address installations.

Features: "press-to-talk" switch, which opens the microphone and closes the relay in one operation.
The MULTI-TESTER

by OSCAR E. CARLSON

HOW multi-range meters are designed, constructed & operated.

PART 2

If measurements of potential are to be made across a source of limited voltage, as when measuring the voltage drop across a resistor which has a small current flowing through it, the resistance per volt of the voltmeter combination should be such that when it is placed across the resistor in the circuit it does not appreciably lower the resultant circuit resistance. The meter and series resistor act as a shunt across the portion of the circuit where connected thus tending to cause more current to flow. Figure 12 illustrates the circuit for such a condition. If E is a fixed potential, placing the meter across R₁ causes the effective resistance across E to become

\[ R_{e} = \frac{R_{1} + R_{2}}{R_{1} + R_{2} + R_{m}} \]

so that more current flows through R₁, resulting in a greater drop across R₁ and less across R₂. Consequently the meter will register a false value of voltage due to the circuit disturbance caused by the meter and multiplier resistance. This can be overcome to some extent by using the voltmeter on a higher voltage scale so that the effective circuit loading will be less.

However, for some circuit conditions the voltmeter arrangements of a milliammeter and series resistor are useless for measurements. This is true for example, in any circuit where the current flowing is very slight, since the voltmeter combination measures voltage by borrowing current when connected as one leg of a parallel circuit. If the meter requires more current than is flowing through the load across which the voltage is to be measured the measurement is useless. Under such conditions, it is better to insert the meter in series and compute the voltage by Ohm's law.

RESISTANCE MEASUREMENTS

Returning again to Ohm's law we find \( R = \frac{E}{I} \). If a current-indicating meter is inserted in series with a load resistor across some source of potential we have a circuit as shown in Figure 11. If the voltage is known and we measure the current we can compute the value of resistance by applying Ohm's law. But, suppose we keep the voltage constant and measure the current. The resistance is inversely proportional to the current and the meter may be calibrated in ohms for any given current flow from that constant voltage source. A battery with low current drain imposed upon it may be considered as a source of constant potential.

\[ R_{e} = \frac{R_{1} + R_{2} + R_{m}}{I} \]

Figure 12

A 0 to 1 milliamperemeter connected as in Figure 13 will measure resistance value of R₄ as indicated by the calibration curve of that figure. The measured resistance R₄ is found by:

\[ R_{m} = \frac{E}{I} - (R_{1} + R_{m}) \]

where R₄. is the value needed to cause full scale deflection with R₄ equal to zero. R₄ is in this case the internal meter resistance.

As may be seen from the calibration curve in Figure 13, very small resistance values are not readily read by this method and neither are very high resistance values. A higher resistance range may be incorporated by increasing both the voltage and the value of the zero adjusting resistor. The value of the zero adjusting resistance should be such that its variation will "zero" the meter over only a small variation of battery voltage, since the meter is accurately calibrated for only one setting of calibration.

It is to be noted about the circuit in Figure 13 that zero value of R₄ causes meter to read full scale while open circuit of R₄ causes no meter deflection.

Since the above method of introducing resistance to be measured in series with the meter is not readily usable for very low resistance values, another method may be employed. Figure 14 illustrates a circuit for such measurements together with a calibration curve for a 0 to 1 milliamperemeter having 30 ohms resistance. This arrangement measures infinite resistance when the meter reads full scale deflection and is "zeroed" with test leads open-circuited. Since the current flowing through the circuit is largely determined by R₄ which is 150 times greater than the meter resistance, a shot of any magnitude across the meter does not appreciably alter the current drain upon the battery. With the meter shorted there is no voltage across it, and total current flows through the short circuit. With R₄ open circuit there will be 0.3 volts across the meter for full scale deflection. The meter is used as a voltmeter. The unknown resistance by-passes current around the meter, causing more current to flow from the battery which in turn causes a larger voltage drop across R₄, with less voltage across the meter.

The computing of R₄ for any given value of current through the meter is more complicated than for the circuit in Figure 13. The voltage of the battery is impressed upon the circuit so that

\[ E_{b} = IR_{e} + I_{m}R_{m} \]

and since the voltage is the same across R₄, as across the meter,

\[ E_{b} = IR_{e} + I_{m}R_{m} \]

and we know also that total current is equal to sum of the currents in the parallel branches, thus:

\[ I = I_{e} + I_{m} \]
then the value of _R_x_ is:

\[ R_x = \frac{E_b - \text{IR}_a}{I_x} \]

and:

\[ R_x = \frac{E_b - \text{IR}_a}{I_x} = \frac{I_m R_m}{I_x - I_m} \]

which is equal to:

\[ \frac{E_b - R_m I_m - R_s I_m}{R_s R_m} \]

\[ R_x \text{ is thus equal to:} \]

\[ \frac{E_b - R_m I_m - R_s I_m}{R_s R_m} \]

But since _R_s_ + _R_s_ is nearly equal to _R_x_, due to _R_s_, being much greater than _R_m_, we may simplify the above formula to:

\[ R_x = \frac{E_b}{I_m} - R_s \]

where: _R_x_ is unknown resistance

_E_b_ is voltage of series resistance for zero adjustment

_I_m_ is meter reading in milliamperes.

The circuit in Figure 14 may be modified as in Figure 15 in which a resistor, _R_w_, has been used to increase the voltage drop across _R_s_ for full scale meter deflection. For such an arrangement the value of _R_s_ may be found by the following formula:

\[ R_x = \frac{E}{I_m} - R_s \]

A calibration curve for such an arrangement may readily be made up with three-cycle semi-log paper as used for the calibration curve in Figure 14.

**IMPROVED SHUNT METHOD FOR CURRENT MEASURING**

Now that we have seen how to make our elementary meter perform the varied functions of measuring voltage, current and resistance, let us elaborate on some methods. In designing the multi-range milliampere circuits for a multi-tester we can combine the knowledge we have gained regarding shunts and multipliers.

From Figure 15 we see that a resistor in series with the meter made it a 0 to 100 milli-volt meter when it was fundamentally a 0 to 30 milli-volt meter. The shunt, _R_s_, then increased the required current for full scale deflection. Suppose in constructing a circuit we adopt the principle of Figure 16. In that figure, as we decrease the shunt across our test circuit, the value of series resistance becomes progressively _R_s_ + _R_s_ + _R_s_ + _R_1 + _R_2, etc. This is a type of "universal" shunt. The arrangement allows us to utilize higher resistance values and thus tends to eliminate the effect of contact resistance due to switching contacts. It also allows the circuit to be switched while the meter is still in the circuit which is not possible with the common shunt shown in Figure 10. In Figure 10, opening of the switch between contacts would allow full current to flow through the meter.

In the "universal" shunt, formula (1) is used to compute shunt resistance for the lowest required range. The _R_m_ to be used is the actual meter resistance plus _R_s_ in Figure 16. The other shunts are then tapped off the shunt for the lowest range and computed as follows:

\[ R_s = \frac{R_a + R_m}{\text{New Range/Fundamental Range}} \]

\[ (\text{Continued on page 40) } \]
Television Survey—Year by Year

by LEWIS C. STONE
Managing Editor

8 million wired homes reached by telecast now, but only 50 thousand persons in area view video programs. Yearly growth analyzed city-by-city.

Sales Prospects

Recent surveys have shown that the public definitely expects and wants television.

1. In the survey conducted by Newsweek Magazine, over 32 per cent declared they would be in the market for television home receivers, ranking second only to autos.

2. Television was first among members of the post-war savings plan inaugurated by the Franklin Square National Bank of Franklin Square, Long Island. Of the post-war products for which depositors have ear-marked their accounts, television receivers headed the list, with cars second and electric washers third.

3. In another survey made by McCall’s Magazine, in the form of a contest, the editors said the results showed that over two-thirds of all contestants were television home instrument prospects.

In 1 Year
... from
Military
Arms...

EVEN SOONER: In 18 months to 2 years after the end of the war, rather than in three to four years as originally stated (in the following estimate) by RCA, television service may cover 46 per cent of the potential video market—reaching about 50 million consumers—as a result of television license applications now actually on file, which increased from seven to 63 in the past eleven months.

IN announcing the formation of the RKO Television Corporation for the purpose of offering program-building services to the telecasting industry, the parent organization also issued a city-by-city forecast of television growth covering the three immediate post-war years. The statistics used are based on a survey made by the RCA-Victor Division, Radio Corporation of America.

Many dealers have been mentally
tions or which could operate.

The survey assumes that “all important radio manufacturers will start making television receivers as soon as they can.”

The dealers’ shelves will certainly not be bare of television merchandise in areas that before long—conservatively estimated at five years from now at the outside—will include 60 per cent of the electrified homes in this country, in 157 cities of 50,000 or more population.

Which Comes First?

There has long been discussion among those studying television as to which could come first, transmitting stations or receiving sets. Will a consumer buy a set when there are so few stations and but a limited number of programs? Will an advertiser buy television time when there are so few sets? The old question of the hen or the egg.

But an answer is at hand, now. The six cities in which transmitters are already installed can today provide the needed program service for an enormous slice of the country’s population. These cities and the market they represent are considered in the survey as

Period I—Now

There is television broadcasting right now in New York City, seven days a week. Some 5,000 sets viewed by 40,000 persons are receiving these broadcasts sent out by three different stations over a 50-mile radius.

Television service in Philadelphia covers a 50-mile radius and reaches 1,-200 sets viewed by 6,000 persons. Service in Schenectady covers a 30-mile radius and reaches 450 sets viewed by 1,500 persons. In Chicago service covering a 30-mile radius reaches 300 sets viewed by 1,200 persons; while service in Los Angeles reaches 250 sets viewed by 1,000 persons in a 50-mile radius. In addition there is a station in Cincinnati, not yet on the air but ready to operate, which will cover a 30-mile radius.

But there are a lot of people in these cities, a lot of electrified homes and almost 30 per cent of the country’s buying power. The total population within the radius reached by all of the television broadcasting stations in the six cities mentioned above—the “television population”—comes to 27,225,000, with about 7,788,000 electrified homes. So, the study concludes, there is a potential market right now for nearly 8 million sets. But dealers will have to wait until after the war be-

The total market that may await dealers in these nine cities one year after the war will therefore be for approximately 9,593,000 television receivers.

Period III—2 Years Post War

This period will see Hartford, Baltimore, Milwaukee, Minneapolis and Boston adding a total of 7,655,000 “television population,” with 2,047,000 electrified homes and around 8 per cent of the nation’s buying power. By then, the grand total potential market for receivers will have grown to 11,640,000—representing over 45 per cent of the buying power.

Period IV—3 Years Post War

By then, the cities of Springfield, Mass., Providence, Pittsburgh, Cleveland, St. Louis, Buffalo, Rochester and the Kansas Cities will have been added to the roster of television broadcasting areas—a total of 22 cities. By that time, dealers serving those areas will draw their customers for television receivers from a “television population” totaling 62,075,000, in 14,423,000 electrified homes, representing 58 per cent of the nation’s buying power.

And finally the report forsees full major city coverage reached in the fifth year following the war. In the 157 cities of 50,000 population and over (mentioned earlier) some 17,400,000 electrified homes, representing over 61 per cent of the nation’s buying power and 55 percent of its population, will form the base of the potential market for dealers’ sales of television sets.

Photos from General Electric

October, 1944
Records and Record Makers by L.C.S.

Robots avoid Glenn Miller and band in London, this captain in the Army Air Forces moved from a billet which was later destroyed by one of the sneak bombs. Tommy Dorsey is protecting handsome blonde bandleader Dean Hudson . . . for a screen test. Jackie Gleason, hit comedy star of "Follow the Girls," is co-grooming with Perry Como for "Como and Gleason, Songs and Pat- ter" . . . a new air and pix show. Tongue out, Vaughn Monroe is in again . . . Paramounting in September. BBC airs Glenn Miller's Army Air Forces band . . . from England . . . six times weekly . . . Englishmen like Glenn's samples of real American small band jive in between broadcasts . . . featuring pianist Mel Powell and drummer McKinley. After recording some new tunes . . . Dinah Shore will leave for Pacific shores to do some troopings for the troops. Gene Krupa heads his own band . . . and records are broken at the Strand . . . maybe its the string section trimming up the usual instrumentation.

Our master de drumming le washboard . . . Spike Jones, entertains troops in Europe . . . musicians, cowbells, washboards and all . . . still hopes to "phhht" Spiskishly in "Der Fuehrer's Face" which is also a number he disced up for Victor. Phil Moore composed "Sho Sho Baby," and others . . . bored playing gin rummy with Bud Abbott and Lou Costello . . . en-train from Hollywood to Manhattan . . . Lou and Phil passed the time writing a new ditty, "Don't Take It North, Put It In The South" . . . sounds a little vague. The four dress-shop owning, Bluebirding King Sisters (Alyce, Louise, Donna and Yvonne) became quins . . . when Jerry Lester joined in while they were airing in Hollywood. Add new discers . . . Zinka Milanov, Metropolitan Opera star . . . a Yugoslavian dramatic soprano . . . for Victor. Swing and Sway Orches- tra is Sammy Kaye-ing at NY's Hotel Astor. Hal McIntyre and band . . . work nights in a Hollywood ballroom . . . make pix by day. Artie Shaw starts a 40-piece danschestra.

Sammy Kaye's vocalist, Sally Stuart was spotted as a "lovely" by model agent Harry Conover . . . so Sally will Kaye on, but will do magazine cover assignments in her spare time. Lena Horne and ultra modern pianist Mel Henke appear on "Music America Loves Best" air program. Sammy Kaye broad-casts a new program over Mutual. William Kapell is the 21-year-old pianist who is under contract to RCA Victor as a new recording artist.

Records to Sell

RCA-Victor:

Perry Como and mixed chorus perform on both sides of disc 20-1592. "Lili Mar-lene" is a doughboy favorite by now. A sentimental, about the girl left be- hind as her soldier-lover marches off to fight. A male chorus provides a driv- ing beat which gives the song a march effect. "First Class Private Mary Brown" is baritoned romantically against the lilting rhythm of the chorus. From "About Face," the Army Special Service Revue.

Tony Pastor and his Orchestra (30-0827) in "Dance With A Dolly With a Hole in Her Stocking," which Tony vocalizes while the band riffs along. "Don't Blame Me" is a sad ballad ar- ranged by Shep Field.

Tommy McClenan, the blues singer with the guitar lends his shouting voice to "I Love My Baby" and "Shake It Up and Go." Both tunes are authentic 12-bar blues with incidental ad lib lyrics. Dinah Shore with mixed chorus (20-1594) gives us "Together"—a hit song from the pix "Since You Went Away" and "I Learned a Lesson I'll Never Forget," a torchy ballad of the day, with mixed chorus.

Johnny Hodges and Orchestra (30-0817) offer a possible "collector's item" in "Passion Flower" and "Going Out the Back Way." The first is slow and moody, the flip a lighter number—both feature Johnny and his sax. The "orchestra" was culled from Duke Ellington's crew just for the recording, which makes it a unique platter.

Fats Waller (20-1595) in "Oh! Frenchy" and "It's a Sin to Tell a Lie." In the first, Fats' comedy vocal supports his swell pianojazz; the flip is a fox trot, with the small band jamming hot
behind Fats' piano and vocal.

Marian Anderson (Album M850) in "Great Songs of Faith," by Bach, Handel and Mendelssohn. Album M555, in "Brahms Alto Rhapsody"; and another Brahms number, Album M882, "Two Songs for Alto," with accompaniment. This great negro singer's discs are good "ensemble" sale items.

Columbia:
The Charioteers (36730) put on—and put over—a spiritual styling in "Sylvia" and "This Side of Heaven." A coupling by one of the finest negro pop vocal quartets.

In Set C-100 the dealer will find four couplings, offering an "Operetta Potpourri" by Marek Weber and his Orchestra. Selections from "Gypsy Baron," "Die Fledermaus," "Student Prince," and "Countess Maritza" each on a coupling. Music familiar to everybody.

Decca:
"A Connecticut Yankee," (Album A367) gives melody highlights from the show, with Vivienne Segal, Dick Foran, Julie Warren and others, with orchestra and chorus under George Hirst.

Dick Ellington in "Ellingtonia" (Brunswick Album B1011) Vol. 2, gives us "Creole Rhapsody," "Tiger Rag." Two fine blues, "Tishomingo" and "Yellow Dog." And finally, "Jazz Convulsions" and "Awful Sad." All eight show the Duke and his orchestra at their very best.

Jimmy Dorsey and his Orchestra (18616) bring two new ones to record fans. "An Hour Never Passes" with vocal. "Two Again" is a fox-trot melody written by Jimmy, sung by Paul Carley.

Evelyn Knight, (Black Label 18614), in a number she made popular at the Blue Angel nightery—"Dance With a Dolly." The background is solidly rhythmical and innovations catch the ear. "Without a Sweetheart," is the backing, composed by Henry Nemo. Orchestra is by Camarata.

Jerry Wald and his Orchestra, (Blue Label 4448). Jerry top-ranks as a clarinetist, and gives a smooth fox-trot in "Two Heavens," assisted by vocalist Rosemary La Planche in RKO Radio's "None But the Lonely Heart"—name song recorded by popular discs.

Dick Merrick. "Since You Went Away" is the flipover, inspired by the current United Artists' movie pix. Vocal by Ginny Powell.

Capitol:
Johnny Mercer (164) sings his own composition in "Duration Blues." The flip is a novelty song, "Sam's Got Him." Johnny is featured on NBC's "Chesterfield Music Shop" spot.

Ginny Powell

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Capitol:
Johnny Mercer (164) sings his own composition in "Duration Blues." The flip is a novelty song, "Sam's Got Him." Johnny is featured on NBC's "Chesterfield Music Shop" spot.

Ellie Mae Morse (183) gives two numbers over her "heated pipes"—The Patty Cake Man and "Invitation to the Blues." Both are orchestra accompanied.

Classic:
Louis Prima and his Orchestra (7106) in "Angelina" and "Oh Marie," with vocal refrains. Both are for the younger set which makes them a juke special with a "gangy" appeal. In 7107, Prima offers "Beloved" and "Dance With a Dolly." The first is a ballad from Dorothy Lamour's Paramount pix "Rainbow Island," the coupling is a novelty. Both with vocal refrains.

Xmas Disc Merchandising
Advance news from the manufacturers who have been doing their bit to help keep many a radio service and appliance dealer solvent these days with lines of records and record albums, indicates that dealers will get a better merchandising break for this Christmas.

Displays will be "different" this year. The merchandising ballyhoo which manufacturers will send out (by November, as usual) will give dealers a chance to do a multiple job of display—altering the same elements from show window to store interior. This will be a sort of "follow-up" and "follow-through" point-of-sale program to build for larger unit sales per customer.
GI-JOE
LOOKS AHEAD
by JEFFREY BROOKS

I left my business to my father
and joined the service almost two
years ago.
I have dreamed constantly since
my first night in camp of the day
I'd return to my work bench and test
rack. I have long anticipated since
I went away, the thrill of once again
putting the key into the door and
opening the shop for the day's busi-
ness.
I have dreamed since I went away
of a great volume of business—new
sets to sell; old sets to repair and
adapt so they can receive the newer
types of broadcasting. There will be
newer methods—technically, that is,
for I see what the future holds in the
newly developed equipment I am to-
day repairing and maintaining for
the Services.
Since I have been away I have
been writing regularly to my father
(who runs my shop today) to work
more closely with my accountant in
gauging the quality of our work—la-
bor and parts. I have written to my
accountant asking him to com-
pose a letter to be mailed to all my
customers and prospects in the
neighborhood I serve. I want them
to keep remembering my shop, the
services I have rendered; and to
continue to support it all during this
period of my stay in the Army. I
want them to keep my shop alive
until the day I return.
I have asked my printer—he used
to sell me blotters with the radio
log, designed my letterhead, and oc-
casionally composed hand bills
which I stuffed into letter-boxes—I
asked him to put together a brochure
telling my customers and prospects
about the new and improved radios
that are coming out of the welter of
battle. The manufacturer's national
advertising and dealer bulletins are
good source material. I want this
folder to be illustrated as completely
as possible, so that by word and pic-
ture, all who read it will understand
what my shop will offer in just a few
years. I plan to handle a complete
line of radios and electronic devices.
I have been writing to my father
outlining with word and crude pic-
tures, ideas for merchandising the
products I plan to sell after the war.
These merchandising ideas, I feel,
should be executed by a smart win-
dow-dresser to be really effective—
to really sell!
Radio Repair Shop windows are
mostly meaningless today with their
spotting of a tube, or a speaker, or
even a table model radio. These
components mean nothing to the
average radio listener. I have in mind
for my series of dramatized win-
dows, a tableau presentation of how
and where radios and "electronics"
can be utilized in the home. I want
the window dresser to picture a liv-
ing room in all its charm and color,
then highlight with striking co'or
the radio-phonograph instrument in
that room. And perhaps additional
speakers spotted throughout the
room making for complete coverage
and accurate accoustical reproduc-
tion. I want the colors in this large
placard backdrop to be striking
enough to arrest the attention of the
fastest passers-by. It would not be
a bad idea to consult an interior dec-
orator for furniture, motif, cabinet
design, woodwork and finish.
Each month the presentation
should show another room, and an-
other piece of radio or electronic
equipment at work for convenience
and pleasure. I have thought of sev-
eral placards for backgrounds show-
ing:
1. Remote speaker systems
with volume controls and
shut-offs at the remote sta-
tions, in the master bed-
room, the nursery, the liv-
ing room and the kitchen.
I want to stress how this re-

tume in devices
that on my return tomorrow"
Future of service dealer oper-
ation foretold in devices
employed by armed services.
"I mean to do my missionary
selling now, get that much
of a jump on my competitor,
so that my plans for larger
take. Until the day I
continue serving customers and prospects in the neighborhood
to know the price for new types of equipment. I have dreamed from the time I joined the army and how I might contribute to the industrial
needs for electronic equipment. Many factories in all neighborhoods will
be using some kind of electronic de-
vice to increase production, and at
the same time cut production costs. Every doctor's office in town will one
day have some kind of electronic in-
strument for therapeutic treatment of
ailments. And every hospital and
clinic will have use electron micro-
scopes and X-ray instruments.
I believe that wholesale distrib-
utors of these electronic devices will
have a need for regional repairmen
who can install, maintain and repair
their equipment. It will be cheaper
for the large wholesale distributors
to have a number of radio repair
shops under contract to them for the
handling of maintenance calls rather
than be burdened with a large
travelling repair staff. And I want
these distributors to come to know
of my shop as being run by a wide-
awake, progressive and expert radio-
electronic engineer.
Although I am in service, my store
is very much alive with attention-
getting sales letters and good mer-
chandising displays. Yes, I am also
desirous of fulfilling one of those re-

tional maintenance engineering con-
tracts with the distributors of indus-
trial electronic instruments. I want
all the business I can handle.
As I see it, the radio and elec-
tronic industry is the big thing when
the war is over... it is the billion dol-
lar post-war industry!
**In Trade**
(from page 12)

**Stromberg-Carlson**
Clifford J. Hunt, manager of the radio division, announces the appointment of Radio Distributing Corp., Detroit, Grand Rapids, Mich., as distributor of Stromberg-Carlson's postwar radio line in forty-nine counties of western Michigan. The organization also handles Norge, Cory and Procter appliances.

**Insuline Gets “E”**
For outstanding achievement in production of radio-electronic products, the Insuline Corporation of America, Long Island City, N. Y., was awarded the Army-Navy “E” pennant. Samuel Spector, president of the company, received the award from Col. Kenneth B. Johnson, Signal Corps, Washington, D. C.

**Bendix Home Radio Active**
William P. Hilliard, general manager, Radio Division of Bendix Aviation Corp., Baltimore, announces appointment of H. L. Baumgardner as district manager for the central Chicago metropolitan district. Mr. Baumgardner was formerly vice-president of the George W. Borg Corp., Chicago. Also, appointment of Jack C. Wilson as Pacific district manager, with headquarters in San Francisco. Mr. Wilson was formerly senior administrative officer of the U. S. Army Signal Corps production field office. Selection of distributors in the above areas is underway.

**Clarostat Jobbers Sales**
Appointment of Leon L. Adelman as advisory sales manager is announced by Clarostat Mfg. Co., Inc., Brooklyn, N. Y. In addition, Adelman will handle jobber sales in the New York metropolitan area. The appointee has been identified with sales of radio and electronic components through legitimate distributors for over twenty years. In his advice to Adelman will work closely with Clarostat distributors throughout the country.

**Zenith Auto Radios**
J. J. Nance, vice president and director of sales, announces another move in Zenith Radio Corporation’s program of aggressive post-war expansion in the appointment of Walter H. Dyer as manager of the auto radio division. Dyer left a similar position with RCA. Sales will be direct to auto manufacturers.

**Admiral Adds Distributors**
Rosd D. Siragusa, president of Admiral Corporation, Chicago, announces a number of new distributorships throughout the country: Appliance Merchandisers Company, Peoria, Ill., for central Illinois; The Binel Company, Cincinnati, Ohio; Griffith Distributing Corporation in Indianapolis, Ind., territory; Peaslee-Gaultborp Corp., in Atlanta, Ga.; Ed Jacksonville, Fla.; Monroe Hardware Co., in Monroe, La.; Kaemer-Barrett, San Francisco and Oakland, Cal.

(Continued on page 38)
RAW MATERIALS RELEASED FOR

SELECTED APPLIANCE PRODUCTION

A reserve of 100,000 tons of carbon steel, 25,000 tons of alloy steel, 15,000-000 pounds of copper and adequate amounts of aluminum has been set aside for the fourth quarter of this year to cover a number of contingent, non-military production programs set up by the Office of Civilian Requirements with the consent of WPB.

Most of the programs are still in the paper stage, and even if carried out in full, would not mean that the products would be available on a wide enough scale to satisfy even the essential civilian demand. Work on them will depend entirely upon the availability of facilities, manpower and components. While most manufacturers in the permitted lines of commodities are solely occupied with war contracts, the materials listed above will be available to those manufacturers whose plants are already open for civilian production and who can satisfy manpower requirements.

Dealers will be interested in the fact that among the programmed items are domestic mechanical refrigerators, washing machines, vacuum cleaners, miniature incandescent lamps, electric ranges, batteries for farm radios, electric fans for industrial and commercial use, domestic electric water heaters, electric and spring-wound alarm clocks.

Reasons given for selecting these items for the "permitted" civilian production list are as follows:

Radio Batteries: The program is calculated to provide adequate facilities for only a minimum amount of essential turning-in. Batteries are essential to farmers without a central electrical service.

Domestic Washing Machines: Shortages in commercial facilities, increase in birth rate, and the larger number of women who are now working make this need especially urgent.

Alarm Clocks: The program would meet only most urgent needs in this "hardship shortage" item.

Electric Water Heaters: For replacement.

Electric Ranges: Required for essential replacements and to provide for new installations where use of no other type of cooking stove is feasible because gas is not available or a chimney is lacking.

Fans: Electric fans needed for use in factories and commercial establishments.

Small Electric Lamp Bulbs: Needed for replacement purposes in railroad lanterns, flashlights and automobile headlights.

Refrigerators: Production is needed to maintain the stockpile of refrigerators for blood banks, hospitals, storage of biologicals and similar uses and to provide for essential replacements and use where ice is unobtainable.

Will any considerable quantities of the items listed above find their way to the dealers' shelves? This question long in the minds of many service dealers, cannot be answered with any definiteness. Dealers in rural and farm areas will apparently, clear some products to private customers, if as and when available. Especially radio batteries, refrigerators and small electric lamp bulbs. For urban areas, dealers will probably get a chance to clear fans, domestic washing machines, vacuum cleaners and perhaps electric clocks. Production of limited quantities of electric irons is already underway (Radio Service Dealer, September, 1944).

Service dealers know that most governmental controls on civilian production will be removed with the end of the war in Europe. The above "permitted" items to go ahead with production of items for civilian use are merely the beginning dribble—prior to the end of war in Europe—of what promises to become greater and greater in volume as military cutbacks increase with the lessening of demand for materiel. The above items were selected because of the extreme need for them on the home front and because of the critical common components required, and because the manufacturing problems of some of them must be carefully studied in order that production might be arranged without interference with war needs. Needless to say, of radio production there is as yet no sign—for civilian use. But every radio manufacturer is getting ready to do some "programming" on all "fronts"—production, distribution through wholesale and retail—and that's where you, the radio service dealer, will come in.
The Working Schematic Circuit Diagram that has helped thousands to learn radio principles, circuits, and servicing

The RCA Dynamic Demonstrator is a complete schematic diagram of a modern six-tube superheterodyne radio receiver; all circuits clearly visible; all operating parts mounted in their proper places in the circuits; the correct symbol representing each respective part in plain sight beside that part; and the whole hook-up arranged in perfect working order.

Each Circuit Section in Different Color—Large color-blocks differentiate each circuit section: the power section is blue; audio frequency, green; intermediate frequency, orange; oscillator, yellow; radio frequency, red.

Pin Jacks and Switches—At all important measuring points there are pin jacks for instrument connections, or insertion of jumpers. All types of part or circuit failures can easily be simulated to facilitate effective methods of location and correction. Other types of simulated failure can be realistically produced by operating switches provided on the back of the Demonstrator.

Typical Applications—A specially prepared RCA Instruction Manual is supplied to help teachers and students use the RCA Dynamic Demonstrator to best advantage. This instruction booklet contains many well-illustrated suggestions for helpful experiments, with adequate explanations of the nature, purpose, and significance of each experiment.

Write for Data—A large number of RCA Dynamic Demonstrators are now being used in schools and colleges and for radio instruction of the armed forces. For complete information regarding this interesting and valuable radio teaching aid, write to Test & Measuring Equipment Section, RADIO CORPORATION OF AMERICA, Camden, New Jersey.

* BUY MORE WAR BONDS *

1919-1944 — 25 Years of Progress in Radio and Electronics

RADIO CORPORATION OF AMERICA
RCA VICTOR DIVISION - CAMDEN, N. J.

October, 1944
**RMA Activities**

Radio service dealers in many communities will be interested in the promise of new sources of business indicated by the activities of the School Sound Systems Committee, Radio Manufacturers Association, to develop specifications and promote the use of public address equipment in schools and similar institutions. Readers of this magazine who are already installing and servicing p-a systems in their communities will no doubt hear of contemplated school and institutional jobs as they develop, and get their share of the business. Others will no doubt find that the effort to go after this new business will more than repay them for their trouble. In any case, this may well be another "plus" on the books of radio service dealers for new post-war business.

**Capacitor Standards**

The need for standardization on fixed capacitors, particularly of the mica, paper and electrolytic types, for post-war service, is being studied by a sub-committee of the Radio Manufacturers Association. Recommendations and standard proposals will be prepared for presentation at a future meeting this fall.


Manufacturers. These families speak one language, want similar goods, have high standards of living, and are not divided by tariff barriers such as are found in Europe.

Nowhere else in the world do there exist such a gigantic market. For radio service dealers — as for other retailers — the truly anxious question is whether the people as a whole will wait to "see how things turn out" before buying. If the whole nation hesitates, a depression with serious unemployment can result.

Retail dealers and all those who sell goods can help overcome this hesitation by well-planned sales and advertising programs, as indicated by local conditions.

It is hard to believe that if war restrictions are relaxed and more goods make their appearance, the people will not spend at least part of their great savings. If they should spend too freely while goods are still scarce, the results would be dangerous, sending prices up and causing inflation. Moderate spending is to be hoped for, rather than a scramble for scarce merchandise.

**Sales Depend on Dealers**

Without committing themselves completely to an optimistic forecast, retail dealers may well decide to take all the steps necessary for estimating their future volume of business, and for laying out the programs they would need to follow in order to handle that volume when it develops.

The goods that will be made in factories must also be sold. That part is to a great degree the responsibility of retailers. Even "production" goods — steel, machinery, chemicals — in the end produce goods for ultimate consumers, who are the people reached by all retailers, including radio service dealers. All manufacture ends in the retail sale.

Among the owners and employees of small stores are energetic men and women who have begun in a small way but are destined for a greater future. This is true especially in the field of radio and electrical home appliances. In this branch of retailing there's a great future for capable men and women who know how to make people see and earn more goods.

The movement of goods into the ownership of the people who use them is handled by retail dealers. The decisions made by dealers now, for themselves, will influence the future welfare of the nation. And the retailer who makes a plan now is doing his best to insure his own future. — L. C. S.

**National Radio Institute**

Willard Moody, technical consultant announces the National Radio Institute, Washington, D. C. celebrated its 30th anniversary with a luncheon meeting at the local Statler hotel, on October 15.

**Ken-Rad**

1934 introduced the first metal receiving tubes. In seven short years prior to Pearl Harbor over seven and one-half million new radio receivers were equipped with this finer Ken-Rad product.
The United States Navy has awarded the men and women of Hallicrafters a special "Certificate of Achievement"... first award of its kind... for outstanding service with the radar-radio industries of Chicago in speeding vital war material to the Navy. Added to the four Army-Navy "E" awards, this makes five times Hallicrafters workers have been cited for distinguished service.

They promise that this kind of service will be continued until total victory is ours.

* BUY A WAR BOND TODAY

Hallicrafters RADIO

The Hallicrafters Co., Manufacturers of Radio and Electronic Equipment, Chicago 16, U.S.A.
In Trade
(from page 31)

Frank to Hallcrafters
Raymond B. Frank, formerly Naval inspector in charge of radio in the Chicago area, joins the advertising department of the Hallcrafters Company, Chicago.

NEDA Blue Book
This booklet contains a new Constitution and By-Laws and a up-to-date list of members grouped by Chapters. The Blue Book will be distributed to members at the Conference (Oct. 19-21) Chicago, and mailed to those who did not attend.

West Coast Electronics Show
H. L. Hoffman, of Hoffman Radio Corp., and president of the West Coast Electronic Manufacturers’ Association, presided at the 1st annual Electronics Industry Show held recently in Los Angeles. Exhibits were also held by the San Francisco and Los Angeles Councils. The industry was represented by set manufacturers, component parts and electronic suppliers. Booth displays ranged from tubes to transmitters.

Lee Howard, Peerless Electric Mfg. Co. of Los Angeles, headed the show assisted by Sol Smith, secretary of the Los Angeles Council and Herb Becker, of Eitel-McCallough, Inc., secretary of the San Francisco Council. Bill Gudie is secretary of the association.

Replacements Items Released
Not everything in radio components and items is unobtainable. Lafayette Radio Corporation has brought out a 4-page folder #96, to inform service men of the new and available items. Many components and equipment have heretofore been scarce, and others have been out altogether. Both these obstacles have been overcome, and the new folder will at once show the customer need not wait for the duration for some of the items which have just been released by manufacturers.

Send your request for a free copy to the company at 901 West Jackson Blvd., Chicago.

More “B” Batteries
WPB announces that hearing aid batteries will again be authorized on an industry-wide basis. This means that, beginning with the fourth quarter of this year all of the five manufacturers in the industry, will make the items, through a unified basis.

This clears the decks so that dealers who handle these batteries will from now on be able to get their preferred brands from their regular sources of supply. Up to now only two of the manufacturers were allowed to produce hearing aid batteries for non-military use. Radio service dealers who have been taking care of hearing aids report a satisfactory volume of such business, with a good margin of profit.

WPB Change
Hiland G. Batcheller, Operations vice chairman of the WPB, announces L. J. Chatten is the new director of the Radio and Radar Division. Outgoing is Ray Ellis, who went back to General Motors, but will continue with WPB as consultant. Mr. Chatten is stepped up from a 16-month spell as assistant director of the division he now heads.

Heller of Insuline Passes
Alexander G. Heller, died recently after a long illness. He was treasurer and chief engineer of the Insuline Corporation of America, Long Island City, N.Y.

(Continued on page 43)
REPLACING WET ELECTROLYTICS WITH DRYs

In many cases—particularly in old sets—you can use Sprague Atoms (midget drys) in available Victory Line types to replace unavailable wet electrolytic capacitors. Atoms start, the gaff! A few precautions should of course, be observed, and these are described in the Sprague “Victory Line" Catalog 3-04. Write for your copy today.

WILL TRADE—G.E. self-charging port.
able radio for Knefel & Eiser, Log
Log Duplex Victor scale radio and 412.
Kinfeldham Shus, 3236-A. Newell, Ca.

WANTED—G. operated sig. generator—preferably Jackson or Supreme. Jack
Taylor, 500 E, Third St., Greenville, O.

FOR SALE—Eliott combination postcard
print and addresser, complete. A-1
shape $75. Joe H., Lipsey, 1538 S. 50th
Ave., Cicero 80, Ill.

WANTED—000-0-0-0-0-0 500 ma.
plate res. 000 000-0-0-00-0-0-0-00-0-0-0-0
5.50 yo. 500 ma. swing. choke
10. 16. 105 ty. 55” 5 16. 105 choke. 1. 5-20
for auto steering systems. 20. W.
Order, R. L. Box 360, Michigan City, Ind.

WANTED—Superior sig. generator
1238—Superior tube tester 1240— also
channel analyzer, H. G. Radcliffe, 1013
High St., Patsburg, Pa.

WANTED—all AC sig. generator, preferably Jackson or Tifflott; also
HTC—400-396-002 115, volt or comb.
2. J. Franklin Kirk, P.O. Box 221, Avon
Park, Fla.

WILL TRADE—Complete N. R. X code
control, in A-1 condition, including code
switches, code selector, oscillator and
chan., with speaker. Want 1250AT
250AT 300AT $10. Sprague, 1518 W.
14th St., Chicago 23, Ill.

WANTED—Auto radio, El Дер. eel
, test equipment, and sig. generator. John
Witlock, Box 8, 538 Tazewell Ave., McDo
nald, Ohio.

WANTED—Test used tubes: 15-09G9
16-061, 12-15. 50. 56. etc. Also 1 or 2 of
many other types. Augusta Electric
Shops, August, Ky.

WANTED—Sky Buddy, Elphonco EC-1,
4220, FS-1100, FM-1100, EM-1605
J & E/Ad. De, N.A., Narragansett Point, R.

WANTED—Abott Ditto, with or without
tubes, but must be perfect, Pat. Russell
Wever, 1523 Tip Top Ave., Torrance, Calif.

WANTED—Oliver typewriter #9, for
radio test equipment. McDowell Radio
Service, 309 W. Main, Roanoke, Va.

WANTED—Philco all-purpose set
test, combination test oscillator and mult.
imeter, 299; Rider manuals 1,2,3,4, 290
HCA manuals 1923 to 1937, $15; RCA
service manuals (any make), $1.50; testers
and related apparatus, $5.00; advertisers
for replacement any type tubes, $1.00 ea. Domonic Appliance
Service, Montauk Highway, Bridgehamph
n, N. Y.

WANTED—RCA Jr, voltomh 205A
and other test equipment. What have you.
Mike Paul, 1004 White Horse Pike, RD 1
Big Harbor, N. J.

FOR SALE—Readio Bates #540 all-
wave sig. generator, and Hileck elec
tronic tube tester. Want 25AC, battery,
cable adjustable stand, $25; 2 or 3 brand
new loops, bob coils, ammeters, meters. $2.50 ea. F. O. M. Porter,
1731 East Ave., Bridgeport, Conn.

FOR SALE—Webster deluxe record
changer (changes 16 records, 1” and 7” mixed) white model now box
101, 250, 250 $44; speaker, $2.50;
cable adjustable stand, 25; 2 or 3 brand
new loops, bob coils, ammeters, meters. $2.50 ea. F. O. M. Porter,
1731 East Ave., Bridgeport, Conn.

FOR SALE OR TRADE—Slightly used,
Stromer 108 watt phone and CW
transmitter, with set of coils and crystals,
tubes, and meters. Modulator section can
be used as 14 watt P.W. or with

FOR SALE OR TRADE—SX-38 Hallicrafter,
with condenser tester and side box.
Wand chantelist and 1017 GP receiver.
Gift North Main St., Webster, N. Y.

FOR SALE—U.S. used radio. Describe
fully John Hradil, RD #1, Monaca, Pa.

URGENTLY NEEDED—Multimeter and
generator in A-1 condition. Stereo
W. C. Graham, 505 Oak St., Reading,
Pa.

WANTED—Readio Bates, 2000 user,
1250AT, $10. McPherson, 1219 S. 11Th
St., Madison, Minn.

FOR SALE—Couch-Brengle 25 test os
tication, brush type grid injector, $25;
35W; new F.M. radio phonograph,$125;
25W; table model $50 to $65. Lorraine
auto spot-light, 28; J. Larson, 14 East
50th St., New York, N. Y.

FOR SALE—2-SAT, 2-T49, 2-T48, 2-T75,
2-T79, 2-T131, 1-SAT, 1-SAT, 1-SAT, 1-SAT,
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PEACE ALERT

Your meter needs, 50 microamperes to lots of amperes, we can fill. These needs are coming to every electronics expert. Repair, maintenance or test will call for meters as never before.

HATRY and YOUNG, aware of this trend, alerted early for war, are alerted equally early for peace and your postwar needs. We have the meters and can take care of you.

Your jobber must be alert not only to your condenser, resistor, transformer, speaker and tube needs. He must be ready for all your needs. Count on H & Y. We are ready.

Test equipment on hand. Good stocks of all kinds of things to keep you profitably in action.

Still your best bet for replacements

Centralab
VOLUME CONTROLS

"Old Man Centralab
"Old Man" is right . . . for he is a real "old timer". There is no substitute for experience, and the "Old Man" now, as in the past twenty-two years, is still your best bet.

EXHIBITORS

Booth No.
1. Trimm, Inc.
2. General Transformer Corporation
3. Presto Recording Corporation
4. Allen B. DuMont Laboratories
5. Specialties Manufacturing Company
6. Continental Electric Company
7. Industrial Condenser Corporation
8. Electronic Laboratories, Inc.
9. Manufacturers Screw Products
10. DeJur Amsco Corporation
11. Peerless Electrical Products Co.
12. Radio Electronic Parts Jobber*
13. Hugh H. Eby, Inc.
15. Cornish Wire Company, Inc.
16. Par-Metal Products Corporation
17. Wm. J. Murdock Company
18. The Representatives
19. S-W Inductor Company
20. Kato Engineering Company
21. Radio Service Dealer*
   Cowan Publishing Corp.
22. Stromberg-Carlson Company
23. Stanwyck Winding Company
24. Fonda Corporation
25. Jefferson Travis Radio
27. Jackson Electrical Instrument Co.
29. Noma Electric Company
30. Walter L. Schott Company
31. The Recordisc Corporation
32. Price Brothers Company
33. Airadio, Inc.
34. Ken Rad Tube & Lamp Corp.
35. Garrard Sales Corp.
36. Vasco Products Co.
37. Gothard Manufacturing Company
38. Simpson Electric Company
39. Duotone Company
40. Operadio Manufacturing Co.
41. Tung-Sol Lamp Works
42. The Astatic Corporation
43. Drake Electric Works, Inc.
44. Webster Products
45. Radio & Television Retailing*
46. National Company, Inc.
47. Radio City Products Co., Inc.
48. The Rauland Corporation
49. Merit Coil & Transformer Corp.
50. The Grenby Manufacturing Company
51. John Meck Industries
52. Rek-O-Kut Company
53. Amperex Electronic Corporation
54. Eicor, Inc.
55. Supreme Instruments Corporation

* Publishers

(Continued on page 42)
EARLY COMMUNICATIONS BY AIR

While electronics use the ether and other media, one of the most speedy methods of communications in the early days was through the air by carrier pigeon. With a finely printed note fastened to the leg, these birds faithfully reached home to bring in the latest news events and stock market reports.

Today news commentary reaches into your homes in a flash of a second via electronic voice communications making use of the various types of Universal broadcast microphones. This being a modern age, the battle front is brought into the homes of the informed peoples of the democracies via military microphones such as those now being manufactured by Universal for the Allied Armed Forces.

< Model 1700-UB, illustrated at left, is but one of several military type microphones now available to priority users through local radio jobber.

UNIVERSAL MICROPHONE COMPANY
INGLEWOOD, CALIFORNIA
Time-proved, battle-proved, service-proved...Ohmite Brown Devils and Adjustable Divid-ohms are used today in critical war equipment. After Victory these dependable units will again be the favorite of radio servicemen who want and use the best for resistor replacements.

For information about these and other Ohmite Resistors, write for Stock Unit Catalog 18.

**Multi-Tester**
(from page 25)

![Diagram of Multi-Tester](image)

where \( R_o \) is the shunt valve for that tap.

Thus for a 0 to 1 milliampere meter having 33 ohms of resistance and using \( R_o \) of 67 ohms, \( R_{sh} \) is 100 ohms.

\[
R_{sh} = 25 \text{ ohms for a 0 to 5 milliampere range. For a 25 milliampere range, } 25 + 100 \]

\[
= 5 \text{ ohms (from formula 7)}
\]

And for a 100 milliampere range \( R_o \) is 1.25 ohms. Such an arrangement used on the Simpson model 260 is shown in Figure 24.

**VOLT-METER RANGE SELECTION**

Meter scales are usually calibrated with a guaranteed 2% or 5% accuracy. This should actually be expanded to signify 2% or 5% of the full scale reading. This means that the meter error at any point over its range may be that percentage of the full scale reading, not that percentage at the portion of the scale to which the meter has deflection. Thus a meter calibrated for from 0 to 100 milliamperes may at 100 milliamperes actually signify for a meter of 5% accuracy, either 95 or 105 milliamperes, or any value between. At 10 milliamperes through the meter, scale indication may range from 0 to 15 milliamperes and still be within the rated accuracy of the meter. Most meters are considerably better than that rating implies. It is to be seen from this that greater accuracy is more likely to be found beyond half-scale readings.

To be able to measure any value of a group of voltages at beyond half-scale would thus require no more than a 2-to-1 overlap of ranges. If the number of ranges on the instrument is limited, then the ranges should be so designed that for the usual voltages to be measured the upper half of the scale will be used. For instance, voltages between 100 and 200 should be measured on the 200-volt scale; voltages from 250 to 500 on the 500-volt scale. And note that measuring 100 volts on a 500-volt scale will not be as accurate as measuring 100 volts on a 200-volt scale.

---

Announcing a change of name!

Henceforth, the Lafayette Radio Corporation (Chicago and Atlanta) will be known as the **CONCORD RADIO CORPORATION**

The Lafayette Radio Corporation has, for 22 years, been one of the well-known names in radio and electronics. Our policies and our personnel, our reputation for integrity and outstanding service to our customers have enabled us to become one of the nation's great arsenal of radio and electronic equipment. In announcing the change of name to the Concord Radio Corporation, we emphasize that the name only is affected. To our thousands of customers, we promise a continuance and broadening of our organization and our policies. With the advent of new and greater horizons in electronics, the Concord Radio Corporation, will blaze new trails in engineering achievement and customer services. Watch for our future advertisements, and be sure that your name is on our list to receive postwar literature and catalogs.

**SEND FOR HANDY OHM'S LAW CALCULATOR**

Figures ohms, watts, volts, amperes—quickly, accurately. Solves any Ohm's Law problem with one setting of the slide. Send only 10c in coin for handling and mailing. (Also available in quantities.)

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OHMITE MANUFACTURING CO.
4845 Flournoy Street - Chicago 44, U.S.A.

Be Right with OHMITE
RHEOSTATS • RESISTORS • TAP SWITCHES

---

CONCORD RADIO CORPORATION
901 W. Jackson Blvd., Dept. K-10
Chicago 7, Ill.

CONCORD RADIO CORPORATION
901 W. Jackson Blvd., Dept. K-10
Chicago 7, Ill.

Please rush me the new 16-page "Special Flyer" just published by the Concord Radio Corporation.

NAME

ADDRESS

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STATE

Just off the Press!

NEW, 16-PAGE "SPECIAL FLYER": . . . a last-minute compilation, by the CONCORD RADIO CORPORATION, of hard-to-find components and equipment for Industry, service men, training schools, etc. MAIL COUPON TODAY.

CONCORD RADIO CORPORATION
901 W. Jackson Blvd., Chicago 7, Ill.

Lafayette Radio Corporation
901 W. Jackson Blvd., Chicago 7, Ill.

Radio Service Dealer
RACONS Invaded Normandy

The finest and most dependable air column horns and speakers made... RACONS... are doing their bit to hasten V-Day. In war plants, aboard Army and Navy vessels, on planes, at training camps and airports many different types of RACON, each ideally suited for its purpose, gives peak efficiency, regardless of weather condition or climate.

Built into RACONS are exclusive patented features found in no other line of sound reproducing equipment. Pioneers in the making of horns and speakers, with a type for every purpose, you can rely upon RACON regardless of your need. Simply tell us what you have in mind.

Send for our catalog
EXHIBITORS
(from page 38)

Booth No.
56. The Brush Development Company
57. Karp Metal Products Co., Inc.
58. Marion Electrical Instrument Co.
59. Freed Transformer Company
60. United Catalog Publishers
61. Wm. Brand & Company
63. Electric Soldering Co., Inc.
64. Gudeman Company
65. P. R. Mallory
67. David Bogen Co., Inc.
69. Service & Communications Magazine
70. Solar Manufacturing Corporation
71. Corning Glass Works
72. American Radio Hardware
73. Radio Essentials, Inc.
74. General Electric Company
75. University Laboratories
76. Radio Mfg. Engineers, Inc.
77. Shallcross Manufacturing Company
78. Taylor Tubes, Inc.
79. Coto-Coil Company, Inc.
80. Audio Devices, Inc.
81. Webster Electric Company
82. Micamold Radio Corporation
83. Vasco Electrical Mfg. Company
84. Precision Apparatus Company
85. Radiart Corporation
86. Sylvania Elec. Products Co.
87. American Phenolic Corporation
88. Ohmite Manufacturing Company
89. Shure Brothers
90. Aerovox Corporation
91. John F. Rider, Publisher
92. RCA Victor Division of RCA
93. E. F. Johnson Company
94. Ward Leonard Electric Company
95. Hickock Electrical Instrument Co.
96. American Condenser Company
97. Clarostat
98. United Transformer Company
99. Insuline Corporation of America, Inc.
100. Meissner Manufacturing Company
102. The Hallidrson Company
103. Wirt Company
104. Electro Products Laboratories
105. The Erwood Company
106. FM & Television Magazine
107. Sprague Products Company
109. Quam Nichols Company

Products of
"THE HOUSE OF RESISTORS"

★ Wire-wound or composition-element volume controls, T-pads, L-pads, mixers, etc.; power rheostats; constant-impedance output attenuators; power resistors; flexible resistors and glass-insulated resistors; voltage-divider resistor strips; metal-tube ballasts and resistors—these and other resistors, controls and resistance devices, comprise the exceptionally complete line of CLAROSTAT — products of "The House of Resistors."

★ Consult Our Jobber

CLAROSTAT MFG. CO., INC. - 285-T N. 6th St., Brooklyn, N.Y.

Radio Service Dealer
In Trade
(from page 36)

Mysing Heads RCA Auto-Radio

Thomas F. Joyce, general manager of RCA Victor's radio, phonograph and television department, announces the appointment of Herman D. Mysing as manager of sales and engineering service for the company's auto radio department, with headquarters in Detroit, where he is widely known in the motor car industry. Formerly Mr. Mysing was assistant chief engineer of Grigsby-Grunow's Majestic radio division.

Award to Westinghouse

High awards—a fourth renewal of the Army-Navy "E"—have been achieved by two plants of the Westinghouse Electric and Manufacturing Company, Philadelphia, Pa. One hundred thousand plants in the country are eligible to try for "E" awards, but only 3,000 (3 per cent) of them have won "E's" and only 176 a fourth renewal.

New Plant

Charles H. Koch, president, announces completion of a new plant at 4427 North Clark Street, Chicago, which will greatly increase the Merit Coil & Transformer Corporation's present capacity for producing precision radio parts.

Pyramided Orders Risky

Don't pyramid orders! Such is the warning issued to radio parts jobbers by Charles Golenpaul who heads the jobber sales for Aerovox Corporation of New Bedford, Mass.

C o l. S. W. Stanley, Signal Corps Chief, Signal Branch, Forward Echelon, Ninth Service Command, who presented the award; James L. Fouch, Universal Microphone Company president, who accepted it; and Lieut. Commander Edwin F. Keyes, USNR, assistant inspector of naval war materials, Los Angeles District, who gave the award citation. Shown left to right.

Risky

Don't pyramid orders!

The Publishers of RADIO SERVICE DEALER are proud that over 85% of the Nation's leading Service Dealers are paid subscribers. "RSD" has and will consistently carry exclusive, factual articles that progressive Service Dealers agree are well worth the low subscription price of $2 for 12 issues or $3 for 24. A few new subscribers can be accepted. Tell your associates. Meanwhile, renew your own subscription as soon as you are notified it is about to expire. Cowan Pub. Corp., 342 Madison Ave., New York 17, N. Y.

Subscribe NOW to "RSD"

A 1-year subscription to RADIO SERVICE DEALER costs $2.00—2-year subscription costs $3.00.
However, this betting on several horses may not work out as intended.

"In the first place you can't fool the manufacturers. Most of them can spot pyramided orders, know who is shopping around for delivery 'breaks.' And then there is such a thing as loyalty in the jobbing business; when the war rush is over, loyal jobbers will remain the favored sons and be treated accordingly.

"In the second place, please remember that all manufacturers truly backing the war effort must average about the same on jobber deliveries. One may do a bit better this month on this item, another on that item, and so on; but as a whole, month after month, most manufacturers will average out about the same.

"Besides, conditions are rapidly changing. The war is reaching a final phase. Parts manufacturers may soon be catching up on their jobber backlog. It is possible that pyramided orders may come home to roost in a sudden flood of shipments and billings—and someone will be hurt. Therefore, please play fair. Play safe. Don't keep on pyramiding those orders!"

Meissner Radio Cabinets

G. V. Rockey, executive vice president, announces that Meissner Manufacturing Co., Chicago and Mt. Carmel, Ill., engaged Frank C. Lee, the furniture and industrial designer, to create deluxe cabinets to house the super radio-phonograph the company will bring to the upper-income market immediately after the war.

Crockett to Merit Coil

Charles H. Koch, president of Merit Coil & Transformer Corp., Chicago, announces the appointment of John I. Crockett Jr., as sales manager. Previous with Thodarson Electric Mfg. Co., Mr. Crockett brings to Merit a long background of sales and distribution experience.

Although now devoted to the war effort, the company is perfecting plans for post-war manufacturing and distribution. In addition to sales development and the creation of a distributing organization, Mr. Crockett will also handle all expediting of current production.

Emerson Radio Lauded

Emerson Radio and Phonograph Corporation, New York, received a citation issued by the "Financial World," "Highest merit award . . . for distinguished achievement in annual reporting . . . in recognition of the excellence of its 1944 Annual Report . . . which was judged as among the most modern from the standpoint of content, typography and format of the 1,000 annual reports examined during 1944."

Fourth "E" to Hallcrafters

The Hallcrafters Co., Chicago, won for the fourth time the Army-Navy Production Award for outstanding achievement in producing materials essential to the war effort. This marks the first time that a manufacturer of radio exclusively has been so recognized.

Notes

Art Gerf & Co., manufacturers' representatives, have been larger advertisers and are now located in the National Newark Bldg., 744 Broad St., Newark 2, N. J.

Universal Microphone Co., Inglewood, Cal., has purchased the physical properties of the plants it has occupied the past twelve years, according to a statement released by James L. Fouch and Cecil L. Sly, president and vice-president, respectively.

Glenn C. Henry, formerly chief of the Audio and Industrial Section of the Radio and Radar Division of the War Production Board, has been appointed to the staff of the Sound Equipment Section of the Radio Corporation of America, in charge of sales of engineered sound systems and components.

Radio and Electronic Book Guide

Reference books on radio and electronics have grown in number, and to aid in the rapid selection of books by title, author, publisher, subject, or application, Allied Radio Corp., Chicago, has released for free distribution a booklet containing a wide selection of publications. Listings cover elementary fundamentals to advanced practices for beginner, student, radio amateur, instructor, technician, service and maintenance man and engineer. For a free copy, address the firm at 833 West Jackson Blvd., Chicago 7, Ill.

$3,000,000, 000 Yearly

Emerson Radio and Phonograph Corporation's president, Benjamin Abrams, predicts that postwar demand for radios and allied products would result in expansion of the industry's volume to $3,000,000,000 annually, compared with about $350,000,000 before the war.

Operating on such an expanded scale, the radio industry will not only be in a position to take back former employees who left to enter the service, but should be able to absorb an additional 500,000 men. These will include those actually engaged in production, as well as thousands of technically trained men of the armed forces who will be particularly fitted for positions.
as dealers, salesmen and servicemen.

The return to normal business activity will be more than a temporary spurt. Even operating at an accelerated rate, it will take years to catch up with expected postwar demand. Mr. Abrams estimates that current demands would call for 25,000,000 sets, and that to this will be added a normal demand of 12,000,000 sets per year, to say nothing of exports which also will be large. This compares with the industry's prewar capacity of about 16,000,000 sets annually.

Since reconversion in the radio field is a relatively simple matter, civilian production can be resumed shortly after restrictions are lifted and materials are made available. In this there should be no unnecessary delay.

HIRING AID FOR SERVICE DEALERS

Three steps, as foreseen by the government, will take the country to and into V-Day, when full peacetime conversion will be permitted. Step 1—defeat of Germany (referred to as V-E Day). Step 2—defeat of Japan. Step 3—will begin on V-Day and will carry us from war to peace and full employment. Restrictions and controls will be taken off, and according to Paul V. McNutt, the following agencies will function to distribute the benefits of intensive military training in radionics, either for the shop, or as experts in selling special items of equipment outside, and an ever-growing and general desire for goods of the latest styles. Here's how the agencies are expected to function (come V-E Day) for the man who hires and for the man who is hired:

1. At least one million local employment offices plus over 2,000 traveling units. This will give the widest possible coverage throughout the country for referring displaced workers and veterans to available jobs.

2. A nationwide system of job-clearance whereby local employment offices are kept notified of jobs in other parts of the country.

Thus radio service and appliance dealers who may list their requirements for labor in their own community will have the benefit of getting their needs broadcast to nearby communities as well, and they can pick the best men for any jobs they may have open. There is something in the new set-up that provides for the voluntary transfer of workers from one area to another, wherever a job opportunity exists for which their training and experience has fitted them.

Anyway, thus it will be, Mr. McNutt, who is chairman of the War Manpower Commission, at a recent conference of the American Management Association. We've dubbed-in the parts about radio service and appliance dealers.

Other rulings: Veterans of the present war (and that means radio and communications-trained men) will not be required to get or present statements of availability in order to change jobs. Furthermore, the veterans may be hired without regard to employment ceilings. But—none but veterans of the present war may be (with few exceptions) hired where local employment is at or above the established ceiling.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

OF RADIO SERVICE DEALER, published monthly at East Stroudsburg, Pa., for October 25th, 1944.

State of New York | ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Sanford R. Cowan, who, having been duly sworn according to law, deposes and says that he is the Business Manager of RADIO SERVICE DEALER, and that the following is the true and correct statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of Congress of August 24, 1912, and as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, to wit:

1. That the name of the paper is RADIO SERVICE DEALER. It is published at East Stroudsburg, Pa., and at no other place. Its regular period is monthly.

2. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of the total amount of bonds, mortgages, or other securities, are: None.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of the total amount of bonds, mortgages, or other securities, are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the exact number and character of stock and stockholders under which stock and stockholders who do not appear upon the books of the company as trustees, hold stock, and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, corporation, association, or fiduciary relationship has any interest direct or indirect in the said stock, bonds, or other securities than as stated by him.

(Signed) SANFORD R. COWAN, Business Manager.

Sworn to and subscribed before me, this 5th day of October, 1944.

(Signed) JUNE D. STERN, Notary Public.


October, 1944.
Where Time Doesn't March On . . .

... unless you step in now to help men in German prison camps fight that deadly "barbed wire" boredom

The clock has a hundred hours on its dial and each hour has 600 minutes when you're penned behind barbed wire.

Nothing to see but that wire, the barracks' wall, and a sentry's back. Nothing to hear but the tramp of his feet, the beeps of your comrades.

So you go slowly, grimly, and sometimes not-so-quietly, progressively towards the "barbed wire disease" unless...

Unless you're lucky enough to have the folks back home get behind the War Prisoners' Aid (one of the 22 participating agencies of the National War Fund) and provide the money to provide the things to feed the hunger of your heart and soul and mind.

Books and baseballs and tennis rackets. Textbooks and technical equipment so you can continue studies the war interrupted. Grease paint and playscripts for your own camp shows. Games of every sort. Anything and everything it's humanly possible to provide to start Time marching on again.

This is just one of the many vital jobs your contribution helps to take care of—when you support the National War Fund by giving to your New York War Fund. Your dollars go to work on six continents and in ninety-one countries—_including your own_, because this united campaign covers the big home-front needs too.

And don't just give a "token" contribution. The job is too big for that. Give—really give! Remember that no matter how much any of us gives in money it's still little compared to what the people you'll help have been giving in "blood, sweat, and tears."

GIVE GENEROUSLY TO YOUR

New York War Fund

_REPRESENTING THE National War Fund AND 9 LOCAL WAR SERVICE AGENCIES_
EXHIBITORS

(from page 42)

Booth No.
110. Raytheon Manufacturing Company
111. Belden Manufacturing Company
112. Centralab
113. The Hallicrafters Company
114. Standard Transformer
115. Radio & Electronic Jobber News
116. United Electronics Company
117. Radiotone, Inc.
118. Barker & Williamson Company
119. Technical Appliance Corporation
120. Mark Simpson Manufacturing Co.
121. Utah Radio Products Company
122. Eitel-McCullough, Inc.
123. Hammarlund Mfg. Company
124. Communication Products Co., Inc.
126. Bud Radio, Inc.
127. Atlas Sound Corporation
128. Park Metalware Company, Inc.
129. Cinaudagraph Speakers
130. Bell Sound Systems
131. Dial Light Company of America, Inc.
132. The Turner Company
133. Cornell Dubilier Elec. Corp.
134. The Capacitron Company
135. International Resistance Co.
136. Electronic Corporation of America
137. Radcraft Publications, Inc.*
138. Worner Electronic Devices
139. Haines Manufacturing
140. Burgess Battery Company
141. Weston Electrical Instrument Corp.
142. Alpha Wire Corporation
143. Universal Microphone Company
144. Lectrohm, Inc.
145. Harry A. Ungar, Inc.
146. American Radio Relay League
147. Racon Electric Co., Inc.
148. Philmore Manufacturing Company
150. The Wilcox-Gay Corporation
151. Bliley Electric Company
152. Ware Products Corporation
153. DuMont Electric Company
154. National Union Radio Company
155. Carron Manufacturing Company
156. Carter Motor Company
158. Continental Carbon, Inc.
159. J. F. D. Manufacturing Company
A National Electronic Distributors Assn.

* Publishers

(Continued on page 42)
Men in the News

Sol W. Berk

Lafayette Changes to Concord Radio

A change in name from the Lafayette Radio Corporation of Chicago and Atlanta, to the Concord Radio Corporation is announced by Samuel J. Novick. From the executives down the personnel will remain the same. Sol W. Berk is manager. No changes will be made in policy or service. New electronic developments will soon be announced by the company. To make sure to get current and postwar catalogs and announcements, dealers might address the company (new name) 901 West Jackson Blvd., Chicago 7, Ill.

Meissner Appoints Hutmacher

G. V. Rockey, executive vice president, announces appointment of Ray R. Hutmacher as district manager of the Meissner Manufacturing Co., Mt. Carmel and Chicago, III. Mr. Hutmacher began his career in the radio business in 1926, and recently resigned as manager of the Midwestern division of Utah Radio Products Co., Chicago. He will make his headquarters at the company's Chicago office, which is headed by Eden F. Jester, vice president.
The United States Navy has created a special award of merit. This certificate of achievement was presented to the Radar-Radio Industries of Chicago in a colorful ceremony at Wrigley Field on Sunday, September 10th, for their extraordinary contribution to the successful prosecution of the war. The Galvin Mfg. Corporation, manufacturers of Motorola F-M radio for home and car, is proud of its membership in the Radar-Radio Industries of Chicago . . . and also proud of the part it has been privileged to play in the winning of this signal honor.

Since considerably before Pearl Harbor, Motorola has designed, built and delivered military radio communications in great quantity among which are the famous "Handie Talkie" (an exclusive Motorola Radio First) and the equally celebrated F-M "Walkie Talkie." When victory has been won Motorola's greatly expanded production facilities will be available for the immediate production of Home and Car Radio, Portables and Automatic Phonographs.

BUY ANOTHER WAR BOND TODAY!

GALVIN MANUFACTURING CORPORATION, CHICAGO 51

Motorola Radio
F-M HOME & CAR RADIO • AUTOMATIC PHONOGRAPHS • TELEVISION • F-M POLICE RADIO • RADAR • MILITARY RADIO COMMUNICATIONS
THE ELECTRONIC AUTOMATIC PILOT BRINGS THEM THROUGH WITH RAYTHEON TUBES

The electronic automatic pilot, pioneered and developed by Minneapolis-Honeywell, is one of the most significant advances made in aircraft science. Developed to keep bombers on a straight course in their bombing run, the electronic automatic pilot promises safer and more efficient flight for airlines... and, because this device must operate with complete reliability at all times, Minneapolis-Honeywell uses thousands of Raytheon tubes.

The special wartime experiences of Raytheon Manufacturing Company in devising and producing advanced electronic tubes for the war effort, means that you will be able to offer your customers the best tubes for all applications. Because you have the best tubes, you will have better customer goodwill, faster turnover and greater profits.

Raytheon Manufacturing Company
RAD O RECEIVING TUBE DIVISION
Newton, Massachusetts • Los Angeles • New York • Chicago • Atlanta