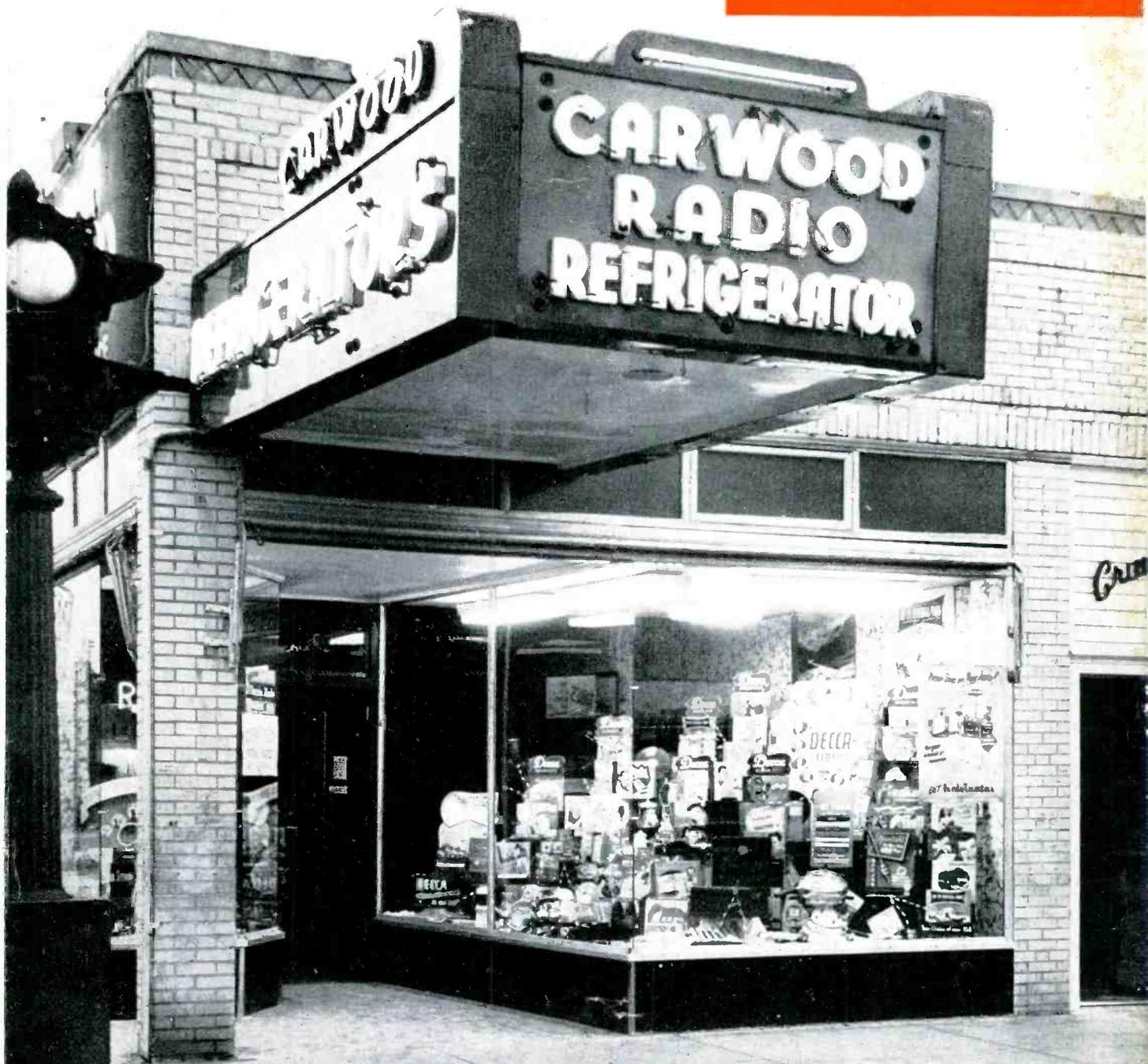


radio service dealer



In
This
Issue:

BACKGROUNDS FOR MORE SALES

The "White" Market

Pricing the Job

Ads Get Customers

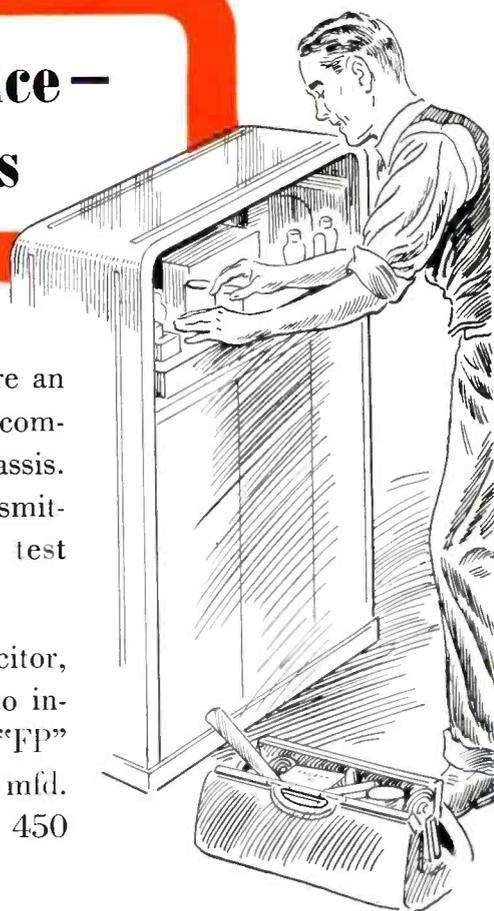
**August
1945
25c**



To Earn Customer Confidence— Use Mallory "FP" Capacitors

COMPACT, precision-built, hermetically-sealed, they're an official standard of the RMA. No other capacitors can compare with them for vertical mounting on top of the chassis. That's why you'll find them in so many radio transmitters and receiving sets — in laboratory equipment, test instruments too!

So when it comes time to replace an "FP" type capacitor, make sure a Mallory "FP" goes in. Long on life, easy to install, no other capacitors do the job so well. Mallory "FP" Capacitors are available in ratings from 10 mfd. to 3000 mfd. at operating voltages from 10 volts (3000 mfd.) to 450 volts. See your Mallory distributor!



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

*More than ever—
ALWAYS
INSIST ON*

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

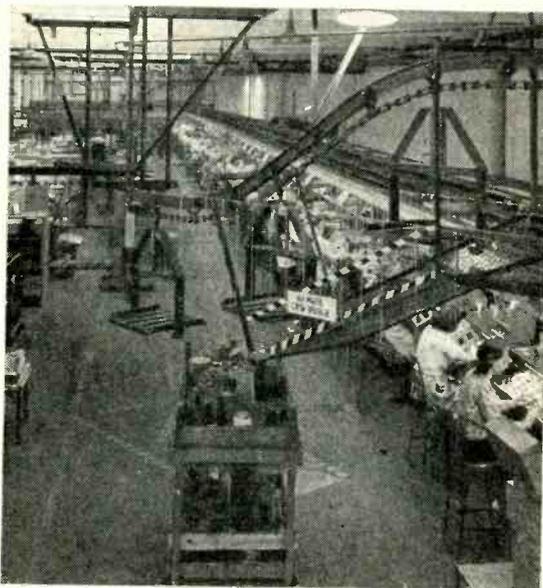
VIBRATORS • VIBRAPACKS* • CONDENSERS
VOLUME CONTROLS • SWITCHES • RESISTORS
FILTERS • RECTIFIERS • POWER SUPPLIES

ALSO MALLORY "TROPICAL"* DRY BATTERIES, ORIGINALLY DEVELOPED BY MALLORY FOR THE U. S. ARMY SIGNAL CORPS, NOT PRESENTLY AVAILABLE FOR CIVILIAN USE.

*Trademarks

*Why is Sparton Radio's most desirable Franchise?

- ④ Sparton's exclusive dealership policy under the S.C.M.P. gives dealers the power to sell against any competition—at a profit.
 - Sparton has built consumer acceptance with strong national advertising.
 - Sparton has back of it a strongly financed company with 45 years experience in precision electrical equipment manufacturing.
 - Sparton has 5 modern, fully equipped plants capable of producing large volume with no sacrifice of quality.
 - Sparton engineers have made many famous contributions to radio — and the new line will be equally advanced.
 - Sparton has always been a pioneer in sales features.
 - Sparton has been a favorably known name in radio for 20 years.
- * Recent advertisement announcing Sparton dealerships were open in some territories received over 300 phone calls, more than 600 wires and approximately 4,000 letters.



A view of one of the Sparton assembly lines. Equipped with the most up-to-the-minute precision equipment available. Many of the machines were specially designed by Sparton engineers to insure peak production with maximum inspection. 5 plants have been modernized throughout, providing unequalled facilities for manufacture of quality radios.

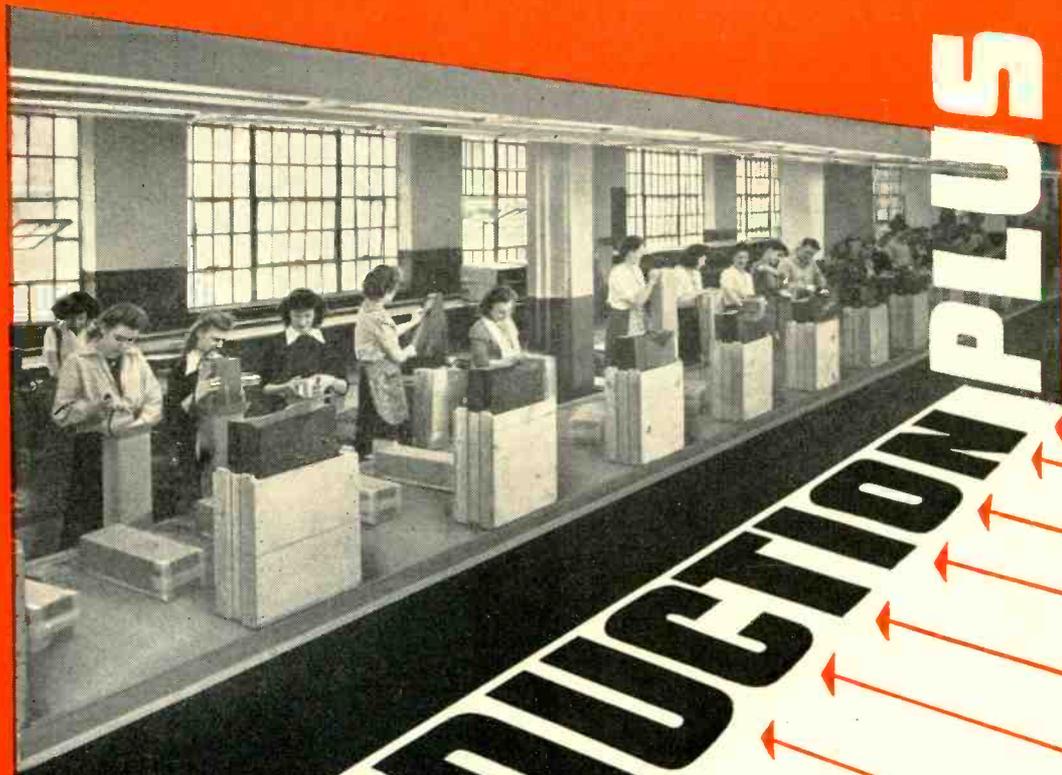
Write today for complete information on S.C.M.P. for your community!

Address: Ed. Bonia, Sales Manager, Radio and Appliance Division

THE SPARKS-WITHINGTON CO., JACKSON, MICH.

SPARTON

RADIO'S RICHEST VOICE SINCE 1926



STARTING GUN BOOMS

PRODUCTION PLUS



At Detrola Radio, the pouring forth of hundreds of thousands of salable units when the starting gun booms will not be enough. The radio receivers, automatic record changers and other fine-featured products from our plants must blend service and beauty . . . express ingenuity even in details such as engineered packaging for safer transit . . . all to serve America's foremost merchants.

The distinguished Detrola record changer, better than ever, will be made for selected radio manufacturers and jobbers.

DIVISION OF INTERNATIONAL DETROLA CORPORATION • Detroit 9, Michigan

Detrola Radio

RADIO SERVICE DEALER

radio service dealer

Member Audit Bureau of Circulations

Covers all phases of radio,
phonograph, sound and elec-
trical appliance mer-
chandising and servicing

VOLUME 6 NUMBER 8

AUGUST, 1945

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Cover: Suburban Dealer "Merchandises"
Location (See page 38)

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10,000 PARTS

Ten thousand different radio and electronic parts
immediately available on priorities

EAST SERVICE

Trained expeditors select and ship same day
your order is received

SINCE 1922

Known since 1922 as reliable jobbers, wholesalers and
manufacturers of radio and electronic equipment

**Radio Wire
Television Inc.**

World's Largest Radio Supply House

100 Sixth Ave. (Dept. S-8) New York 13, N. Y.

Boston, Mass.

Newark, N. J.

Originators and Peacetime Marketers of the Celebrated

Lafayette Radio

Write today for our bargain flyers and special bulletins

you mean I may soon get more tubes?



Nothing would please both of us more than for Hytron to be able to reply with certainty: "You bet, soon you will be getting all the tubes you want." . . . BUT!!! (No doubt you sensed that "but" coming.) The Jap war still must be finished. Hytron's production schedule for the Navy alone is tremendous.

Even so, the outlook is not so black as it has been. Already Hytron is shipping promptly rated jobber orders for most of the popular BANTAM GT receiving tubes it is making. Transmitting and special purpose tubes are being rushed out from stock. Whenever relaxed military demands permit, Hytron will continue *and increase* its allocations of receiving tubes to its authorized distributors.

WPB thinking favors shipment of replacement tubes before those for new radios; a given amount of replacement tubes makes operative four or five times as many sets. Stepped-up replacement tube shipments should result, if the war goes well.

So, cheer up, things *are* getting better all the time. Although we cannot be definite about types or quantities, chances are good that you may soon be getting more tubes and more types than you have been.

**HYTRON HYLIGHTS
YOU WILL WANT THESE**



New Hytron transmitting and special purpose tube catalog.



New 21 by 17 inch sheet showing step by step assembly of a typical Hytron radio tube.

Both the catalog and the assembly sheet may be obtained free of charge by writing today to Dept. 17, Hytron Radio & Electronics Corp., Salem, Mass.



BUY ANOTHER WAR BOND



OLDEST MANUFACTURER SPECIALIZING IN RADIO RECEIVING TUBES

HYTRON
RADIO AND ELECTRONICS CORP.

MAIN OFFICE: SALEM, MASSACHUSETTS
PLANTS: SALEM, NEWBURYPORT, BEVERLY & LAWRENCE

RADIO SERVICE DEALER

with the publisher.....

Returning Normalcy

IMMEDIATELY after V-E Day, conditions in the radio-appliance field improved. With V-J Day—one realizes that our field will return to normalcy.

The Armed Forces have released, and are about to release, thousands of radio-trained technicians. Some have taken jobs with service-dealers; others are starting their own businesses. These boys learned plenty about radio from Uncle Sam, so don't discount them. Replace-

ments, except tubes, are easier to get. (The tube picture is getting brighter). Soon appliances and receivers will roll off production lines. Thousands of department, specialty and automotive stores which have been out of the radio-appliance game for several years are now bouncing back with a sockeroo. Competition is going to be keener than ever. That's what we mean by "returning normalcy". Aggressive, progressive firms can succeed — others risk extermination. Are you on your toes?

Is "Service" Fading?

SEVERAL subscribers to RADIO SERVICE DEALER have written us saying that they have noticed that the word "Service", as used in our magazine's title, has become fainter recently and they question whether it is an indication that we are going to desert the servicing phase of this business or reduce the amount of editorial effort put forth regarding technical maintenance aspects. The answer, emphatically, is NO!

Approximately half of our text section has and always will be devoted to servicing. In fact, you'll note that we have consistently increased the number of text pages in "RSD". Comparison with other trade journals shows that for five consecutive years "RSD" has published each year more pages of technical data than any

two other competitive trade journals combined.

Many technicians established service shops with the idea in mind of eventually becoming dealers, for dealers seem to make more money. Most dealers appreciate that service is a basic part of their business. Some specialty dealers, like department or furniture stores, are primarily interested in selling, prefer to "farm out" service work to shops engaged exclusively in servicing. It sums up thusly—our job is to help ALL service-dealers win that measure of success they aspire to. There must be dealers and there must be servicing. It will aid technicians if they know more about merchandising methods and dealers will benefit and profit if they have a better understanding of the technical and service-management sides of their business.

Assuring Greater Prosperity

BEFORE the war, according to Dep't of Commerce statistics, there were about 66,000 radio-appliance dealers of all types, about 37,000 of which were independent dealers, the others department, specialty and chain stores. There were also approximately 26,000 independent service organizations, many being one-man shops. And there were over 50,000 part-time technicians, some very smart technically, others nothing more than ginks who thought they knew something about fixing things.

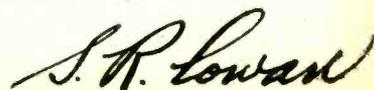
As a result of over-crowded conditions pre-war, and also because of extremely low-priced merchandise, most radio-appliance dealers and servicers did not fall into the higher income brackets although they participated in a billion-dollar-a-year industry.

The war weeded out part-timer dub servicers. Scarcity of merchandise eliminated numbers of dealers. So, as we are all about to start afresh, what can we do to assure our respective futures? Free enterprise cannot be restrained so the answer is simple: we must correct faults that have in the past tended towards keeping our

income down. The following measures would help accomplish that end:

Part-time repairmen must be kept out of the field. Jobbers can aid in this regard by demanding list prices from ALL customers except legitimate, store-operating service dealers. Retailers and manufacturers will help by stressing the sale of better merchandise rather than by merely trying to make and sell things as cheaply as possible. Statistics prove a \$5 radio will play as long as a \$100 one.

Maximum book-value trade-in allowance standards should be established by manufacturers' associations, and dealers should abide by them faithfully. Servicers will help by maintaining higher standards at fair prices. Dishonesty and misrepresentation by dealers or servicers must be eliminated from and kept out of the radio-appliance fields. The public's respect must be won. When it is, we all will enjoy more leisure and greater earnings.



What makes a Franchise Worthwhile?



MARION .. OFFERS YOU THIS DESIRABLE SET-UP TO START WITH:

- A QUALITY PRODUCT!
- SOUNDLY MERCHANDISED!
- COMPETITIVELY PRICED!
- ADEQUATELY PROTECTED!
- EXTENSIVELY ADVERTISED!

The Marion line of electrical indicating instruments is famous for its advanced design, extreme reliability and completeness. Extensive advertising is constantly making new friends for Marion and you. Furthermore, we provide an unbeatable merchandising package, built around the new "MeterTester", which will be of incalculable aid in selling more instruments.

This is the raw material a Marion Franchise offers. It's worthwhile material . . . for present and post-war business. For complete details, write to our JOBBER SALES DIVISION.



MARION ELECTRICAL INSTRUMENT CO.
MANCHESTER, NEW HAMPSHIRE

Jobber Sales Division: Electrical Instrument Distributing Co.
458 BROADWAY
NEW YORK, N. Y.

60,000,000 chances for profit

Why RCA Metal Tubes Give You a Chance to Get the Largest Share of a Backlog Market for 60,000,000 Renewal Tubes

Authorities estimate that there is a backlog of demand for 60,000,000 tubes needed as renewals for civilian radio sets. This tremendous market *already exists*—it awaits only the release of the necessary tubes.

Of the 60,000,000, metal tubes will represent a very substantial share.

Since RCA is by far the largest producer of metal tubes—RCA has made more than 150,000,000 metal tubes since 1935—the public, as well as the industry, has known and accepted RCA metal tubes as standard for a decade.

THE FOUNTAINHEAD OF MODERN TUBE DEVELOPMENT IS RCA

Listen to "THE MUSIC AMERICA LOVES BEST,"
Sundays, 4:30 PM,
EWT, NBC Network



After the war, Preferred-Type RCA metal tubes will offer

- ★ Stock-saving advantages of the RCA Preferred-Type Program.
- ★ High performance assured by the greatest experience in producing metal types.
- ★ Easier servicing.

Thus, when you go after your share of the 60,000,000 market, keep this in mind: If your metal tubes are *RCA*, they're already sold—they'll move through your stock automatically, and they're sure to satisfy your customers.



62-6636-95

RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION • CAMDEN, N. J.

LEADS THE WAY... In Radio... Television... Tubes...
Phonographs... Records... Electronics

IT'S FUN to live and work in MT. CARMEL, ILL.

Johnny Beauchamp, a supervisor at the Meissner factory in Mt. Carmel, is typical of Meissner's *precision-el*. The camera has recorded Johnny's day . . . a combination of work and play that's a big reason for the high quality you'll find in Meissner products—"precision-built by *precision-el*."



Here's Johnny at work. He's "tops" with subordinates because he's never too busy to give the other fellow a "lift" . . . help make the job easier.



A five-minute walk at noon takes Johnny home for lunch. Usually Connie Sue, his 6-year-old daughter, meets him at the corner. Johnny owns his own bungalow in this attractive section of Mt. Carmel.



There's a smile on his face as he leaves the factory at 4 p. m., but smiles are the rule, *precision-el* . . . ten



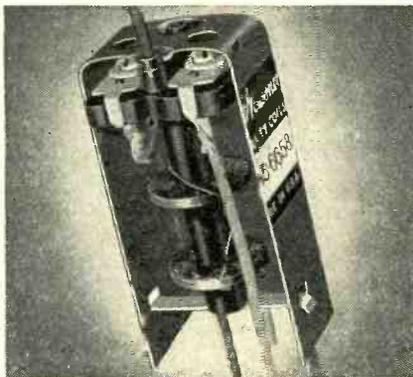
minutes later he's ready to apply Meissner precision to the golf game that has won him several trophies.



Flying is another of Johnny's hobbies. He and other members of Meissner's *precision-el* have organized the Mt. Carmel Flying Club, built a hangar, laid out the field. Here a group listens to a student being briefed before the takeoff.



Like most fathers, Johnny finds the baby more interesting than a tender morsel of chicken. After dinner, Johnny may go back to the plant to work out the following day's schedule.



"Step Up" Old Receivers!

These Meissner Ferrocort I. F. input and output transformers are getting top results in stepping up performance of old worn receivers. Special powdered iron core permits higher "Q" with a resultant increase in selectivity and gain, now available for frequency range 127-206. Ask for numbers 16-5728 input, 16-5730 output. List \$2.20 each.



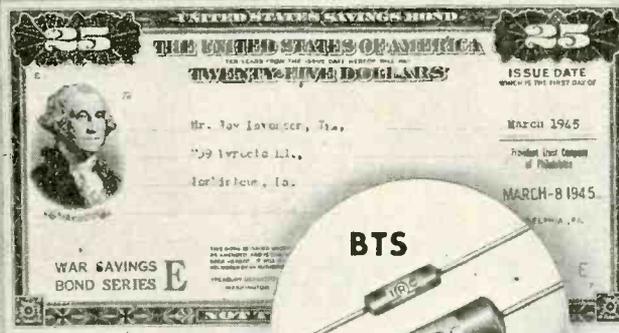
MEISSNER

MANUFACTURING COMPANY • MT. CARMEL, ILL.

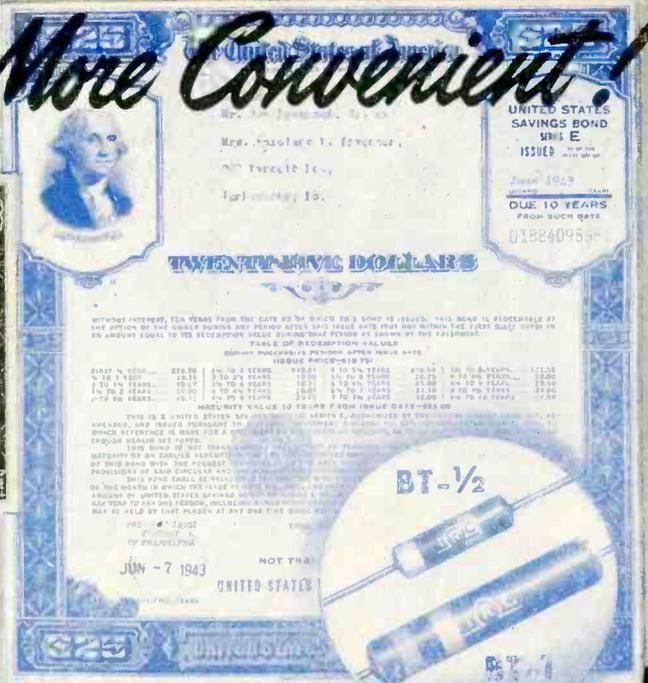
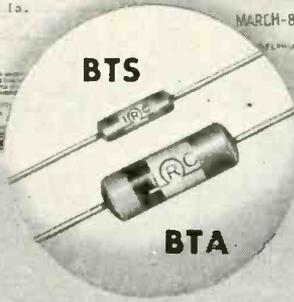
ADVANCED ELECTRONIC RESEARCH AND MANUFACTURE
Export Division: 25 Warren St., New York; Cable: Simonrice

RADIO SERVICE DEALER

Smaller Size... More Convenient!



Uncle Sam too, found it more convenient to reduce the size of his E Bonds. Value remains same.



EQUAL IN QUALITY AND "VALUE"

HERE'S WHY THE BTS AND BTA DO A "BIG RESISTOR" JOB . . .

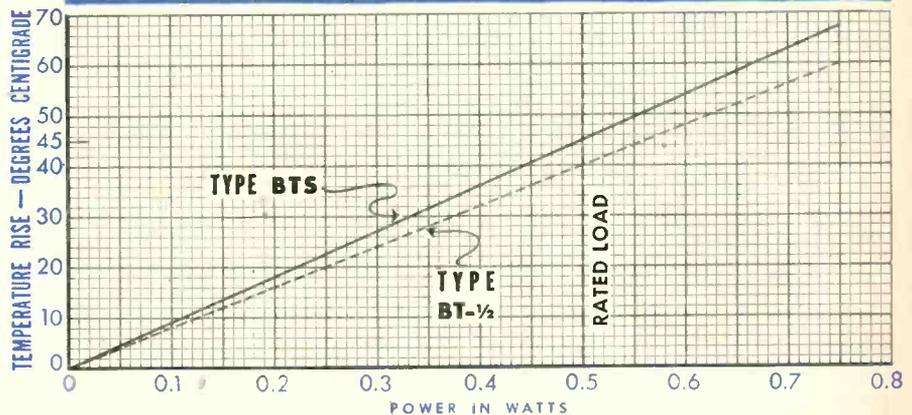
Wattage ratings are based on the ability of a resistor to dissipate heat efficiently. The universal method of determining the rating is by measuring, under load, the resistor's temperature rise at 40°C. ambient. IRC's BTS and BTA, 1/2-watt and 1-watt resistors are very efficient in heat dissipation because of their exclusive Metallized design plus the greater heat conductivity of the new copper leads, thinner insulating walls, and new molding methods which create greater density in the molded materials. Consequently, even though much smaller in size than the former types BT-1/2 and BT-1, they fully qualify as 1/2 and 1-watt units in all respects.

During the war, IRC's production of BTS and BTA Resistors has been absorbed for use in war equipment where size and quality were of primary importance. Numerous expansions have geared IRC's production to war-time needs and these resistors are now available to servicemen and dealers.

BTS size is no bigger than the 1/4-watt units you will be replacing and should be used for greater safety in 1/4-watt applications. Naturally, Type BTS is completely dependable in all 1/2-watt jobs. The BTA is smaller than pre-war 1-watt resistors, has a low temperature rise, therefore a great safety factor, and is a highly satisfactory replacement for all 1-watt units. These are modern resistors for modern space requirements and the many, many millions used in Allied war equipment testify to their greater dependability.

Chart shows how closely the new, smaller BTS parallels the heat-dissipating characteristics of the BT-1/2 Resistor, long considered the quality standard of the industry. Likewise, the BTA curve closely approximates that of the BT-1.

COMPARATIVE TEMPERATURE RISE IRC TYPE BTS and BT-1/2 RESISTOR



INTERNATIONAL RESISTANCE CO.

Dept. 22-H 401 N. BROAD STREET • PHILADELPHIA 8, PA.

IRC makes more types of resistance units, in more shapes, for more applications than any other manufacturer in the world

MARKET in the MILLIONS

FOR G-E ELECTRONIC TUBES AFTER V-DAY



To you as a dealer this big market spells PROFITS!

Few products have as many friends as G-E Mazda lamps. Countless millions of these familiar bulbs have been sold. When again available, *millions of new General Electric electronic tubes will be sold* by radio dealers and service men—and for the same reasons: quality, dependability and long life.

To 38,000,000 readers, to 28,000,000 radio listeners, G-E tubes are being advertised regularly. The impetus of this wide publicity, added to the favor long enjoyed by G-E Mazda lamps and other G-E home products, assure a market of impressive proportions for G-E electronic tubes. So plan now for the larger income

that awaits you! Write for the name of your nearest G-E tube distributor to *Electronics Department, General Electric, Schenectady 5, New York.*

Hear the G-E radio programs: "The World Today" news, Monday through Friday, 6:45 p.m., EWT, CBS. "The G-E All-Girl Orchestra," Sunday 10 p.m., EWT, NBC. "The G-E House Party," Monday through Friday, 4 p.m., EWT, CBS.

GENERAL  ELECTRIC
176-D2-8850

RADIO SERVICE DEALER

heard about this coming new FARM TYPE RADIO BATTERY?

SAME SERVICE LIFE

**30% SMALLER
30% LIGHTER**

OLD

NEW



No. 748 1½-volt "A," 90-volt "B" A-B Pack.
Dimensions, 15 13/16" x 6 15/16" x 4 15/32"
Weight, 23 lbs., 11 oz.



No. 758 1½-volt "A," 90-volt "B" A-B Pack.
Dimensions, 10 11/16" x 6 13/16" x 4 1/8".
Weight, 16 lbs., 13 oz.

IT WILL be much more than just a "smaller" battery! For the first time, an "Eveready" "Mini-Max" B battery will become part of a farm-type radio A-B Pack. As a result, you're going to see a 30% smaller, 30% lighter "Eveready" "Mini-Max" farm type battery pack with the same service life as the conventional pre-war packs, such as our own "Eveready" No. 748 A-B Pack.

Think what this means! Smaller, less expensive radios . . . more easily carried from room to room . . . can be built around it. Or farm radios of present-day size with larger, better speakers using space formerly taken up by bigger batteries having no greater service life.

These and other advantages will mean more profits in both radio and battery-pack sales for you!

The name of the battery is "Eveready" No. 758 A-B Pack. It will take its place on a growing list of startling

postwar "Eveready" batteries . . . based on National Carbon's exclusive principles of battery construction as used in the "Mini-Max" battery.

"EVEREADY"

TRADE-MARKS

MINI-MAX

RADIO "B" BATTERIES

NATIONAL CARBON COMPANY, INC.

Unit of Union Carbide and Carbon Corporation

UCC

General Offices: NEW YORK, N. Y.

The trade-marks "Eveready" and "Mini-Max" distinguish products of National Carbon Company, Inc.

ONLY MECK HAS THE COURAGE TO KEEP TELLING THIS STORY TO YOUR CUSTOMERS

Buy Your New Radio
from Your Radio Dealer



**EVERY MECK ADVERTISING
DOLLAR** sells the Public
on the
Independent Radio Dealer

Meck advertising in leading national magazines keeps telling one big important story—

Month after month these ads are seen by millions of sure prospects for the first postwar radios. Meck helps the independent dealer keep the radio set business.

The Meck Preferential Dealer Plan means—**DELIVERIES—SALES—CO-OPERATION**. See your **MECK** distributor today for full details—or write us.

John Meck



MECK RADIOS

JOHN MECK INDUSTRIES, Inc., PLYMOUTH, INDIANA

TABLE MODELS • PORTABLES • AM-FM • TELEVISION • CONSOLE COMBINATIONS • PHONOGRAPHS

In & Around the Trade

Being a condensed digest of production, distribution and merchandising activities in the radio and appliance trade.



New kitchen line explained by E. A. Bonneville, manager of Crosley kitchen cabinet and sink sales division, to J. H. Rasmussen, general sales manager; E. C. Brode, manager of distribution; S. D. Mahan, director advertising and public relations.

Radio Industry Shows

Taking definite steps toward post-war planning, the radio industry has formed Radio Parts and Electronic Equipment Shows, Inc. This corporation is sponsored by Radio Manufacturers Association (Parts Division), Association of Electronic Parts and Equipment Manufacturers, Sales Managers Club, Eastern Division, and National Electronic Distributors Association.

The purpose of the corporation is to conduct national and regional exhibitions or conferences for the bene-

fit of member exhibitors in the radio and electronic industry. Such well-known names in the radio industry as L. F. Muter, Jerome J. Kahn, H. W. Clough, J. A. Berman, Charles Golenpaul, R. P. Almy, W. O. Schoning and Sam Poncher, are Directors.

At the initial meeting of the Board of Directors held July 25th at the Stevens Hotel in Chicago, the following officers were elected: President, H. W. Clough (Belden Manufacturing Co.); Vice-President, Charles Golenpaul (Aerovox Corp.); Secretary, Jerome J. Kahn (Standard

Double floor space for Concord after modernizing former IBM building (right).



Transformer Corp.); Treasurer, Sam Poncher (Newark Electric Company).

J. Arthur Kealy, of the law firm of Ungaro & Sherwood, Chicago, corporation attorney and active in the radio industry, was appointed general counsel.

Westinghouse Booklet

For distribution by utilities and dealers, a new 8-page booklet "Better Living Means Electrical Living" is announced by Westinghouse Electric Corporation. Dealers and utilities may secure quantity supplies of Booklet B-3602 from Westinghouse distributors, and sample copies are available from P. O. Box 868, Westinghouse Electric Corporation, 306 Fourth Avenue, Pittsburgh 30, Pa.

RCA Pre-Selling Campaign

A national advertising campaign, designed to stimulate and hold the customers' interest in RCA Victor radios and phonographs until the actual merchandise can be placed on the market for sale, will be launched, according to T. J. Bernard, Advertising Manager of the Home Instruments Division. Full page ads are scheduled to appear in Collier's, Life, Saturday Evening Post, Look, Harper's Bazaar, Farm Journal and Country Gentleman.

A part of RCA Victor's program to pre-sell the market, the campaign is tied in with the company's current monthly television receiver advertisements carried in Time, and the newspaper ads being run in cities where television broadcast service is available.

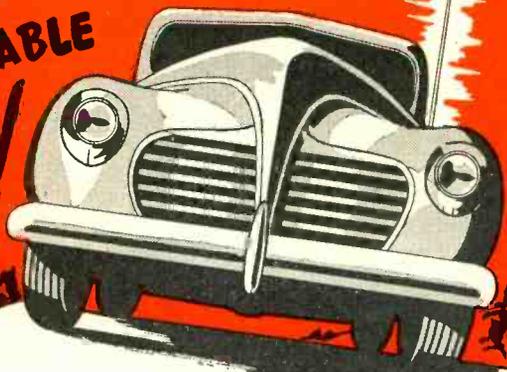
Concord Moves and Modernizes

Immediate steps are being taken by the Concord Radio Corporation (formerly Lafayette Radio Corporation) to modernize two large buildings in Chicago's downtown area, which more than doubles the square-footage of present quarters at 901 W. Jackson Boulevard. The buildings are located at 227 to 233 W. Madison Street, inside the famous Loop and in the heart of the shopping district, providing an ideal location for the new, larger store the company will operate on the street level floors. This store is being constructed to provide added facilities for the greatly increased volume and also to offer the latest facilities for the display, demonstration, and sale of radio sets, amplifiers, and other post-war equipment as soon as these are available.

The upper floors of the two structures will house the general offices, assembly departments, warehouse and shipping departments. Provision is

YES... RADIART AERIALS

WILL BE AVAILABLE
AGAIN SOON!



but

RADIART will not deliver aerials until materials and features can be RADIART QUALITY, — no makeshift equipment will be made!

Designs and engineering are completed — You'll be thrilled with them.

High quality materials are arriving.

The production line is ready — production and deliveries will start soon!

RADIART AERIALS have always been the standard of comparison.

These new RADIART AERIALS are up-to-the-minute and well worth waiting for.

Manufactured by the makers of RADIART Exact Duplicate Vibrators.



Radiart Corporation

3571 W. 62nd STREET • CLEVELAND 2, OHIO
Export Division 25 Warren St., New York 7, N.Y. Canadian Office 455 Craig St., W., Montreal, Canada

In Trade

[from page 13]

being made for the many new types of products and parts which will be available after the war. The new industrial department, in charge of L. R. Browne, will be located here.

The two buildings are being improved as fast as materials and labor are made available, and the company will move to the new quarters as soon as they are ready. Concord Radio Corporation also maintains a retail store and a shipping warehouse at 265 Peachtree Street, Atlanta, Georgia.



David J. Finn

newly appointed sales manager, RCA renewal tube division, will supervise sale of new line of dry cells.

G-E Appoints

John G. Porter has been named responsible for the advertising and sales promotion of General Electric traffic appliances, A. L. Scaife, advertising manager of the Company's Appliance & Merchandise Department, has announced. Mr. Porter has moved to Bridgeport from Schenectady, where he was in charge of advertising for the G-E Electronics Department.

Amplifier Catalog

Eastern Amplifier Corporation is preparing to release a post-war catalog featuring a complete line of high-quality amplifiers. This literature is available on request to the manufacturer. Write to Eastern Amplifier Corporation, Bruckner Blvd. and 140th St., New York 54, N. Y.

Meck Founds Audar, Inc.

John Meck, President of the John Meck Industries, Inc., of Plymouth, Indiana, announces formation of Audar, Inc., a separate corporation which will manufacture and sell public address systems and audio amplifiers

[Continued on page 16]

BE SURE... Standardize on

STANCOR Transformers

Call your nearest Stancor Jobber...
or write us for his address

STANDARD TRANSFORMER CORPORATION

1500 N. HALSTED STREET • CHICAGO



**HORN TYPE
LOUD SPEAKERS**

Jensen
Technical Monographs

25¢

**WHAT ABOUT
Horn
LOUD SPEAKERS?**



What effect do horn formula, flare and length have on low frequency "cut-off?" In the most commonly used frequencies which horn is most directional—one with large or one with small mouth? What are the advantages of the reflex type horn? How is a 500-watt "bull horn" constructed? What are the advantages of the new Hypex,* originated by JENSEN, over the exponential type horn?

"HORN TYPE LOUD SPEAKERS"—JENSEN Monograph No.5.—the latest number in the JENSEN Monograph series and now available, discusses simply and clearly these and many other questions pertinent to the study of electroacoustics. By means of photographs, diagrams and graphs it reviews the principles, performance characteristics and applications of horn type loud speakers and illustrates modern reproducers employing horns.

Get your copy of this or any others of the series today from your JENSEN jobber or dealer or from the JENSEN Technical Service Department. Price each 25c.

Specialists in Design and Manufacture of Fine Acoustic Equipment

FREE to men in the Armed Services, and to Technical Schools, Colleges and Libraries.



Jensen

Jensen RADIO MANUFACTURING COMPANY
6619 South Laramie Avenue, Chicago 38, Ill.

Send me the Monographs checked:

- (1) "Loud Speaker Frequency-Response Measurements"
- (2) "Impedance Matching and Power Distribution."
- (3) "Frequency Range in Music Reproduction."
- (4) "The Effective Reproduction of Speech."
- (5) "Horn Type Loud Speakers."

Send 25c for each book ordered.

Name _____

Address _____

City _____ Zone _____ State _____



*Trade Mark Registered; U. S. Patent No. 2,336,262

In Trade

[from page 14]

as an affiliate. Officers of the corporation are John S. Meck, President, E. W. Applebaum, Treasurer and General Manager, and Russell G. Eggo, Secretary.

The Meck Company, now radio manufacturers, formerly made sound equipment the production of which will now be under the direction of Audar, Inc. Sales will be directed toward schools, auditoriums, government, orchestras, hotels, etc.



Holding his end of Army-Navy "E" burgee is Max Weintraub (right) president of Garod Radio Corp.

Radio War Museum

Establishment by the Federal Government of a national war museum which will exhibit radio and radar military equipment of historical character has been proposed by the RMA Advertising Committee. The committee, of which John S. Garceau, of Fort Wayne, Ind., is chairman, considered the proposal at a recent meeting in Schenectady, N. Y. It plans to present the matter at the next meeting of the RMA Board of Directors.

Members of the committee point out that unless appropriate action is taken to preserve historical pieces of radio and radar equipment before the war in the Pacific ends they may be lost to salvage. They suggested that discarded radio and radar apparatus which has been used in historic battles be earmarked for the museum now even though it may not be exhibited until after the war.

The museum, in the opinion of the committee, would become a memorial to the important role of radio in winning the war and would constitute a tribute to the heroic radio and radar operators of the war and to the men in industry who made radio an outstanding technological military development.

[Continued on page 18]

RADIO SERVICE DEALER



RADIART VIBRATORS

12 Types will **CORRECTLY SERVICE** well over 1200 of the most popular Auto Radio Receivers

Mr. Auto Radio Service Dealer:

The following 12 types are a "must" for your service stock. If you keep at least one of each on hand you will be able to service over 7/8 of the vibrator replacements in popular demand. Yet each is individually engineered to correctly replace the original vibrator.

3320	5303	5326	5400
*4613	5314	5335	5406
5300	5320	**5342M	5426

*4613 may be used as replacement for 3461 if the smaller diameter can is acceptable.
**5342M is now recommended in all instances where 5340M was previously used.

Outside of those exceptions these 12 exactly duplicate the original units not only as to voltage and plug arrangement but in every respect including *physical size, frequency and current carrying capacity.* (Essential features for long life and best service.)

To be sure, the less popular models will still need servicing and you can get the correct RADIART VIBRATORS for every one of them.



The Radiart Vibrator Catalog is the most complete catalog published. It gives cross-index for cars, models and vibrators.

RADIART has the most complete line of vibrators. It is the line you should stock and use.

Manufactured by makers of famous RADIART Rust Proof Aerials.

Radiart Corporation

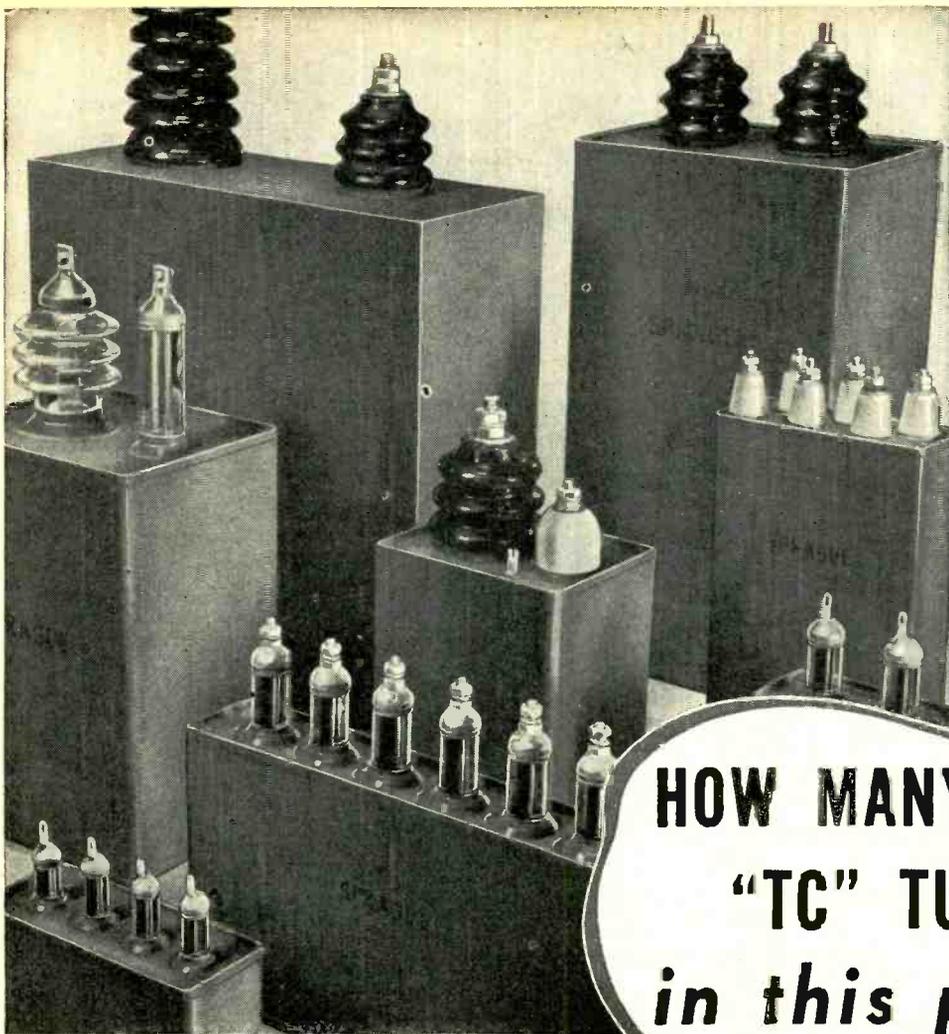
3571 W. 62nd STREET • CLEVELAND 2, OHIO
Export Division 25 Warren St., New York 7, N.Y. Canadian Office 455 Craig St., W., Montreal, Canada

PRODUCERS of:

- Variable Resistors
- Selector Switches
- Ceramic Capacitors, Fixed and Variable
- Steatite Insulators
- Silver Mica Capacitors

Centralab

Division of GLOBE-UNION INC., Milwaukee



HOW MANY SPRAGUE "TC" TUBULARS *in this picture?*

THESE big energy storage capacitors are recent Sprague Electric Co. types developed for flash-photography, high-voltage networks, welding and other exacting wartime uses.

Consider thousands upon thousands of these giants in terms of the vast quantities of "TC" Tubular Capacitors and other service types that could have been made with the same investment of time and materials, and the Sprague wartime record looms even more impressive.

Every replacement type that has occasionally been missing from jobbers' stocks has been

more than accounted for by the FIVE separate Army-Navy "E" citations that Sprague has achieved. Moreover, a constant and steadily increasing supply of Sprague Atoms and "TC" Tubulars still makes it possible to match 9 out of 10 replacement requirements "on the nose!"

*As always—as long as the need exists—
see Sprague TRADING POST on Page 43.*

Sprague Products Company
North Adams, Mass.

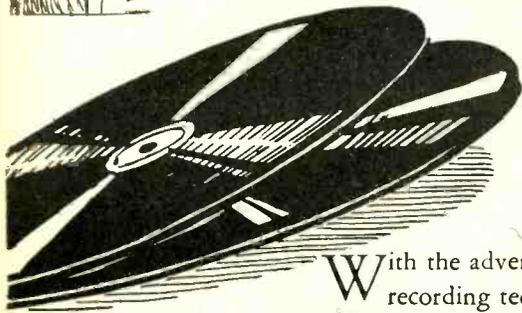
(Jobbing Sales Organization for Products of the Sprague Electric Co.)

SPRAGUE





Something New for the **RECORD**



With the advent of new plastics and recording techniques, phonograph records of tomorrow will be pressed in finer-grain, noise-free materials. Recordings, however, can be no better than the pickup arm used in their reproduction. It remained for The Astatic Corporation, therefore, to design a new pickup with advanced characteristics equaling those of the new recordings. This has been accomplished by Astatic through improved featherweight action made possible with the introduction of vertical compliance and new damping materials. The greatest possible fidelity of sound reproduction from these advanced products, so dependent upon each other, will result, therefore, in an ever increasing measure of phonograph enjoyment. Production will begin when essential materials are made available.

**"You'll HEAR MORE
from Astatic"**

ASTATIC Crystal Devices
manufactured under Brush
Development Co. patents.

THE
Astatic
ASTATIC CORPORATION
CONNEAUT, OHIO
IN CANADA. CANADIAN ASTATIC LTD., TORONTO, ONTARIO

In Trade

[from page 16]

Catalog by General Cement

General Cement Manufacturing Co. announces publication of their new No. 146 Catalog containing complete listings of their line of radio cements, chemicals, hardware, cabinet repair kits, repair parts, tools and other service accessories. The new catalog may be secured from General Cement Jobbers or by addressing the company direct, at 919 Taylor Ave., Rockford, Ill.

Broadcast Eclipse

Radio network listeners had a front seat at the annual showing of a solar eclipse recently when a Memphis radio station broadcast what is said to be the first eyewitness description of the spectacle from an airplane at a height of more than 12,000 feet. Employing a huge 21 passenger airliner and Bendix Radio standard passenger airline transmitter equipment operating on 3492.5 kilocycles, the narrator, Bob Neal, announcer for WMPS, was able to provide a play-by-play description of the eclipse from a perfect vantage point above the clouds. Standard shortwave equipment on the ground picked up the broadcast which was relayed by shortwave receiver to telephone lines for the network hookup.

Fluorescent Lighting Catalogue

A new fluorescent catalogue featuring all of the popular new fluorescent fixtures is being offered by Olson Radio Warehouse. Included are industrial and commercial fixtures as well as kitchen units and bed lamps. An outstanding development is strip lighting which can be supplied without reflector, half reflectors, or full reflectors.

Every type of fixture is in stock and immediate delivery can be made within 48 hours without priority. All service men and dealers who desire to sell this fast moving line of fluorescent fixtures should write at once to the company, 73 E. Mill St., Akron 8, Ohio.

Agency Moves

Ralph L. Power Advertising, after fifteen years at 407 I. N. Van Nuys Bldg., Los Angeles 14, on Aug. 1 moved to suite 332 in the same building. At the same time it opened a new direct mailing division at 767 Castelar St., Los Angeles 12. It will continue to service technical radio accounts exclusively.

[Continued on page 20]

SYLVANIA NEWS

RADIO RETAILER EDITION

AUGUST Published by SYLVANIA ELECTRIC PRODUCTS INC., Emporium, Pa. 1945

SYLVANIA "LOCK-IN" RADIO TUBE IS THE TUBE OF YOUR FUTURE

*Takes In Its Stride Recent
FCC Decision On FM
(High Frequency) Bands*

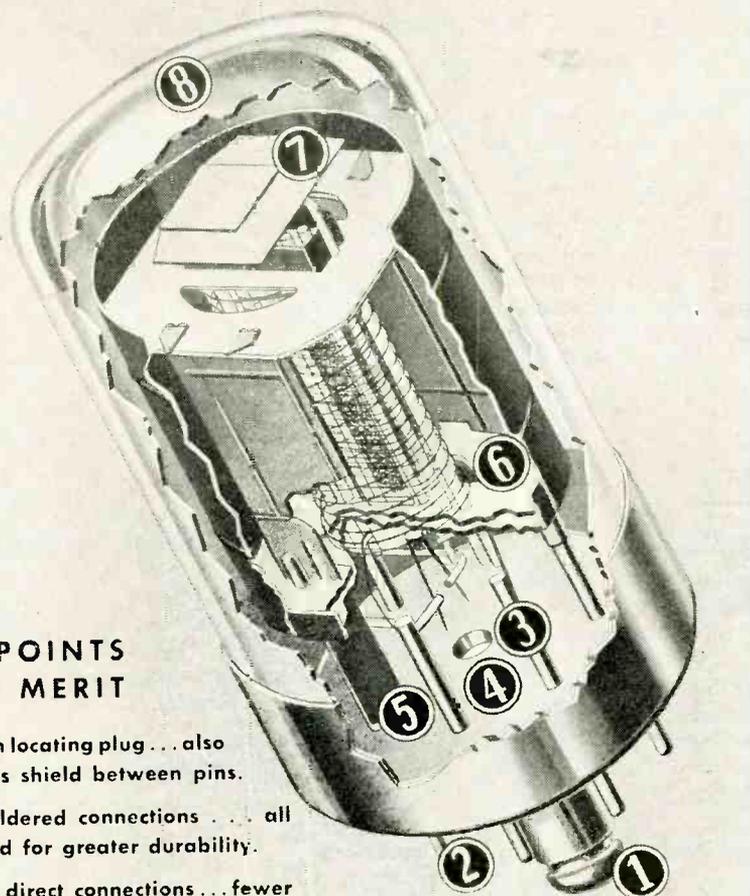
Retailers will be interested in knowing that Sylvania's revolutionary type of radio tube—the Lock-In—is so ruggedly constructed and so efficient, electrically, that it easily handles the recent FCC order assigning to frequency modulation the band between 88 and 106 megacycles.

You see, the basic electrical — as well as mechanical — advantages of the Sylvania Lock-In construction are right in step with the continuing trend of the industry toward higher frequencies.

This tendency has received an added boost from the progress made by our armed forces in high-frequency communications—which will be a factor in postwar developments of automobile-to-office communications, and the like.

Another advantage of the Lock-In Tube is its perfect suitability for any type radio set—portable battery, farm battery, household, automobile, marine or aircraft.

It is particularly advantageous in mobile equipment, where vibration and concussion occur.



9 POINTS OF MERIT

- 1 Lock-In locating plug . . . also acts as shield between pins.
- 2 No soldered connections . . . all welded for greater durability.
- 3 Short, direct connections . . . fewer welded joints — less loss.
- 4 All-glass header . . . better spacing of lead wires.
- 5 No glass flare . . . unobstructed space for internal shielding.
- 6 Improved mount support . . . ruggedly mounted on all sides.
- 7 Getter located on top . . . shorts eliminated by separation of getter material from leads.
- 8 No top cap connection . . . overhead wires eliminated.
- 9 Reduced overall height . . . space saving.

SYLVANIA ELECTRIC

Emporium, Pa.

MAKERS OF RADIO TUBES; CATHODE RAY TUBES; ELECTRONIC DEVICES; FLUORESCENT LAMPS. FIXTURES, WIRING DEVICES; ELECTRIC LIGHT BULBS

DESIGN COUNTS



COMPARE a modern sewing machine with the old-time model shown here. The difference is an example of how careful attention to design brings about a high level of efficiency.

Realizing this, design is one of the most carefully considered factors in the production of antennas at THE WARD PRODUCTS CORPORATION. It is only through superior design that the benefits of experience and the finest production facilities can be best brought to the user.

For the finest antennas for all applications... for home and automobile use... look to WARD.

WARD

Antennas
 BUY WAR BONDS
 THE WARD PRODUCTS CORPORATION
 1523 EAST 45TH STREET • CLEVELAND 3, OHIO

Export Dept.

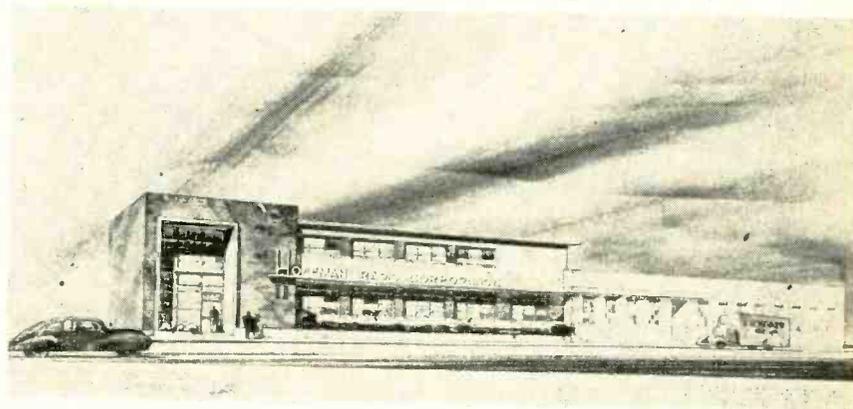
C. O. BRANDES, Mgr.
 2900 Euclid Avenue
 Cleveland 3, Ohio

Canadian Office

ATLAS RADIO CORP.
 560 King Street, W.
 Toronto 1, Ont., Can.

In Trade

[from page 18]



Hoffman's New Plant

The Hoffman Radio Corp., Los Angeles, in July started construction on a new plant annex, the lease of three other buildings and the purchase of a new brick and concrete structure of 32,000 sq. ft. "The idea behind the new office and engineering building adjacent to Plant No. 3 is to consolidate production facilities under one roof. The move enables the factory to accomplish this purpose with 65,000 sq. ft. on one level and under one roof. The other new plant, No. 5, with some 32,000 sq. ft. makes a grand total of approximately 150,000 sq. feet," says H. Leslie Hoffman, president.

The new building adjacent to Plant No. 3 on the Hill St. frontage, is being constructed by the William P. Neil Co. with Theodore Criley Jr. as the architect. Frontage will be two story with the rear single story connecting with existing production lines in the other building.

Currently 100 percent in production for the Navy, Signal and Air Corps, the Los Angeles firm has its number 1 and 2 plants on Hill St., No. 4 on Stanford Ave. (box and cabinet factory), as well as the commissary, storage warehouses, etc. In postwar days it will resume production on receivers and radio-phono-recorder combinations, television and other electronic and communication equipment.

RMA Parts Division

Chairman R. C. Sprague of the RMA Parts Division has reappointed all Section chairmen, providing for immediate and continuing action on affairs of parts manufacturers during the 1945-46 year. Enlargement of the Parts Division also is being arranged, by transfer soon of all loud speaker manufacturers to that division, from the Amplifier and Sound Equipment Division.

Following are the present Section chairmen of the Parts Division for 1945-46: Coil Section, Leslie F. Muter, Chicago; Fixed Capacitor Section, Paul Hetenyi, New York City; Fixed Resistor Section, J. H. Stackpole, St. Marys, Pa.; Instrument Section, R. L. Triplett, Bluffton, O.; Insulations Section, John W. Apgar, Irvington, N. J.; Metal Stampings & Metal Specialties Section, S. L. Gabel, Norristown, Pa.; Plastics and Molded Parts Section, John J. Baehner, Chicago; Socket Section, Frank Holmstrom, Philadelphia; Speaker Parts Section, Henry C. Forster, Chicago; Special Products Section, W. R. MacLeod, Syracuse, N. Y.; Switch, Robert A. O'Reilly, Chicago; Transformer Section, Robert A. Hoagland, Bellwood, Ill.; Variable Condenser Section, Russell E. Cramer, Camden, N. J.; Variable Resistor Section, H. E. Osmun, Milwaukee; Vibrator Section, Ray F. Sparrow, Indianapolis; Wire Section, R. G. Zender, Chicago.

Hytron Directors

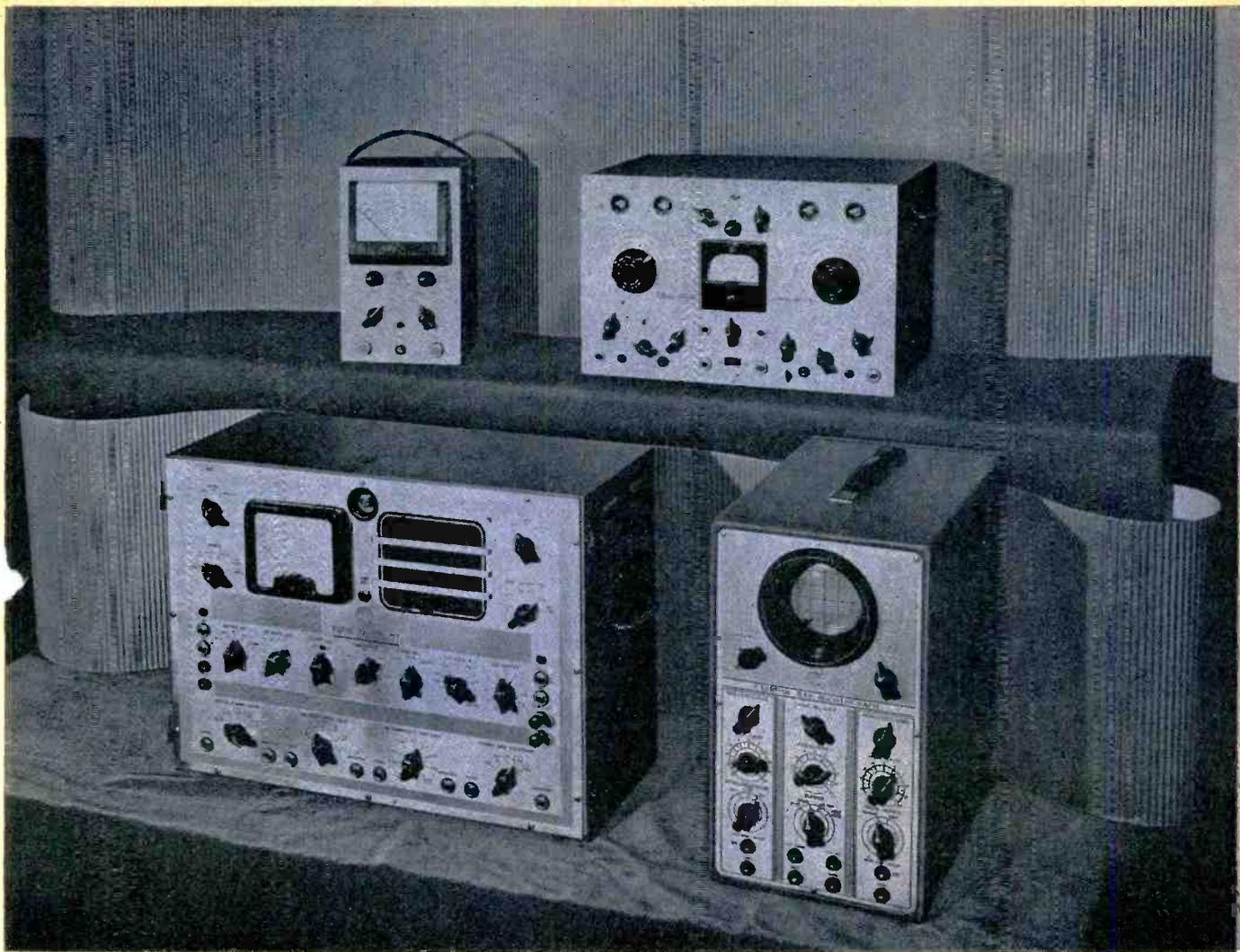
The Hytron Radio & Electronics Corp., Salem, Mass., announces election of two additional directors, Chauncey L. Waddell and Frederick L. Chapman.

Simplify Parts Identification

The Radio Manufacturers Association has completed assignment of RMA production source code symbols to all of its members and also has begun registration of many non-RMA members, to whom this service was recently extended.

A leaflet explaining the operation of the RMA production source code and accompanying date code, together with lists of all registrants, has been prepared by RMA headquarters and is available upon request. The regis-

[Continued on page 47]



Top: 195-A Voltahmyst—162-c Chanalyst

Bottom: 170-A Audio Chanalyst—155-c Oscilloscope

PREVIEW

HERE are the test equipment units service men will want after the war. New models of the well-known Voltahmyst, the Chanalyst, and the RCA 3-inch Oscilloscope, a favorite trio for r-f and general-purpose testing; and a new Audio Chanalyst for the sound specialist.

Radio men in the military services and in war industries are using these instruments today—getting the feel of them—learning their qualities firsthand. After the war, they'll want these well-designed, convenient, attractive-appearing equipments for their own shops.

And who wouldn't? For these units have all the proved advantages of prewar RCA equipments, plus many new features. And they've been tested by widespread wartime usage.

Today these equipments are available only on priority. But, as soon as restrictions are removed, your RCA distributor will be ready to fill your order with these new models, currently being manufactured. Why not ask him today for literature on them—or write Test & Measuring Equipment Section, RCA, Camden, N. J.

BUY MORE WAR BONDS



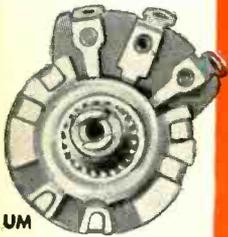
RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION • CAMDEN, N. J.

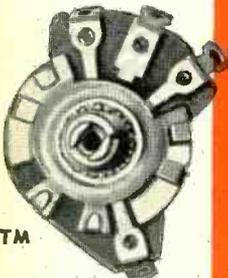
In Canada, RCA VICTOR COMPANY LIMITED, Montreal

NOW.

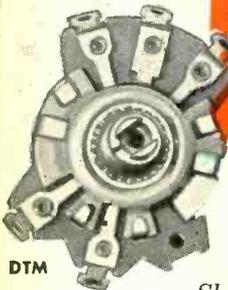
"EXACT DUPLICATE" CONTROLS FOR EVERY SERVICE REQUIREMENT



UM



TM



DTM

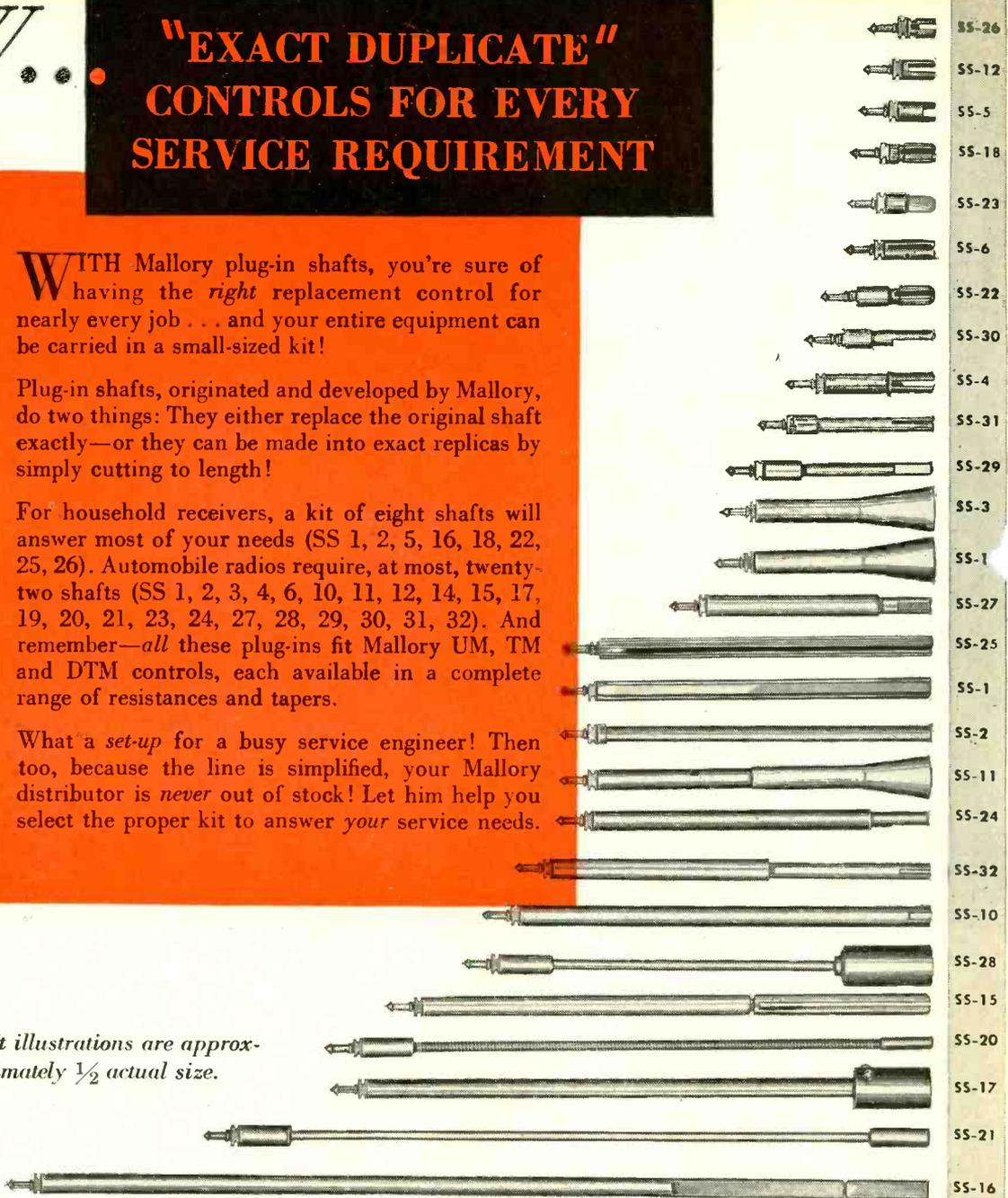
WITH Mallory plug-in shafts, you're sure of having the *right* replacement control for nearly every job . . . and your entire equipment can be carried in a small-sized kit!

Plug-in shafts, originated and developed by Mallory, do two things: They either replace the original shaft exactly—or they can be made into exact replicas by simply cutting to length!

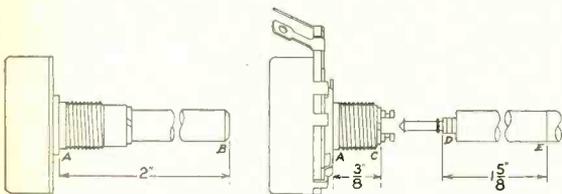
For household receivers, a kit of eight shafts will answer most of your needs (SS 1, 2, 5, 16, 18, 22, 25, 26). Automobile radios require, at most, twenty-two shafts (SS 1, 2, 3, 4, 6, 10, 11, 12, 14, 15, 17, 19, 20, 21, 23, 24, 27, 28, 29, 30, 31, 32). And remember—all these plug-ins fit Mallory UM, TM and DTM controls, each available in a complete range of resistances and tapers.

What a *set-up* for a busy service engineer! Then too, because the line is simplified, your Mallory distributor is *never* out of stock! Let him help you select the proper kit to answer *your* service needs.

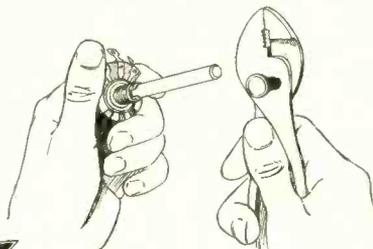
Shaft illustrations are approximately 1/2 actual size.



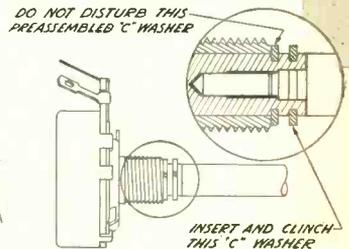
MALLORY PLUG-IN SHAFTS ARE EASY TO USE!



Measure the original.



Tap sharply. Pounding is not necessary—it may damage the control.



DO NOT DISTURB THIS PREASSEMBLED "C" WASHER

INSERT AND CLINCH THIS "C" WASHER

This pre-assembled "C" washer needs no adjustment—just insert and chinch it.

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



More than ever—
ALWAYS
INSIST ON

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

VIBRATORS • VIBRAPACKS* • CONDENSERS
VOLUME CONTROLS • SWITCHES • RESISTORS
FILTERS • RECTIFIERS • POWER SUPPLIES

ALSO MALLORY "TROPICAL"† DRY BATTERIES, ORIGINALLY DEVELOPED BY MALLORY FOR THE U. S. ARMY SIGNAL CORPS, NOT PRESENTLY AVAILABLE FOR CIVILIAN USE.

*Trademarks

OPA—"Brake" or "Break" for Production

Delay in OPA decision on pricing, shortage of critical components, nullify WPB spot authorization for civilian radio set production — put makers "in spot".

THE industry is greatly concerned over the difficulty in working out with the OPA a pricing formula that will permit radio manufacturers to recover their increased costs over pre-war cost, declares R. C. Cosgrove, president of the Radio Manufacturers' Association, which includes 88 per cent of America's radio manufacturing industry.

"The OPA has thus far insisted on allowing only a limited number of these increased costs and wants the industry to absorb a number of other costs," said Mr. Cosgrove, who is also vice-president and general manager of The Crosley Corporation. "The OPA has declared its intention of having distributors and retailers absorb any increases allowed manufacturers over their pre-war prices.

"Members of the industry are very much concerned about the lack of action on the part of OPA and its total lack of appreciation of what actually enters into the cost of getting into production on domestic radios, at this time.

"The radio industry realizes that costs must be kept to the absolute minimum and that prices must be as low as possible. The historical background of the radio industry has been one of tremendous values and the savings and cost reduction on the part of manufacturers in the radio industry have been unmatched by any others. More value is given in a home radio set than in any other item that I know of.

"The industry is terribly concerned about getting back into production and there is no question about costs being held to the absolute minimum but the OPA has consistently refused to consider many of the elements of cost,

which will slow down many manufacturers from getting into radio production and will stop some completely."

Given the "amber light" by the War Production Board, the radio manufacturing industry has some hurdles to clear before a steady or substantial flow of new radio sets may be expected on the market.

Hurdle No. 1

The two major obstacles to speedy conversion of the radio industry are: a "shortage of critical components and an uncertainty as to what prices will be allowed by OPA. WPB officials state that the present outlook, based on the assumption that the Japanese war will continue through 1945, is for a relatively small output of new radios this fall, growing steadily to a substantial volume by the first quarter of 1946. Of course, any sudden change in the military situation, they point out, will speed up civilian production.

Many set manufacturers are applying for "spot" authorization to produce a limited quantity of radio sets, but WPB officials state that these authorizations will be limited to the component producing capacity of the industry in excess of what is needed for war purposes.

Amendments to L-265, the electronic limitation order, this week freed radio component production from basic WPB control on production, but war needs will still have the right-of-way. Set manufacturers will be able to place orders for components for civilian sets, but they will be able to assemble them only on specific "spot" authorization of WPB. A note of warning to the radio industry that the first stage of

reconversion will be a "trial period" and that military requirements must be met if the supplemental civilian production is to be permitted comes from Melvin E. Karns, WPB Radio Reconversion Officer, in a statement to RMA.

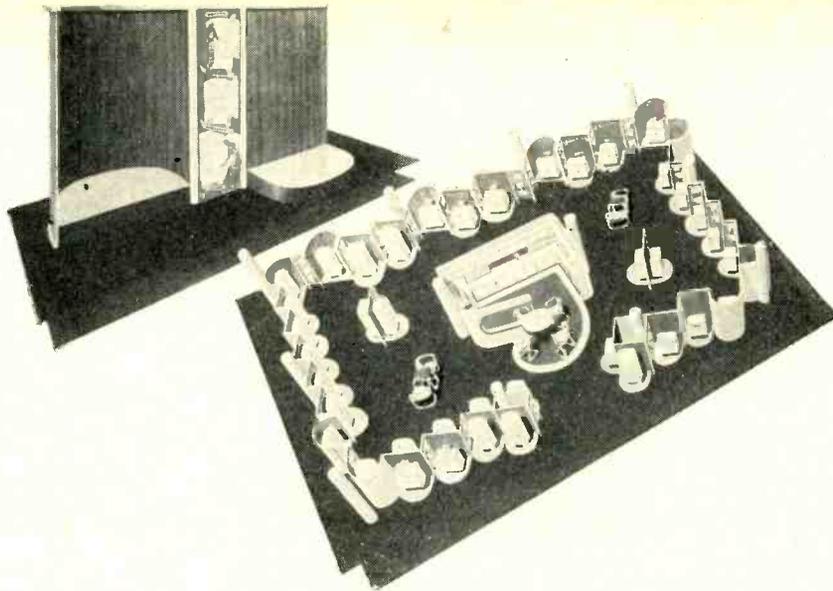
If the WPB Radio & Radar Division and the radio industry "fail to make certain that military requirements are fully supported," Mr. Karns said, the civilian production may have to be set aside. He called upon the industry to observe the "spirit and intent of existing priorities regulation."

Hurdle No. 2

The second hurdle, that of reconversion pricing, also threatens to delay a return to civilian production. More than two months after Price Administrator Chester Bowles announced his conversion pricing formula on May 11, only radio cabinets out of all items going into a radio have been given a price increase. Cabinet manufacturers were given an 18 per cent rise over 1941 prices. Many parts manufacturers are unable to quote prices for deliveries probably needed in 60 to 90 days.

Under regulations announced at the end of July by OPA, radio set manufacturers who obtain "spot" authorization to produce civilian radio sets may either sell at their 1942 prices or apply for individual adjustments pending a determination of the industry-wide "increase factor." For this purpose a "profit factor" of 3 per cent has been given radio and phonograph manufacturers to use with allowable increases in basic wage rates and material costs in applying for higher prices.

As price ceilings have not been fixed, however, on radio parts and tubes, set manufacturers are unable to calculate accurately what their materials costs may be. Cost data is just now being requested of parts manufacturers, and several weeks delay is in prospect before these prices are determined. Parts manufacturers meanwhile cannot avail themselves for individual adjustments under the "interim" formulas announced by OPA.



Background unit (top left) is "simplicity"—one of six basic display styles. Suitable for display of large home appliances or console radio receivers. Layout shows how ensemble of backgrounds can be arranged flexibly inside store.

BACKGROUNDS FOR MORE SALES

STORES have definite personalities. They attract or repel; excite or depress; inspire confidence or generate doubt. They influence the reactions and attitudes of those who visit them—just as surely as the sales people who work in them.

The dealer who has his eye on winning customers and holding their patronage will not be content with a store that is merely a sheltered space in which to stock and display merchandise. He will use his store and its displays as mediums for shaping the attitudes of his customers. He will use these backgrounds as a creative force with which to get business.

The above merchandising counsel is contained in an imposing 40-page four-color store display manual issued as the first major element in Kelvinator's unfolding program of postwar dealer marketing support. It is designed to provide an up-to-the-minute guide and reference work for dealers planning store and display improvements, and is being distributed after nearly a year of intensive preparation and development. (*That's a fact, to judge from our file of correspondence with Nash-Kelvinator on the subject—Editor*).

Addressing the dealer, introductory

Display "tools" for sales results are described in Kelvinator's "Displaying Appliances of Tomorrow."

DISPLAY TIPS

Don't let space restrictions mislead you into crowding your salesroom. It prevents attractive display — and also confuses the customer.

Organize your merchandise into related groups so that the prospect's attention is held within the area of immediate sales interest, and to make companion sales easier.

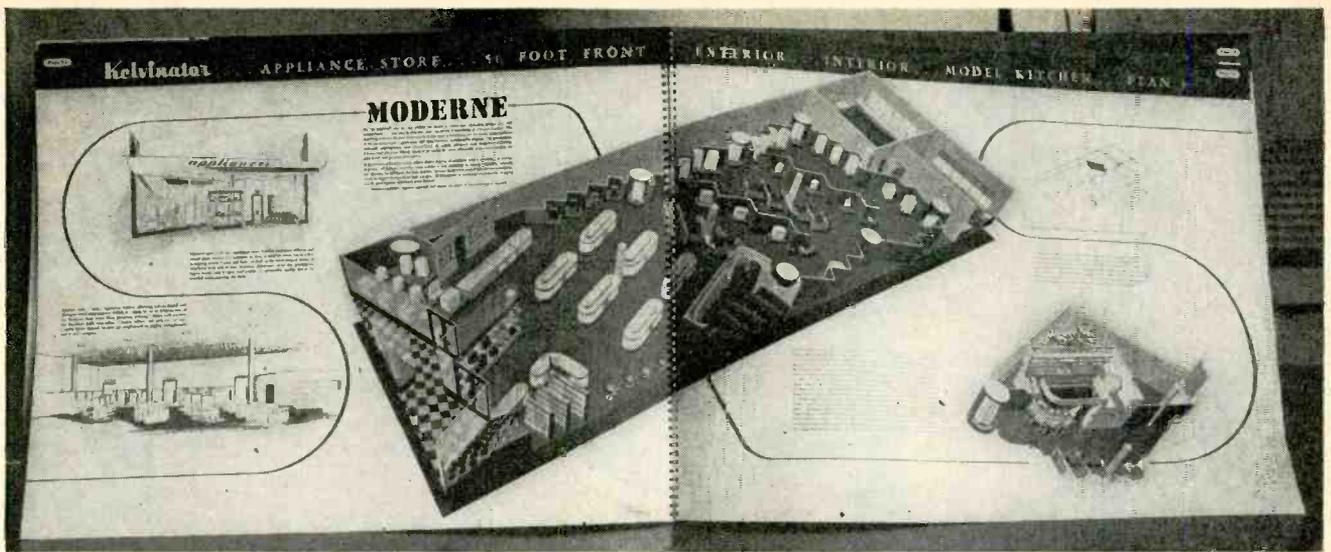
The great majority of successful merchandisers now carry their small products forward in the store. In any event, small merchandise should not be displayed or sold in the major appliance section.

Do everything possible to leave plenty of free-way at the front of the displays.

Merchandise placed in a showcase should be arranged for display, not as a stock reserve.

The dealer who is determined to get the highest possible dollar return per sale will do everything he can to permit step-up selling. And the first requisite is to group each line of products.

Remember that the salesroom is the salesman's workshop; be sure all the tools he requires for results are provided and available when he needs them.



Principles of sales-promoting store display preached by Kelvinator to dealers also evident in presentation of subject in manual, shown open (to 52 inches) above. Below: Distribution to dealers gets OKs from (l. to r.) Charles T. Lawson, vice president in charge of sales; D. A. Packard, assistant general sales manager; C. J. Coward, director of advertising and sales promotion.

text points out that "... One of your most important responsibilities to your business is to make sure that your store is prepared to do the job you will expect of it — that it is not just a store of yesterday — but a store for the tomorrows."

Complete with accurate, detailed construction blueprints, the new display manual, called "Displaying Appliances of Tomorrow", provides plans for six basic styles of store and appliance displays, adaptable for use in both 25 and 50 foot store widths, and in appliance departments of various sizes and requirements. The plans, covering everything from store fronts to model kitchens, are completely flexible and provide a wide variety of adaptations for the dealer.

Basic styles are "colonial", which aims at creating the traditional impression in a homelike manner; "baroque", which employs the rich ornamentation of 16th century architecture; "moderne", contemporary and streamlined; "simplicity", very decorative and flexible; "cascades", the basic design motif is "drawn from the color and sparkle of a waterfall"; "functional", which permits almost unlimited arrangements.

In each of the styles, planning is comprehensive, down to the smaller details. Bays, background panels, windows, floors, showcases, audition counters, shelves, "closing" arrangements—all of the physical details of good merchandising—are covered in the manual.

"Nearly all dealers are planning improvements in their facilities in preparation for the postwar market, and this new manual, developed by our own merchandising staff with the



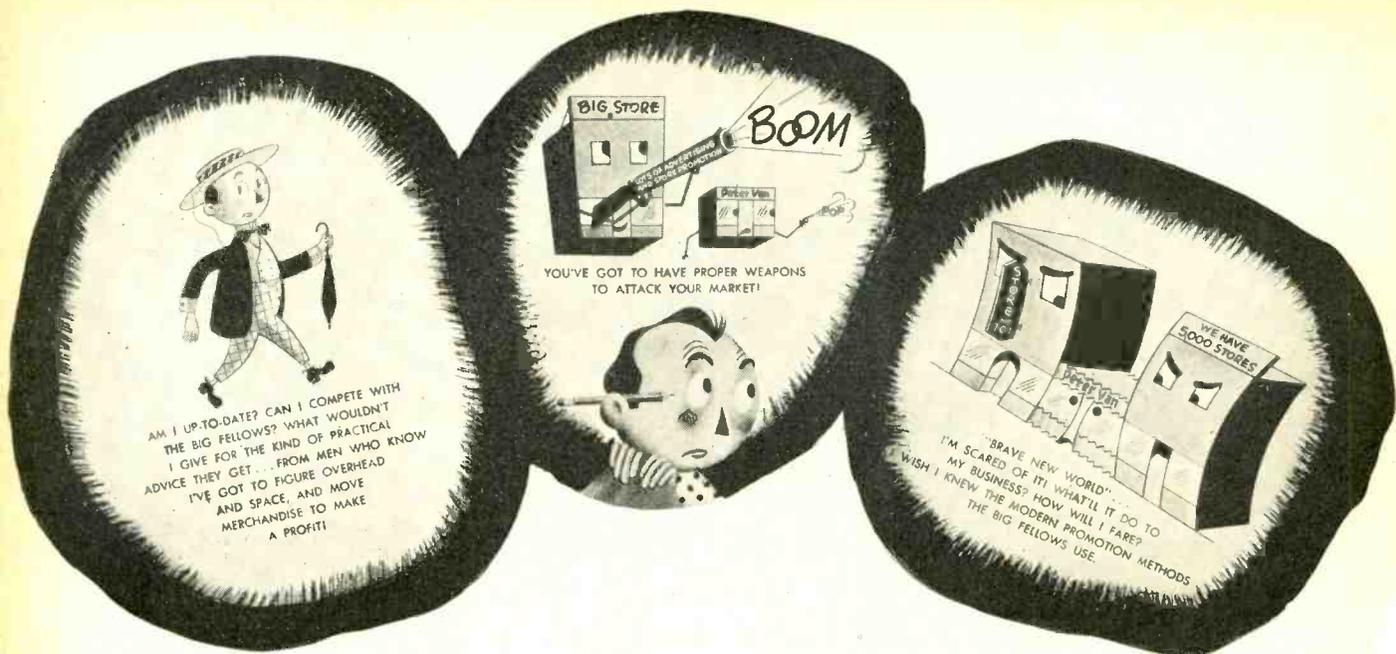
assistance of the ablest retail display authorities in the country, provides practical and imaginative guidance," C. J. Coward, director of advertising and sales promotion, Kelvinator Division, Nash-Kelvinator Corporation, declared.

"We are certain that the book will be found extremely useful in the immediate future, when all of the arts of merchandising will be called upon, and in years to come. As a curtain-raising contribution to the success of the dealer in the active markets ahead, we think that it presents further vigorous evidence of the company's retail-mindedness."

The section showing highly detailed construction blueprints for display fixtures also lists the kinds of material needed or recommended, together with sources of supply. This section is followed by a floor layout planning page,

with the following instructions to the dealer: "Use this graph sheet, which is scaled one-quarter inch to a foot, to plot your floor layout. If, in experimenting with proportions and arrangements, a light pencil is used, the plan can be progressively corrected and improved until the desired result is achieved . . ."

A thoroughly useful item—virtually an encyclopedia on merchandise display—for any dealer's post-war planning portfolio. It closes with this "epilogue": "It is the hope of all those responsible for the preparation of this volume that it will be a source of inspiration and guidance to every dealer who has been so eagerly looking forward to resumption of normal business. . . with the welcome sight of appliances again on display and the familiar sounds of selling restored to the salesroom floor."



To help dealers in competition to attract customers post-war, The Crosley Corporation leads off its book of practical pointers on how to plan and promote a store with cartoons. (Samples above from "Peter Van Modernizes His Store"—newest dealer aid. More details will appear in September RSD).

WHEN THE "WHITE" MARKET COMES BACK

Old-timers in merchandising "lingo" will be used again: "...just arrived... bargain... premium offer... available... complete stock on hand... XX% off... two for one... overstock sale... holiday special... etc., etc." The "white" market also brings new problems with its new opportunities for dealers.

by **LEWIS C. STONE**
Editor

THERE'S a lot these days about independent dealers being "tops" in the postwar merchandising plans and programs of manufacturers. There's also a tendency to discount the threat of postwar competition from miscellaneous chains, mail order houses, specialty stores and other outlets completely new to the radio and appliance field.

Fact is, automobile service stations,

tire companies, mail order houses, chain stores (including grocery chains), jewelry stores (they are well-heeled, having enjoyed a boom since the first war increase in national income) are some of the miscellaneous assortment of retail outlets that are said to be looking hungrily at the unfathomably huge early postwar market for traffic and major appliances, and radio sets with all their new

trimmings and talking points. Here are a few samples of this competition's postwar merchandising plans:

Paint companies like Devco & Reynolds, with about 70 company-controlled retail stores now, will increase them to 500 and will add lines of small household appliances.

Tire companies: Firestone will carry radios, refrigerators, washers, vacuum cleaners, fans, small

DEALER SUPPORT

Then:

Manufacturers took seriously the wartime problems of their dealers from the very beginning of conversion to war production, helped most of them to survive. To name a few: General Electric stressed servicing of radios and appliances, set up service training courses for dealer personnel. Philco arranged a similar pattern for emphasis on servicing business, also furnished dealers with lists of some 11,000 items of then available parts and components. Westinghouse went in for service promotion and training. Zenith undertook to canvass thousands of manufacturers of miscellaneous merchandise to help dealers get side

lines to sell for the duration.

In general, the theme of all these cooperative measures adopted by manufacturers in behalf of their dealers was that better promotion and "merchandising" of service facilities during the war would lay a solid foundation for dealer sales when full lines of radios and appliances came back.

Now:

Manufacturers are now taking seriously the re-conversion problems of their dealers, help surviving dealers and new ones get into selling stride, cope successfully with competition. To name a few: Admiral's portfolio on

store modernization (RSD December, 1944); Landers, Frary and Clark's "moderneering" program (RSD July, 1945); Nash-Kelvinator's detailed portfolio on displaying appliances (RSD, this issue); Crosley's (developed by Crosley Sales Promotion Institute) portfolio on store modernization and product display (to appear in RSD September, 1945).

In general, dealer-aids of the moment consist of approximately the first three of the items in "7 Keys to Store Profits" appearing elsewhere in this article: guides to store modernization, better product display methods and better merchandising. Sympton and sign that the "white" market is due for an early comeback!

appliances, home freezers — in their controlled retail outlets.

Seiberling outlets will handle air conditioners, home freezers, radios, fans.

B. F. Goodrich outlets will handle radios, traffic and major appliances.

Goodyear outlets will handle radios, major household appliances, toasters, waffle irons.

General Tire outlets will handle home freezer units.

W. T. Grant stores will handle varied lines of home appliances.

The idea of adding varied lines of large and small appliances and radios is, according to reports, to help increase customer traffic through these "convenience" lines, and thus to increase the sales volume of the "main" lines handled by the organizations and their outlets.

There's no telling at this time actually how much of the overall share of the business available to radio and appliance dealers these supplementary outlets will take. Granted that as a service to the American family radios and appliances should be widely distributed and sold by a variety of outlets. The share enjoyed by any type of outlet will, in any event, be determined by its location and how well it serves its area.

Merely to hold their own it will be necessary for dealers to become even better merchandisers. There isn't a radio and appliance dealer in the land today who is above being benefited by preparing for the "war of the

outlets" that is bound to come—at least during the initial postwar time. And it isn't alone the dealer's lookout.

In the highly competitive prewar days most manufacturers were mighty proud of their role of "big brother" to their dealers. Service ranked with quality-of-product in their selling efforts. This service ranged from expert advice on merchandising to

elaborate and expensive advertising and point-of-sale helps.

Manufacturers realize now that it is to their advantage to keep as many dealers loyal as it is humanly possible. After the peace it is the (independent) dealers who have survived through handling "outside" lines, who specialized and expanded their servicing business, who added or increased

AGREE ON DROPPING PRICE CONTROLS

. . . makings of a "white" market

General Electric's Charles E. Wilson hopes: ". . . Our backlog (of war orders) and, I think, that of industry generally, is still large, and a temporary decline in orders need not cause any great dislocation if, simultaneously, industry is given the freedom to design and plan for new products to take up the slack as those (war order) backlogs disappear.

"Timing of this relaxation of controls is particularly important because on it depends the whole balance of our economy — the degree to which industry can provide jobs to keep up employment and turn out sufficient products to prevent runaway price levels. . ."

While OPA's Chester Bowles reassures (on eve of one-year extension of OPA): ". . . We must drop controls just as rapidly as we can, and let me say right here with emphasis that there is no group which is quite so anxious to drop them as we in the OPA are.

"As our peacetime production is stepped up, supplies will gradually come in balance with demand, first in one field, then another. As quickly as this occurs, price controls (for those products) will be eliminated. . . It is my belief that during the coming year you will see price control eliminated on many products.

"I can assure you that our approach will be one of flexibility and good sense and that our procedure will be changed promptly to fit changing conditions. . ."

Point about prices is—somewhere in the scramble for the "hot" business, price cutting is bound to occur. But dealers will make a profit only if their markup leaves them sufficient margin. *That's the "white market".*

7 KEYS TO STORE PROFITS

... Some manufacturers are cooperating

1. Better layouts of display fixtures
2. Better show window displays, signs; better in-store lighting
3. New ideas for stock arrangements
4. Pricing for volume, with profit
5. Better institutional, seasonal and tie-in advertising
6. Improved accounting methods; stock control; customer credit plans
7. Store location analysis

lines of records, who actually did everything but take in washing — it is these dealers who will be the ones to swing into selling radios and appliances with added skill.

And the independent dealer is learning to take himself seriously as an important factor in the business of distributing to the ultimate customer what the manufacturers to the trade can so ably and voluminously produce. Independence for dealers can and should mean the opportunity to become better retailers and merchandisers.

Competition from chains and outside organizations will be sharp. But in the past, according to government

figures, chains as a whole (and that includes the chain-dominated five-and-dime stores) seemed to have settled down to a 25 per cent average of the total U. S. available trade over a period of time. There will be enough demand, the chain managements figure, for appliances and radios after the war to make it worth their while to gird themselves for increased volume, and they will offer independent dealers stiffer competition than before the war.

Statistics show that before the war chain radio stores did around 15 per cent of the business, with only about 5 per cent of the total number of stores. (In other words, it took inde-

pendent dealers operating 95 per cent of the stores, to do 85 per cent of the available radio set business. And that's a lot of business.) What chain management did and what manufacturers did for their own chain outlets was—in a nutshell—a bang-up job of merchandising.

And we all know that that kind of merchandising touches each and every phase of the retailing operation; it reaches into every nook and cranny of the store itself. The kind of merchandising that gets results for dealers is merely outlined in "7 Keys to Store Profits".

And it is with an eye to the ultimate showdown in the competition to attract customers—let alone sell them—that manufacturers in the radio and appliance field have been emerging of late with new comprehensive programs for store modernization and with detailed plans and illustrations for in-store displays, show windows and so on. (See Backgrounds for More Sales", "Merchandising with Light" elsewhere in this issue).

"Merchandising lingo" mentioned in sub-head of this article is quoted from "Printers Ink".

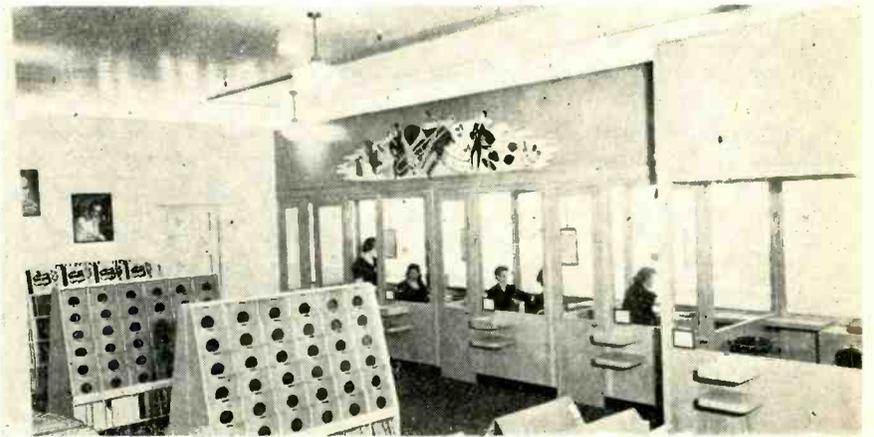
Modernization Advances Sales

ALL the latest developments in modern, self-selection record merchandising have been incorporated in the recently redecorated record department of the H. C. Capwell Company store in Oakland, California.

One of the outstanding features of the department is four glass-enclosed listening rooms that line one wall of the section. The use of glass gives the customer a feeling of spaciousness and extreme comfort that is often lacking in smaller, booth-like listening rooms. In addition, the latest reproduction equipment is installed in the listening rooms, providing customers with the best possible setup to hear recordings.

A unique feature of the Capwell record department is a bin, placed in a strategic position, that offers the best sellers—an easy, speedy way for customers to select the current hits.

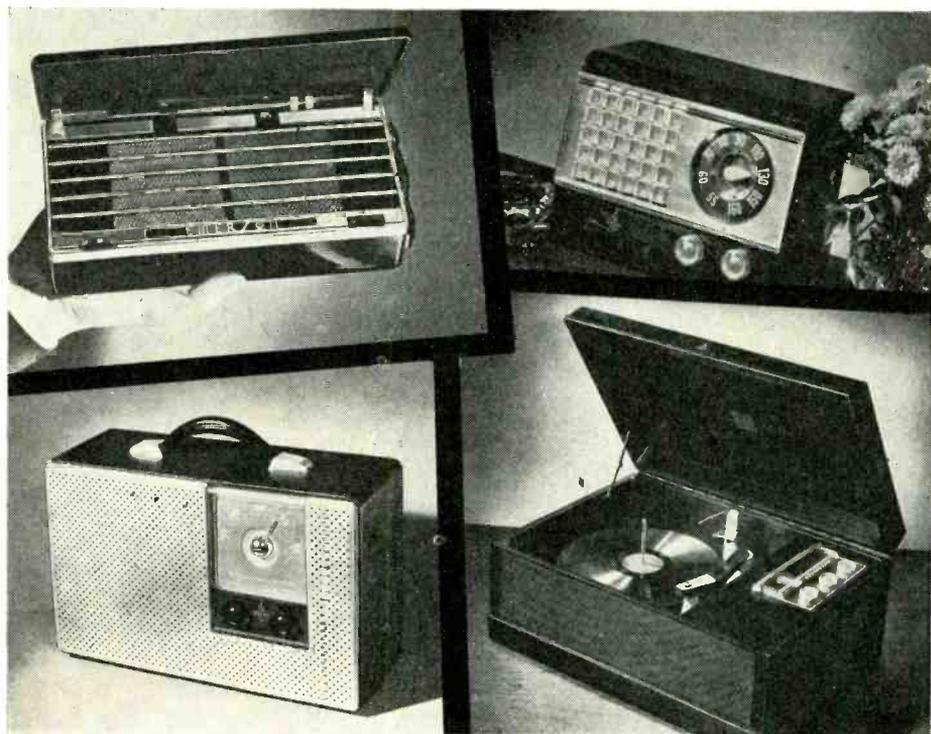
The entire decor is bright and attractive and the store already has experienced a surge in record sales as a result of the modernization.



Photos from RCA-Victor



MERCHANDISE PRE-VIEWS - 2.



\$25 - \$35 - \$85 SELLERS

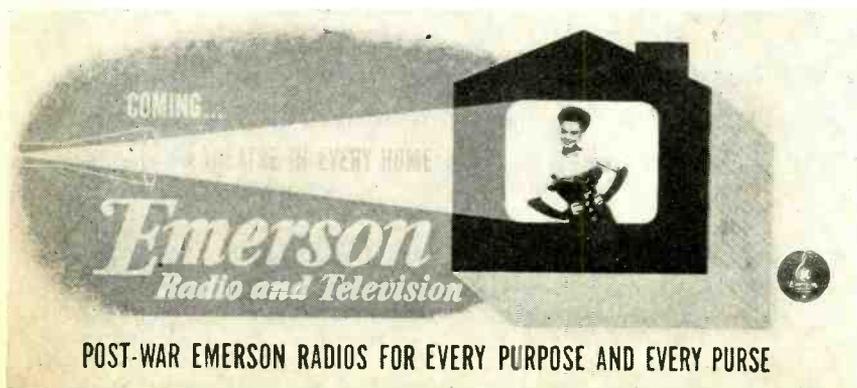
AT distributor meetings held recently in New York and Chicago, Ben Abrams, president of Emerson Radio, presented the first four new basic models which the company is planning to manufacture as rapidly as facilities and materials are released for that purpose.

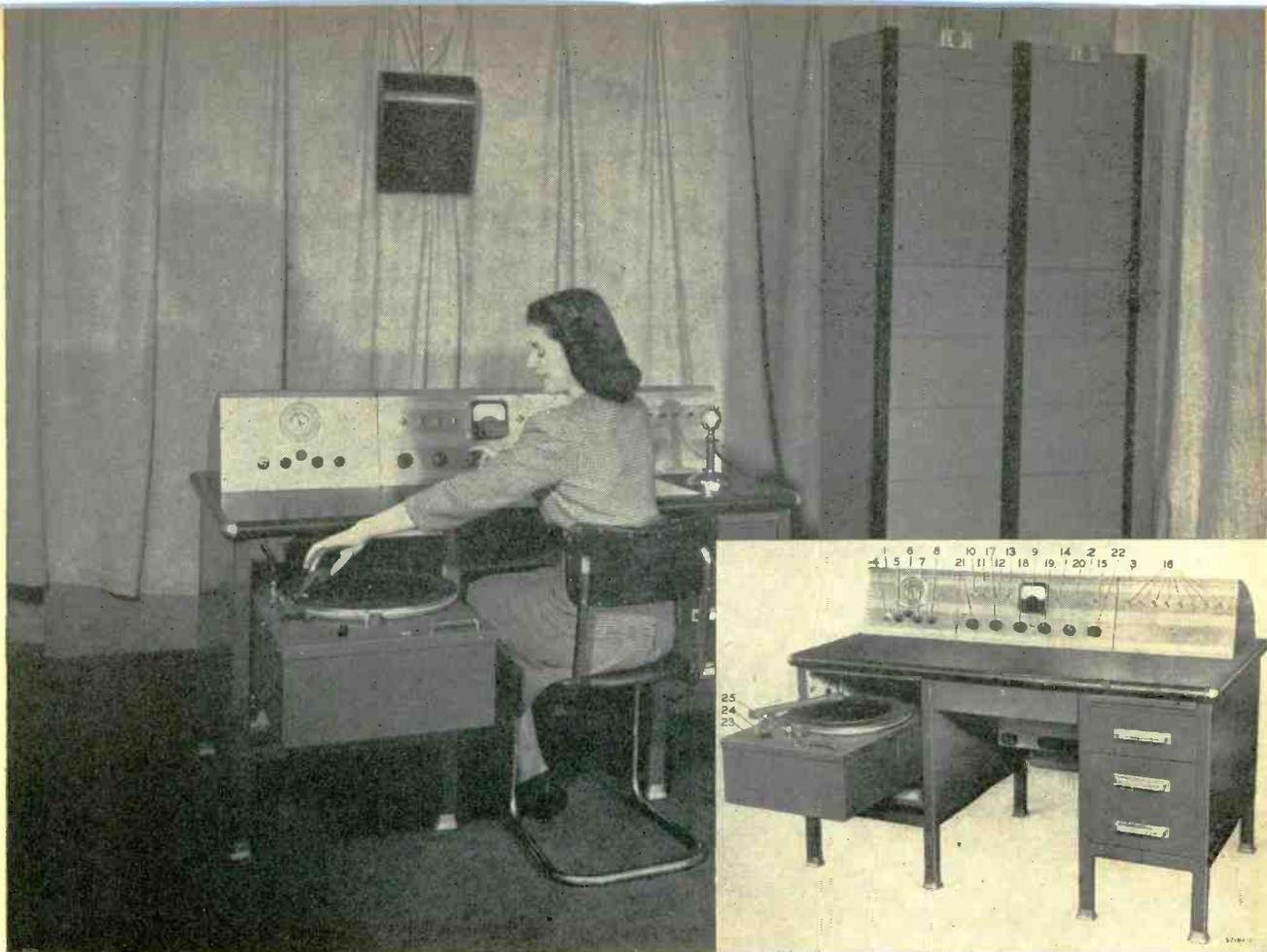
Emerson radio models include a compact set to sell (at dealers' prices) in the neighborhood of \$25, a portable set at \$35, a phonoradio at \$85 and a pocket receiver at \$25. Descriptions and prices of the sets were said to

be approximate only and subject to later change as costs and conditions may indicate. Tube complements and other components were not revealed at the meetings. But it was demonstrated that reception power, output and other technical features represented vast improvements over equivalent pre-war sets. New construction ideas, the styling, the operation and performance features, and the use of newly developed plastics and metals easily distinguish the new sets from the pre-war ones.

In his addresses at the two meetings, Benjamin Abrams stated that, as heretofore, Emerson will concentrate chiefly on small sets. In addition to those types, however, there will be a range of consoles, including phonoradios, recorders, F. M. and television receivers. All models, approximately fifty in number, were described by Dorman Israel, vice-president in charge of engineering and production.

Large space has been scheduled in virtually every national magazine, in newspaper supplements, in billboards and other media with a combined circulation of more than 130,000,000. This advertising is being supplemented with a wide range of point-of-sale exhibits and publicity features, one of which is a series of large water color paintings of the first four models to be released. These paintings are for display in leading stores, in local art galleries and other points of public interest. All consumer advertising carries an "Order Now" message, advising the public to call on franchised Emerson dealers to make selections now for early delivery when the new merchandise becomes available.





Control Console for RCA Plant Broadcasting System. Schedule of components: 1. Radio Console. 2. Master Input Console. 3. Zone Switching Console. 4. Radio Tuning Eye. 5. Radio Auxiliary Volume Control. 6. Station Selector. 7. Band Switch. 8. Radio on-off Switch. 9. Volume Indicator Meter. 10. Local Microphone Input Switch. 11. Phonograph Input Switch. 12. Radio Input Switch. 13. Remote Microphone Input Switch. 14. Volume Indicator Meter Switch. 15. Monitor Speaker Switch. 16. Zone Selector Switches. 17. Local Microphone Input Volume Control. 18. Phonograph Input Volume Control. 19. Radio Input Volume Control. 20. Remote Microphone Input Volume Control. 21. Master Volume Control Channel "A". 22. Master Volume Control Channel "B". 23. Turntable. 24. Turntable off-on Switch. 25. Turntable Speed Change Lever.

Working With Music

by PHILIP J. JACOBY
 Manager, RCA Music Library Service

AFTER years of patient application and in recognition of its outstanding war record, music has at last been admitted to full partnership by industrial management. This signifies broad and beneficial advancement in our economic thinking. It is now timely to evaluate methods of music programming. Just what music is "good" for workers and what is "bad". What standards have been established by experience.

The writer has been in contact with

Music Library Service provides "know-how" for dealers in promoting P-A business; chances for record selling. Article 4 in the series, "Sound System Applications".

hundreds of plants that program music daily through plant broadcasting facilities and he has been impressed by the high degree of interest and sincerity with which management seeks to find the right formula for industrial

music programming. Companies operating as far west as Missouri have sent representatives to Camden, N. J., specially to study programming technique. They have asked many questions some of which we will attempt

to answer in the course of this article. Industrial music is not confined to manufacturing operations alone:

It embraces music distribution to quiet work areas such as office areas devoted to stenographic and clerical work;

It also includes business offices such as in banks and insurance companies where it is played for the benefit of both workers and customers;

It is played over sound systems with centralized controls in hospitals, hotels and stores.

It is apparent that these different conditions call for different programming. What has not been so apparent is the fact that the type of audience is as an important factor as the type of operational background. The reason for this is that some very misleading material has been published on what is "right music".

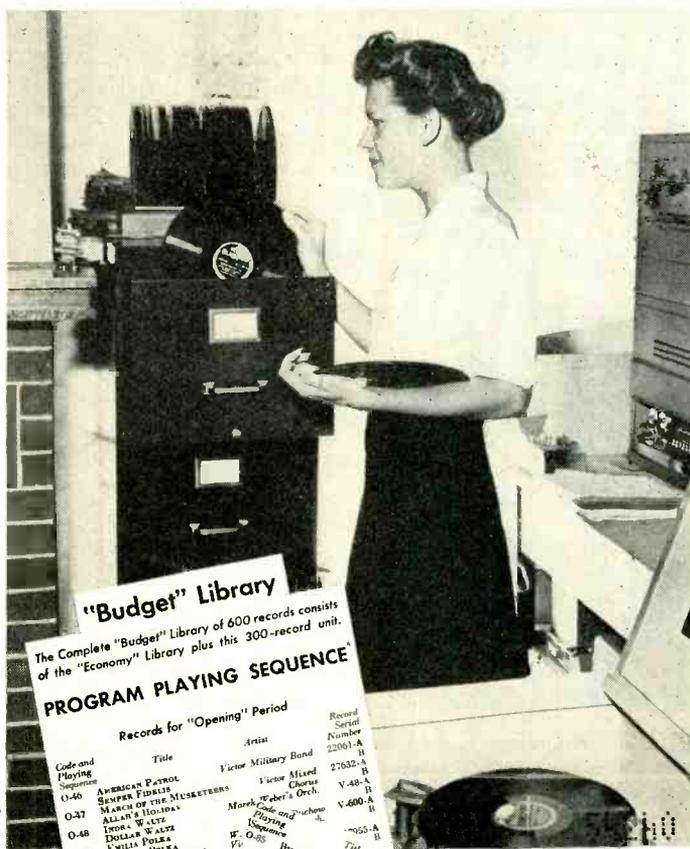
Music "For the Ages"

The prime consideration in good music programming is **know your audience**. For example, in southern New Jersey there is a small plant which employs about 200 of which about 75% are girls between the ages of 18 and 23. We could not very well play the same music there as at a nearby plant where the majority of the workers were over 35 years old. In Pennsylvania we encounter plants with a high percentage of workers of Polish or Slavic extraction. Polkas and folk dances have for them a deep and nostalgic appeal. Southern plants with boys and girls from the hills and Negroes — would rather hear some anonymous and depressed tenor sing "They Buried Ma Six Feet Deep" to the accompaniment of a fiddle and steel guitar than the smoothest arrangement of a "Hit Parade" favorite by a leading popular exponent of swing.

We know of a plant in Trenton, N. J., which employs mostly Italians, at which Caruso is the favorite recorded artist and they have almost every record he ever made. These are programmed regularly to an adoring audience. In fact, there is another plant near Boston which employs a group of Chinese who thrill to blatant recordings of shrill Chinese horns.

If we were to recommend the same or similar music programs for each of these varying conditions, we would be largely defeating the purpose of work-music. Optimum response manifested in high morale and efficiency, is only possible when the music is attuned to audience appeal.

This is not strange because the

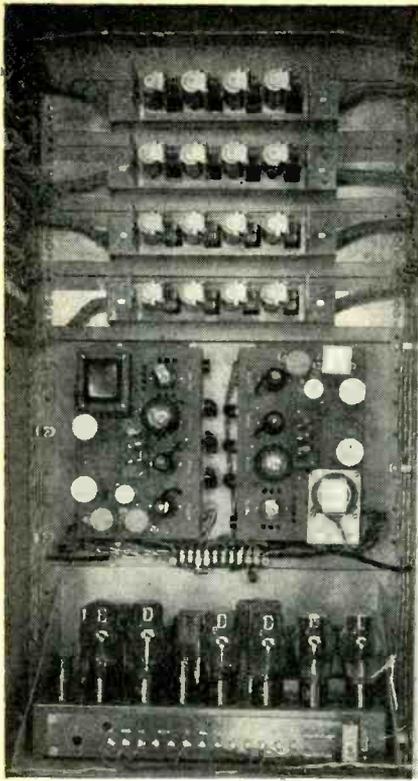


"Budget" Library
The Complete "Budget" Library of 600 records consists of the "Economy" Library plus this 300-record unit.

PROGRAM PLAYING SEQUENCE

Records for "Opening" Period			
Code and Playing Sequence	Title	Artist	Record Serial Number
0-46	AMERICAN FIDELITY	Victor Military Band	27632-A
0-47	MARCH OF THE MUCKLEBERRIES	Victor Mixed Chorus	22001-A
0-48	FROM WALTZ DOLLAR WALTZ	Victor Mixed Chorus	V-48-A
0-49	HILLEN POLKA	Victor Mixed Chorus	V-400-A
0-50	HOW ABOUT A CURE FOR THE NAVY	Victor Mixed Chorus	V-555-A
0-51	ANCHORS AWAY!	Victor Mixed Chorus	V-555-A
0-52	YOU AND YOU WALTZ	Victor Mixed Chorus	V-555-A
0-53	AT THE VILLAGE STORE	Victor Mixed Chorus	V-555-A
0-54	POKER PARTY	Victor Mixed Chorus	V-555-A
0-55	VOICE OF SPAIN	Victor Mixed Chorus	V-555-A
0-56	LUKASZAK	Victor Mixed Chorus	V-555-A
0-57	THE SEAT	Victor Mixed Chorus	V-555-A
0-58	HOT CUP	Victor Mixed Chorus	V-555-A
0-59	WOOD	Victor Mixed Chorus	V-555-A
0-60	VI-F-200	Victor Mixed Chorus	V-555-A
0-61	VI-F-201	Victor Mixed Chorus	V-555-A
F-202	VI-F-202	Victor Mixed Chorus	V-555-A
F-203	VI-F-203	Victor Mixed Chorus	V-555-A
F-204	VI-F-204	Victor Mixed Chorus	V-555-A
F-205	VI-F-205	Victor Mixed Chorus	V-555-A
F-206	VI-F-206	Victor Mixed Chorus	V-555-A
F-207	VI-F-207	Victor Mixed Chorus	V-555-A
F-208	VI-F-208	Victor Mixed Chorus	V-555-A
F-209	VI-F-209	Victor Mixed Chorus	V-555-A
F-210	VI-F-210	Victor Mixed Chorus	V-555-A
F-211	VI-F-211	Victor Mixed Chorus	V-555-A
F-212	VI-F-212	Victor Mixed Chorus	V-555-A
F-213	VI-F-213	Victor Mixed Chorus	V-555-A
F-214	VI-F-214	Victor Mixed Chorus	V-555-A
F-215	VI-F-215	Victor Mixed Chorus	V-555-A
F-216	VI-F-216	Victor Mixed Chorus	V-555-A
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F-273	VI-F-273	Victor Mixed Chorus	V-555-A
F-274	VI-F-274	Victor Mixed Chorus	V-555-A
F-275	VI-F-275	Victor Mixed Chorus	V-555-A
F-276	VI-F-276	Victor Mixed Chorus	V-555-A
F-277	VI-F-277	Victor Mixed Chorus	V-555-A
F-278	VI-F-278	Victor Mixed Chorus	V-555-A
F-279	VI-F-279	Victor Mixed Chorus	V-555-A
F-280	VI-F-280	Victor Mixed Chorus	V-555-A
F-281	VI-F-281	Victor Mixed Chorus	V-555-A
F-282	VI-F-282	Victor Mixed Chorus	V-555-A
F-283	VI-F-283	Victor Mixed Chorus	V-555-A
F-284	VI-F-284	Victor Mixed Chorus	V-555-A
F-285	VI-F-285	Victor Mixed Chorus	V-555-A
F-286	VI-F-286	Victor Mixed Chorus	V-555-A
F-287	VI-F-287	Victor Mixed Chorus	V-555-A
F-288	VI-F-288	Victor Mixed Chorus	V-555-A
F-289	VI-F-289	Victor Mixed Chorus	V-555-A
F-290	VI-F-290	Victor Mixed Chorus	V-555-A
F-291	VI-F-291	Victor Mixed Chorus	V-555-A
F-292	VI-F-292	Victor Mixed Chorus	V-555-A
F-293	VI-F-293	Victor Mixed Chorus	V-555-A
F-294	VI-F-294	Victor Mixed Chorus	V-555-A
F-295	VI-F-295	Victor Mixed Chorus	V-555-A
F-296	VI-F-296	Victor Mixed Chorus	V-555-A
F-297	VI-F-297	Victor Mixed Chorus	V-555-A
F-298	VI-F-298	Victor Mixed Chorus	V-555-A
F-299	VI-F-299	Victor Mixed Chorus	V-555-A
F-300	VI-F-300	Victor Mixed Chorus	V-555-A

Records are stacked to fit predetermined programs. Playing sequences (as above) show 65% of records for fatigue, 15% for opening, 15% for lunch periods, 5% for special occasions. Botany Worsted Mills (photo above) won Music War Council citation for plant broadcasts of music.



Rack of RCA control console. Top to bottom: relays; time signal generators; 50-watt output power amplifier.

worker audience is no different than any other audience. If you are inclined to buy a ticket to a Carnegie Hall recital or for the Opera you do not want to hear a hot rhythm ensemble or a Jam Session. Likewise, if you favor spending your money at the local dance palladium or a roller skating rink you won't expect them to give you a Brahms Concerto or a Beethoven Symphony. A greater degree of responsibility is due the worker audience than any other audience because they must listen to the program. They cannot switch their dial or walk out.

Sound at Work

There are conscientious musical authorities and educators who have smugly advocated this or that type of music and strongly criticized other types. There have been plant superintendents who have said, "I won't permit vocals or fast dance music." These opinions have been largely colored by the individual's personal likes and dislikes. The fact is, which has been amply demonstrated by experience, that with hardly an exception, there is no such thing as "bad" music, so long as it is appreciated by the workers. One classic exception cited by every expert is "Deep in the Heart of Texas" because workers would stop work to applaud. Naturally once in a while a selection is released which is not entirely appropriate for industrial broadcasting but in the main, what

workers want to hear is the music which is "right" for them.

We have been in an office which employed six hundred girls doing monotonous filing duties, where normally about three o'clock fatigue makes inroads into efficiency. We have heard at that time these six hundred girls singing softly, along with a popular vocal recording, and the effect to this observer was inspirational. To the workers it was a tremendous "lift" which carried them right over the fatigue peak. At first the office manager was skeptical about vocals but experience showed that they did not impede efficiency.

Record Samples

There are some types of music and many individual selections which have almost universal appeal and which can be recommended for practically every installation. "Opening" music in plants is usually played a few minutes before the start of work until about fifteen minutes after work starts. Here, invariably, marches or patriotic tunes are suggested. Such selections as "Stars and Stripes Forever" (Victor #20132) "Washington Post March" (Victor #V25) also in most cases a bright polka or fast tempo dance selection is suggested for this period. To illustrate, "Emelia" (Victor #V714), "Pennsylvania Polka"

(Victor #V810), "Irish Washerwoman" (Victor #22131) and "Carioca" (Victor #4287).

Waltzes are popular as "Fatigue" music in over 80% of industrial plants. Good examples of this type are "Gold and Silver" (Victor #25199), "Tales from the Vienna Wood" (Victor #27522) and "Merry Widow Waltz" (Victor #27523). "Fatigue" music is usually programmed about 1½ hours after starting and again, later in the morning, 1½ hours before lunch. "Fatigue" music is played again in the afternoon at about the stated interval after work resumption and before closing.

Other reliable types of "Fatigue" music are popular dance, Hawaiian, Latin American, organ and piano music, old time favorites. To cite a few of the many possibilities, all of which have broad appeal, "A Song to Remember" (Victor #20-1655), "I'd Do It All Over Again" (Victor #20-1679), "Sweet Leilani" (Victor #20-1514). "Green Eyes" (Victor #27443), "Star Dust" (Victor #26712), "Old Timer's Night at the 'Pops'", (Victor #4935), "Begin the Beguine" (Victor #27546).

RCA Music Library Service makes available balanced libraries of selected recordings and transcriptions which are designed to afford program material to meet the local situation at each plant. The service includes assistance

Investment in plant broadcasting system, recordings, personnel is no guess-work. Music that works to "up" production, "down" absenteeism is broadcast to workers according to their preferences, expressed through questionnaires.

ATTITUDES TOWARD MUSIC

1. How much would you like to hear each of these types of music while you work? Give your answer by making check (✓) under the word which best expresses your preference. See first example.

	Like It Much	Like It Some	Don't Care	Dislike It Some	Dislike It Much
1				✓	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

(Tribal dance music)

- Patriotic songs
- Fast dance music
- Hawaiian music
- Popular "Hit Parade" music
- Humorous and novelty music
- Semi-classical and standard music
- Waltzes
- Polkas and square dances
- Negro spirituals and blues
- Marches
- Classical music
- Hillbilly and Western music
- Sacred and religious music

2. How much would you like to hear each of these well-known pieces of music while you work? Give your answer by checking (✓) as you did before. See first example.

	Like It Much	Like It Some	Don't Care	Dislike It Some	Dislike It Much
14					✓
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

(Wierd Ghost Song)

- Battle Hymn of the Republic
- Ave Maria
- Home on the Range
- Beethoven's Fifth Symphony
- Stars and Stripes Forever
- Swing Low Sweet Chariot
- Beer Barrel Polka
- Blue Danube Waltz
- Ah, Sweet Mystery of Life, other Wierd Songs

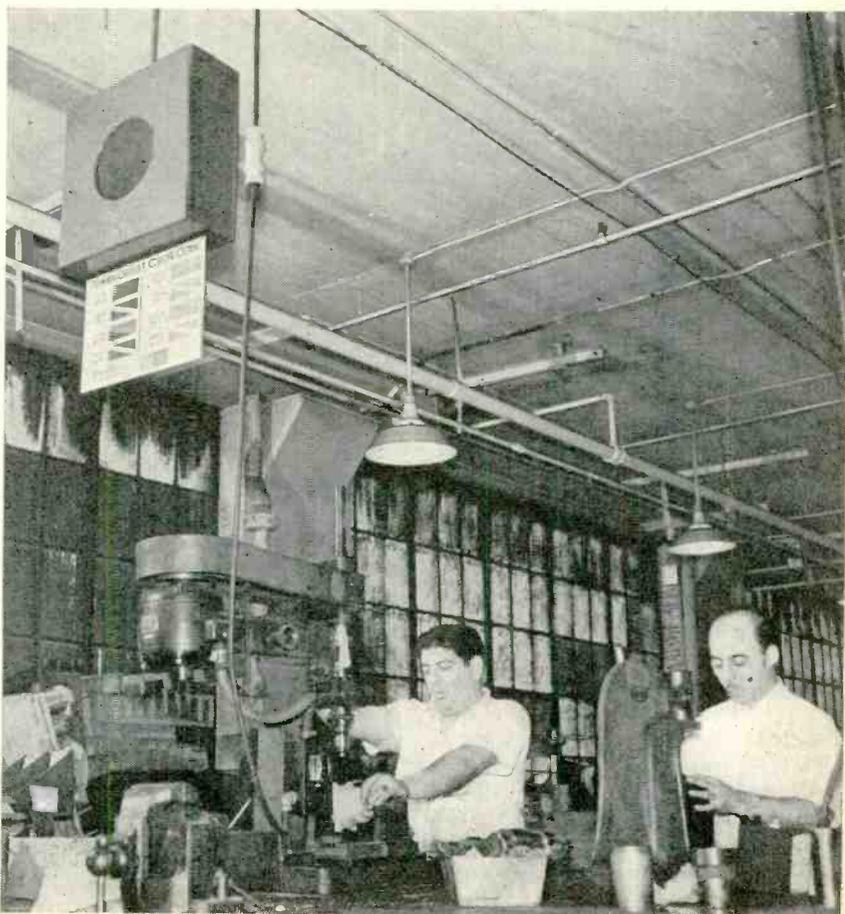


Effectiveness of sound systems is "non-sexual", applies to routine and skilled operations. Above: Girls pack surgical sutures; interest in routine work is sustained with help of music piped in through wall-mounted speakers. (RCA-client Davis & Geck, Inc., Brooklyn, N. Y.). Below: Ceiling-hung speakers help male machine tool operators relieve tensions of highly skilled operations with music to which they "whistle while they work". (RCA-Victor plant, Camden, N. J.). For more material on sound system applications, turn to page 54.

in setting-up and maintaining music programs responsive to the worker's acknowledged preferences. Lists of these libraries are available upon request.

Knowing your audience is based upon three main considerations: (1) Their age group. (2) Their educational background. (3) Their environmental and geographical backgrounds. A careful analysis of these factors is the science of good programming.

RCA Music Library Service has developed an "Attitude Toward Music" survey which was the result of research by Dr. Willard A. Kerr. This survey form is distributed among the personnel, filled out by them and processed by RCA at Camden. It forms the basis for scientific and accurate programming reflecting the individual preferences of the workers involved. Plants which have been guided by their audience's preferences have invariably found that music programming produces appreciable results. The psychological effect of having the personnel feel that the music is theirs, played for them, gives them a personal interest in the project which is otherwise unattainable. Results are greater efficiency, less absenteeism and better output. Sound "at work" pays dividends.





MERCHANDISING WITH LIGHT

DURING the war the tremendous advances in the application of lighting in industrial plants has proven, conclusively, that good lighting decreases worker fatigue, increases production and improves the quality of goods produced. In short, it increases operating efficiency. These benefits can be enjoyed in retail radio and appliance stores where good lighting can be just as effective as a sales tool to increase sales and profits.

Good lighting is more important than ever before because dealers in radios and electrical appliances will soon face both the greatest demand and the most competitive conditions ever known. But this need not mean that they will have to spend a lot of money for many expensive or special fixtures. Lighting equipment available through local sources of supply should be adequate in most instances. Many dealers will be able to adjust their lighting conditions by merely reconditioning their existing equipment and supplementing it with a few additional standard items.

The important thing now, in terms of immediate postwar sales and profits, is to learn how to apply the simple, basic principles of good lighting to your store. Dealers who do this will soon find that they are selling more goods with less effort and that they have greatly improved their competitive position. Good lighting is an investment that makes it easier to sell more goods with less effort. It makes it easier for your customers and prospects to see the goods you have to sell, the goods they want to buy. Uncon-

Advances in lighting mean opportunity for dealers to improve store-wide illumination, accent merchandise.

by **R. H. BISHOP**, *Manager of Sales,*
Lighting Division, Sylvania Electric Products Inc.

sciously, good lighting stimulates both your customers and your clerks.

Lighting Guide

1. The first principle of good lighting is to provide good *general* lighting conditions throughout the store. Lighting levels should be adequate and well distributed. Fixtures should be located so as to provide the highest

levels of light on the merchandise and counters—the *selling areas*. Do not place them over the aisles where less light is needed. Select them with care to be sure they diffuse and distribute light efficiently so you will be able to avoid glare and shadows as much as possible. Standard commercial fluorescent fixtures equipped with standard white lamps are recommended for this type of lighting. They provide good levels for general illumination, having a high total light output for a given amount of current and they are a modern low-brilliance source of light which tends to make them inconspicuous while accentuating the merchandise you want to sell.

2. The second principle of good lighting practice is to provide ample *supplementary* lighting wherever it is needed. It serves to accent special displays of feature merchandise, to increase the amount of illumination for displays of small or intricate items and, applied permanently, it is used to light the interior of wall or show cases.

Generally speaking, incandescent re-

The author





Above: good levels of general store lighting by means of standard fluorescent lamps and fixtures. Customers are encouraged to circulate throughout store, look at more merchandise displays. Island displays indirectly lighted or with portable lamps. Across, top: Fluorescent fixtures are easily cleaned without special tools. For installation data, see spacing chart on page 36.

flector type flood and spot lights are excellent for all of these supplementary lighting needs except the interior of show cases. They may be permanently recessed in the ceiling to provide direct lighting below, installed in extension sockets to front-light special displays or they may be used as portable lamps, easily arranged to produce special effects for special and featured sales items. Incandescent spots and floods produce light that blends well with standard white fluorescent and are particularly useful where it is desired to make highly polished vacuum cleaners, toasters, and similar equipment appeal through "sparkle."

The newer types of instant-start long-slim fluorescent lamps are easily adapted to interior show case applications since they provide long lines of adequately distributed light, operate at relatively low temperatures in comparison with incandescent lamps and can be designed into small, inconspicuous, efficient reflectors. Where custom built show cases are used, fluorescent tubing has many of the same advantages but may be custom-built to fol-

low the lines of round or other odd-shaped fixtures.

Fluorescent lamps applied to general lighting offer an additional advantage where stores are air conditioned or tend to be hot and uncomfortable during the summer months. Dissipat-

ing less heat they tend to reduce the air conditioning load and when customer comfort depends on ordinary ventilation they tend to contribute to more comfortable conditions. Stores wishing to increase the amount of available useful light for merchandis-

SUGGESTIONS FOR STORE FINISHES

It has frequently been demonstrated that existing stores can be made much more attractive by repainting or re-lighting, but when both are done there is maximum improvement. One of the reasons why the color-finish of ceilings, walls and fixtures is important is because an appreciable part of the useful light in the store is reflected or absorbed by them. The amount reflected depends on the type and color of finishes.

The following table shows the effect of color or lighting effectiveness:

Color	Light Reflected	Light Absorbed
White	89%	11%
Ivory	82	18
Cream	77	23
Cream-Gray	66	34
Buff	63	37
Pale Green	59	41
Silver-Gray	46	54
Olive-Tan	43	57
Cocoa Brown	16	84
Black	2	98

High gloss finishes are generally avoided since they tend to produce glare. Flat finishes produce uniform, diffused reflection.



New trends in lighting also evident in fluorescents for the home exhibited in Sylvania Lighting Center, 500 5th Ave., New York. Kitchen (center) is fixtured at various levels, for general illumination and for specific use and work areas. Wall bracket illuminates breakfast table; working top (beyond automatic toaster, out of range of camera) has lower level fixture to light hand operations. Photo at left shows development model of double-arm fluorescent desk lamp; arms swing in 90-deg. turn. When not in use arms go flat against wall, out of way.

ing usually can improve their lighting by using fluorescent equipment without expensive outlays for rewiring.

Lighting Maintenance

3. During the postwar period many dealers will find it both practical and economical to consider what might be called the third basic principle of good lighting — fluorescent lighting maintenance. This service, now being rapidly extended to many parts of the country, is designed to maintain good lighting conditions in commercial establishments *without interruption*. It is usually offered on a contract basis to provide regular replacement of

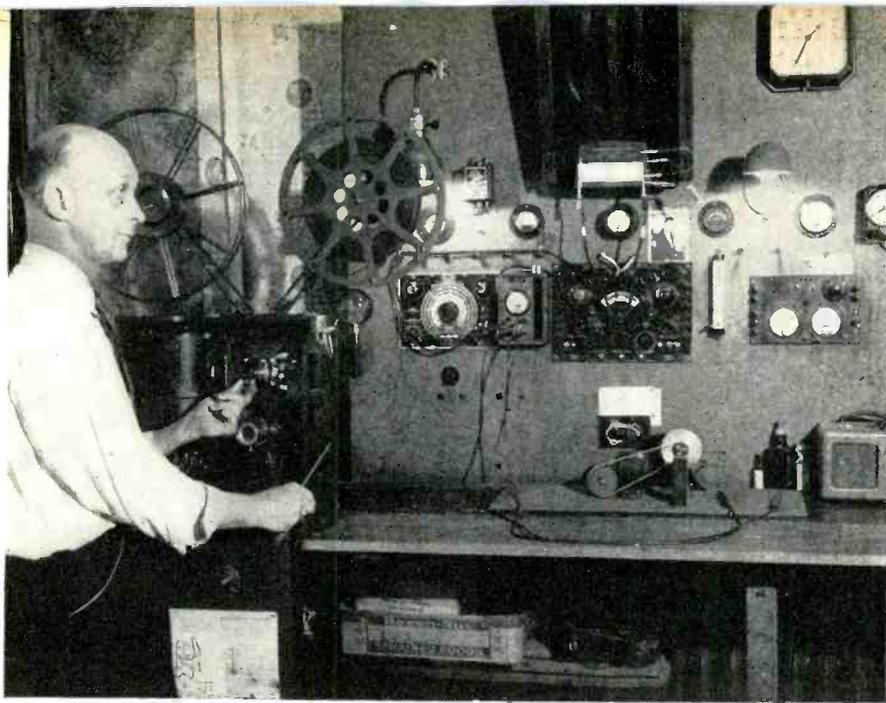
starters and lamps *before failure*, fixture cleaning and the periodic inspection of ballasts and other operating equipment.

Fluorescent fixtures for general store lighting utilize from two to four 40 watt lamps each having a rated life of 2500 to 6000 hours, depending on how long they are used in continuous service. The 2500 hour rating applies to lamps burned continuously for intervals of three hours or less while lamps burned continuously for twelve hours or more are now rated at 6,000 hours life. Fixtures should be carefully selected to assure good light distribution. Those for general store lighting are usually equipped with

glass, plastic or other diffusing mediums. The standard type of fixture shown in the illustration incorporates all of these features and may be readily cleaned, lamps and starters replaced without the use of special tools. Cleaning is important since it is frequently found that available useful light is reduced as much as 30% due solely to the accumulation of dust and dirt on lamps, reflectors and diffusing materials. Wiping with a dry or damp cloth is usually inadequate. Trisodium phosphate cleansers should be used in washing glass or porcelain parts while soap and water usually take care of surfaces finished with synthetic materials.

FIXTURE SPACING	AREA PER FIXTURE	RECOMMENDED MOUNTING HEIGHT	WALLS AND CEILING	FOOT CANDLES		
				ROOM SIZE		
				WIDE 50' or more C-2015	MEDIUM WIDE 20' to 50' C-2015	NARROW 20' or less C-2015
C-2015 SPACING CHART (Individual Mounting)						
6' x 6'	36 sq. ft.	7 1/2'-10'	LIGHT MEDIUM DARK	113 100 95	101 93 84	77 63 58
7' x 7'	49 sq. ft.	8'-10'	LIGHT MEDIUM DARK	94 78 70	80 69 63	57 47 43
8' x 8'	64 sq. ft.	8'-10'	LIGHT MEDIUM DARK	71 59 53	60 52 47	43 35 32
9' x 9'	81 sq. ft.	9'-11'	LIGHT MEDIUM DARK	56 47 42	47 41 37	34 28 26
10' x 10'	100 sq. ft.	10'-12'	LIGHT MEDIUM DARK	45 38 34	38 33 30	28 23 21
11' x 11'	121 sq. ft.	12'-14'	LIGHT MEDIUM DARK	36 31 28	32 28 25	23 19 17
C-2015 SPACING CHART (Continuous Rows)						
11'	44.8 sq. ft.	11'-13'	LIGHT MEDIUM DARK	101 84 76	85 75 67	62 50 46
12'	49 sq. ft.	12'-14'	LIGHT MEDIUM DARK	93 77 69	78 68 62	57 46 42
13'	53.1 sq. ft.	12'-14'	LIGHT MEDIUM DARK	85 71 64	72 63 57	52 43 39
14'	57.2 sq. ft.	14'-16'	LIGHT MEDIUM DARK	79 66 60	67 59 53	48 40 36
15'	61.4 sq. ft.	14'-16'	LIGHT MEDIUM DARK	73 62 55	63 54 49	45 37 34
16'	65.4 sq. ft.	14'-16'	LIGHT MEDIUM DARK	69 58 52	59 51 46	42 35 32

Spacing chart to be followed when installing fluorescent fixtures in stores.



Eyler checks "gimmicks" in sound film projector for p-a service customer.

Offers "Product-Find" Service

by M. E. MACDONALD

Dealer turns his hand to selling by locating specialty merchandise on order. Services local plant P-A systems.

WHEN Owen B. Eyler, Radio Specialist, went into business twenty-seven years ago, he said to himself, "The slogan of this firm shall be "Super Service with a Smile." This keynote in 1917 was a preview to the establishment of a business that not only is surviving the shortages and acute curtailments of a second world war, but is laying a firm foundation for future business.

Looking back on the service horoscope of World War I, dealers are reminded that those were the "doubtful Thomas" days in radio sales. Battery sets predominated. These sets required plenty of servicing. This made sales difficult, due to the fact that radio was still in the experimental stage and sales were dependent on buying from a reliable dealer who had the customer's confidence. It was a closed circle—this confidence was backed by the dealer having in stock the right parts to recondition the radio when needed. In 1917, shortages presented

no problem. Radio was a miracle sweeping the world. In those days dealers not only invited their customers to stop by and look and listen to science's newest marvel but in order to effect a sale, an outside aerial had to be installed. Today service dealers have to keep going in spite of acute shortages.

"But how did you solve this problem?" asked your reporter. Action speaks louder than words, so during this interview, Eyler answered this question with action. A customer came in. He wanted a movie projector. Eyler had none in stock, yet he said, "Drop in next week. I believe we'll have one then for you.

"I like always to keep one step ahead of the customer. I know where a movie projector is obtainable," said Eyler with a smile. "Now, I'm letting you in on a sales secret that has kept my retailing picture intact during the war."

Located at 70 E. Washington

Street, right in the middle of Hagerstown's (Md.) transportation and traffic territory, the store suits the convenience of local and transient customers. Eyler's contact plan for future sales has been to keep his customers' radios reconditioned to the best of his ability.

Eyler's main sideline during the war period has been movie projector sound servicing. It is no ordinary occupation to keep the movie projectors of the nearby Fairchild plant serviced. This war plant uses 16-mm. sound movies to train employees. This formerly required a foreman and hours of extra labor. Eyler's maintenance and servicing of the movie training equipment is a perfect example of cooperation and teamwork between independent dealers and industry. Eyler also services the Potomac Edison locally and the Bell Telephone Company of Baltimore, Md.

His training has been Eyler's over-head-eliminator. "If I had not been specially trained for service," he admits, "war would have put me out of business. The war has compelled us to utilize all the ingenuity possible to save our business. The resourcefulness acquired during this period should make us better peacetime merchants."



Move to Corner — "Corner" More Business

Radios, refrigerators, freezers — plus variety of traffic home appliances are "demand lines" in this dealer's trading area. New location in same town and store modernization boost servicing and sales.



FOR around two years, Carwood Stores occupied a middle-of-the-block 11-foot frontage in Laurelton, L. I. Those years, incidentally, spanned the most intensive period in the history of radio and appliance servicing. Sidney Carson and Harry Sherwood, owners, rotated their time at benchwork, pick-ups and drop-deliveries to a growing list of customers. Service jobs were usually promised back to customers in 24 hours. This called for heavy concentration on the servicing and repair ends, and on outside customer-contact work. The time in the 11-foot store represented for its owners an essential "get-acquainted" period. Trade came from a radius of about five miles, was handled expeditiously and a steady following developed.

With prospects of early resumption of civilian radio and appliance production, Carwood Stores moved about three hundred feet diagonally across to their present location at the corner of 230th street and Merrick Road. Formerly, a Chinese restaurant occupied the premises, so there was a



ABOVE: Sign on canopy features post-war lines; sign in window features current radio repair service. Actual items on display are traffic appliances and records; island and wall racks are for self-service record customers. **BELOW:** Co-owner Carson at work in compact, test-equipped, manual supplied shop. **ACROSS:** Top, jumble display on wall counter includes Sun Kraft sunlamps, Duell broilers, GE fluorescent bedlamp, Cory and Silex coffeemakers, Stern-Brown hotplates. Bottom, completed jobs are delivered in fluorescent lighted area, future major appliance display spot. While collecting sets, service customers are "exposed" to available merchandise displayed on shelves and indirectly lighted counter showcase.

rather extensive alteration and modernization operation before the store took its present shape, as shown in these photographs. The alteration consisted of dividing the store into three sections: the forward selling floor occupies about two-thirds of the store depth; then comes the future major appliance show room, now (see illustration) used to store, and for the delivery of, completed radio and appliance service jobs; and back of that, the service shop with its test equipment, manuals and shelves and racks for servicing jobs awaiting their turn.

The scope of operations has, in the past two or three months, expanded to the point where Carwood display and sell electric clocks, irons, broilers, fluorescent bedlamps, hot-plates, coffee makers, sunlamps, etc. As for post-war lines, the firm has negotiated franchises to represent a number of well-known radio and appliance manufacturers in its trading area. Among them, according to Mr. Carson are:

For refrigerators, home freezers and ranges: Crosley (including kitchen cabinets); Kelvinator; Norge; Philco; Schaefer (freezers only).

For radio receivers, full-line franchises: Bendix; Crosley; Emerson; Meck, Philco; Stromberg-Carlson.

From various manufacturers, a wide

variety of miscellaneous traffic appliance items such as clocks, toasters, mixers, etc. in addition to the items already in stock (see photograph of wall-counter display).

The corner location has brought an

increasing number of transient trade, for both servicing and purchase of the available appliances, and records. Merrick Road is a much-travelled highway, and even in these days of gas shortages enough traffic of local origin



(according to Carson, transient customers come from places ten miles distant) passes by to yield the store a sizable amount of additional business.

Favoring an anticipated increase in this kind of business is the fact that the store is visible day and night from a considerable distance because of a massive brightly colored canopy which extends as far out from the building line as local ordinances will allow. By day, its colors draw attention from autoists; at night, neon and fluorescent lights make it even more of an attention-getting beacon.

"Location-advertising", says Mr. Carson, "is one of the many fundamental merchandising steps I firmly believe in. Both Mr. Sherwood and myself were associated with one of the most outstanding firms of merchandisers in radios and appliances, Davega's of New York City. Almost twenty years of experience with that firm have ingrained in both of us the habit of merchandising in all we do. Note that even where we deliver finished service jobs to customers, some attempt has been made to "merchandise"—by exposing the waiting service customer to some item for the table or the kitchen or the phonograph. (See photo, page 38).

"Note also our in-store illumination. In the main salesroom we have installed four fluorescent brackets, each carrying four 40-watt units. In the large show window, illumination is even more concentrated. There are four brackets with four 40-watt units each, plus 2 brackets with four 20-watt units in each. In the smaller show window (carrying the sign "Radio Service"), we have 1 bracket carrying four 20-watt units and 1 bracket with four 40-watt units. All of these are fluorescent."

Service work is organized by means of job customer tickets each carrying a duplicate serial number—one for tagging the radio or appliance, the other for the owner. As far as possible, with a very limited personnel, service customers are followed up regularly either when in their vicinity while calling for or delivering a job to another customer; by telephone; or by post card. At any rate, Carwood does not allow itself to be forgotten, overlooked or unpatronized.

Some sound system work has come in "over the transom"—from local schools, churches—and once from the local OPA office. The usual job is either 25 or 30 watt output, and the equipment available to this dealer at the present time consists of Bogen speakers and Masco amplifiers. The work is profitable, and Mr. Carson calculates it will grow.

An average of about 50 radio service jobs—small and large sets—are completed during a six-day work week. When RSD visited the store first, there was a complete assembly of the audio part of a GE television receiver (model 90, coincidentally described in RSD for July) laid out on a work table, in process of being checked for servicing and replacements.

Incidentally, Mr. Carson pointed out that the steady growth in their transient trade, in what is essentially a suburban neighborhood, with its more or less hand-picked dealer-customer relationships—must in large part be due to the fact that right smack on the corner is a traffic light (see cover illustration). Oddly enough, it often means a "green go-ahead signal" for service and sales to the Carwood crowd, when the traffic lights show red and autos stop practically on their doorstep.

The completion of the first Frigidaire climaxed a period of intensive effort by factory supervisors and workers who performed the gigantic task of reconverting part of the large plant from the building of materials for war to the production of peacetime products in record time. According to general manager Edward R. Godfrey, Frigidaire is still devoting a major part of its energies to war production. The greater portion of the huge refrigerator plant, one of the world's largest, is still busy with the production of propellers including those for the B-29 super-fortress.

As announced by the War Production Board, refrigerators that will be built for some time will not be available for sale to the public but will be added to the country's frozen stockpile and released subject to WPB regulations. They will be distributed to military establishments, hospitals and other highly essential places. At this time it is not known how soon refrigerators will be sold for public consumption.

The first Frigidaire to come off the assembly line was the Model MI-7 and it will be followed by Models DI-7 and DPI-7. All of these models have a food storage capacity of 7 cu. ft., a shelf area of 12 sq. ft. and large frozen storage capacity. They will be equipped with drawer type meat tenders, sliding cold storage trays and sliding glass top hydrators. The dimensions are 60" high, 30 $\frac{3}{8}$ " wide at base, and 25 $\frac{3}{8}$ " deep. All of the refrigerators will be equipped with the Meter-Miser sealed rotary type compressor which is permanently sealed and requires no oiling.

Other features will be aluminum Quickcube ice trays, featuring Frigidaire's built-in instant-cube release and automatic tray release, and a cold control for regulating freezing speeds and cabinet temperatures. The refrigerant will be "Freon-114", the safest known refrigerant, developed by Frigidaire and General Motors.

General Manager Godfrey stated the company is now producing a limited number of electric ranges and commercial refrigeration equipment and that production of additional Frigidaire products would begin as soon as materials and machinery become available and war production needs permit. These products will include Frigidaire's full line of refrigerators, electric ranges, water heaters and home freezers. Also such commercial refrigeration and air conditioning products as beverage, milk and water coolers, ice cream cabinets and air conditioners.

REFRIGERATORS

"WARMING UP"

**... but all now produced go to
WPB stockpile**

The first household refrigerator manufactured by the Frigidaire Division, General Motors Corporation, since April 30, 1942, was completed at the Moraine City plant on July 25. It headed a parade of over 50,000 re-

frigerators that the War Production Board has authorized Frigidaire to build during the third quarter of 1945.

Even though conversion for regular line production has not been completed, actual production is under way.

Pricing the Job

Two-way estimates often lead to bigger service sales.

by IVAN D. LONG

TODAY, more than ever, there is talk among radio set owners about the unfairness of radio men with comments on how the radio service dealers are getting rich. Such comments get back to radio men every now and then, and they wonder where have their riches gone.

If there is any one subject that is of interest to radio owners, radio amateurs and radio servicemen, it is the cost of radio repairing. How much should the serviceman charge for fixing a radio that cost \$6.95 new, and how much for a radio that cost \$325 new?

The writer's opinion is that there is no very close relationship between the price a customer paid for a radio and what he should pay to have that radio repaired. With OPA doing its stuff in the matter of curbing prices, the radio-using public believes it has

protection on prices. It is not the purpose of this article to determine the fairness or unfairness of OPA rulings, but simply to look at the possible methods of charging for radio repair work, as well as the customer's attitude toward that price, and what is fair considering both repairman and his customer.

Among the thousands of radios I have priced since the war began, I had perhaps a dozen taken to the OPA. In one instance I was required by the OPA to return the sum of five cents to a customer. In no other instance was the bill presented found at fault. But with this downfall — five cents' worth of it — I determined to eliminate the OPA from my trouble list. How? Fairness both ways.

John Smith brings his radio for checkup. He is charged, say, \$1.50 for the analysis, which includes testing

of all tubes, testing of filters and power transformer, and cleanup of the chassis. In this process tubes are usually substituted and the set made to operate. The customer is told just what this job will cost without regard to the new price of the radio.

Let the Customer Choose

The customer is then told that the radio will not be in "like-new" condition at the price mentioned, but merely in approximately the same condition it was when it quit playing. He is shown parts that look bad in the set, joints that should be touched with a hot iron to renew them, and the need for realignment is explained. To renew the set completely will cost considerably more, and it is recommended that a complete job be done. In very few instances is it necessary to give a flat price for the work, for it is explained that such a flat price would have to be high enough to include any possible defect that might need correcting.

The "fair" angle of the business is giving the customer straightforward information about his set, and assuring him that as his service dealer you want his confidence and in turn will give him SERVICE on his radio. Fairness to the customer means (in his language) that the radio be worked on NOW instead of lying around the shop for two or three weeks with the excuse that parts are hard to get, and the other excuses for procrastination handed out by some.

The radio man who knows his business has a right to demand a minimum of \$2.50 per hour for his services, but there are some jobs that stick him and would stick any man who tackled the job. Who pays the freight on such jobs? The customer who says the radio man doesn't know his business, must be carefully told that a radio man is comparable to a doctor of the human mechanism. Both deal with "spirits" — things they cannot see, but can determine their effects. The doctor charges a fee as he sees fit, ranging from \$2 to \$2,000, depending on the potential buying caliber of the customer.

The radio man must demand his hourly wage, but he can accomplish it better by setting flat prices on each

[Continued on page 58]

"Explosion" views of components of Hytron tube assembly are featured on educational posters for display by radio service dealers. Similar displays, for other components, should help educate customers to an appreciation of intricacy of radio receivers and importance of good service.

The posters are arranged in a grid and include the following sections:

- 1 STEM DEPARTMENT:** Shows various stem components like cut and pump operations, precision operations, and various sizes of stems.
- 2 FILAMENT & CATHODE DEPT:** Shows filament and cathode components, including insulating coating, filament tubes, and cathode tubes.
- 3 GRID DEPARTMENT:** Shows grid components, including grid tubes and grid electrodes.
- 4 PARTS PREPARATION DEPT.:** Shows various parts and their preparation, including grid tubes, cathode tubes, and various electrodes.
- 5 MOUNT DEPARTMENT:** Shows the mounting process, including parts preparation, stock room, and various mounting techniques.
- 6 BULB SPRAY, BASE FILLING DEPTS.:** Shows the spraying and filling of the bulb and base.
- 7 SEALING-IN DEPT.:** Shows the sealing-in process, including various sealing techniques.
- 8 EXHAUST, BAKING, AGING, and TEST DEPT.:** Shows the final processing and testing of the tube.
- 9 PACKING and SHIPPING DEPT.:** Shows the final packaging and shipping of the tube.

A central graphic reads: **STEP BY STEP ASSEMBLY OF TYPICAL HYTRON RADIO TUBE**

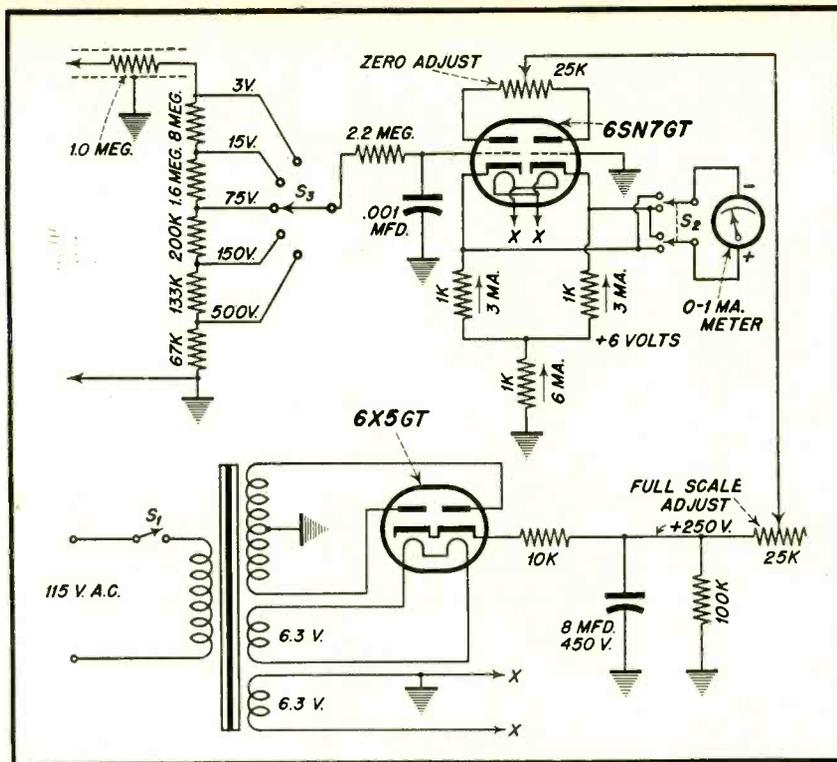


Figure 1.

Electronic Voltmeters

by **OSCAR E. CARLSON**
E.S.M.W.T. Instructor, Temple University

PART 3

EVERY serviceman has at some time or another encountered the limitations in measurements of d.c. voltages with the conventional 1000 ohm per volt or even 20,000 ohm per volt meter. It is quite apparent that the 5 volt scale of a 20,000 ohm per volt instrument places a 100,000 ohm resistance in parallel with resistor across which we may be attempting to measure a voltage. Consequently the reading obtained is in considerable error.

An instrument to overcome this disadvantage is the Electronic Voltmeter which is so designed as to have a constant high value of load resistance upon the circuit under test.

We are all familiar with the fact that the plate current of a vacuum tube may be varied in conjunction with the bias applied to that tube. Thus a

very simple type of Electronic Voltmeter is one which uses but one tube and the voltage to be measured is allowed to establish bias for the tube. The plate current is measured and provides a measure of the applied voltage, a portion of which is used to establish a shift in the bias voltage.

A second and better method is that wherein two tubes are used in a bridge circuit and the voltage to be measured applied as bias to one of those tubes. The meter is now used to measure the unbalance of the bridge circuit.

Fig. 1 shows such an arrangement which may be readily constructed by the serviceman. Any 0 to 1 milliampere meter that may be on hand may be used as the meter for the instrument. In constructing one such arrangement, the author simply built

up the circuit of Fig. 1 minus the meter. Two test jacks were brought out to the front panel and the test leads from a standard multi-tester inserted. Then with the meter of the multi-tester being used on the 1 milliampere scale a suitable Electronic Voltmeter is achieved.

In using this instrument with a 0 to 1 milliampere meter, no new scales are needed since all scales are multiples of one. Thus, on the 3 volt scale, we multiply the current reading in milliamperes by 3, etc. The unit of Fig. 1 may be constructed and used with a panel as laid out in Fig. 2. Chassis size and detail are left to the individual constructor due to difference in materials available. The theory of an instrument such as in Fig. 1 has been covered in previous articles in "Radio Service Dealer" and so will

not be gone into again. Some precautions are, however, necessary.

The reader will notice that the two tubes used, a 6X5GT and a 6SN7GT, are both rated at 6.3 volts filament voltage. A conventional 40 milliamperere power transformer is used in the instrument and the 5 volt filament winding is used with the 6SN7GT. This is done to lower the emission of that tube, keep it cooler, and thus lower the grid current. The grid current that flows with the voltages used in this unit is such that in shifting from the 3 volt to the 15 volt scale a shift of 1 percent of the scale is noticed and the zero adjust must be set again for that scale. No reset is needed for all the other ranges.

The unit provides a constant 11 megohm input resistance and so will give quite accurate voltage reading across resistance values of a megohm and more. In adjusting the unit for the various ranges it will be necessary to juggle the values of the input resistance network. This network simply acts as a voltage divider arrangement so that we will apply to the grid of the tube only the proper portion of the total voltage to be measured. Since our first scale is a 3 volt scale and we are to adjust the full scale adjustment for full scale reading when measuring three volts on that scale, it may be seen that on the 15 volt scale we still wish only 3 volts applied to tube with 15 volts being applied across the divider network. Thus we tap down on that network so that we measure the voltage across 1/5 of the total divider resistance value. For the 75 volt scale we tap down to 1/25 of the total value, etc. The resistors in this network may be 1 watt carbon resistors and the proper values achieved by series and parallel or series-parallel combinations.

The Parts

The switch S2 is used to reverse the meter connections so that regardless of the applied polarities to the test prods, they may be kept with the normally grounded prod always on ground.

The switch S3, which is used to select the voltage range, may be made up from an old wave-band switch or a simple five position tap switch may be utilized.

The 25K ohm (zero adjust potentiometer) is used to adjust the meter reading to zero with no voltage being measured. It actually serves to balance any difference that exists in the tubes and resistors of the cathode circuit so that a balanced bridge is achieved with no input voltage to be measured.

The 25K ohm (full scale adjust) po-

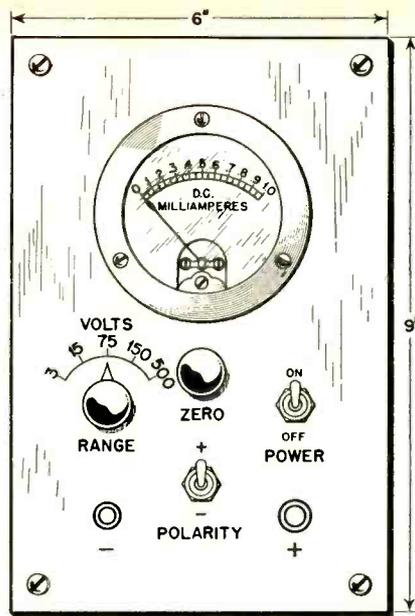


Figure 2.

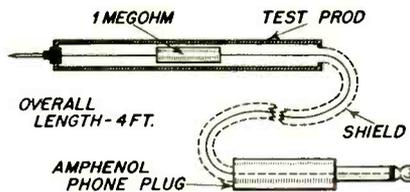


Figure 3.

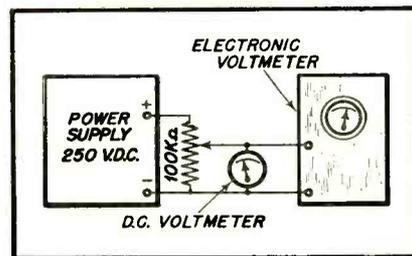


Figure 4.

tentiometer is used to adjust the plate voltage and thus the plate current with the proper required full scale voltage applied for the 3 volt scale. This may be from two flashlight batteries in series as a test voltage. This control should be inside the unit as it is not to be readjusted once it is properly set.

The grounded test lead is simply a rubber covered test lead with regular insulated test prod. The prod for the high side is made up as shown in Fig. 3 and has a 1 megohm resistor built into the prod to prevent capacity loading of circuits under test.

The Adjustments

With the unit constructed, disconnect one side of the meter, and turn power on the instrument. Adjust the

zero adjust control to the center of its range. Now with a conventional D.C. voltmeter, measure the B+ voltage at the 100,000 ohm bleeder. Next measure the voltage at each cathode of the 6SN7GT. This should be about 9 volts for each cathode. If there is an unbalance of these two cathode voltages, adjust the zero adjust potentiometer until each cathode reads approximately the same voltage. Now measure the voltage on the center arm of the zero adjust control or of the full scale adjust control. Adjust the full scale adjust potentiometer until that voltage is approximately 240 volts.

With these preliminary adjustments made, reconnect the meter. The meter should now read zero. It may, however, read slightly plus or minus zero. Adjust the zero adjust control carefully until meter reads exactly zero. This should be done with the selector switch on the 3 volt range. Now connect 3 volts d.c. to the test prods. If meter goes off scale to the left, reverse polarity switch. The meter should now read full scale. If not, adjust full scale adjust potentiometer until the meter reads just 1 ma. with the 3 volt d.c. source applied as above.

Remove 3 volt source, turn selector switch to 15 volt scale, reset zero adjust for zero. Apply 3 volts d.c. to test prods in same polarity as previously. The meter should now read .2 ma. For further adjustment a source of variable d.c. voltages may be arranged as in Fig. 4. Adjust the potentiometer in Fig. 4 so that multimeter reads 12 volts. The Electronic Voltmeter on the 15 volt scale should now read .8 ma. Adjust voltage to 15 volts, the milliammeter of the Electronic Voltmeter should then read 1.0 milliamperere. If it reads off scale to the right, we have too much resistance between the 15 volt tap of the divider and ground. If it reads low we have insufficient resistance. Thus the value of the 1.6 megohm resistor must be varied to counteract. This may then be repeated with each range. If 500 volts is not available for the 500 volt range, it may be adjusted at some lower voltage. 250 volts should cause 1/2 scale deflection for that range. Slight variations made in the low resistance values of the divider will not appreciably alter the reading for the lower voltage ranges since those low resistance values form such a small portion of the total resistance involved.

It is hoped that the above is sufficient information for the serviceman to construct such an instrument. Should any questions arise the author will be glad to answer any letters of inquiry addressed c/o "Radio Service Dealer."

PRODUCT NEWS

[More on page 46]



RCA Batteries

A complete line of dry batteries will be added to the RCA list of products beginning this month, it has been announced by L. W. Teegarden, general manager of RCA Victor's tube division, Radio Corporation of America. Pointing out that radio batteries comprise 60 percent of the battery industry's total sales, Mr. Teegarden said this marks the first time a full dry battery line has been offered by a radio tube manufacturer. It also marks the addition of a major line to the RCA tube division's list of products.

The new line will be placed with RCA tube and parts distributors and dealers associated with the radio industry, and orders will be filled on an allocation basis, he said. The application of the "preferred-type" idea, used with success by RCA in the electron tube field, will make it possible to service from 80 to 90 percent of the current radio and general utility battery demand with carefully selected types. Mr. Teegarden pointed out that this procedure is advantageous to both distributor and dealer, since it makes for smaller inventories and quicker turnover. However, as conditions permit, the program will be extended to cover a full line.

Built around the theme of "more listening hours in RCA batteries," an extensive advertising and merchandising program has been planned for the new line. A "quick selection chart" for battery requirements has been prepared, covering all standard makes of radios, phonographs, and combinations. In addition, an introductory kit containing window stickers, newspaper advertising mats, display pieces and other merchandising aids will shortly be made available to dealers.

The sale of RCA batteries will be handled by the Tube Division in conjunction with RCA tubes and parts. David J. Finn, Manager, Renewal Sales Department, will supervise the sales activities.

high which displays an individually packaged needle on a "stage set," with a beam of light cutting through the lucite package. A locked compartment at the rear of the cabinet holds a large supply of needles.



Kitchen cabinet sinks and floor and wall cabinets will be dealer-supplied complete for post-war kitchens. Home economist demonstrates Crosley lines.

Needles Merchandised

Richard A. Graver, vice president of the radio division, announces that Admiral Corporation has commenced distribution of sapphire-point needles as part of Admiral's recently revealed radio and phonograph accessories line. Within a few weeks, Graver said, Admiral distributors will have ample stocks to supply their dealers. The needle is individually packaged in a lucite container and distributed under the trade label of "Admiral Lifetime Precious Jewel Needle," and bears a lifetime service guarantee.

A smartly designed free dealer display, given with each initial order of 25 or more needles, will stimulate sales, Graver asserted. The display is an enclosed, windowed illuminated cabinet, lacquer-finished, 7½ inches deep, 12 inches wide and 7⅞ inches



Dealer Display

RecorDisc Corporation of 395 Broadway, New York City, announces a new, double-purpose Merchandiser-Display. This unit is a combination display card and RecorDisc instantaneous home recording blank container, in gay colors and of attractive design. The complete package, intended for counter, shelf or table display, consists of a 18" x 24" display card, a sturdy rack to hold 60 RecorDisc home recording blanks of assorted sizes, and a quantity of newly prepared two-color consumer folders.

This Merchandiser-Display can be obtained, free, from your nearest RecorDisc jobber.



SPRAGUE TRADING POST

A FREE Buy-Exchange-Sell Service for Radio Men



OVER 8,000 TRADING POST ADS!

Over 8,000 individual advertisements have been handled free of charge in The Sprague Trading Post for members of the Radio profession! Convincing evidence that this unique service is still going strong is supplied by the above photo. Here Sales Manager Harry Kalker (center) assisted by Research Engineer Leon Podolsky and Secretary Mrs. G. I. Denoyan give personal attention to a day's accumulation of Trading Post correspondence.

WILL TRADE—6G6G radio tube for 25Y5, 25Z5 or 25Z6 tube. Stanley K. Wilkinson, Larwill, Ind.

FOR SALE—Rider's 1 to 5 and ABC unameter tube tester for 4 to 7 prong tubes; also 5-band battery-operated Philco sig. gen. Alan T. Hanmer, 79 Kemp Ave., Fair Haven, N. J.

WANTED—Schematic diagram for All Test meter #730, or photostatic copy of same. E. P. Riffle, 462 Elm St., Ludlow, Ky.

FOR SALE—Several 0-500 mil, 2" thermocouple R.F. meters \$5.50 each. Bill Montgomery, 1290 Coolidge Ave., Cincinnati 30, Ohio.

SELL OR TRADE—National FBX with crystal, power supply, 20, 40, and 80 meter coils; "The Radio Manual" by Sterling. Want test eqpt. or cash. Everett A. Thompkins, 341 S. Desplaines St., Joliet, Ill.

WANTED—Signal generator and late type tube tester. W. Harold Blackmon, 2930 Elysian Fields Ave., New Orleans, La.

FOR SALE—Philco circuit tester and V.T.V.M. #027; Reardite tube checker #432A and Airplane Dynamoter. All perfect. Earl H. Graham, 506 E. Chicago St., Valparaiso, Ind.

FOR SALE—Hammarlund HQ 120X receiver, Simpson tube tester #333, Solar capacity analyzer CB-1-60. Joseph Golab, 723 Garfield Ave., Jersey City 5, N. J.

WANTED—Good sig. gen. electrically operated; a-b pack batteries 1½ v.a.; 1½ v.a. and 90 h.b. eliminator to operate 1½ v. radios and tubes. Ellison Radio Service, Centertown, Ky.

SELL OR TRADE—14J7 and 14Q7 tubes in sealed cartons. Want 12SA7, 25Z6, 35Z5, 35Z3, 35L6 or 50L6 tubes. Vick Radio Service, Box 216, Kershaw, S. C.

FOR SALE—Scott double-doublet antenna system complete \$7; Scott-Tauscher Sound Board Unit \$3. Want Audak pickup, recorder, 6SS7, 6J5 tubes. N. P. Forcier, 293 Jefferson Ave., Salem, Mass.

WANTED—Rider's Manuals and tube tester. Carlo D. Angelo, 273 Pulaski St., Mariner's Harbor 3, Staten Island, N. Y.

SELL OR TRADE—Supreme #89 tube checker \$25. Cash or equivalent in 12A8, 12SA7GT, 12SQ7GT, 25L6, 25Z5, 35L6, 35Z5, 50L6 tubes. C. & M. Home Appliances, 523 W. Mitchell St., Milwaukee 4, Wis.

FOR SALE—Superior "Dynamometer" V.T.V.M. #1260; new signal generator and Superior tube tester. J. F. Mann, 5607—13th Ave., Brooklyn, N. Y.

FOR SALE—Precision Patt meter panel type analyzer; Solar capacitor tester; Porta power adapter; Hickok OS-12 sig. gen.; Precision V-0-M and tube tester, and Reardite #430 tube tester. Cash or will trade for good ham receiver. Nelson K. Stover, 1357 Hill St., York, Pa.

FOR SALE—New Superior V-0-M and tester. Sampson, 370 Convent Ave., New York 31, N. Y.

WANTED—5 to 10 meter receiver. Alfred Abbey, 126 E. Oak Ave., Wildwood, N. J.

SELL OR TRADE—Tube tester, melophone, stamp collection and hook on steam boilers and elevators. Want small voltage radio transmitter or receiver. J. Happy, Box 29, Hines Creek, Alberta, Canada.

WANTED—Self Contained Record player. Norman Ned Garrett, 601 Vaile Ave., Kokomo, Ind.

FOR SALE—One ea. following new tubes: RCA 81, 6A6, 49, 38, 80, 2B7, 2E5, 1J5G, 0Z4G, 6AE5, 6V6GT, 6K7GT. Hanover-Curland, 315 Main St., Norwich, Conn.

WANTED—Hickok 510X tube tester; RCA #155c oscillograph; RCA voltohmmyst; sig. gen. and test equipment. W. F. Mumme, Jr., 420 Peoples St., Corpus Christi, Tex.

SELL OR TRADE—N.R.I. radio and television course, \$25 or will trade for radio equipment. R. Vosbury, 38 Andrews Ave., Binghamton, N. Y.

SELL OR TRADE—Abbott DK-2 2½ meter transceiver with tubes, power supply, carbon mike. Want test and communication eqpt. Morton Bardfield, 4 Brinsley St., Dorchester 21, Mass.

FOR SALE—Rek-O-Cut recording mechanism with Astatic crystal cutter and recording motor assembly, \$70. Earl C. Abbott, Manahawkin, N. J.

WANTED—Comet-Pro receiver and coils or DX Clipper. Forman LaFate, P. O. Box 47, Wakefield, Mass.

WILL TRADE—12SA7, 12SK7, 12SQ7, 12J5, 1S5, 6F6, 7A7, 80, 1RT, 45, 6X5 or other radio tubes for test eqpt. Samuel Berenblum, 417 Greenwich Ave., Greenwich, Conn.

FOR SALE—Clough-Brengle, OMA oscilator with sweep motor, \$50.00. A. L. Klein, P. O. Box 1706, Prescott, Ariz.

WANTED—Tube tester and V-0-M test unit or portable combination. Cash. William Beach, Crestline, Ohio.

SELL OR TRADE—Late model Zenith automatic record changer, radio, electrical books, tubes, parts, etc. What have you? W. Lutnick, 1216 W. 50th St., Chicago, Ill.

URGENTLY NEEDED—Sig. gen., V-0-M, and tube tester by ex-serviceman. John H. Bragg, 811 Broad St., Lake Charles, La.

FOR SALE—12" p.m. sphr. cutting head, Dodge generators, etc. Send for list. Harry Kay, Rt. 2, Box 255, Inslay City, Mich.

WILL TRADE—Photographic and printing eqpt. for radio test eqpt. Ed Jurick, R. D. 2, Cannonsburg, Pa.

WANTED—Schematic diagram of "All-Star" receiver. Quote price. Pfc. Martin Weltz, 32586708, 78th AAFBU—AACSO—OSI & RC, Sheppard Field, Texas.

FOR SALE—Philco Chrysler auto radio, \$30; Arvin 8-tube universal fit auto radio, \$35; 1937 Ford Philco, \$35; 1/6 H.P. G-E capacitor motor \$12; ¼ H.P. motor \$12. Paul Capito, 637 W. 21st St., Erie, Pa.

URGENTLY NEEDED—Tube tester, sig. gen., microphones, and portable V.O.M. meter. What have you? Albert Ludwig, R.F.D. # 2, Day Road, Mishawaka, Ind.

SELL OR TRADE—Astatic crystal pickups; technical radio books and misc. radio parts. Walter Robinson, 3647 Main, Kansas City 2, Mo.

FOR SALE—4000-ohm headphones slightly used. \$1.75 per set. Ersuline Harris, 3508 Sixth St., Detroit, Mich.

WANTED—Tube checker, sig. gen. and set tester. S/Sgt. R. K. Johnson, A.S.N. 38,051,011. Branch 5, Section C, H.A. A.P., Hondo, Texas.

FOR SALE—Few 26, 27, 45, 2516, 7Q7, 6K7, 6SS7, and other tubes. Want tube tester. Victor Dorez, P. O. Box 1302, Yuma, Ariz.

SELL OR TRADE—New RCP electronic multimeter 663A. Want late Hallcrafters receiver. A/T Milton B. Cohen, 42,105-907, Box F9, Sqd. A., Napier Field, Oothon, Ala.

WANTED—Hammarlund or similar short wave receiver and power output tube tester. Have to sell or trade, outfit for making glass signs; National short wave set; Superior tube and set tester; Webster amplifier, etc. Glenn Watt, Chanute, Kans.

WILL TRADE—Thordarson transformers and chokes; T60M4, T5736, 5289, R196, 6405, 2230, #46, 2A3, 6A6, 6F6, 83 tubes; ¼ h.p. Westinghouse motor and 0-200ma meter. Want 22 rifle with telescope, or overhead cutter, turntable and motor. John Carmello, 891 St. Johns Place, Brooklyn 17, N. Y.

FOR SALE—Riders 1 to 8 also 11 and 13. Want portable typewriter and cash. THE ELECTRONIC SHOP, 428 Main St., Wakefield, Mass.

YOUR OWN AD RUN FREE!

Sprague will gladly run your own ad free of charge in the first available issue of one of the six radio magazines in which The Trading Post appears. WRITE CAREFULLY or print, hold it to 40 words OR LESS, and confine it to radio subjects. Sprague, of course, reserves the right to rewrite ads as necessary, or to reject those which do not fit in with the spirit of this service.

HARRY KALKER, Sales Manager

Dept. RSD-85, SPRAGUE PRODUCTS CO., North Adams, Mass.

Jobbing Distributing Organization for Products of the Sprague Electric Co.



SPRAGUE CONDENSERS KOOLOHM RESISTORS

TM. REGISTERED U. S. PATENT OFFICE

Obviously, Sprague cannot assume any responsibility, or guarantee goods, services, etc., which might be exchanged through the above advertisements

PRODUCT NEWS

[from page 44 — more on page 50]

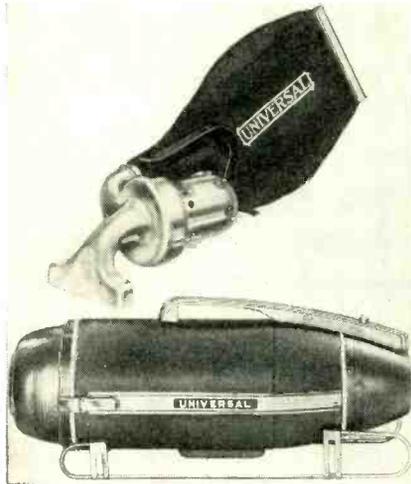
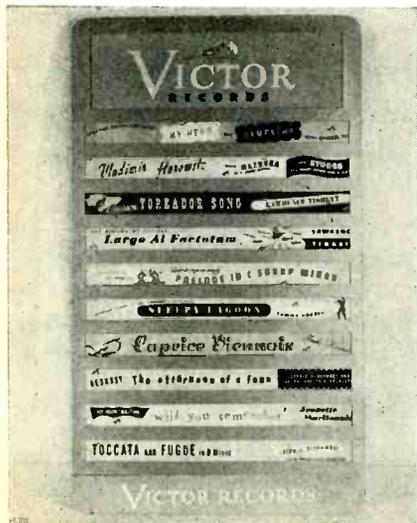
Display Panel

A new RCA Victor Record Title Board, with a specially designed top panel permitting the display of any one of 14 different headings, covering holidays and special features, beneath which are ten slots for record title inserts, has been announced by the RCA Victor Record Division.

The new title board measures 22½ inches in length by 13 inches in width. Fastened to the back of each board is an envelope containing seven large special occasion signs, printed on both sides, permitting 14 different changes. Only single headings can be shown at one time, however.

The special occasion cards provide for the highlighting of appropriate recordings under the following headings: Patriotic Music, Swing Classics, Mother's Day, Father's Day, Piano Masterpieces, Gems from the Opera, Violin Masterpieces, Masterpieces of Great Song, Great Orchestral Works, Valentine Day, Christmas, Easter, Musical Masterpieces of the Month, and Popular Dance Hits. Colorful record title strips, with a variety of designs are being made available in a special service with all new releases to keep the title board current.

The title boards are expected to have a strong appeal to dealers because of several features: they can be changed constantly to keep abreast of the new record releases; they can be used as a permanent gift suggestion list; they can be easily adapted to artists' personal appearance tie-ins; they provide a special holiday hanger for important occasions; and they are completely flexible in that any card can be removed from the board should the dealer's stock of that item run out.



Cleaners Announced

Landers, Frary & Clark, manufacturers of Universal electric appliances, announces that it will produce a cylinder type vacuum cleaner, conventional floor model and a hand model cleaner (see illustration) which it hopes to allocate in limited quantities to the trade in the fourth quarter of the year.

The tank type cleaner will feature the exclusive Tattle Tale light which flashes when dirt bag needs emptying, preventing a loss of suction due to overfilled bag, together with many other special features, including 13 special purpose attachments. Finish is blue polymeroid on black oxide runners. Weight is 14½ lbs., length 24 inches. This cleaner will dust, clean-spray, demoth, shampoo, polish, deodorize and purify room air content while cleaning.

The conventional brush type cleaner will be tobacco brown with red lettering, rubber covered cord, new streamlined headlight, motor housing and nozzle casting tobacco brown with crackle finish. Weight packed in two cartons, 19½ pounds. A five-piece set of attachments is included.

The hand cleaner can be used for car interiors, homes, apartments and stores—has a deodorizer, moth exterminator and blower attachment.

Weight is 4 pounds, designed to worm its way easily into all hard to get at places. A dust-proof bag which contains a sleeve valve prevents dust from falling back into nozzle.

Aid to dealers in merchandising the Universal lines comes in the shape of a new 20-page consumer booklet, "How to Plan for Better Living", which is designed to assist homemakers in planning their electrically run homes of tomorrow. It is divided into six sections dealing with cooking and serving, storage and preparation, cleaning and dishwashing, home laundry, cleaning equipment and health and comfort areas of the home—showing in each case the appliances and housewares used in such areas. Dealers can get copies for their customer promotions from Universal distributors, at a cost of \$5 a hundred.



IRC Merchandiser Display

Distributors throughout the country are now featuring Type DS controls, most popular of the new IRC Century line of volume controls, in an attractive, convenient counter display merchandiser. Sixteen of the most frequently called for volume controls are displayed in a manner which simplifies selection by radio servicemen.

Type DS line is comprised of 100 controls which, the company claims, solve over 90% of all service problems. Other IRC items in the Century line include Type D controls with interchangeable Tap-in-Shafts, Clutch type DC controls, a selected list of the Type J special controls and seven of the popular Dual controls. The Century line merchandiser is one of a series of features to be introduced by International Resistance Co. to make its products more readily available to the electronic service trade.

In Trade

[from page 20]

tration list is arranged both alphabetically by company and numerically by code symbols. The leaflet explains how a radio manufacturer, by using the production source and date code symbols, may simply identify any radio equipment or component by stamping a series of numbers.

The RMA standard code is designed to eliminate duplication of similar identifications previously used in the radio and electronic industry and to establish a uniform identical system, applicable to all purchases of any registered manufacturer's products. The RMA standard code service was developed after months of intensive investigation and research by the Receiver Section of the RMA Engineering Department and was approved subsequently by the RMA Parts Division and Amplifier and Sound Equipment Division and finally by the Board of Directors.

Henry Hutchins to Meck

Mr. Henry Hutchins has been elected president of John Meck Industries Sales Corporation, 35 East Wacker Drive, Chicago.

[Continued on page 63]

HANDLE MORE JOBS IN A LOT LESS TIME!

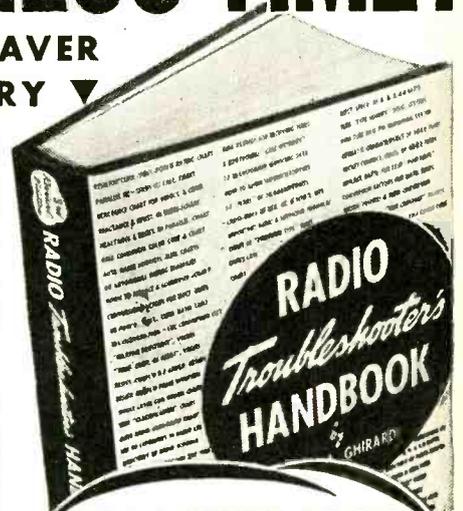
THE GREATEST TIME SAVER IN SERVICING HISTORY ▼

Radio servicemen everywhere say that A. A. Ghirardi's **RADIO TROUBLESHOOTER'S HANDBOOK** (3rd Edition) helps them **TURN OUT TWICE AS MUCH WORK IN A GIVEN TIME!** Four times out of five, it tells exactly how to repair a set — *without any elaborate testing whatever!* Actually, this big 4-pound, 744-page manual-size Handbook is a complete guide to quick, easy repairs on **PRACTICALLY EVERY RADIO RECEIVER NOW IN USE.**

4,800 DIFFERENT RADIO MODELS

It's 404-page Case History Section gives full details on common trouble symptoms, their causes and remedies for **OVER 4,800 DIFFERENT RADIO MODELS.** It describes the trouble exactly, tells exactly what to do to repair it. It eliminates much testing — helps you do **TWO OR MORE** jobs in the time normally required for one — repair cheap sets profitably — train new helpers, etc.

Equally important are hundreds of other pages specifically geared to today's needs — dozens of hints on the proper substitution of tubes and parts; i-f alignment peaks for over 20,000 superhets; transformer troubles, etc. and hundreds of graphs, tube charts, data, etc. — all carefully indexed so you can find what you need in a hurry. Price only \$5 complete (\$5.50 foreign) on our **UNRESERVED 5-DAY MONEY-BACK GUARANTEE!**



NOT A STUDY BOOK!
You don't study this Handbook! Simply look up the radio's Make, Model, and the Trouble Symptom—and go to work!
Eliminates useless testing on 4 JOBS
OUT OF 5!
ONLY \$5 COMPLETE

Ghirardi's Complete Guide to Modern Professional RADIO SERVICE WORK

Test Instruments, Troubleshooting, Repair

Once in a blue moon a technical book is written that is so important, so complete, and so easy to understand that it is used and recommended universally by members of a profession! A. A. Ghirardi's **MODERN RADIO SERVICING** is that kind of a book — **AND MORE!**

Actually, it is the only single, inexpensive book giving a complete course in modern Radio Repair work in all its branches. Explains all necessary test instruments . . . even how to build your own; how to troubleshoot **ALL** makes of receivers, analyze their circuits, test components; make adjustments; repairs, etc. — all step-by-step. Used for reference, it serves as a beautifully cross-indexed volume for "brushing up" on any type of work that may puzzle you. 1300 pages, 720 self-testing review questions, 706 illustrations and diagrams. \$5 complete (\$5.50 foreign) **5-DAY MONEY-BACK GUARANTEE.**

See Money-Saving Offer in Coupon!

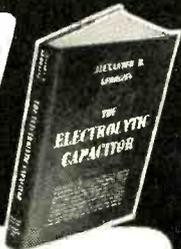


EVERY CONCEIVABLE SERVICE SUBJECT!

Milliammeters, ammeters & voltmeters; Methods and instruments for measuring resistance; ohmmeters; How to build your own instruments; Tube checkers; Set analyzers; Point-to-point testing; Test oscillators; Preliminary trouble checks; AVC and QAVC circuits; Troubleshooting; Testing components; Obscure radio troubles; Aligning and neutralizing; Auto radios; All-wave radio servicing; Marine radio; Interference reduction; How to start and operate a Radio-Electronic service business, etc. etc.

**ALL THE FACTS ON A
LITTLE KNOWN SUBJECT!**

**JUST
OUT!**



"The ELECTROLYTIC CAPACITOR"

Don't buy, specify, use, or replace Capacitors blindfolded! Save time, save money, and increase your service efficiency by really knowing all about this vital subject! Actually, no Radio-Electronic component is more important or less understood than the Electrolytic Capacitor. Postwar equipment will employ more of them — and in new, improved types. This new book by Alexander M. Georgiev for more than 15 years a leader in Capacitor research and development, at last explains the entire subject. Answers all the many questions servicemen, engineers, and designers have been asking about capacitors for years.

ENDORSED by A. A. GHIRARDI

"I heartily recommend The Electrolytic Capacitor as 'must' reading for the man who really wants to forge ahead in post-war Radio-Electronics", states A. A. Ghirardi, internationally famous technical author. "It tells what types to use and where and how to use them to best advantage — explains the advantages and disadvantages of each — how to make emergency repairs and a host of other subjects invaluable to the man who KNOWS it pays to KNOW." Contains over 200 pages and eighty illustrations. Price only \$3 (\$3.25 foreign).

USE COUPON in adjoining advertisement. Mail today!

5-DAY MONEY BACK GUARANTEE

Dept. RSD-85, Technical Division, MURRAY HILL BOOKS, Inc., 232 Madison Ave., New York 16, N. Y.

Enclosed find \$..... for books checked (send postpaid) or [] send C.O.D. (in U.S.A. only) for this amount plus postage. If not fully satisfied, I may return the books in 5 days for full refund.

[] **RADIO TROUBLESHOOTER'S HANDBOOK** \$5 (\$5.50 foreign)

[] **MODERN RADIO SERVICING** \$5 (\$5.50 foreign)

[] **MONEY-SAVING COMBINATION**—Both books (over 2040 pages of invaluable service data) for only \$9.50 (\$10.50 foreign).

[] **THE ELECTROLYTIC CAPACITOR**—See adv. at left. \$3 (\$3.25 foreign).

Name

Address

City & Dist. No. State

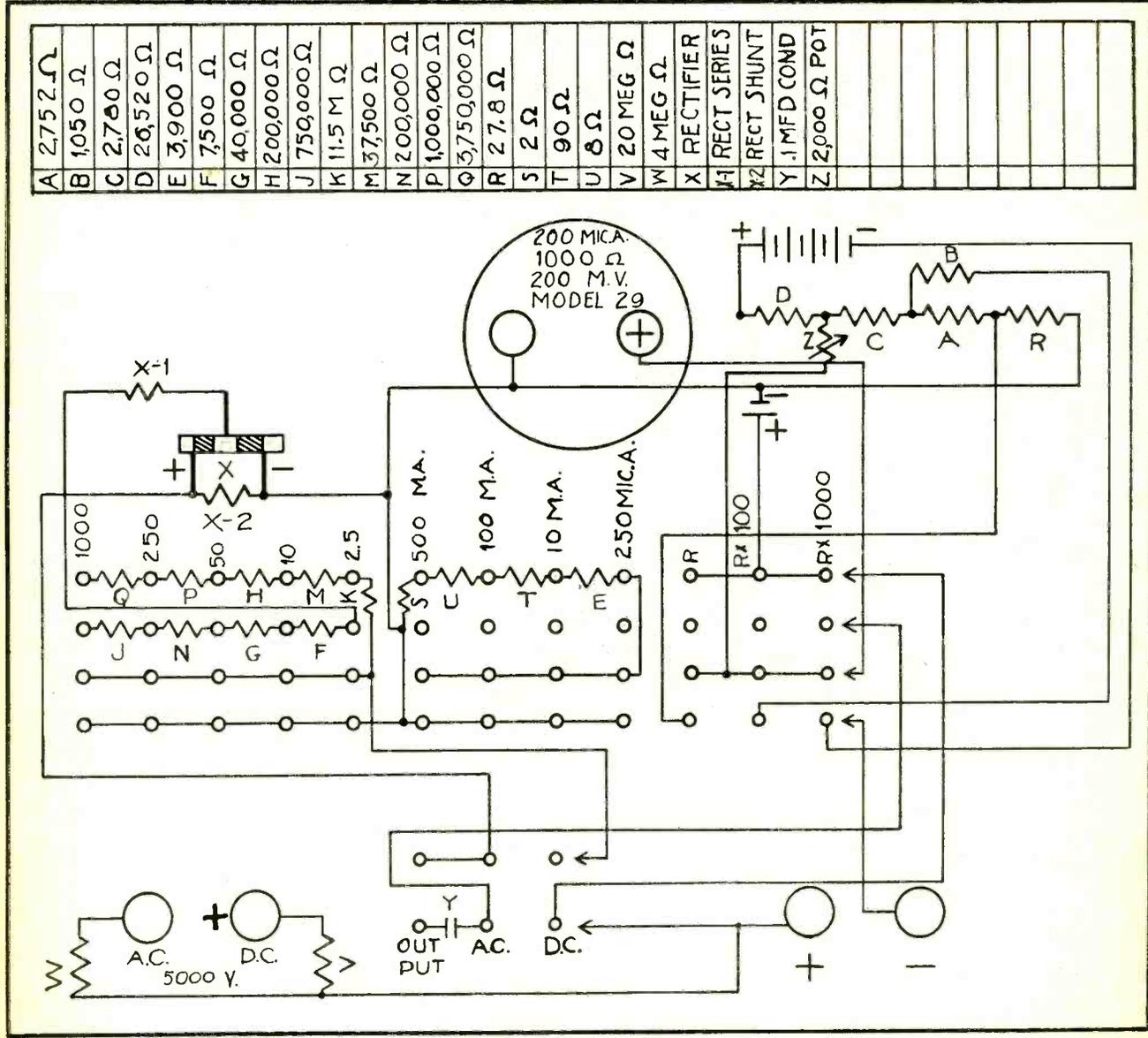
Please print or write plainly.

Technical Service Portfolio

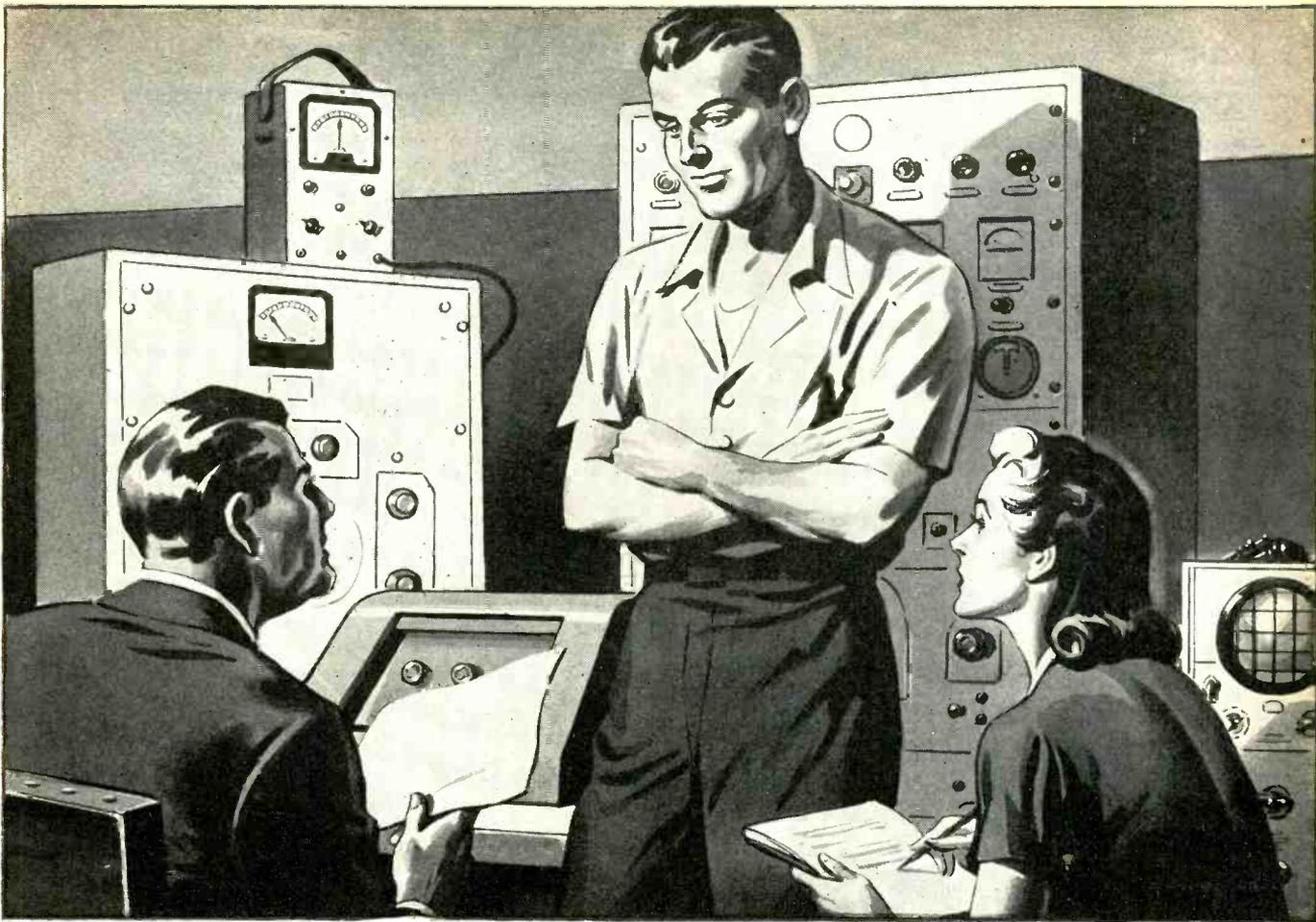
Section LII

TEST EQUIPMENT CIRCUITS—Part 12

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.



Simpson Electric Co. AC-DC Volt-Ohm-Milliammeter, Model WD-215



Yes...the "Lab" work is *Complete!*

OUR post-war plans, policies and perfected line of Eastern sound equipment have long ago passed the stage of draft-board design and laboratory tests! We're "in the groove"—ready to go! Based on our many years of experience, the new Eastern equipment incorporates the many

wartime techniques which we have been building into *quality* units for Uncle Sam.

For details and information please fill out and mail the Coupon today. Eastern Amplifier Corporation, 794 East 140th Street, New York 54, New York.

EASTERN AMPLIFIERS

This is Your Ticket

for complete information on our post-war line and the details of our proposition.

EASTERN AMPLIFIER CORPORATION, Dept. 8-C
794 East 140th St., New York 54, N. Y.

We are JOBBERS, DEALERS, A SERVICE ORGANIZATION, SOUND SPECIALISTS. We're definitely interested in your post-war line, your policy, your proposition. Mail us complete information, without obligation.

COMPANY NAME

ADDRESS

CITYZONE.....STATE.....

INDIVIDUALTITLE.....

PRODUCT NEWS

[from page 46]

Crosley Adds Washers

Styling has been completed and tool and die drawings are now being finished on a new line of Crosley washers which will be available to private consumers soon after January 1, 1946, announces James H. Rasmussen, general sales manager, manufacturing division, The Crosley Corporation. "These will not be old models merely freshened up but will be modernly de-

signed and newly styled," Rasmussen said. "The designs will be exclusively Crosley. There will be two basic models in the medium price range, at the start. By adding a pump to both models and by adding a gas engine to the lower priced model, there will be a total of five different types of washers. A leader model will be introduced later."

Rasmussen said that if materials are available, as it is now indicated

they will be, Crosley should be able to ship samples in January and stock deliveries should start in February. He has advised Crosley distributors that, from a long range viewpoint, he believes it good business to sacrifice a few first month deliveries in order to have new and distinctive models.

Announcement will be made soon of the appointment of a sales manager of the Crosley home laundry department. News of the new washer line follows closely upon the recent announcement of the new line of Crosley kitchen cabinets and sinks.

Motorola Auto Radio

For the past many months the Galvin Manufacturing Corporation has been intensively engineering the new Motorola car radio line, and announced recently that they were ready to go into production on the new and vastly improved Motorola auto radios just as soon as restrictions are lifted. The company states that the new models will embody the following improvements and refinements:

Clearer and more vibrant tone; unusual power output, even in the lowest priced set; no microphonics; smaller sets; no tools required for setting push buttons; greatly improved noise-to-signal ratio, which will especially evidence itself in weak signal localities; complete interchangeability of all parts, which will greatly simplify the replacement-parts and service problem.

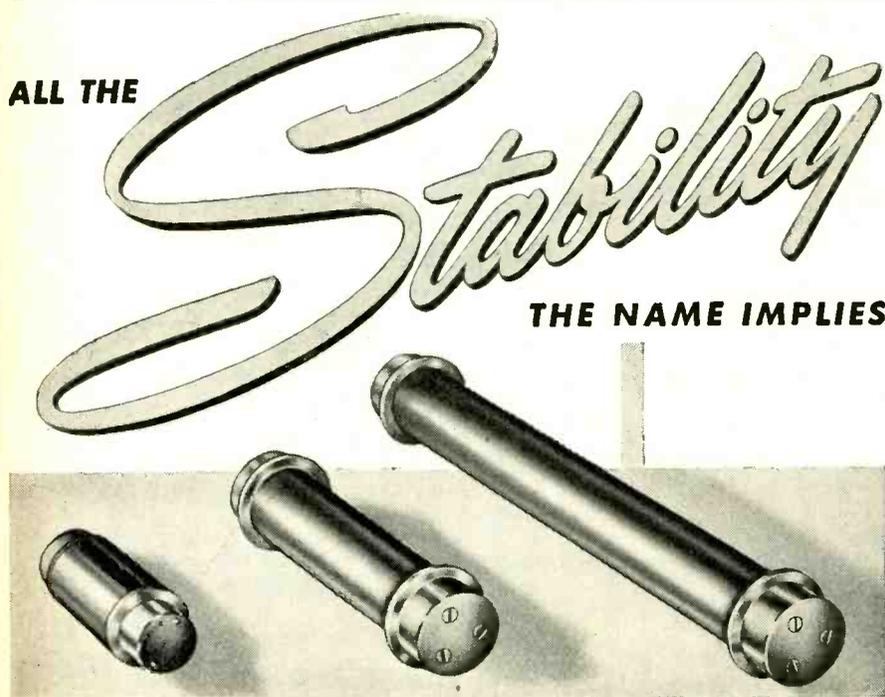
The design of the various control heads for the different makes of cars has not been completed, because these control heads must harmonize with the dashboards of the different cars, and as yet the manufacturer's specifications are not all complete. This, however, is a relatively minor consideration and should not hold up production, as it is expected that all of these specifications will be complete in the near future.

Fluorescent Lampholders

Two new lampholders for slimline and circline fluorescent lamps have been announced by General Electric's Appliance and Merchandise Department. The slimline lampholder is designed for use in general lighting fixtures. The circline lampholder has applications for fixtures and portable lamps in commercial and industrial installations.

The slimline lampholders are of the

[Continued on page 60]



WESTON TUBULAR RESISTORS

WESTON tubular resistors . . . widely used since their introduction over a decade ago . . . furnish another outstanding example of sound engineering coupled with engineering foresight. For no new 'hurried' resistor design was needed in order to meet exacting military specifications that called for protection against tropical humidity, arctic and high working temperatures, and salt air. The WESTON tubular resistor met these new specifications . . . and in a rugged, non-fragile design tried and proved throughout the years. These resistors conform to and are approved under joint Army Navy Spec. JAN-R-29. Bulletin A-12 gives complete specifications. Send for your copy . . . Weston Electrical Instrument Corp., 605 Frelinghuysen Ave., Newark 5, N. J.

Weston
Instruments

Albany - Atlanta - Boston - Buffalo - Chicago - Cincinnati - Cleveland - Dallas - Denver - Detroit - Jacksonville - Knoxville - Los Angeles - Meriden
Minneapolis - Newark - New Orleans - New York - Philadelphia - Phoenix - Pittsburgh - Rochester - San Francisco - Seattle - St. Louis - Syracuse
In Canada, Northern Electric Co., Ltd., Powerlite Devices, Ltd.

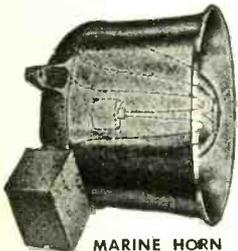


The Famous Three!

Tinker, Evers and Chance were famous for Stamina, Efficiency and Fine Performance. So are all RACON Products!

There's a RACON speaker, horn and driving unit for every conceivable sound distribution application. Only RACON can supply, when needed, another famous three-in-one combination — Weatherproof, Stormproof, Acoustic Material which is impervious to any weather condition and prevents resonant effects.

Now that industrial war plants can obtain sound installations, remember that RACON's should be used to afford peak efficiency.



MARINE HORN



RE-ENTRANT TRUMPETS



P.M. UNITS

MARINE HORN SPEAKERS, approved by the U. S. Coast Guard, may be used as both speaker and microphone. Available in several sizes.

RE-ENTRANT TRUMPETS, compact, of the double re-entrant type, afford long air-column in small space; deliver highly concentrated sound over long distances.

P.M. HORN UNITS are available in operating capacities of 5 to 50 watts.

RACON ELECTRIC CO. 52 E. 19th ST., N. Y.

RACON

T. W. Markham, formerly advertising and promotion manager of Frigidaire's commercial division, establishes a Frigidaire dealership in southern California, Los Angeles area.

Surplus Goods Risky

by CHARLES GOLENPAUL

SURPLUS parts are usually of unknown quality. In fact, they are offered mainly "as is" with no real guarantee as to condition. In the case of military surplus, the radio components in many instances have been produced several years ago and stored in warehouses until now. In the case of components subject to deterioration through humidity or temperature or even age, the condition of such component can be very doubtful by the time of dumping.

Speaking about capacitors, with which I am most familiar, my attention was called recently to some cardboard-tube electrolytics made by a reliable manufacturer as far back as 1941, sold to jobbers early in 1942, and subsequently picked up by Government-buying agencies. Later the military services decided against this type in favor of the midget metal-can type that became available to them. And so some of the cardboard-tube electrolytics were left in storage for approximately four years under varied conditions, deteriorating to varying degree. Recently these same cardboard-tube electrolytics, unused, labeled the

same as current production, presumably appearing as good as new, have been disposed of to surplus buyers by Government agencies. Some jobbers have purchased part of this lot.

Naturally these jobbers have assumed that such cardboard-tube electrolytics were the same as items purchased directly from the given manufacturer, and in view of the serious shortage they have bought such electrolytics and sold them to their trade. Servicemen and others have

PREFER NEW RADIOS

Schools and colleges preparing to take advantage of the FCC allocations for non-commercial FM broadcasting are inclined to buy their equipment "on the open market," rather than used surplus radio equipment, Dr. R. R. Lowdermilk, director of the Radio Division of the U. S. Office of Education, indicated at a recent educational radio conference in Washington.

[Continued on page 56]

FREE
TO
RADIO
MEN

COLOR CODE and OHMS LAW CALCULATOR

Burstein-Applebee of Kansas City offers you this great convenience FREE. Easy to work. Solves many problems in a jiffy. FREE to radio men, electronic engineers and others in the business. Attach coupon to your letterhead.

MAIL COUPON NOW



BURSTEIN-APPLEBEE CO.
1012 MCGEE, KANSAS CITY 6, MO.
Send me FREE Color Code and Ohms Law Calculator along with latest catalog.

I am _____
STATE CONNECTION IN INDUSTRY

NAME _____

ADDRESS _____

TOWN _____ STATE _____

Long Scale, Wide Range Volt-Ohm-Milliammeter

DOUBLE SENSITIVITY D.C. VOLT RANGES

0-1.25-5-25-125-500-2500 Volts, at 20,000 ohms per volt for greater accuracy on Television and other high resistance D.C. circuits.

0-2.5-10-50-250-1000-5000 Volts, at 10,000 ohms per volt.

A.C. VOLT RANGES

0-2.5-10-50-250-1000-5000 Volts, at 10,000 ohms per volt.

OHM-MEGOHMS

0-400 ohms (60 ohms center scale)
0-50,000 ohms (300 ohms center scale)

DIRECT READING OUTPUT LEVEL DECIBEL RANGES

-30 to +3, +15, +29, +43, +55, +69 DB

TEMPERATURE COMPENSATED CIRCUIT FOR ALL CURRENT RANGES D.C. MICRO-AMPERES

0-50 Microamperes, at 250 M.V.

D.C. MILLIAMPERES

0-1-10-100-1000 Milliampères, at 250 M.V.

D.C. AMPERES

0-10 Amperes, at 250 M.V.

OUTPUT READINGS

Condenser in series with A.C. Volts for output readings.

ATTRACTIVE COMPACT CASE

Size: 2 1/2" x 5 1/2". A readily portable, completely insulated, black, molded case, with strap handle. A suitable black, leather carrying case (No. 629) also available, with strap handle.

LONG 5" SCALE ARC

For greater reading accuracy on the Triplett RED DOT Lifetime Guaranteed meter.

SIMPLIFIED SWITCHING CIRCUIT

Greater Ease in changing ranges.

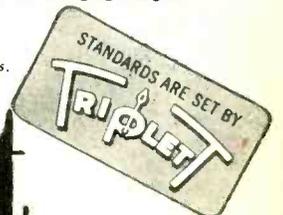
Write for descriptive folder giving full technical details.



HERE'S THAT NEW
TRIPLETT
625-N

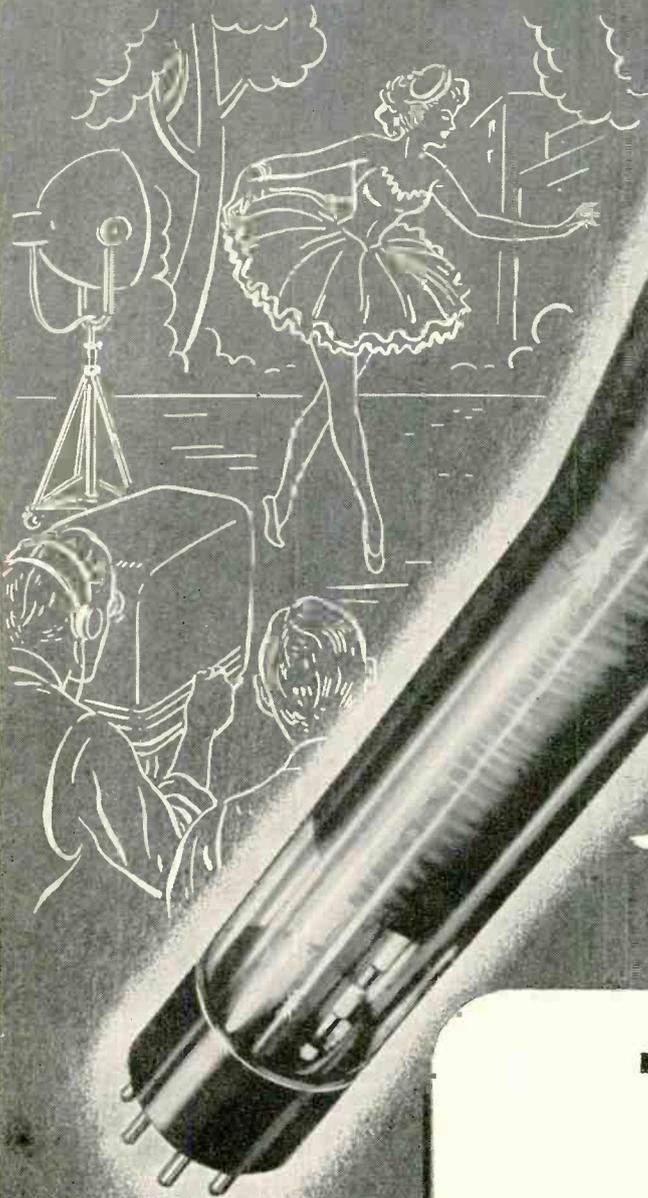
Triplett

ELECTRICAL INSTRUMENT CO. BLUFFTON, OHIO



KEN-RAD

CATHODE-RAY TUBES



*Better
than ever*

► Pictures are clear, sharp, and lifelike when projected by Ken-Rad Cathode Ray Tubes . . . Now new research, new engineering facilities assure still further advances in Ken-Rad quality and performance. A big new market for Ken-Rad tubes will open up with television set owners. Consequently, the Ken-Rad dealership is more valuable than ever.

● Write for your copy of "Essential Characteristics" the most complete digest of tube information available.

KEN-RAD
OWENBORO, KENTUCKY

178-E7-8850

SOUND SYSTEMS IN SMALL TOWNS

On the basis of wartime merchandising experiments, Rochester Radio Supply Company, of Rochester, N. Y., reports that it is profitable to solicit sound system installations in small communities, and larger ones as well, within a radius of 50 miles or more.

In Rochester, for example, this concern has recently erected loud speaker installations at every street intersection and at strategic points throughout the business area. At intervals during the day short bulletins are broadcast concerning salvage and scrap drives and civic affairs of general interest.

Such installations present no particular problems. The first step is to contact the City Manager, Mayor or

Council, pointing out that the sound system can be used to broadcast safety messages to pedestrians, advising them



Rochester headquarters for thriving public sound system business. Top, loudspeaker "at work" in that city.

to be careful in traffic and to cross with the lights.

This concern pays frequent visits to small hamlets to install sound systems which are used for summer band concerts, and street loud speakers over which can be broadcast messages of community import.

Wartime Sound Citation

The Botany Worsted Mills of Passaic, N. J., has been awarded a special citation by the Music War Council for "distinguished service to the national war effort through the patriotic and inspiring use of music." Presented by Dan D. Halpin, Chairman of the Music War Council's Committee on Music in Industry, and an official of RCA Victor, the citation was received by Vice President Charles F. H. Johnston, Jr., on behalf of the Botany personnel in a special ceremony at the plant recently. In addition to the company award, personal citations were presented to members who have broadcast music over the plant's internal sound system to entertain workers, spur War Loan, Red Cross and war relief drives, and to bolster home front morale. (See page 31).

Another Masco First!!



DE LUXE HI-FIDELITY AMPLIFIER

Outstanding Engineering Design...for Professional Use
For Faithful Reproduction of Recorded Music, FM and Television

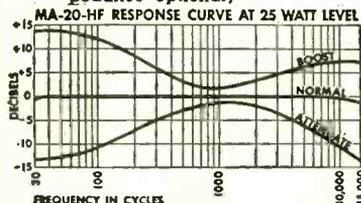
- 25 watts output on all frequencies from 30 to 15,000 C.P.S. at less than 5% R.M.S. harmonic content.
- Exclusive Masco bass and treble equalizer circuit.
- Designed also as a recording amplifier . . . matching to low or high impedance cutting head.
- Overall circuit stabilized through negative feedback.

SPECIFICATIONS

- Power Output: 25 watts
- Gain: 77 db (1000 c.p.s.) Bass and treble equalizer at NORMAL
- Controls: Three-Volume-Bass-Treble
- Separate on-off AC switch
- Input: One-high impedance (low impedance optional)
- Tubes: 2-6J5GT/G, 1-7N7, 2-6L6GA, 1-5U4G
- Output: Voice coil: 4 and 8 ohms. Line: 250 and 500 ohms.
- Frequency Response: $\pm 1\frac{1}{2}$ db, 30 to 15,000 c.p.s. at 25 watts output
- Hum Level: 60 db below 25 watts output
- Power Consumption: 120 watts
- Dimensions: 14 in. x 8 in. x 8 in.

MA-20HF amplifier with cover, tubeslist **117.50**
MA-20HF amplifier same as above but with low impedance input of 250 or 500 Ohms (state preference) list **122.50**

Write for Catalog 45-E



MARK SIMPSON MANUFACTURING CO.

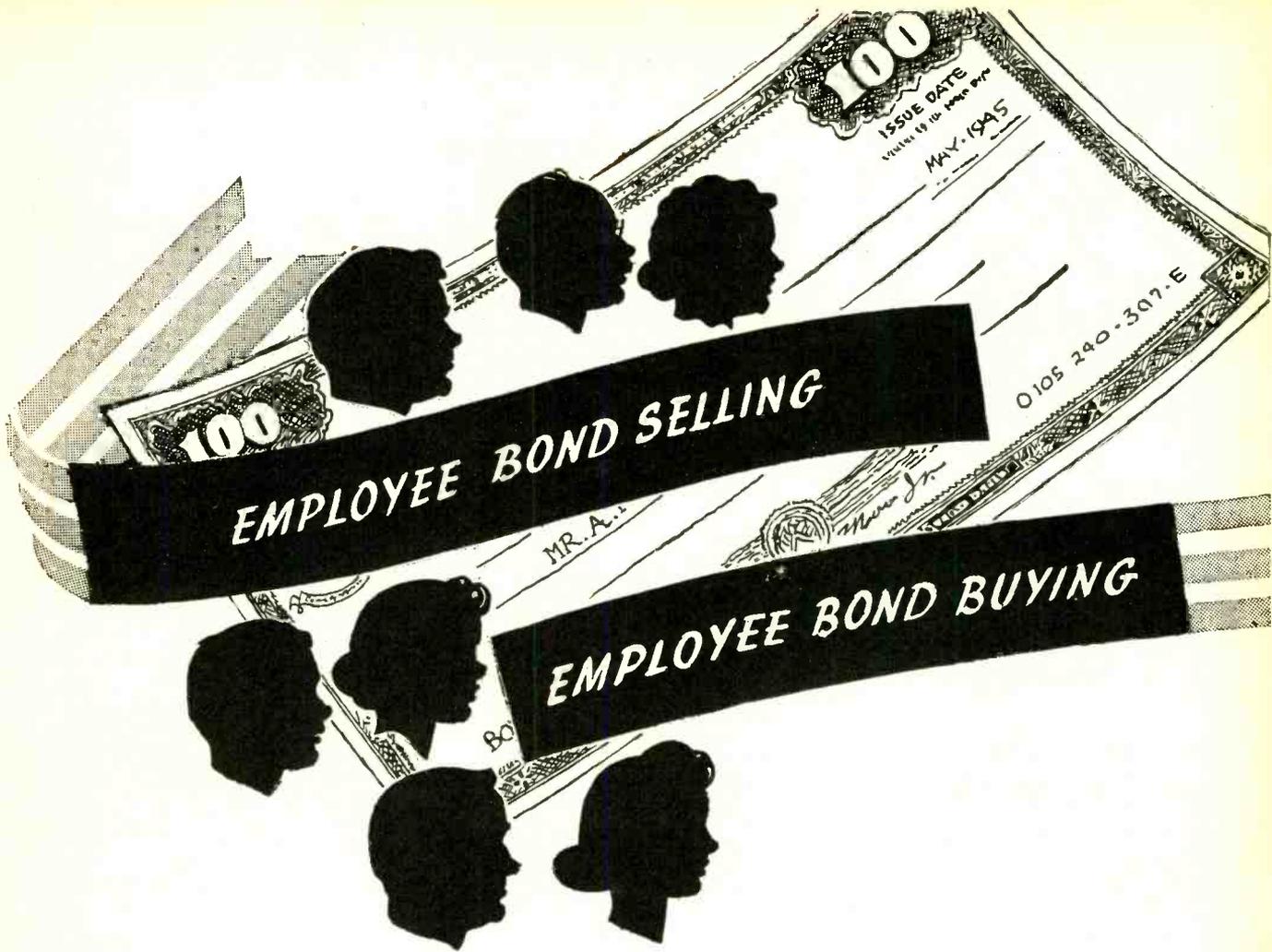
MANUFACTURERS OF

Masco Sound Systems and Accessories

186-194 WEST FOURTH STREET :: NEW YORK 14, N. Y.

Telephone CHelsea 2-7112-3-4





RETAILERS WINNING *Double Header*

Foresighted American retailers are out to better their *bond-selling* record with a higher bond buying average. Improve your payroll savings plan now!

Here's Why:

- Helps curb inflation
- Builds a larger future market for your goods
- Inspires employees to sell more Bonds.
The best salesman is sold on his product.

Here's How:

Through personal contact ask every employee to sign up for regular payroll savings each week. Keep it up until you get at least 90% participation and 10% of payroll applied to the purchase of War Bonds.

OUTSTANDING RETAILERS PROVE IT:

	<i>% employees participating</i>	<i>% total payroll savings</i>
Department store	98.	10.5
Clothing store	100.	10.0
Food store	91.	10.1
Drug store	94.	10.3
Specialty store	90.	10.0

The Treasury Department acknowledges with appreciation the publication of this message by

Radio Service Dealer

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and War Advertising Council.

Surplus Goods

[from page 52]

been finding out that some of these presumably "new" electrolytics are really old, deficient, and even plain "no good". It is simply a case of being "stuck". Of course the serviceman may look to the jobber and even to the manufacturer to make good. However:

The manufacturer of any reputable line has a fair guarantee policy. We stand behind our products for a reasonable length of time. But by no conceivable stretch of the imagination can any manufacturer be expected to stand behind cardboard-tube electrolytics already four or five years old and stored under unknown conditions. Consequently, the jobber and his customer can have no recourse. The jobber loses money and, more costly still, a lot of good will. It's a thoroughly costly transaction.

Much the same story goes for other radio components subject to deterioration in time or through adverse conditions of storage. Transformers, for instance, often have a definite shelf life. Likewise carbon-element controls. Dry batteries have a very definite shelf life. And so on.

I'd be the last to deny that Government agencies have a perfect right to dump or dispose of surplus radio components. Also, such goods have a perfectly legitimate place on the market. But my argument is that such goods be bought and sold for what they are—"bargains"—bought and sold "as is"—the buyer buying at his own risk and without recourse should the goods fail to come up to expectations. Certainly such surplus goods should be in no direct competition with currently produced parts offered by the original manufacturer through regular jobbing channels. Let's not confuse these two propositions.

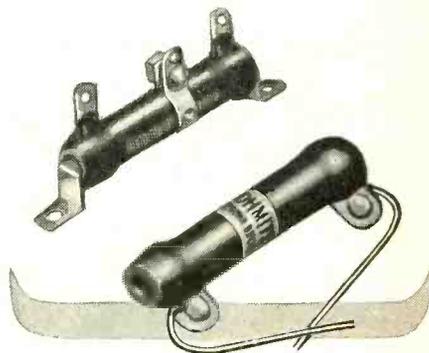
Unless you are in a position to take a chance with such surplus goods, leave them alone! Also, don't sell such goods to your trade unless you make it absolutely clear that you are selling surplus goods of unknown vintage and quality, and without guarantee or recourse. And above all, don't expect the original manufacturer to stand back of these "cats in the bag".

But better still, leave that sort of merchandise strictly alone and concentrate on your regular line, bought directly from manufacturers, properly packaged and covered by regular guarantee, and sold at the right prices and with the right profit. That's sound business. You can't afford to do any other kind of business.

OHMITE RESISTORS

for accurate trouble-free

SERVICE



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.

SEND FOR HANDY OHM'S LAW CALCULATOR

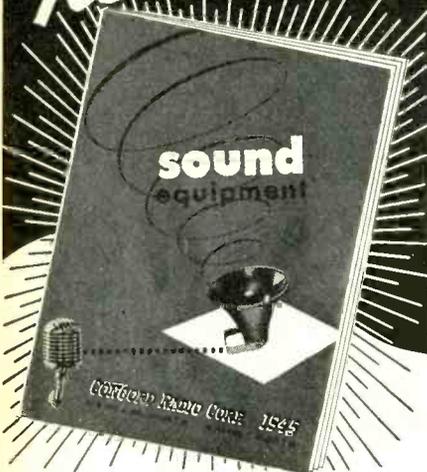
Figures ohms, watts, volts, amperes—quickly, accurately. Solves any Ohm's Law problem with one setting of the slide. Send only 10c in coin for handling and mailing. (Also available in quantities.)



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

Be Right with **OHMITE**
RHEOSTATS • RESISTORS • TAP SWITCHES

Amplifiers Intercoms Recorders



Write for Important New CONCORD Presentation

"Sound Equipment"—ready now—a new up-to-the-minute Concord folder illustrating and describing our complete line of Amplifiers, Intercoms and Recorders AVAILABLE FOR IMMEDIATE SHIPMENT.

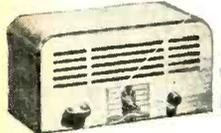
Amplifiers—ranging in output ratings of 17 watts to the largest requirements. Complete listing of speakers, microphones and essential equipment also included.

Intercommunication Systems—with master and sub-stations for every purpose and need.

Recording Equipment—professional type for microphone recording, radio recording, transcriptions, public address.

Engineering Service—Our engineering service is at your command, without charge, to answer any and all "Sound Equipment" questions.

Mail the coupon below for your copy of "Sound Equipment" now.



CONCORD RADIO CORPORATION

Lafayette Radio Corporation

CHICAGO 7, ILL. ATLANTA 3, GA.
901 W. Jackson Blvd. 265 Peachtree Street

CONCORD RADIO CORP.
901 W. Jackson Blvd., Dept. K-85
Chicago 7, Illinois

Please send me at once copy of your new "Sound Equipment" folder.

Name.....

Address.....

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



DISTRIBUTORS APPOINTED

MOTOROLA

W. H. Kelley, general sales manager, Galvin Manufacturing Corp., Chicago, Ill., announces the following distributors. They will carry a complete line of Motorola radios for the home, the car, the outdoors and the farm:

Home Appliance Distributors, Little Rock, Ark., for the city and state territory. Oakes Battery and Electric Co., El Paso, Tex., for the city territory. York Automtoive Distributing Co. Inc., New York, changes its name to Motorola-New York Inc., and will serve New York and the counties of Kings, Queens, Richmond, Suffolk, Nassau and Westchester. The same distributor will operate as Motorola-New Jersey, Inc., Newark, covering the counties of Monmouth, Mercer, Middlesex, Somerset, Unterdon, Union, Morris, Sussex, Passaic, Essex, Hudson, Warren and Bergen. Davis Radio Co., Fresno, Cal., for the counties of Stanislaus, Tuolumne, Merced, Mariposa, Madira, Fresno, Kings, Tulare and Kern. This distributor will also carry nationally known refrigerators, washers, ironers, dryers and other household and electrical appliances. Boyd Distributing Co., Denver, Colo., for the states of Colorado and Wyoming and the western part of Nebraska.

OLYMPIC

Jack F. Crossin, director of sales, Hamilton Radio Corp., announces the following distributors for Olympic radio and television sets:

Electric Products, Inc., Pittsburgh, Pa., for the city area; will also handle commercial refrigeration, air conditioning, Premier cleaners, L. H. ranges, Voss laundries. Monarch Sales Co., Indianapolis, Ind., for the city territory; will also handle Norge appliances and Williamson furnaces. Cayot-Wellman Co., Cheyenne, Wyo., to serve 1500 dealers in Wyoming, Colorado, Nebraska, and South Dakota. Lines also include household and commercial equipment and appliances, repair parts and servicing facilities. Butler Bros., Chicago, Ill., and Minneapolis, Minn., for the city areas; will also carry Gibson refrigerators, Hardwick ranges, Apex cleaners, Horton washers, and Royal cleaners. Economy Electric Supply Co., Atlanta, Ga., for the city area; will also handle lines by Thor and Knapp-Monarch.

SPEED UP REPAIRS WITH THESE G-C AIDS!



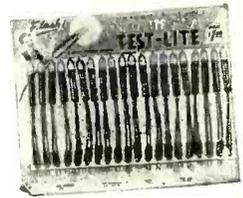
FREE
STEEL
CABINET

G-C Dial Belt Kits

Exact replacement woven fabric belts. Easy to install — no stretching — no adjustments — a perfect fit every time. Kits come with 25, 50, 100, 200 or 300 belts.



G-C Wire Stripper
Strips insulation from all types of wire. Does the job instantly, easily, perfectly. An ideal tool for radio men, electricians and



G-C Ne-O-Lite
New improved design. Useful hundreds of ways. Tests AC and DC lines, DC Polarity, fuses, etc. You can't afford to be without this handy all-purpose trouble shooter.

Immediate delivery on all G-C Products

Order From Your Radio Parts Jobber
ALWAYS ASK FOR G-C PRODUCTS



GENERAL CEMENT MFG. CO.
ROCKFORD, ILLINOIS

ATTENTION "RSD" SUBSCRIBERS!



Due to WPB paper restrictions, our paper quota limits us to 10,000 paid subscribers monthly. We do not know how long the restrictions will remain in force.

If you are an "RSD" subscriber—be sure to renew promptly upon notification prior to actual expiration.

If you have a friend or business associate desiring to subscribe to RADIO SERVICE DEALER, have them place their order with us at once so it may be honored as quickly as possible, in the order received.

Avoid being taken off our subscription lists because of failure to read our mail to you.

Two months before your subscription to RADIO SERVICE DEALER is about to expire you will receive notification to that effect from our Circulation Manager.

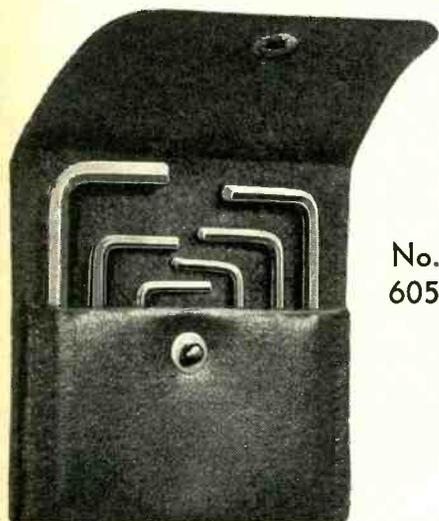
Upon receiving such notification, if you plan to renew your about-to-expire subscription, please do so immediately. If we fail to hear from you promptly we shall be forced to assume that you do not intend to renew, in which event we will accept another subscriber in your place.

At present we have a long waiting list of Service Dealers whose subscription orders cannot be filled unless an old subscriber drops out. Meanwhile, new orders are being filled in order of receipt, first-come, first-served.

We regret that circumstances beyond our control require us to, follow the policy outlined above.

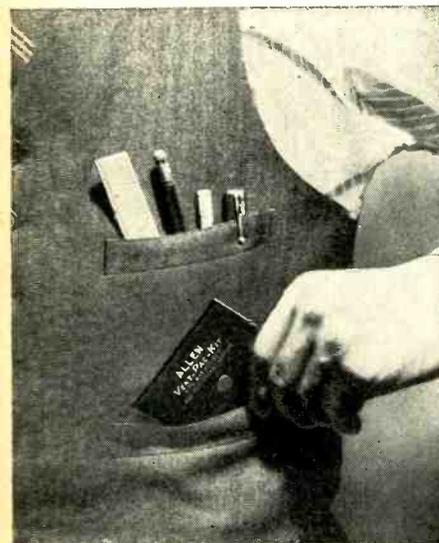
S. R. Cowan, Publisher

ALLEN Key Kits



No.
605

VEST-PAC-KIT



No. 605 — Packet only 3" x 2 $\frac{3}{4}$ " over-all contains 6 Hex Keys to fit hollow set screws in sizes No. 4, 5, 6, 8 and 10; also $\frac{1}{4}$ " and $\frac{5}{16}$ ". Same keys fit socket head cap screws in sizes No. 4, 5, 6, 8 and 10. Most compact and serviceable little set you could ask for. List price, only 50¢.

Ask for complete listings of Allen Hollow Screw Assortments and Key Kits. Address inquiries and orders to Dep't. G,

**THE ALLEN MFG. CO.,
HARTFORD 1, CONN., U. S. A.**

Pricing the Job

[from page 41]

operating and sticking to them. He cannot test and analyze sets free of charge. If he does he must unfairly stick in the charge elsewhere. If he charges \$3 for installing one condenser, and \$1.50 for each additional condenser or resistor, he will make enough money on a few sets, about enough to make it up on a loss where he tackles a time wasting sticker.

Fairness, however, is not in how much is charged, but in letting the customer say yes or no before the job is handled. If the customer is always allowed two prices to choose

from, the radio man is protected. In the low price he guarantees only parts he installs, but in the complete job he guarantees the whole radio. The customer sees this is fair, and he likes it. If it is explained to him, he can understand that it is just as difficult (more often MORE difficult) to install several new condensers in a tiny AC-DC midget than it is in a large radio, and that it is not the radio man's fault the tiny set cost only \$6.95.

If the customer is permitted to choose his price or none at all, chances are he feels he is being handled fairly.



Music department of the Pioneer Furniture Company, Hattiesburg, Miss., finds Victor artist blowups effective feature for window displays. Combined with the single record displayer, window shows comprehensive lineup of leading Red Seal artists. Brand name, trade-mark dog and famous faces do the trick.

International Detrola Expands

A proposal to merge Utah Radio Products Company, Chicago, and Universal Cooler Corporation, Marion, O., into International Detrola Corporation was approved by the Boards of Directors of all three companies, announces C. Russell Feldmann, Detrola President and Board Chairman.

International Detrola, which recently acquired controlling membership of Rohr Aircraft Corporation, California producer of aircraft power plants and sub-assemblies, normally manufactures home and automobile radio receivers, automatic record changers, other electronic items, and machine tools. It has plants in Detroit, Elkhart, Ind., and Indianapolis. Rohr

recently has been granted permission to produce in the third quarter of 1945 a limited quantity of domestic refrigerators. It has applied for permission to build domestic washing machines.

Utah is a leading manufacturer of radio set speakers, and builds vibrators, transformers, and other radio components in Chicago. During the war the company, in collaboration with the Armour Research Foundation, has developed the magnetic wire recorder and produced many units for the Armed Forces. Postwar models are being engineered for general consumer use. Among Utah's subsidiaries is the Caswell-Runyan Company, Huntington, Ind., manufacturer in peace-

RADIO SERVICE DEALER

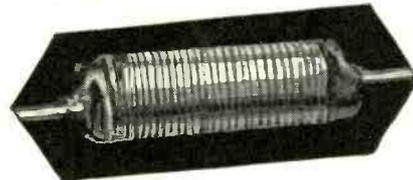
time of cedar chests, sewing cabinets, radio cabinets, and other wood products.

Universal Cooler and its subsidiary operate plants in Marion, Ohio, and Brantford, Ont. The Marion plant normally has built refrigeration condensing units and similar equipment for manufacturers of air conditioning equipment, domestic and commercial refrigeration, display cases, beverage coolers, frozen food storage units, industrial refrigeration equipment, and other items. The Canadian subsidiary in peacetime built domestic refrigerators, soda fountain equipment, milk coolers, frozen food cabinets, beverage coolers, ice cream cabinets, and other refrigeration machinery and developed a sizeable export business, principally with Great Britain.

International Detrola's general and executive offices are in Detroit. The company was International Machine Tool Corporation until the absorption of Detrola Corporation, a radio manufacturing business, in 1943. Expanding its machine tool production in the prewar defense program, the company later produced a variety of war machinery and radio and radar devices.

"Detrola long has been a customer for Utah radio parts used in its radio receiver factory in Detroit, Fred R. Tuerk, president of Utah, pointed out. "and a merger could be expected to strengthen this relationship without prejudice to Utah's many thousands of other customers in this country and abroad." Utah might arrange to market additionally certain Detrola radio division products such as its automatic record changer, he added, and the furniture stores served by Caswell-Runyan, a Utah subsidiary, may desire to obtain radio receivers from Detrola. Caswell-Runyan also would provide an additional source for radio cabinets used by Detrola Radio Division, Tuerk suggested.

F. S. McNeal, Universal Cooler president and general manager, said, "Availability of substantial additional working capital to Universal Cooler as a unit of a much larger enterprise is one of the chief advantages foreseen by our directors." McNeal said that Universal expected to need additional plant capacity to serve the expanded postwar needs of its customers, and the merger would make available such capacity, perhaps in the Indianapolis plant of Detrola and in the Rohr plant on the Pacific Coast, adjacent to San Diego, Calif. Many of Detrola Radio Division's customers for home radio receivers also are large merchandisers of domestic refrigerators, he pointed out, and this fact suggests an advantageous integration.



Hi-Q

CERAMIC CAPACITORS

WIRE WOUND RESISTORS

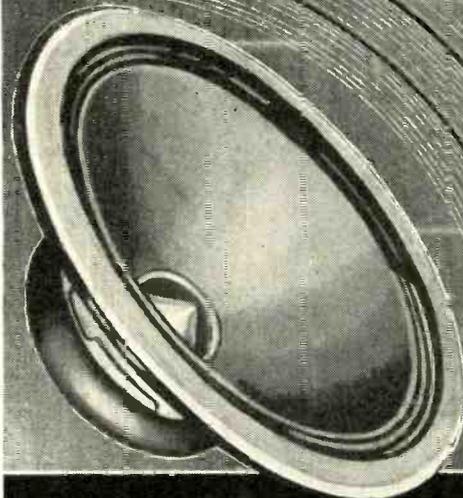
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PRODUCT NEWS

[from page 50]

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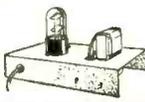
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medium, single-pin type for multiple service only. They accommodate the T8 and T6 lamps. Lampholders can be mounted to any flat surface and spaced on 2-inch centers minimum. Binding screws are located in the base. Two lampholders make up a pair for one lamp.

The circline lampholder accommodates 12-inch circline fluorescent lamps. This lampholder provides electrical connections, positions the lamp and supports it at two points. One point has the electrical connections and the other provides the necessary tension to hold the lamp securely. A lamp is removed by grasping it at the plastic section and lifting pins out of contact. The simplified design permits mounting in the conventional way.

sible to make voltage measurements, with negligible error, in circuits having extremely high impedance. In addition to these features the use of a balanced bridge type of circuit using nearly 100 per cent degenerative feedback eliminates errors due to line voltage shift and due to grid current in the tube which operates the meter. Naturally the meter is completely isolated from the input circuit and any damage which might result from an accidental application of a high voltage to a low voltage range.

DC voltage ranges of 0-1, 0-2.5, 0-10, 0-100, 0-250. and 0-500 and AC voltage ranges of 0-1, 0-2.5, 0-10, 0-100, and 0-250 are provided by means of push button selection.

Meck Handy-Talky

That his company would manufacture handy-talkies for civilian use is announced by John Meck, President of the John Meck Industries, Inc., Plymouth, Ind. He pointed out that the Federal Communication Commission has assigned a band of 460-470 megacycles for civilian use. The light weight transmitter and receiver which the company planned to manufacture would have a range of from one to five or more miles. Mr. Meck stated it would be ideal for mothers calling in children from play, for farm use, for ship-to-shore communications with small boats, for manufacturing operations, parking lots, and traffic control, as well as for a husband to get in touch with his wife as he drives home late for dinner, etc.

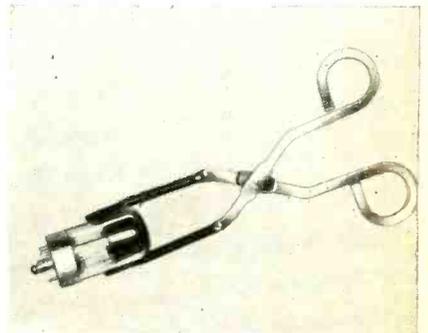


Supreme Model 565

In line with its policy of providing the radio serviceman and electronic laboratory with testing instruments which keep pace with advances made in the design of all types of electronic equipment, Supreme Instruments Corporation announces its Model 565 Vacuum-Tube Voltmeter.

For the first time a probe designed for measurement of RF voltages has been built which is small enough that it can be held in the hand as a test lead. This probe contains a high frequency diode of the miniature type and can be used for the measurement, with negligible frequency error, over a frequency range of 50 cycles to 100 mc.

The design of the DC voltage measurement circuits is unusual in the fact that shielded leads are used, each of which has installed in it a 20 megohm isolating resistor which also acts as part of the multiplier resistors. This very high input impedance of 80 megs on the 1 volt range and 40 megohms on the 500 volt range makes it pos-



Tube Extractor

The BMP Company of Boonton, N. J., announces a new addition to its family of "Sure-Grip" Tube Extractors, thousands of which are now in use throughout the electronic industry. This new tube extractor finds application in the inserting and extracting of delicate miniature and straight-side

glass radio receiver tubes, manufactured in the following standard bulb sizes:

Tube Size	Tube Types
T5½	1A3, 6AG5, 9001, 1645 and 26 similar types
T7	OZ4G, 921, 922, 926, 936, etc.
T8	1P9, 917, 8012, 1640, 936, etc.
T9	6E5, 7A4, 35A5, 1629, 50A5 and 140 similar types.

The gripping surface is rubber-covered; prongs are of a wide enough opening radius to fit all tube sizes; construction reduces breakage of thin tube walls, prevents burnt fingers and saves valuable time. The "puller" can be used in laboratories, test cage, production, inspection and/or servicing positions. All electronic equipment, using the tubes enumerated above, can use this new BMP Tube Extractor as a labor-, time- and expense-saving accessory.

Dynamic Mikes

Universal Microphone Co., Inglewood, Cal., is re-issuing its prewar KD dynamic microphone for home recording, industrial call and public address systems, etc. Various ramifications in casings and technicalities have been made to bring the precision instrument up to the moment.

Frequency response is 50-7500 cycles per second; output level 63 db below one volt per bar; impedance 40,000 ohms. The KD is finished in deep bronze plating; includes 10 ft. of rubber covered cable; uses spring steel cable strain relief at the housing and uses standard coupling 5/8th inch 27 thread. The KD weighs under 2 lbs. for shipping. It is 3 1/4 inches in diameter with a depth of 2 3/8th inches. It will be marketed through the 16 factory representatives and jobbers.

Battery Dispenser

A radically new dispensing display has just been announced by the Bright Star Battery Company, Clifton, New Jersey. "Never in the history of the flashlight and battery business has there been such a revolutionary departure in merchandise display", said Vice-President Horton of the company at a preview of a model unit. Made of clear, jewel-like plastic, it has been built to accommodate six flashlights as well as 48 flashlight batteries. The batteries will be clearly visible through the transparent plastic, and they are arranged so that they can be dispensed one at a time without disturbing the display. Other models for varying quantities and sizes of batteries and lights will be ready soon."

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SHOP NOTES

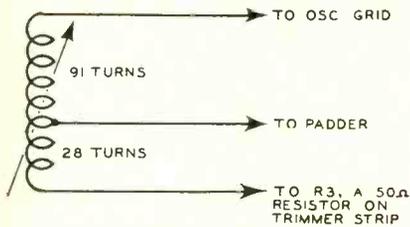


Figure 2.

REPLACEMENT OF OSCILLATOR COIL

Trutone Model T706: If an exact duplicate replacement coil cannot be had for the BC band, use a Meissner oscillator coil No. 14-1028, rewound and connected as shown in Fig. 2.

Rewind coil as follows: First, remove the new winding. (The same wire can be used for the rewinding). Wind on 91 turns and tap. continue winding in the same direction with another 28 turns. Insulate between windings with a thin waxed paper or other good material. You will now have an exact replacement with a variable inductance that can be adjusted to the correct value. After coil is installed, follow manufacturer's instructions for adjusting the coil.

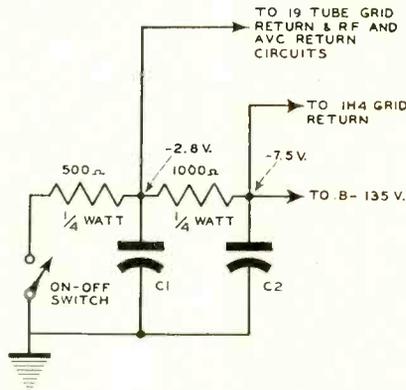
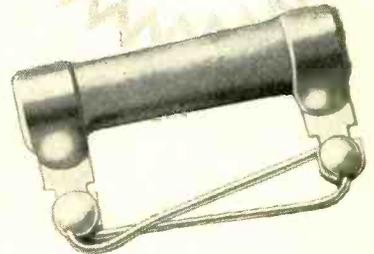


Figure 3.

ELIMINATION OF C BATTERY

Philco 38-38 Code 121: To eliminate the C battery on this set (replacements are hard to get), make changes as shown in Fig. 3. When finished, the total additional B drain will be only 6 ma. with 135 volts of B. All B wire remain as originally: the C 3-volt lead is blue, the 9-volt C wire is green. Cut these wires close on each end of cable and tape up if needed. Rewire as shown in Fig. 3.

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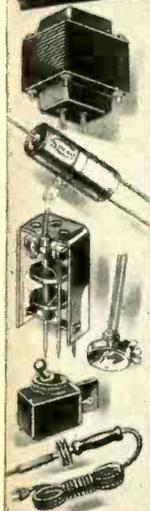
★ And that means a lot. Those green-colored inorganic-cement-coated Clarostat power resistors are now found in radio-electronic assemblies that are built to last. These resistors positively "stay put". They are brutes for punishment. Standard 10 and 20 watts fixed resistors (as here shown) in 1-50,000 and 1-100,000 ohms, respectively. Also standard adjustable resistors, 25 to 200 watts, in 1-100,000 ohms, with brackets. Remember Greenohms—for better initial equipment or for better maintenance jobs.



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is appointed manager, technical division, Murray Hill Books, Inc. He comes to this position from three years of research for the U. S. Government on radar, U. S. Signal Corps equipment, anti-submarine equipment. A portion of that time he spent with the Columbia University Division of War Research. Among publications of interest to radio technicians he recently announced are "Television Programming & Production" by Richard Hubbell (The Crosley Corp.) and "The Electrolytic Capacitor" by A. M. Georgiev, member, American Institute of Electrical Engineers. Capacitors, wet and dry, are described as to their design, construction and function.



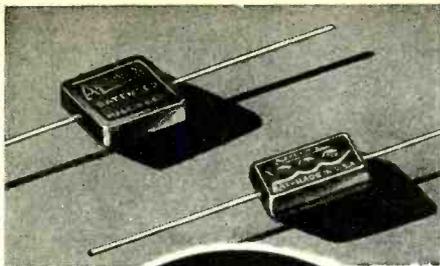
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In Trade

[from page 47]

Victor Records Expand

In preparation for an expansion of the phonograph record business post-war when the availability of manpower and machines will make it possible to meet the pent-up demand for records, RCA Victor, largest manufacturer of records, has completed arrangements for the re-organization of its New York recording studios at 155 East 24 Street, it was announced by J. W. Murray, General Manager of the RCA Victor Record Division.

Eli Oberstein, well-known in the pop recording field, will be in charge of Popular Artists Relations and Repertoire, Mr. Murray announced. Oberstein, who joined RCA Victor in 1929, returns to the position he left in 1939.

Prices on Records

At an organizational meeting of the Phonograph Record Manufacturers' Industry Advisory Committee with officials of the Office of Price Administration in New York recently, a plan, calling upon manufacturers to maintain a maximum average price schedule for all phonograph record production, was presented to the industry.

The proposed maximum average price plan would be similar to others that have been put into practice by OPA in other industries. The arrangement would require each manufacturer to sell records in each price range in such proportion that the maximum average price during any one quarter would be equal to the maximum average price obtained in a designated earning period.

Industry representatives pointed out a number of difficulties of setting a representative earning period and a base period for determining maximum prices and will submit a brief in which they will suggest representative base periods to OPA.

Several industry representatives requested that consideration be given to their recommendation that phonograph records should be exempt from price control for the same reasons book prices and amusement industries prices are exempt.

Milton Diamond, Decca Records, Inc., 50 West 57th Street, New York, N. Y., was elected Chairman of the industry committee. Other committee members are: J. W. Murray, RCA Victor Corp., Front and Cooper Sts., Camden, N. J.; J. Gerl, Sonora Radio & Television Corp., 325 N. Hoyne Ave., Chicago, Ill.; Paul Puner, Muscraft Corp., 40 West 46th Street,

New York, N. Y.; Edward Wallerstein, Columbia Recording Corp., 1473 Barnum Ave., Bridgeport, Conn.; Glenn Wallich, Capitol Record Co., 1483 N. Vine St., Hollywood, Cal.; Eli Oberstein, Majestic Record Co., 29 W. 57th St., New York, N. Y.

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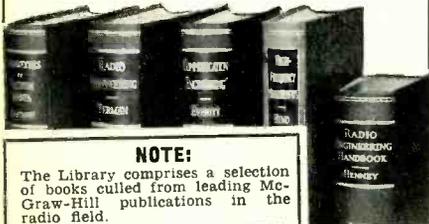
Radio Shipments to Dealers

A major question in the mind of the dealer planning post-war sales, according to Jack Geartner, sales manager for ECA Radios, is the volume of shipments the retailer can expect from the distributor or manufacturer. This is one of the principal findings from a recent dealer study made by the Electronic Corporation of America, 45 West 18th Street, New York City.

"Almost every dealer expects a tremendous rush of business as soon as new models are offered," said Mr. Geartner. "And dealers expect that it may be as much as two years before supply can fully catch up with demand. We realized that the immediate demand would be so great that neither ourselves nor the entire industry could take care of the rush. It would be almost impossible to set up a system of equitable distribution if radio sets were merchandised in the traditional way.

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natures on so-called 'reservations' to buy. Such expressions of the buyer's enthusiasm or loyalty are pleasant to contemplate, but it is doubtful if brand preference will be preserved for very long if the supply of the brand is spread too thinly among the dealers. Substitution will definitely be in order. Assuming that all manufacturers will start production on the same or nearly the same day, those who have taken the dealer's supply problem specifically into account and are determined to build strong dealerships will be in the best strategic position.

"On the basis of a series of conversations we have held with buyers who have visited our offices in New York, we are more than ever convinced that a direct factory-dealer sales relationship, under a system of franchised dealerships, limited in number and with the number limited within each area, is the answer to the dealer's demand for equitable distribution of post-war radios. Through this system the dealer can have a reasonable degree of confidence in his supply."

Sonora Ups Record Output

Joseph Gerl, president of Sonora Record Co., announces acquisition of a new record manufacturing plant and discloses new merchandising policies. The plant is situated at Meriden, Conn., and will operate under the company name of Reko-Plastic, Inc. Phonograph records for Sonora will be its sole output. At the present time records are produced at Scranton, Pa. Demand for the company's albums has increased so rapidly, officials said, that expansion of production facilities was held necessary to meet the merchandising plans of Sonora's 91 distributors.

Current marketing is limited approximately to one new record album a month. With increased production presently available from the new plant, the company will market at least two new albums monthly. With the addition of output from a third plant after the war, President Gerl believes the company will rise high on the list of the nation's phonograph record producers.

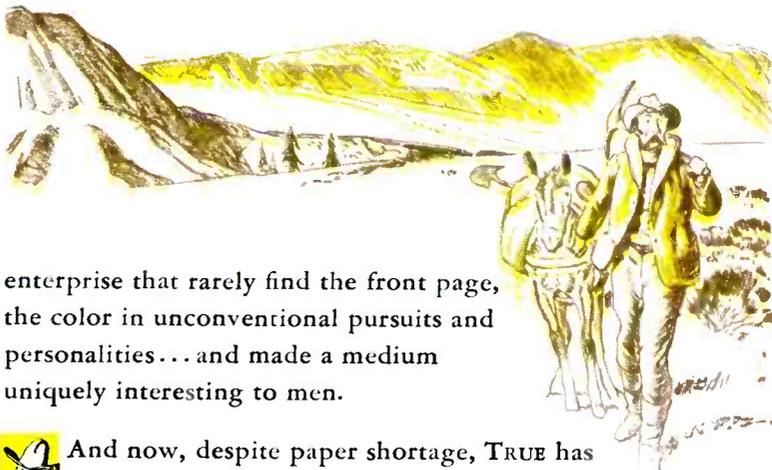


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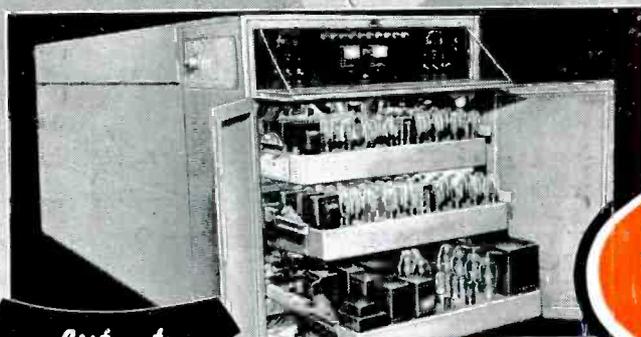
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