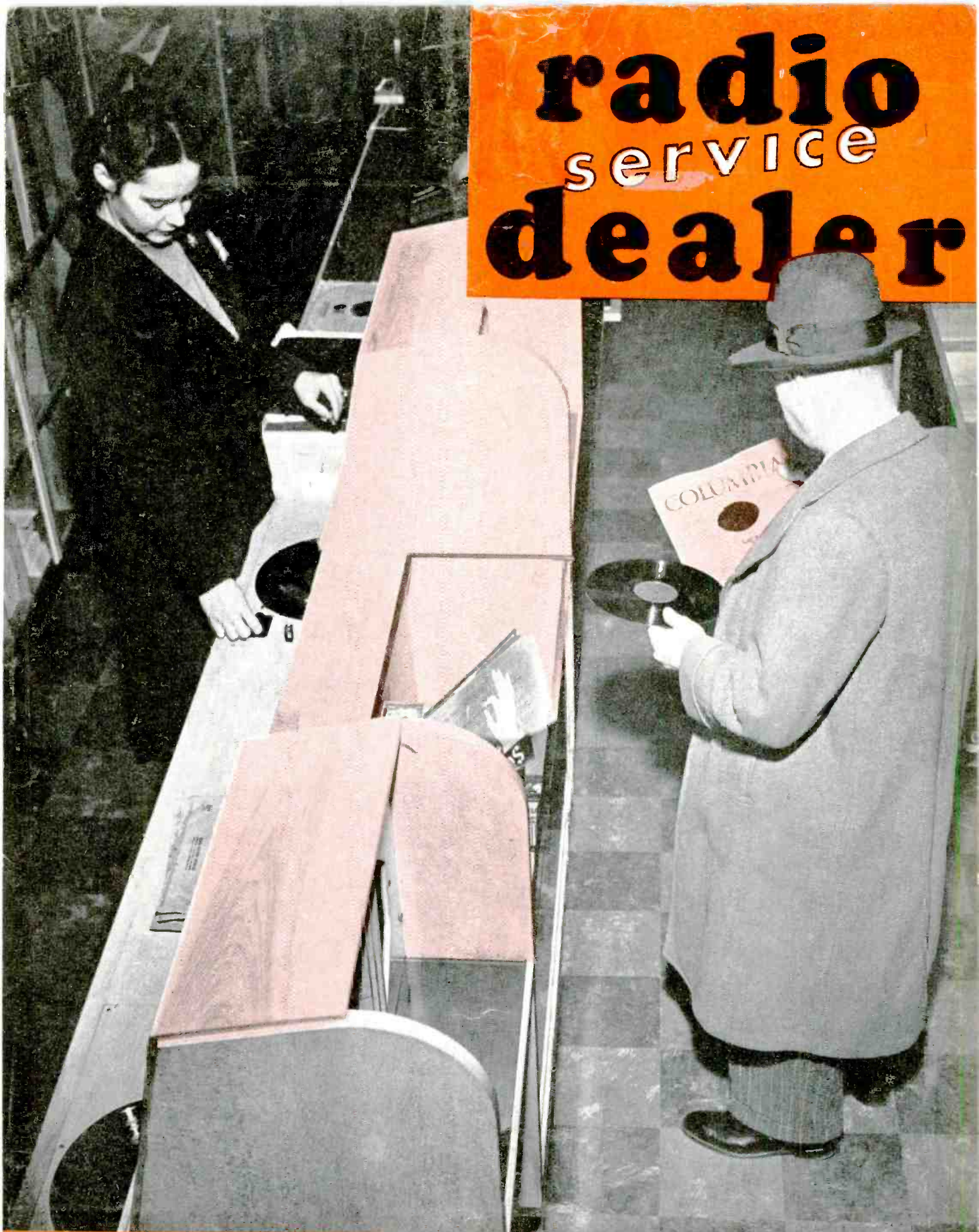


radio service dealer



In
This
Issue:

NEW STORE OPENING

More Dealer Sales

Record Merchandising

January, 1945

Television

Police Calls

25c



WHO is This Man?

HE'S purchasing agent, technical adviser, expeditor, merchandiser all rolled into one. He's your Mallory Precision Products Distributor—carefully selected for integrity, knowledge and qualities of leadership to give you outstanding service. His stock is the finest that Mallory makes—as complete as wartime conditions permit. And his experience is yours for the asking: to help you with ALL your radio procurement problems.

Your Mallory distributor is a good man to know and do business with. He's an *expert* on saving you time and money.

...and What Does He Offer the Service Engineer?

1

A complete line of Mallory replacement parts . . . many of them first developed by Mallory research . . . ALL of them guaranteed against premature failure by years of service in the field.

2

A program of standardization that meets the maximum number of application needs with the minimum number of parts . . . reduces investment, simplifies replacement, speeds up delivery.

3

Efficient service . . . backed by detailed information on prices, parts, catalog numbers . . . promptly applied whether orders are large or small . . . especially effective in meeting emergencies.

4

Technical service helps . . . bulletins, booklets, catalogs, letters, with complete data on what to use and where to use it . . . special publications on radio fundamentals and new developments.

5

A background of personal experience . . . acquired through years of service in radio . . . helpful in solving difficult or unusual problems . . . effective in training dealer personnel.

6

Commercial "know how" . . . implemented by sound methods of keeping your business on the beam . . . with special attention to promotion devices that help sell your story to the public.

The Part Your Mallory Distributor Plays Is Important TODAY—to YOU!

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.

* Trademark



Hallicrafters

BELONGS IN THE PICTURE

The name "Hallicrafters" belongs in any picture of postwar radio distribution. Testimony by the American Radio Relay League before the Federal Communications Commission indicates that the number of amateurs will be trebled after the war.

In addition to the amateur market there will be thousands of industrial and scientific users who will need the latest in high frequency apparatus. Hallicrafters will be able to supply such apparatus and you will be able to sell it to a widely expanding market.



BUY A
WAR BOND
TODAY!

hallicrafters RADIO



THE HALLICRAFTERS COMPANY, MANUFACTURERS OF RADIO AND ELECTRONIC EQUIPMENT, CHICAGO 16, U.S.A.

Can You Substitute a 43 for a 50L6-GT?



You can find out quickly by looking on page 12 of the RCA Tube Substitution Directory. You can also find out what changes are involved in substituting each of 9 other tube types for the 50L6-GT.

THIS is just one example of over 2000 substitutions listed in this directory, which was published by RCA to help you use available tubes in place of hard-to-get-types. Here's what's in it:

1. Numerical-alphabetical listing of more than 300 RCA receiving tube types.
2. In most cases, one or more types which can be used as substitutes. Suggested substitutions are keyed to cathode voltages and functional groupings in a "Classified Chart of Receiving Tubes."
3. Notations (with clear, detailed explanations) of space limitations, and the wiring, filament- or heater-

circuit, and socket changes involved in making the substitutions.

4. Sample calculations of series and shunt resistances in heater strings.

If you do not already have this valuable RCA Directory, ask your RCA distributor for a copy today... or fill out the coupon below and mail it, with 10¢ to cover mailing costs, to RCA, Commercial Engineering Section, Department 62-88B, Harrison, N. J.

This service help was produced by RCA to save your time. And in servicing sets today, time saved means extra dollars in your pocket. Keep looking to RCA for the kind of practical support that keeps extra dollars in your pocket!

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

**SEND FOR RCA
SUBSTITUTION DIRECTORY**



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



RCA, Commercial Engineering Section,
Dept. 62-88B, Harrison, New Jersey

Enclosed is 10¢ for TUBE SUBSTITUTION DIRECTORY FOR EMERGENCY SERVICING OF CIVILIAN RECEIVERS. Please mail my copy at once to:

Name _____

Address _____

City _____ State _____

RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION · CAMDEN, NEW JERSEY

LEADS THE WAY . . . In Radio . . . Television . . . Tubes . . .

Phonographs . . . Records . . . Electronics

THE SPEED TESTER

SUPREME MODEL 592

★ 25,000 OHMS PER VOLT



★ PUSH BUTTON OPERATED

- ★ Design proven by over 5 years production
- ★ Dual D.C. Sensitivity—25,000 ohms per volt and 1000 ohms per volt
- ★ Matched resistors of 1% accuracy
- ★ Push Button operated—no roaming test leads
- ★ Open face—wide scale 4 1/4" meter. 40 microamperes sensitivity
- ★ 1 Microampere first scale division

SPECIFICATIONS

D.C. MICROAMPERES:
0-70-700 microamperes

D.C. MILLIAMMETER:
0-7-35-140-350 milliamperes

D.C. AMMETER
0-1.4-14 amperes

D.C. VOLTS, 25,000 OHMS PER VOLT:
0-3-5-7-35-140-350-700-1400 volts

D.C. VOLTS, 1000 OHMS PER VOLT:
0-3-5-7-35-140-350-700-1400 volts

A.C. VOLTS, 1000 OHMS PER VOLT:
0-7-35-140-350-700-1400 volts

OUTPUT VOLTMETER:
0-7-35-140-350-700-1400 volts

DECIBEL METER:
0 db to plus 46 db

OHMMETER:
0-500-5000-50 000-500,000 OHMS
0-5-50 MEGOHMS

POWER SUPPLY
Battery Operated

With the above specifications the Supreme Model 592 Speed Tester meets today's requirements for general laboratory use, assembly line tests and inspection, radio and other electronic repair and maintenance.

SUPREME

SUPREME INSTRUMENTS CORP.
Greenwood, Miss., U.S.A.

radio service dealer

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

VOLUME 6, NUMBER 1

JANUARY - 1945

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SANFORD R. COWAN...Editor & Publisher
CHARLES H. FARRELL Advertising Manager

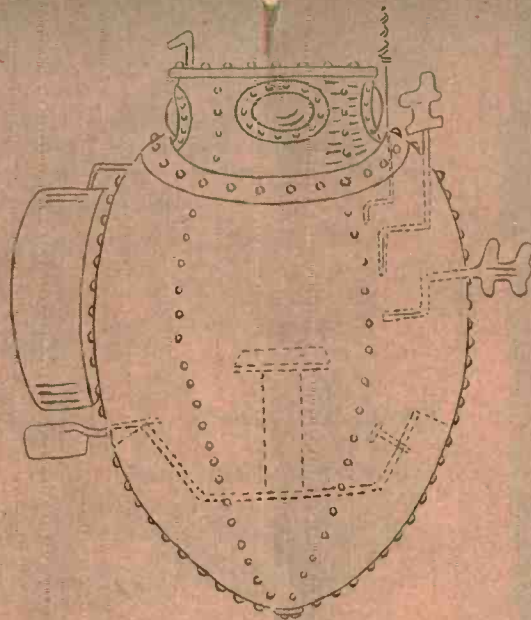
LEWIS C. STONE.....Managing Editor
SYLVIA MICHAEL.....Circulation Manager

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COWAN PUBLISHING CORP.

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Experience Counts

The unusual craft shown above was the first submarine of the American Navy. Built in 1776 by David Bushnell, it was used against the British warship, "The Eagle" which was lying off New York. Now, "The American Turtle"—that's what it was called—acted like a submarine all right, but that was about all. It didn't sink or damage any ships. Bushnell had a good idea but he simply did not have enough knowledge or experience to make his idea practical.

The moral of this story is: *In the development of the first submarine as in the development and*

manufacture of all products, Experience Counts.

The design and manufacturing experience of THE WARD PRODUCTS CORPORATION has long ago established this company as the leader in the production of automobile and home antennas. Many important design changes pioneered by WARD, have made WARD the recognized pacesetter. All WARD products are quality products, the workmanship of craftsmen of experience, using modern equipment under ideal conditions. For the finest antennas for automobile and home applications, look to WARD!

THE WARD PRODUCTS
CORPORATION
1523 EAST 45TH STREET
CLEVELAND 3, OHIO



WARD  BUY WAR BONDS
Antennas

with the editor

Effect Of War Reverses

WHAT a difference a month makes! Four weeks ago, when our last issue's editorial was drafted, Allied Armies were victoriously advancing on every front. German territory was occupied; a few remaining Japs on Leyte were being obliterated. Great optimism was in every heart.

We, radio-appliance manufacturers and dealers, serenely recalled the recently spoken words of General Harrison to the RMA assembled, ". . . during the early part of 1945, a production resumption of civilian goods, radio receivers and appliances can be anticipated." Of course, his qualifying statement, "Unless something untoward occurs", was relegated to the background, for none of us believed that anything *could* happen. But then came the Nazi counter-offensive . . . The Belgian Bulge. Complacency is dangerous, eh?

Now, although the tide of battle has again turned in our favor, we

must somberly heed all WPB statements, the latest of which emphatically proclaim that for an indefinite period all thoughts of permitting resumed production of civilian commodities should be forgotten.

Service Dealers will be greatly affected. "MR" replacement tubes and many types of replacement parts will be available in but minute quantities, if at all. We'll have to work that much harder, finding methods of substitution not theretofore attempted. Whenever possible, we must try to avoid buying a new part or tube if an old one can be found, and a method devised, for its utilization. That much we, as a profession, can and will gladly contribute in the conservation plan so factories can go still further "all out" in the war effort. Radio is a vital and important war commodity. It's our job to "Keep As Many Playing" as possible. To that end, shall we rededicate ourselves?

More On Licensing Servicemen

SCORES of letters have arrived expressing divergent views in regard to our last month's editorial on the subject as to whether or not radio repairmen should be licensed under Municipal or State ordinances. Anyone believing that all or most servicemen are opposed to licensing is mistaken. It's an interesting subject, and bears watching.

One correspondent opines that if all practicing servicemen were forced to take an examination as to their technical ability, "Only a handful in the country would pass, unless they bribed the examiners, because all City and State employees are looking for graft". That's an exaggerated opinion, but it has some merit. Another dealer states, "I want licensing laws put into effect, with VERY high examination and renewal permit fees established, because that would keep out

a lot of competition." In rebuttal we would state that a good, progressive businessman needn't fear competition, for he can lick it, and come out on top in the doing.

"Sick people go to Doctors who had to take an examination and get a license, so sick radios should be treated by the same kind of professional men", says one pro-license dealer. But using the same thought in reverse, another wrote, "When a human is sick he sees a licensed Doctor because a faulty diagnosis could cause an irreparable death. But no cluck can mess up a radio so badly that it can't be made to play again by a competent technician given the needed replacements." More on the subject anon.

S. R. Lowan

In & Around the Trade

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



Nationwide FM-Facts Campaign is launched by Stromberg-Carlson. Stanley H. Manson, manager public relations, shows counter display holding a supply of free booklets, "FM—For You", for circulation to public through distributors and dealers. FCC now has 326 new applications for FM broadcasting stations.

Why Radio Service Is Booming

Radios head the list of items in need of repair, as reported by the Office of Civilian Requirements after surveying some 4,500 families representing a cross section of the nation's consumers. Total estimated number of home radios is 46,275,528. 85 per cent are in working order, while 28 per cent have needed repairs as of January 1st. More than half of the sets are five or more years old. And 8 per cent of homes with one or more radios have none in working order.

The statistics add up to a set of conditions with which every radio service dealer is familiar. And radios are not the only home appliances which their owners offer to dealers hopefully for repairs and for tube replacements. No wonder service departments are overrun with work. And about the only element in the whole picture that is not rationed is—time. There just isn't enough of time to enable dealers to handle all of the repairs and servicing with the customary promptness. But both the habit and the necessity of using the

radio in the home is so strong that people with few exceptions willingly wait their turn.

Westinghouse Radio Moves

Harold B. Donley, manager of the radio receiver division, Westinghouse Electric and Manufacturing Company, announces that headquarters located in Baltimore since establishment of the division six months ago,



General Electric acquires 5 Ken-Rad tube plants. Above: plant in Owensboro, Ky.

will be transferred to their permanent location at Sunbury, Pa. late in January. Space has become available for administrative offices without interfering with urgent war work now being done in the plant. Reconversion plans to post-war production are ready, but actual changes will wait until after the war.

Stromberg-Carlson SM

Lloyd L. Spencer, vice president and general sales manager of Stromberg-Carlson, announces that E. S. Germain, pre-war radio sales manager of the company's Pacific Coast division resumed that position with the firm recently.

Ken-Rad to General Electric

Dr. W. R. G. Baker, vice president in charge, electronics department, General Electric Company, announces the purchase of the radiotube manufacturing and plant facilities of the Ken-Rad Tube and Lamp Corp., Owensboro, Ky., and at Huntington and Rockport, Ind., Tell City, Ind., and Bowling Green, Ky. General Electric took possession of the property early in January. Sales of the tube interests was authorized by Ken-Rad stockholders in December, but the sale does not include the electric lamp manufacturing business of Ken-Rad. All plant units are engaged in war work. The new operation will be known as the Ken-Rad Division of the Electronics Department of the General Electric Co. Carl J. Hoffatz, formerly executive vice president of Ken-Rad, will manage the new setup.

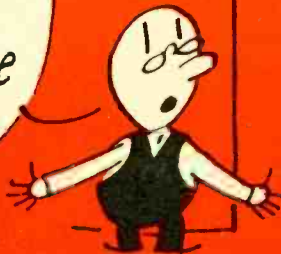
With the purchase of the Ken-Rad tube interests involving primarily radio receiving tubes, GE will enter the radio business in all branches postwar.

Aerovox Under New Ownership

W. Myron Owen is the new president of Aerovox Corp.; Samuel I. Cole retires. "The new management
(Continue on page 8)

We haven't
the brand
you want-
but we have
BLANKOS

CIGARETTES



Never heard
of them-but
okay - I have
to take
what I can
get

You gotta smoke
-even if it's cornsilk

It goes in the radio service business, too. • We don't blame you for taking what you can get, Mr Radio Service Man. • We know you are a business man and that you have a job to do. We understand why you have to accept spot merchandise in a pinch like this. • We also believe, however, that you think along sound lines, that you really want **BRANDED**

MERCHANDISE, and that ordinarily you depend on the reputation of the manufacturer who stands back of that merchandise. • Uncle Sam, who is the most careful of buyers and who thinks about reputations, has drafted IRC Resistors and Controls. That leaves us leaving you out on a limb. (Remember -- scarcity, these days, is a mark of leadership!)

*I'll be glad when
I can quit selling
foot-in-the-door
merchandise, and
get back to IRC*



• Most people are fed up with substitutions. They've had too much oleo-margarine, too many ersatz non-elastic girdles, and cigarettes with unheard-of names. Just as soon as they can, they want to get back to real things -- dependables. • We hope that goes for you and IRC Resistors and Controls. It looks now as if things might ease up soon -- and we could again build on quality together.



**INTERNATIONAL
RESISTANCE CO.**

401 N. BROAD ST. • PHILADELPHIA 8, PA.

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



In Trade

(from page 6)

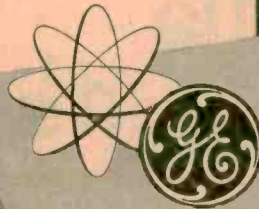
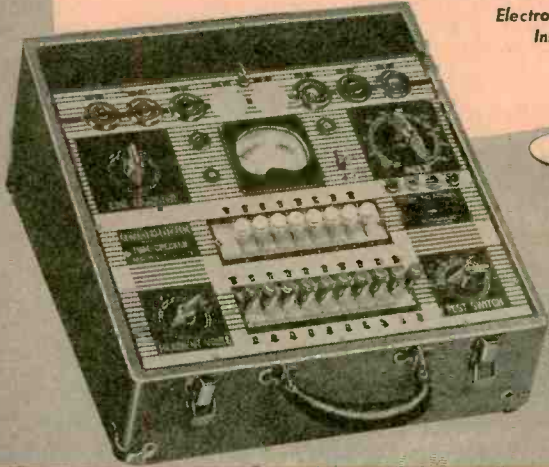
G-E TUBE CHECKER

Quick, easy, accurate tube checking which saves you time and trouble and keeps your customers happy—that's the job the TC-3P is built to do. Line Voltage and tube quality, or shorts, may all be checked on one selector switch. Individually operated switches permit placing the proper voltage on the proper pin of the tube. The G-E Tube Checker is available in either the Portable (TC-3P) or Counter Model (TC-3). Write: Electronics Department, General Electric, Schenectady, N. Y.

GENERAL ELECTRIC

177-D1

Electronic Measuring
Instruments



TC-3P



W. Myron Owen, President

expects to carry forward the original policies of the former group," stated Mr. Owen. There will be no change in personnel nor in the policies of the company. Mr. Cole will remain with the company as general manager for as long as he desires."

The new head recently resigned the vice-presidency of Detroit Harvester Company. Mr. Owen is also a director of Duncan Electrical Mfg. Co., the Chicago Rivet and Machine Co., and the Seneca Falls Machine Co. He was responsible for the reorganization of the Republic Aircraft Products Co., now a division of Aviation Corp. of America, and was a director of Hayes Industries, manufacturers of airplane wheels and brakes.

Samuel Siegel, who was vice-president of the company, remains as director of purchases. Stanley Green is the new vice-president and chief engineer, formerly holding a like position with the Duncan Electrical Mfg. Company.

Columbia Recording Goes West

Columbia Recording Corporation has bought from the Remington Arms Company its plant at Kings Mills, Ohio. This plant has about 350,000 square feet of floor area. When circumstances again make it possible to fully equip it for the manufacture of Columbia and Okeh records for practically overnight service throughout the Middle West, it will be the largest plant in the world devoted exclusively to the manufacture of records, being even larger than the Columbia home plant at Bridgeport, Conn. J. H. Hunt-

(Continued on page 10)

RADIO SERVICE DEALER

STAMINA



The inherent stamina of Cinaudagraph Speakers is due to experience in design and manufacturing plus highest inspection standards. In all types of Cinaudagraph Speakers, from small watch-like Handie-Talkie units to large auditorium speakers, you'll find the same precision, the same painstaking workmanship and the same long-lived faithful reproduction.

Watch Cinaudagraph Speakers after Victory!



Cinaudagraph Speakers, Inc.

3911 S. Michigan Ave., Chicago
Export Div., 13 E. 40th St., New York 16, N. Y.

"No Finer Speaker Made in all the World"

Top Flight
Engineering
...you'll have it with

NUMBER
TWO
IN THE PARADE
OF REASONS
Why You'll Profit
with ARVIN

ARVIN
Top Flight
RADIOS

BECAUSE Duke Silva, one of the foremost engineers in the radio industry today—a man who has contributed largely to the development and improvements of modern radio—heads the Arvin engineering staff. You'll have radios *engineered to the highest standards* for performance and dependability—*attractively priced* for the average buyer—and that means *profit for you*—with Arvin.

ARVIN MEANS RADIO SALES SUCCESS

Others of the Many Reasons Why You'll Profit with Arvin Top Flight Radios

● **Top Flight TECHNICAL BACKGROUND** — *Because* Arvin radio engineers have at their command *all* the basic technical developments of the industry—the rights to produce under the most important patents—the new electronic advancements that have come from the company's big production of the finest radios for war. Arvin engineering ability and mass production assure radios dependable in quality—in *mass market price brackets*.

● **Top Flight PERFORMANCE** — *Because* Arvin engineering and production facilities are "geared together" to produce top flight performance in radios—from four to ten-tube sets—at price-levels in line with the widest market opportunity. Arvin experience in the production of the finest wartime radio equipment is reflected in the engineering achievements that bring exceptional selectivity, sensitivity and tone quality to the new Arvins.

● **Top Flight SIMPLIFICATION** — *Because* only five basic radio chassis are used for twelve floor and table models in the Arvin line—three chassis in the line of portables—two chassis in rural battery sets. This simplification reduces your stock and service problems to a new low, yet at the same time you have all popular models with Arvin—from four to ten-tube sets—including radio-phonograph combinations with AM and FM.

NOBLITT-SPARKS INDUSTRIES, INC., COLUMBUS, INDIANA



**AN AMERICAN SOLUTION TO
YOUR CAPACITOR PROBLEMS**

**ALL TYPES - BY-PASS
AND ELECTROLYTIC**

**DATA SHEETS
ON REQUEST**

AMERICAN CONDENSER CO.

4410 No. Ravenswood Ave.

Chicago 40, Ill.

In Trade

(from page 8)

er, vice-president in charge of manufacturing and engineering, is at present organizing the plant operation staff, with Andrew Wooley as plant manager.



R. Seward



R. H. Streeter

Supreme's New Executives

M. F. Dulweber, president, Supreme Instruments Corp., Greenwood, Miss., announces appointment of Raymond Seward as chief engineer and Robert H. Streeter as assistant. This represents Mr. Seward's return to the company where he was employed from 1936 to 1938 as design engineer. Both Mr. Seward and Mr. Streeter operated their own (separate) independent radio and appliance service organizations for a number of years. Mr. Streeter leaves a development engineer post with Sparks-Withington Co. to take on his new connection with Supreme.

HATRY & YOUNG

HARTFORD 3, CONNECTICUT

LOOK, FELLAS, WRITE YOUR OWN

..... Hatry and Young

..... !

..... Hatry and Young

..... ;

..... War..... WPB..... ;

and OPA

..... Censored Censored Censored!?!&Z!\$*X:*!;0'1/2

So what?

..... Hatry and Young

(Point is: We have darned well done our best, done better for Connecticutri- cians than you hoped we could, serviced War Industry superbly for the War at the same time and earned a lot of compliments and such. We'll certainly not fail to keep it up because you guys, and you know it, are our REAL and LASTING customers and we know it. We deliver and deliver and deliver and you should know it—you get the stuff. So, write your own ads, you've seen all the words and can do it better than we can anyway.)

Electronics Specialists



Consultants • Expeditors



K. C. Burcaw

Cornell-Dubilier Appoints

K. C. Burcaw has been appointed sales manager of the Cornell-Dubilier Electric Corp., jobber division. He is

(Continued on page 16)

1938...THEY SAID IT COULDN'T BE DONE!

The HYTRON Family ALBUM

February 16, 1938
ORION SOTHAM JTING FIRM
HYTRON CORP. DEVELOPS "BANTAM" GLASS RADIO TUBE FOR MINIATURE RECEIVERS
RCA VICTOR NEW PO FARM
LIST FROM
PAUL C. BENT
RCA VICTOR
New York
Factors a



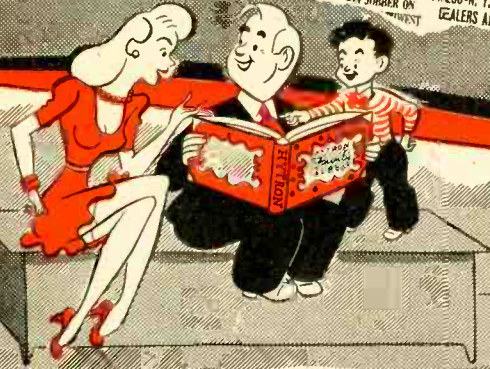
RECENT RADIO TUBES

In March Radio-Craft (Libbie Source Number) we chronicled several unique developments. We add to the list...
RADIO TUBES
RADIO TUBES
RADIO TUBES



IN THIS ISSUE—
 A new...
 A new...
 A new...

elle n'a que 7 c/m
 Nouvelle série "MARIE FIDELITE"
 Nouvelle série "MARIE FIDELITE"
 Nouvelle série "MARIE FIDELITE"
HYTRON BANTAM
 HYTRON BANTAM
 HYTRON BANTAM



Back in 1938, Hytron began designing new dies and converting production machinery for the first BANTAM GT tubes. The industry said in effect: "You're crazy; it won't work. You can't telescope standard glass tubes to BANTAM size and get the same results." Beam tetrodes, such as the 50L6GT, particularly were considered impossibilities. The intense heat developed during normal operation would warp the elements and crack the small glass bulb.

But Bruce A. Coffin, originator of the BANTAM GT, stuck to his guns. In a few short years, Hytron developed over fifty GT types. The GT became the most popular receiving tube.* Short leads, low capacitances, advantages of shorter bombardment at lower temperatures, ruggedness of compact construction plus both top and bottom mica supports, smaller size, standardized envelopes and bases — all contributed to that popularity.

The BANTAM GT permitted new space economies in pre-war receivers. Only its universal acceptance as standard by all tube manufacturers makes possible fulfillment of the Services' demands for receiving tubes. In increasing numbers, as this war draws to its ultimate conclusion, Hytron will continue to supply you with the popular BANTAM GT tubes which everyone said just couldn't be made.

*1941 industry production figures: GT — 52,000,000; metal — 27,000,000; standard glass, G, and local — 56,000,000.

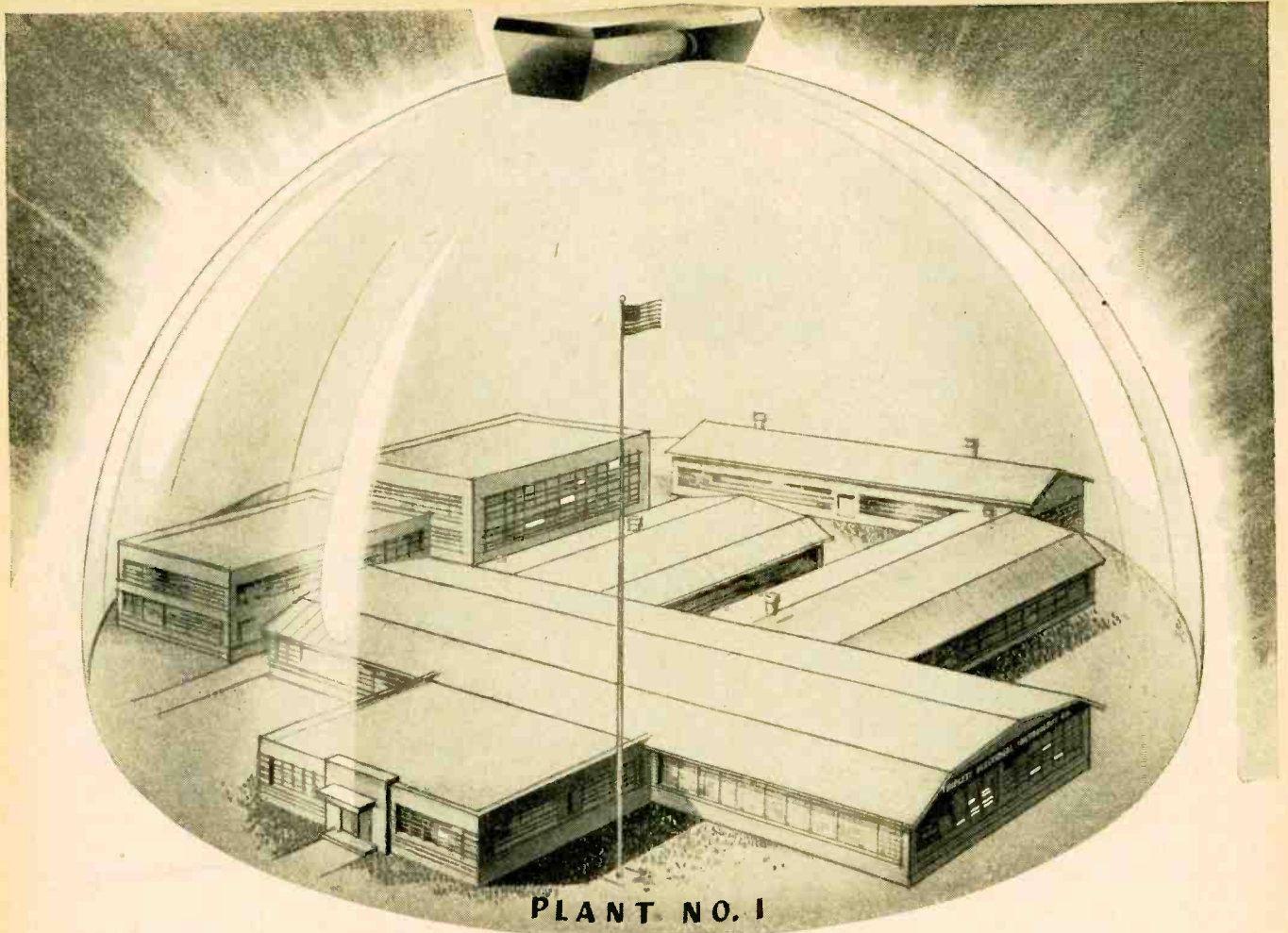
HYTRON HYLIGHTS
 "INDEFINITE DELIVERY"

Most of you jobbers understand why your rated orders for GT tubes are often acknowledged with an indefinite delivery promise. You know Hytron is eager to service your high priority orders immediately. But there are WPB shipping directives we must observe. Service requirements must be met. Amounts allocated jointly to jobber rated orders and equipment rated orders must be shared; equipment rated orders usually have high precedence listings. WPB Shipping Schedules are subject to change constantly as Army and Navy requirements shift. Sometimes production of one type of tube must be stopped entirely to make way for another more urgently needed. No delivery promises can be made beyond the current quarter of a WPB Shipping Schedule. Hytron has your interests at heart. Your rated orders for GT tubes are being shipped as fast as increasing production and WPB directives permit.



OLDEST EXCLUSIVE MANUFACTURER OF RADIO RECEIVING TUBES
HYTRON CORPORATION
 ELECTRONIC AND RADIO TUBES
 MAIN OFFICE: SALEM, MASSACHUSETTS
 PLANTS: SALEM, NEWBURYPORT, BEVERLY & LAWRENCE

BUY ANOTHER WAR BOND




"DUSTLESSTOWN, OHIO"

● It's the little things that loom biggest in the manufacture of delicate electrical measuring instruments. Little things like specks of dust or breath condensation can play havoc with accuracy. That's why Triplett Instruments are made in spotless manufacturing departments; why the air is washed clean, de-humidified and

temperature-controlled; why every step in their mass production is protected. As a result Triplett Instruments perform better, last longer and render greater service value.

Extra Care in our work puts Extra Value in your Triplett Instrument.

*Precision first
...to last*



Triplett

ELECTRICAL INSTRUMENT CO. BLUFFTON, OHIO



TAKE THE LEAD IN POST-WAR HOME RADIO SALES...

PERSONAL SETS

TABLE SETS

TABLE COMBINATIONS

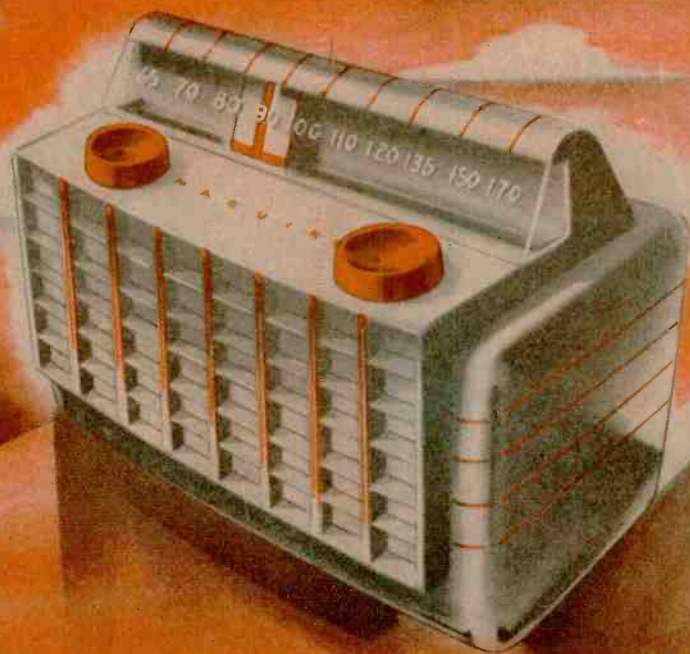
F. M. SETS

CONSOLE COMBINATIONS

RECORD PLAYERS

PORTABLES

TELEVISION



Original styling suggested by Dohner & Lippincott, noted industrial designers.

KEEP IT WITH THE

MAGUIRE FRANCHISE

The emergencies of War give rise to new leadership. Maguire Industries, a recognized leader in the production of wartime electronic, radio and radar devices, will retain its war-earned leadership through the manufacture of a complete and outstanding line of radios, radio-phonographs and television instruments for the home.

For your customers, Maguire Home Radio, the ultimate in tonal quality and interference-free reception, will be the radio they've been waiting for

and wanting to buy. **For you,** the Maguire Home Radio line means speedy sales, minimum service . . . **real profits!**

Don't miss this real opportunity for post-war radio sales leadership! Progressive dealers and distributors everywhere are investigating the Maguire franchise . . . Why don't you look into Maguire's liberal dealer and distributor policy? For full information, write Maguire Industries, Inc., 342 West Putnam Ave., Greenwich, Conn.—today!

A NEW NOTE IN HOME RADIO



Maguire

INDUSTRIES INCORPORATED

ELECTRONICS DIVISION

GREENWICH • STAMFORD • BRIDGEPORT • NEW MILFORD • NEW YORK

SYLVANIA NEWS

RADIO SERVICE EDITION


JANUARY

Published in the Interests of Better Sight and Sound

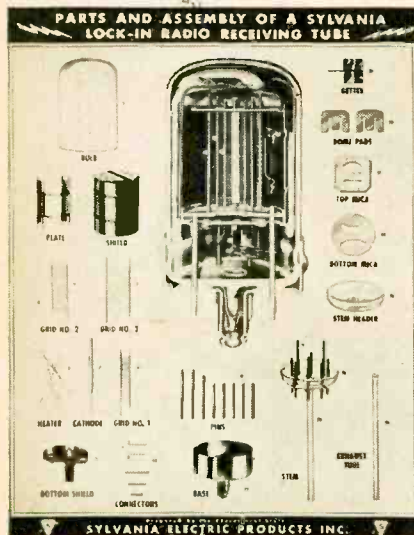
1945

**SYLVANIA
SERVICEMAN
SERVICE**

by
FRANK FAX



Among the newest of Sylvania Electric's helps for servicemen is a large chart, measuring about 32 by 43 inches, and lithographed in 4 colors, showing in full detail the parts and assembly of a Sylvania Lock-In Radio Receiving Tube. The chart,



which is reproduced in the accompanying illustration, clearly shows the location of each part in the complete assembly of the tube.

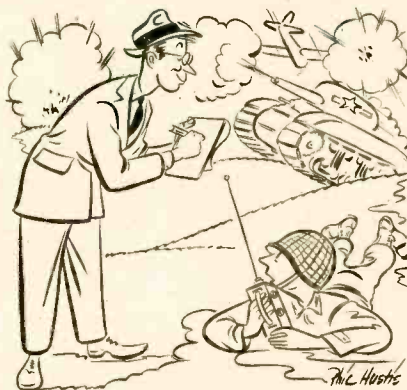
This chart is being distributed to servicemen throughout the country, and is free on request to Emporium, Pa.

Sylvania Launches Broad Study of Public's Wants in Sets and Tubes

Servicemen's Problems to Get Special Consideration in Nationwide Survey

As a major step in its consistent policy of assisting radio servicemen to carry on their business efficiently and profitably, Sylvania Electric Products Inc. is launching a nationwide survey of the trends of public preferences and buying habits in the field of radio and television sets and tubes. The information is expected to be of great value to servicemen in planning for post-war.

SYLVESTER SURVEY



"I wonder if I could have your views on what the postwar radio will be like?"

HANDY UNIT LIGHTS HARD-TO-REACH SPOTS



The Sylvania Fluorescent Extension Cord Lamp, which fits through openings as small as 2 inches square, brings the advantages of fluorescent lighting to hard-to-reach spots, and may prove a useful tool for the serviceman.



Here is the first of the new Sylvania questionnaire advertisements.

be conducted with set owners, to determine the types of new sets they plan to buy, and also to study the market for postwar renovation of old sets and for tube replacements. In addition, Sylvania Electric is initiating a series of questionnaire advertisements, which will reach millions of readers of national and general business magazines.

These advertisements will stimulate public interest in getting the most out of radio and television, and hence will help to build business for the serviceman. Results of the survey will be published in future issues of SYLVANIA NEWS.



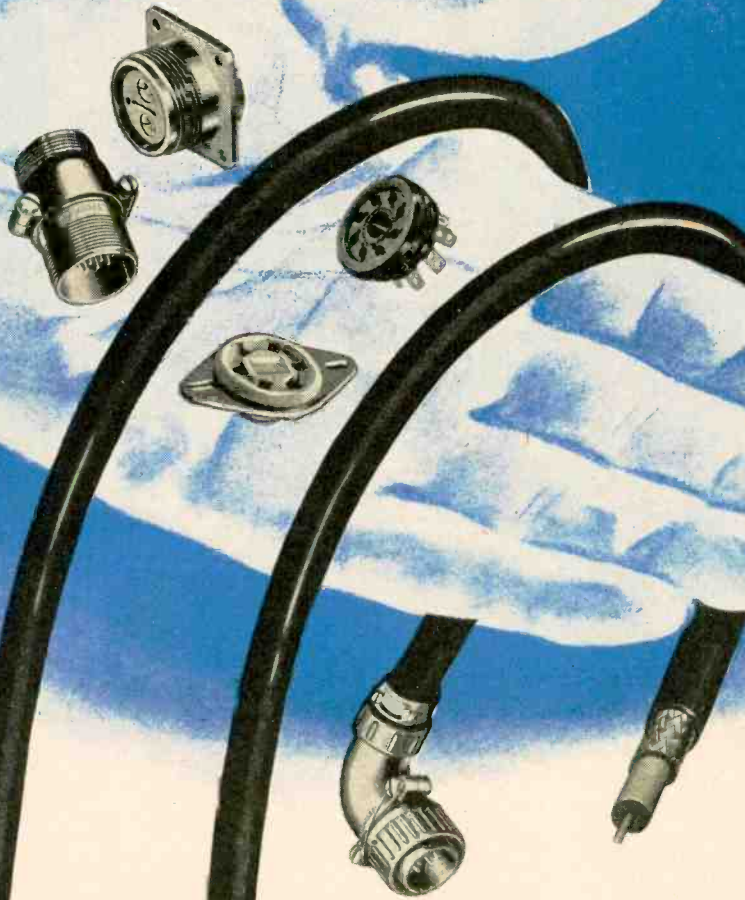
SYLVANIA ELECTRIC

SYLVANIA ELECTRIC PRODUCTS INC., Radio Division, Emporium, Pa.

MAKERS OF RADIO TUBES; CATHODE RAY TUBES; ELECTRONIC DEVICES; FLUORESCENT LAMPS, FIXTURES, ACCESSORIES; INCANDESCENT LAMPS

AMPHENOL

... Ready to Contribute
to the Age of Electronics



Depend upon

AMPHENOL

Quality

• Amphenol offers highly developed ability to design and produce electrical components of the most critically engineered type. This skill is based on many years of experience in radio since its pioneering stages—now deepened and strengthened by the extreme demands of war production.

Fortunately Amphenol's great capacity is available at a time when the whole science of Electronics is coming into its own. Amphenol is ready to play as big a part in its own phase of the Electronic Industry, as Electronics will play in the post-war world.

AMERICAN PHENOLIC CORPORATION • Chicago 50, Illinois
In Canada • **AMPHENOL LIMITED • Toronto**

Connectors — AN, British, U. H. F. • Fittings
Conduit • Cable Assemblies • U. H. F. Cable
Radio Parts • Plastics for Industry

Basic Design

makes the difference!

Smudge-voice

While these two columns read identically, word for word, the smudged column is a visual representation of an acoustical condition when background noise interferes with transmitted speech.

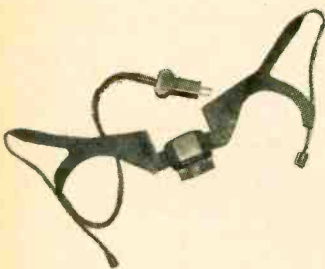
The words may be readable, but effort and concentration are required for accuracy. And so with reproduced sound with general purpose microphones, articulation is lowered even though ambient noises do not completely override speech. The Electro-Voice Differential is specifically designed to erase interfering background noise. Speech is clean, clear, crisp... unadulterated by stray pickup or distracting background.

Electro-Voice

While these two columns read identically, word for word, the smudged column is a visual representation of an acoustical condition when background noise interferes with transmitted speech.

The words may be readable, but effort and concentration are required for accuracy. And so with reproduced sound with general purpose microphones, articulation is lowered even though ambient noises do not completely override speech. The Electro-Voice Differential is specifically designed to erase interfering background noise. Speech is clean, clear, crisp... unadulterated by stray pickup or distracting background.

Electro-Voice DIFFERENTIAL MICROPHONES



Electro-Voice engineers have years of experience in the elimination of ambient noise. We designed and developed the now-famous "Lip-Mike," the first successful Differential microphone. Our new Model 205-S for aircraft, railroad, industrial and police applications is another Differential achievement! Soon there will be Electro-Voice Differential microphones for all communication services. Watch for them.

If any of your limited quantity needs can be met by standard model Electro-Voice microphones, with or without minor modifications, contact your local radio parts distributor.



BLOOD DONORS ARE URGENTLY NEEDED... SEE YOUR LOCAL RED CROSS

Electro-Voice MICROPHONES

ELECTRO-VOICE CORPORATION • 1239 SOUTH BEND AVENUE • SOUTH BEND 24, INDIANA
Export Division: 13 East 40th Street, New York 16, N. Y., U. S. A. Cables: Arlab



In Trade

(from page 10)

now rounding out plans for setting up a distributor organization. As a member of the firm of Radiart Co., Mr. Burcaw covered territories in Michigan, Indiana, Kentucky and Chicago. He is flight officer in the Civil Air Patrol, and has taken part in numerous plane-to-ground two way radio experiments.



Joseph Gerl, President

Sonora Plans 37 New Models

Joseph Gerl, president, Sonora Radio and Television Corp., Chicago, announces that the company's post-war plans call for a 72 per cent increase in employment and production over 1940 levels. "This will leave room not only for employees returning from their war duties," stated Mr. Gerl, "but will mean the addition of hundreds of new workers. All this, despite the murky employment picture envisaged by some seers, and despite the sobbing and tragic blowing of noses over the nation's over-expansion of industrial capacity. Americans will want a greater variety of goods and at lower prices. We are preparing to meet that demand.

"The new technical skills acquired by our employees now in the armed forces will be extremely valuable in the manufacture of the 37 new models which we will produce. Within six weeks after civilian production is given the green light by the War Production Board, we plan to begin delivery of 22 of the new models. The remaining 15 models will be shipped within six months after the first group is delivered. FM and television receivers will be brought forth in various price brackets."

(Continued on page 53)

Get **EVERYTHING!**

Standardize on

STANCOR

Transformers

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

STANDARD TRANSFORMER CORPORATION
1500 N. HALSTED STREET • CHICAGO



BACK AGAIN...SOON



The Plan THAT GAVE 60,000 PIECES OF FINE TEST EQUIPMENT TO RADIO SERVICE DEALERS

Sure, you remember this big National Union Encyclopedia that showed all kinds of high-grade service and test equipment. It told you how to get the instruments and meters you wanted *free* with the exclusive N. U. Equipment Plan. And that plan was so popular that it was OK'd 60,000 times by radio service dealers!

AFTER THE WAR - MORE THAN BEFORE
Yes, a bigger and better Encyclopedia. More deals to bring you the modern test equipment you'll need to service radios, radio-phono-

graphs, television receivers and industrial electronic devices. After Victory, we'll make it easier than ever for you to equip your shop for more business and bigger profits . . . the exclusive National Union way!

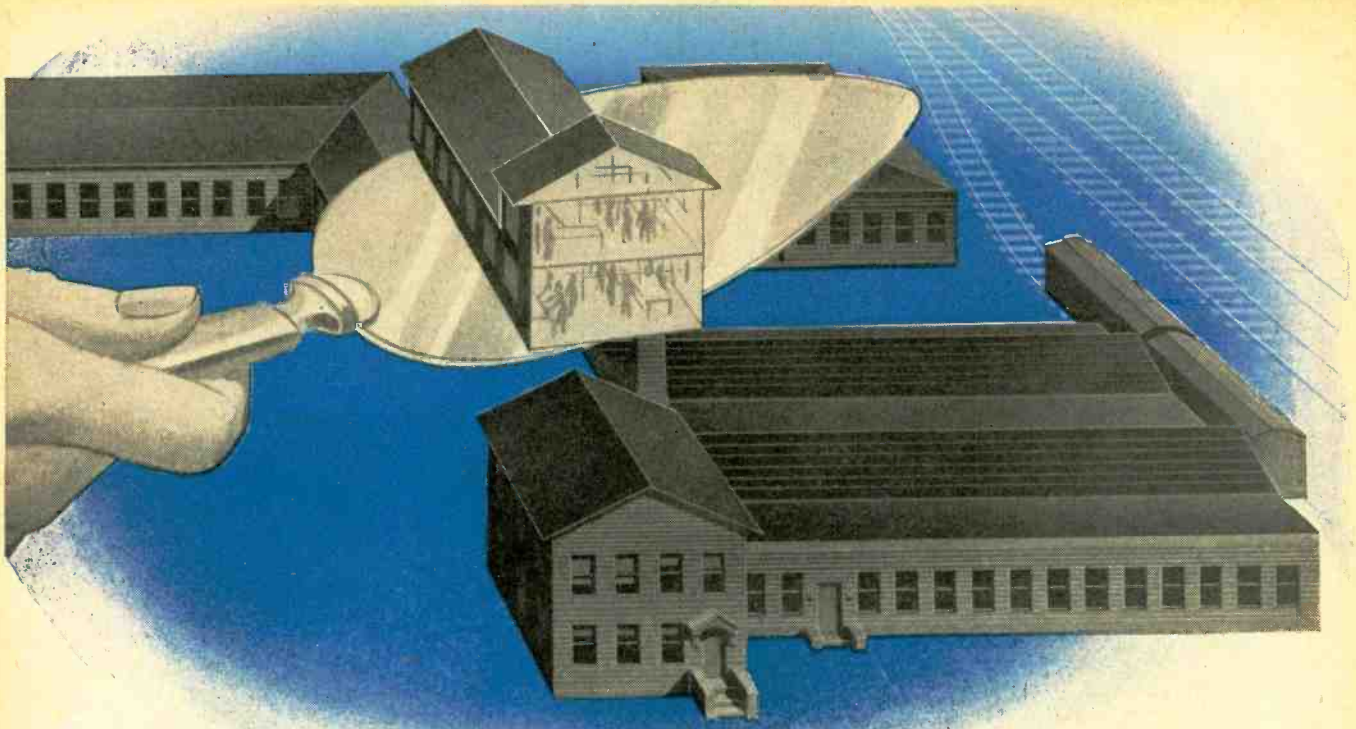
NATIONAL UNION RADIO CORPORATION
NEWARK 2, NEW JERSEY

Factories at:
Newark and Maplewood, N. J.;
Landsdale and Robesonia, Pa.



NATIONAL UNION RADIO AND ELECTRONIC TUBES

Transmitting, Cathode Ray, Receiving, Special Purpose Tubes • Condensers • Volume Controls • Photo Electric Cells • Panel Lamps • Flashlight Bulbs



Cut Yourself a Slice of Radio Factory

**and guarantee delivery on your
first radio requirements**

Your biggest postwar problem is—deliveries. Here is a sales plan that answers that problem by guaranteeing deliveries.

An organized sales and distribution plan makes it possible for *you* to depend on *your share* of the *finest* radios available immediately after civilian set production starts.

Meck Radios will be sales leaders, year in and year out—from the start. You can now reserve a section of my production line and stop worrying.

Ask your Parts Jobber today or write

JOHN MECK INDUSTRIES, PLYMOUTH, INDIANA

John Meck



TABLE MODELS • PORTABLES • CONSOLES • PHONOGRAPHS

FUTURE of RADIO

Is Boundless

by **BRIGADIER GENERAL DAVID SARNOFF**
President, Radio Corporation of America



Lessons learned in war will help increase and expand peacetime use of radio, television, facsimile, radar. Will aid our economy, maintain employment and sales.

THE story of the all-powerful part that radio is playing in the war cannot be told until hostilities are over. Ready to meet the impact of war, America had a world-wide communications system and a broad-

casting system second to none. In no war has communication meant so much as it does in this global war. It is machine against machine and speed against speed. Modern radio can keep up with the pace, span great distances

in split seconds, flash commands, coordinate the farflung battle forces and direct maneuvers.

The unprecedented part that broadcasting is playing in this war, in binding together the people of the United Nations, and in bringing in some light to countries darkened by dictatorships, can best be realized when one is in the very vortex of it. I found myself in such a spot on D-Day, June 6, 1944. At an undisclosed location in the United Kingdom, the news came in directly from the beaches of Normandy and that news was broadcast instantaneously to all the world.

Radio a "Must" in War . . .

Our fighting men—over there—are on the road to Victory. Those of you who are on the production line are soldiers, too. The men over there are depending upon you. I have seen what can be done with American equipment in the field. In action, it is a vital link to Victory. I have listened on foreign soil to radio as the Voice of Freedom. If you only knew what it means to the liberated people over there, and what it means to our soldiers who comb the air impatiently for news from home, for baseball and football scores and their favorite entertainers. Radio is their only means of reaching out across the sea, literally to feel the pulse of home. I have joined with them in the field, listening to America; I have flown across the oceans and know what a safety factor radio can be up there in the darkness where enemy patrols may be lurking. You never get away from radio, no matter where you go in this war.

. . . A Need in Peace

People ask me what about television in the war; what about facsimile and FM? What about radar? The answers are the secrets of war and only Victory can reveal them fully. We can be certain, however, that what we have learned through their use in war will help substantially to increase and expand the products and services of radio in peace.

The future of radio is boundless. Tomorrow holds the promise of television and of many other new electronic wonders which will aid our economy, help maintain employment, and broaden our cultural enjoyment.

The achievements of radio during the past twenty-five years will be greatly surpassed during the next twenty-five years. Our road ahead is marked by great responsibility and golden opportunity.

From an address at Radio Corporation of America's 25th Anniversary Dinner.

"Tooling Up"



Author demonstrates a set dealers will sell postwar.

by **CLARENCE G. FELIX**
Manager Radio Department,
The Crosley Corp.

DEALERS want to know all about the radio and television sets they are likely to have for sale following the liquidation of our Euro-axis enemy. What will they (the sets) look like? What about FM; and television? What about price? And there are questions about cooperative advertising, discounts and so on. The latter can be answered in a general way; the former lend themselves to more specific answers.

How Sets Will Look

The first production will be of the less-complicated-to-build types and will be made mostly from our last tools and dies. The chassis will be quite similar to those last produced. The quality, because of what we have learned in the exacting specification of war radios, will on the average be considerably higher and the sets will be even more uniform than those last produced for civilian use.

The styling of the dials will be brand new, although they will be made from available tools and dies. We will start production of the multi-tube models in 30 to 60 days after the smaller models get under way. There will be more changes in the multi-tube models than in the less expensive types. Of course we will have new wood cabinets throughout. Within 60 to 120 days after production is re-

sumed, dealers will receive a complete line including electrical and farm table models, portables and table model combinations, radio consoles and combination consoles.

Sets with FM

We don't believe that FM will ever replace AM but rather that it will supply a greatly needed supplementary service. It now appears that many additional FM stations will be on the air within a year or two after the war ends. Undoubtedly many millions of families will want this improved and added service. (See page 34, "Market for FM Sets"—December 1944 Radio Service Dealer).

Frequency modulation was well under way before Pearl Harbor. It is being used extensively by our armed services. A great deal of knowledge and experience has been gained since Pearl Harbor. Most of the more expensive radios and radio combinations will incorporate the FM band.

There are many advantages of having FM on your radio. Wider channels are used which make higher fidelity possible. Man-made and natural static are almost eliminated. Because the broadcast station range is much more limited than in the present broadcast band it is possible

to have many more stations on the same frequency with much less interference between stations. In the band which has been allocated to FM it will be possible to set up some 3,000 stations.

There are less than 1,000 AM stations in operation today. FM will permit a fine broadcasting service to many communities which do not have adequate service today. 46 commercial FM stations are now in operation, and according to latest reports the FCC has applications for 248 additional licenses. More than 500,000 FM receivers have been sold by dealers.

Sets with Television

For about ten years television has been "just around the corner." And while there are still several hurdles to be cleared, television is at last definitely in sight. First, before the industry can develop its final plans, we must await the recommendations of the Radio Technical Planning Board on the setting of standards and frequency assignments. When this is accomplished the industry can roll up its sleeves and really go to work. Progress should be rapid thereafter.

Some estimators maintain that within two years after television gets under way commercially, over 30 million people covering over 35 per cent of the nation's potential buying power, will be able to receive television. The expansion to follow this initial phase should be rapid. It is now estimated that very satisfactory receivers can be sold from \$150 to \$200 and upwards.

Within ten years after the end of the war, thousands will be employed in the manufacture, erection and operation of the stations. More thousands will be employed in the manufacturing and distribution of receivers. Additional thousands will be employed in the advertising end of the business which will support the telecasting networks and stations.

We think that television will be commercially sound for the majority of distributors and dealers to handle with profit. It is almost ten years

for Radio Dealer Sales

since we built our first television receiver. We have been working on television continually since that time. Of course the pace of development has been stepped up during the past several years, both from a war and civilian engineering standpoint. Some day television will be a billion-dollar industry.

Set Prices

As you know OPA regulation 188 provides for the freeze of manufacturer selling prices as of the highest price in March 1942. The general pricing act which covers the distributor and dealer provides for the same margin they had on similar models during October 1941.

OPA has explained that this new order is only a temporary order—that it is incomplete and that provisions will have to be made for the pricing of new models. It is possible that manufacturers will be permitted to increase their sale price to cover the actual cost increase but that their profit will be frozen to the 1941 or 1942 level. Accordingly the manufacturer's percentage of profit will be smaller. It now appears that distributor and dealer pricing will be more liberal than this. Because of these uncertainties, it is impossible to say now just what the discounts will be to the trade.

Retail Outlets

Independent radio and appliance dealers, department stores, furniture stores—together (in some locations or under special circumstances) with jewelry, drug, automotive supply and other types of outlets have their consumer following in every market. People prefer to buy at these particular stores because of a number of reasons. It may be because they have an account there; it may be because of the service; or perhaps because of the terms. Whatever the reason, there are some people who prefer to buy at each of these various stores. In order to have complete coverage, the dealer organization will include all types of stores.

Through our field representatives

we know that many changes have taken place since dealers last sold appliances. It may be that the dealers that formerly were the best in the market may have changed and in the future, because of lack of concentration on radios and appliances they may not do as good a job. On the other hand, it may be that the smaller dealers that have proven their "staying" ability during the war may become increasingly important.

The changing competitive picture

calls for a program that is designed not only to sell special products but also one that will create traffic, build customer following and in general put a real spark of life and merchandising fire into the independent dealer's business. The company program along these lines will enable franchised dealers to get their share of the business in the face of strong competition from large tire chains, auto stores, department stores and furniture stores which may enter the picture.

Dealers and the War

POST-WAR SALES PLANNING IS NOT BLUE-SKY

THERE was a time, back there early in the fall of last year, when military, government and industrial leaders could see an early end to the German phase of the war. And in that spirit, manufacturing organizations of all kinds held business planning and sales conferences for their distributors, dealers and representatives. Although recent events show clearly that V-E day will come later than folks expected, there isn't a man, woman or child in the land who is not confident that come it will.

The things that were spoken of at the sales conferences have, in retrospect, shown a remarkable vitality. War events have merely postponed their realization, they have not invalidated them. The statements were made by men of long experience in their respective fields—whether of marketing, selling, servicing or advertising and merchandising—and their "look ahead" was filled with practical ideas for practical ends satisfactory to realistic men in the fields of wholesale and retail distribution.

The material in the article,

"Tooling Up for Radio Dealer Sales," is based on talks delivered during business planning conferences held last fall by The Crosley Corporation. The subjects were many, and they are all representative of the thinking expressed by other executives in other companies with similar products and similar marketing objectives through distributors and dealers. The editors believe it fitting and proper that some details of the projected planning and current thinking—in terms of "post-war"—should appear in the first magazine issue of the new year. It is a time when all of us look ahead with special anticipation and when we are most receptive to the "forward look."

Maybe the day is not so far distant when the words used to express *thoughts of future action* may become *programs for immediate activity*. In this sense, dealers will find here distinct suggestions of what "lines" they may be stocking and handling when their shelves and floor displays can at last again be filled with sales-tempting items of radios and appliances for the American family. —L. C. S.

A STORE IS "BORN"



Counters are long and streamlined for easy access by customers. To handle store traffic at peaks booths are supplemented by "record bars" (see cover) which accommodate four customers at a time for record demonstrations. Record bars have volume controls and are non-interfering. Records are taken from self-selection displays or over the counter by clerks. Below: every fixture was designed and placed for best display of each item in consultation with merchandising and display experts. Owner is in middle of group. Both views are taken from "A" on plan, page 24.



THIS store was "born" to the Yorkville Electronics & Television Corporation, Lexington Avenue, a few blocks away from Grand Central Station, New York. It opened just about in time to make the late Christmas trade. Sidney Vorzimer, owner, has a history of personal achievement as a radio and appliance dealer as long as your arm. It (the history) goes back to the middle '20s, when Sid got so he could roll up annual retail sales of \$3,000,000 as an authorized Philco dealer.

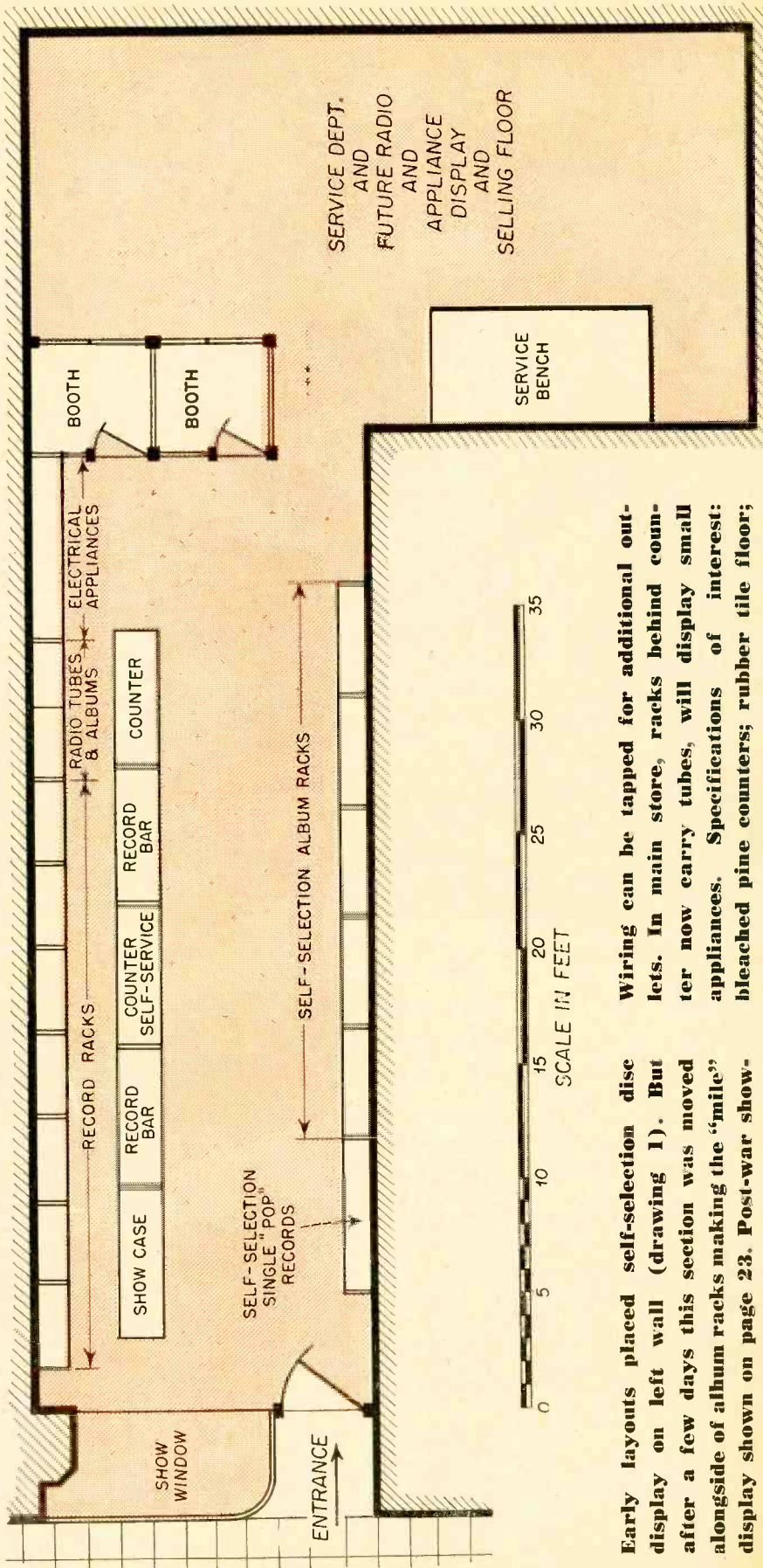
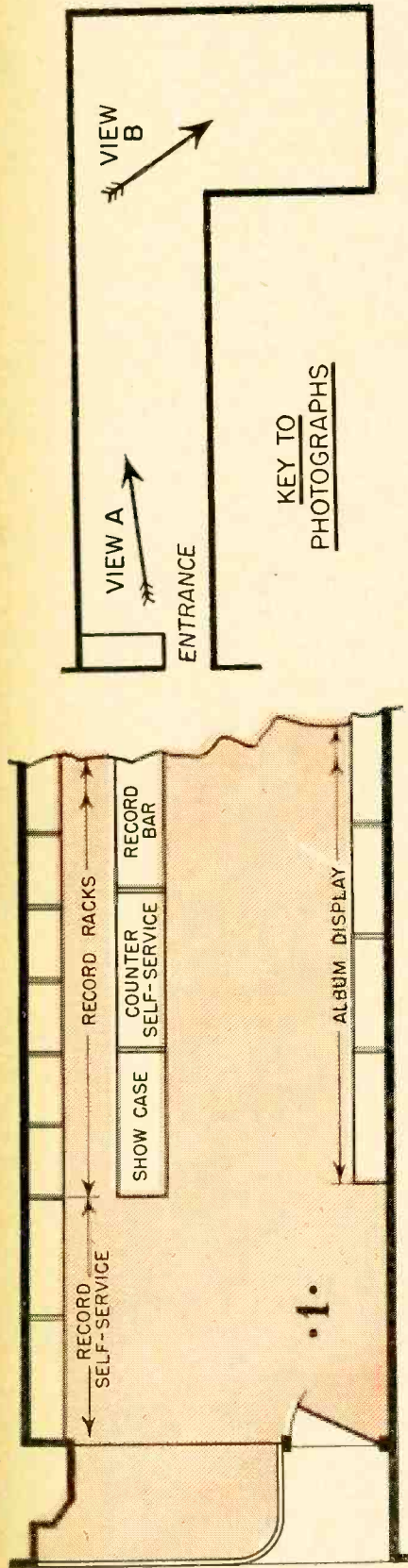
The present store represents a realistic solution to wartime retailing. At the same time the plan—and the owner's policy—includes provision for re-



A "mile" of disc and album displays along the wall moves customers deep into store.

Store promotion is continuous — from window signs during building operations to final merchandise display.

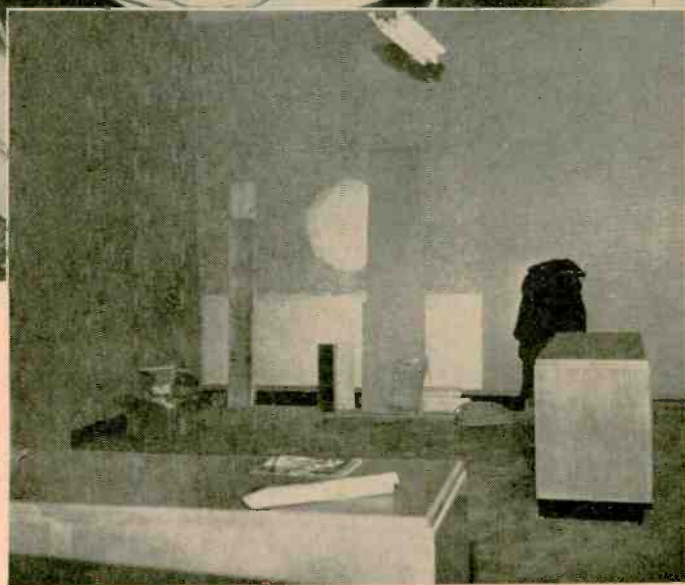




Early layouts placed self-selection display on left wall (drawing 1). But after a few days this section was moved alongside of album racks making the "mile" display shown on page 23. Post-war show-room has plug-in outlets 3 feet apart. Wiring can be tapped for additional outlets. In main store, racks behind counter now carry tubes, will display small appliances. Specifications of interest: bleached pine counters; rubber tile floor; green grass wallpaper; fluorescent lights.



Service jobs kept pouring in even before the official opening. Navy-trained youngster was called in to handle stockpile of minor jobs before regular workbench and complete test equipment were installed.



Inset shows construction stage of this part of store, reserved for future display and demonstration of radios and appliances. Service will be moved to basement. (View "B" on plan, page 24).

tailoring operations that will take full advantage of anything manufacturers may bring out after the war in the way of radios, combinations, FM and television sets, traffic and major household appliances.

This dealer shares with others the problems of retailing-at-war. So now the store, as such, occupies only the forepart of the premises (see plan, page 24). And as the illustrations

show clearly, everything has been streamlined to make it easy to stock, display and sell just one commodity—records—for the duration . . .

The owner's long experience as a dealer makes this opening all the more significant. He is no mere interloper or cocky opportunist. His move in re-establishing himself as a radio and appliance dealer at the present time is proof—if proof is needed—of the un-

limited possibilities open to dealers who plan ahead.

The editors of RADIO SERVICE DEALER watched the store from the very beginning and took photographs as it took shape. Some of the "before" and "after" photos are reproduced here. They show what is possible, even during wartime scarcities of materials and manpower, in the way of store construction and modernization.



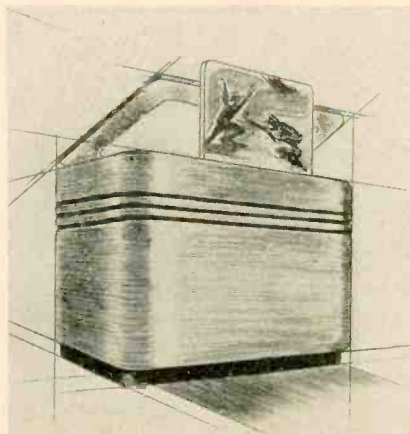
DEALER INSTALLATIONS Key to Television Success

by **CHARLES ROBBINS**
Vice-President, Charge of Sales,
Emerson Radio & Phonograph Corporation

Satisfactory operation in the home will depend on expert installations and detailed operating instructions to new set owners.
First article in a series on what television means to dealers.

MANUFACTURERS have told millions of readers and listeners of great television wonders ahead. The buying public will have billions of dollars to spend when the war ends. Many types and styles of television receivers will be available in the dealers' stores shortly thereafter. But it is not going to be the push-over that many people think. As a matter of fact there has been altogether too much loose talk about television and the miracles it will perform.

Television sets are not over-the-counter items such as are usually



wrapped up and taken home. They are more complex than sound receivers, more expensive, and they require greater care in handling. Every dealer should therefore keep himself well informed of all phases of the business, so that he can at all times present a true and accurate picture of the television receiver itself and the exact service his customers may expect from it.

Mass Buying Needed

There will no doubt be a "flush" market for television when civilian

production is resumed. Many thousands of sets will be bought in anticipation of good programs to come. But mass buying in concentrated markets is something else. And it is to mass buying that we must look for the growth of the television industry.

It comes down to the matter of sufficient circulation. What we need to continue spark-plugging the industry after the first enthusiasm has spent itself is a responsive audience sufficiently broad and with enough buying power to warrant producing the kind of programs that will hold the interest of the consumer.

Manufacturers and tele-broadcasters might take a page from the book of successful newspaper and magazine publishers. They must determine first how many television receivers there should be in the homes of a given territory to compose and deliver effective and economical advertising influences. Because, in the end, the advertisers will be looked upon to finance television broadcasting, just as in radio broadcasting and in publishing.

When it is determined how many television sets are needed in a community to complete the audience and broadcasting cycle — what then? Manufacturers, broadcasters, advertisers and dealers might get together on a national and local merchandising plan:

1. Manufacturers might arrange with their distributors and dealers to place the first required numbers of receivers in homes on liberal buying terms, and in the shortest time possible after the beginning of production.*

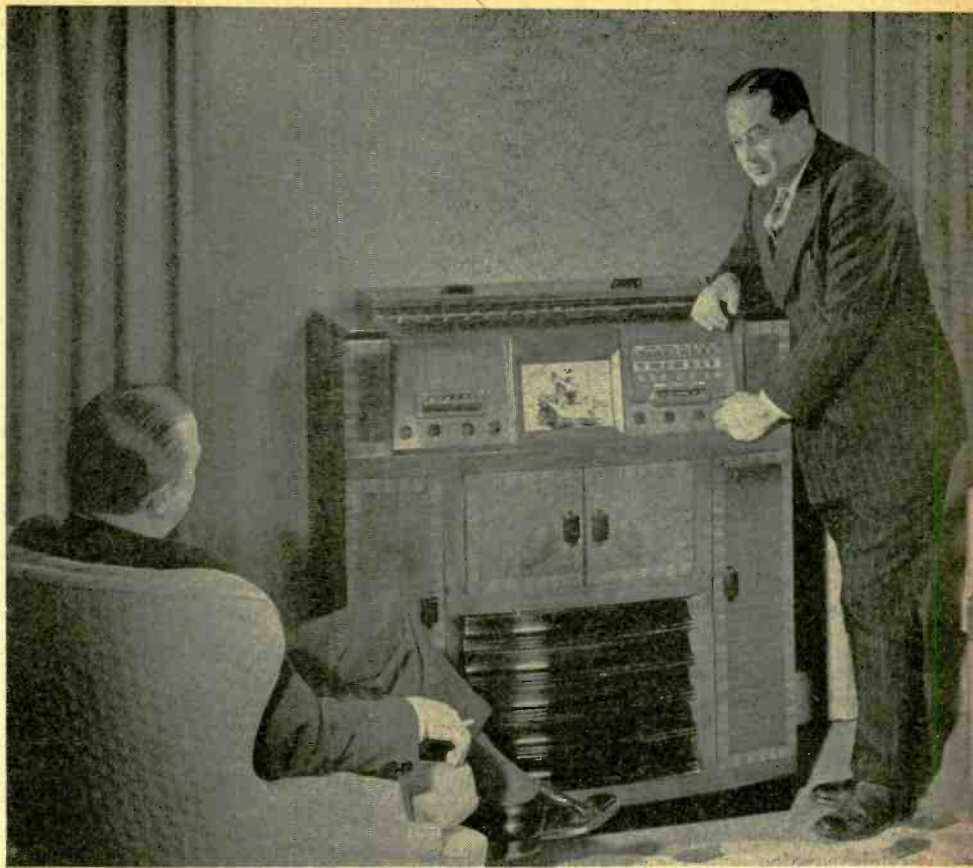
2. Broadcasters, assured of an adequate audience, would be encouraged to invest in good sustaining programs pending the sale of broadcasting time.

3. Advertisers, assured of audiences, of adequate size, would finance the sort of tele-programs which would serve best as effective backgrounds for their merchandising campaigns.

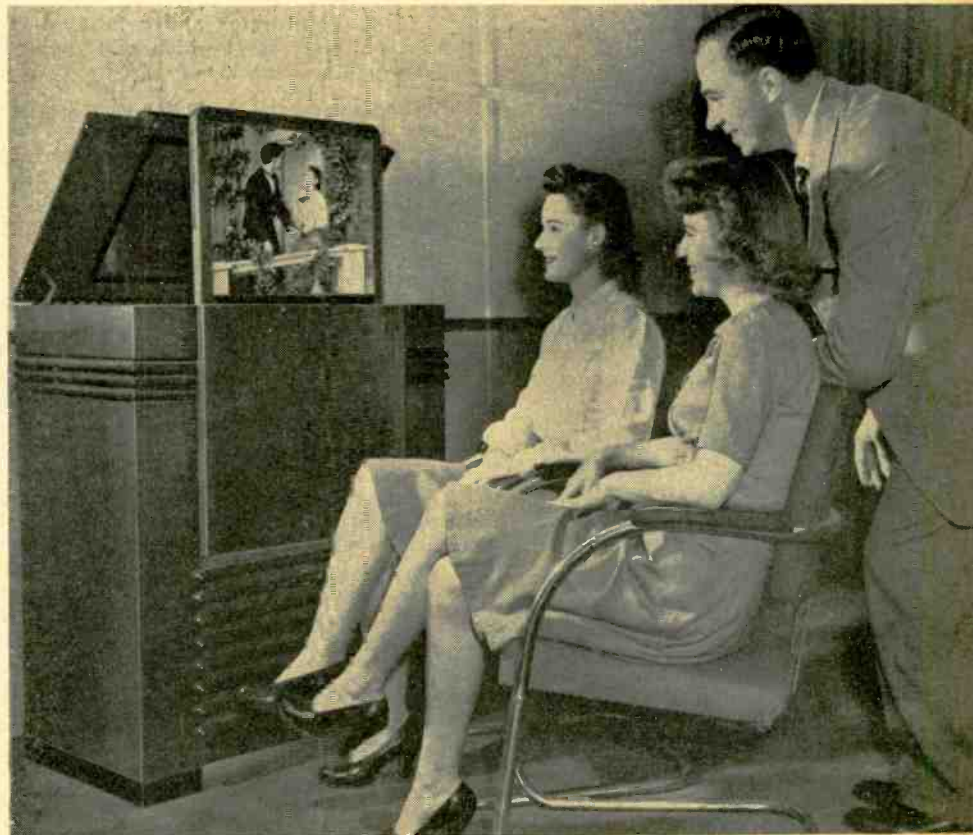
How to Make the Market "Solid"

The importance, therefore, of proper programming cannot be stressed

**For example, in New York City it appears that 100,000 to 150,000 receivers will be needed to support efficient commercial broadcasting stations, offering attractive potentialities to advertisers.*



Radio's development promises to be the reverse of motion pictures. First movies had sight, then came sound. Radio began with sound, is adding sight. Above, actual model of Admiral's post-war television-radio-combination. Below, RCA version of a post-war set for projection of video programs in the home.





Television brings relaxation to war veterans. Set is RCA current model. Image is projected to mirror on lid.

too greatly. For the start, at least, manufacturers will achieve the greatest good for themselves and the industry as a whole by following a policy of putting the fixing of profit margins second to making high quality, practical sets (including projection models) which will create a theatre in every home.

Distributors should also take a long range viewpoint of the television selling opportunity. They should be willing, in the beginning, to agree to a minimum profit margin in order to maintain the greatest values possible for the benefit of customers.

Dealers are, of course, on the front firing line. They should carry through on the above policy and make it convenient and easy for people to buy tele-receivers. They can do this by building and maintaining attractive display and demonstration facilities in their stores, by developing highly trained sales forces and, above all, efficient and expert technical staffs which manufacturers might take a hand in training. Many thousands of men in the Signal Corps trained in instruments employing cathode-ray

tube principles will be available for this purpose after the war.

Faster Growth

In spite of some possible shortcomings at the start, the new television sets will be far more efficient than were sound receivers when first presented. Due to the war, tens of years of research, experimentation and development in products and processes were packed into a few short years. This tremendous store of knowledge will avoid the pitfalls of the early crystal set days—if . . .

Manufacturers, distributors and dealers, in connection with the broadcasters realize they have a common stake in this set-up. If there are enough interesting programs on the air more people will want to buy television sets. And if enough people

buy receivers and tune in on the programs to insure manufacturing and broadcasting operations, advertisers will continue to use the medium. Large advertisers will want the medium of television because it gives wider exposure of what they have to sell.

There is much greater incentive to develop television than there was to perfect radio twenty years ago for the simple reason that manufacturers, as well as the entertainment and advertising industries, know now what can be expected of television. In the early days of radio the whole idea of broadcasting was a novelty and there were few who foresaw its possibilities as a medium for advertising and for mass education and entertainment. Advertisers of today, on the other hand, have a fair idea of what television can do for them.

NOTE: Pictures on page 26 from RMA, courtesy of E. G. Herrmann, Zenith Radio Corp.

LOW PRICE — HIGH MARKET

It is probable that all important radio manufacturers will start making television receivers as soon as they can. Television receiver production—in terms of the opportunity to cash in on a vast mass market—depends upon a number of factors, most important of which are:

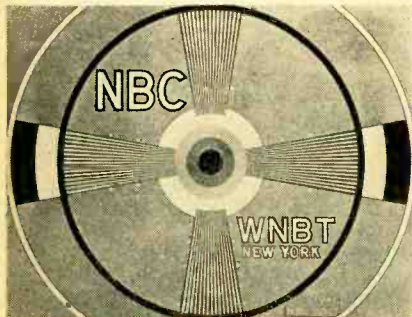
1. Receivers should provide generally satisfactory performance and give the public its money's worth.
2. Program material should have a high entertainment value.
3. Rapid development and expansion of network broadcasting.
4. Transmitter and associated equipment prices brought down to a price level which will make possible television coverage of secondary markets.*

In the important matter of price, those best qualified to know are of the opinion that the introductory retail price of the leading model will be as low as \$250 or less. It is also expected that the retail price of the best-selling model will work itself down over a period of time to \$150 or less. A competitively minded industry, lively to its opportunities, will find a way to accomplish these results.

That price levelling will broaden the market for home television receivers is clearly illustrated by the refrigerator industry. As established dealers know, sales were comparatively light in the early days, especially during the first six years, when the average retail price was working down from around \$600 to \$425. The industry sold 210,000 units in 1926, at which time the average retail price was \$390. Fifteen years later, in 1941, with the average price down to \$150, some 3,700,000 refrigerators were sold. This means that sales went up 1,760 per cent, though the cost went down only 62 per cent!

During the 22 years that electric refrigerators have been on the market, the industry has sold approximately 23,500,000 units. During the first 11 years, when the average retail price was over \$250, industry sales totaled 3,000,000 units, or a yearly average of only 273,000. During the last 11 years, when the average retail price was \$250 or less, industry sales totaled 20,500,000—which is a yearly average of 1,864,000 units, almost 7 times as many. There is every reason to believe that the economics of price which governed the mass sale of the "kitchen-aide" mechanical refrigerator will also affect the mass sale of television—"glamor-girl" among electrical servants.

*Take for instance, the farm market. 55 per cent of the farms account for 70 per cent of total cash income. And these are concentrated in states in four regions. In ranking order: West North Central, East North Central, West South Central and Pacific.



Radio service and repair men adjust television receivers with help of chart telecast at stated intervals.

POST-WAR RADIO SPECTRUM

Preliminary FCC report allocates channels to wide variety of standard and new services. Changes in FM range brings service dealers prospects of modifying 500,000 sets now in hands of set owners. Demand exceeds supply of frequencies.

IN a report tentatively allocating the post-war radio spectrum from 25,000 to 30,000,000 kilocycles, the FCC has recommended reduced commercial television frequencies from 44-84 mc plus 180-216 mc, with an additional 480-920 band for experimental television, and that FM be moved up from 42-50 to 84-102 megacycles. The latter would require changes in all existing FM sets.

The report is not final. Witnesses appearing during the recent five weeks of hearings may file briefs, and oral arguments on the proposed report will be heard by the Commission, beginning on February 14. The Commission then will issue a final report. Also, a second report on proposed allocations from 10kc to 25,000 kc will be issued soon. The Commission will endeavor to assign for international broadcasting adequate frequencies below 25,000 kc. It is now carried on by 36 short wave stations.

The Commission's proposals were described by Chairman W. R. G. Baker of Radio Technical Planning Board as substantially in agreement with their recommendations, except as to FM, which was assigned a different, higher band of channels, and the reduced television facilities. The report said that Panels 2 and 5 of the RTPB had recommended that FM be retained in its present place in the spectrum, in the 40-50 megacycle region, but that it

The report is based on the public hearings conducted by the Commission from September 28 through November 2, 1944, for a complete review of the spectrum from 10 kc to 30,000,000 kc to determine the frequency needs of the non-government radio services. The Commission took 4559 pages of testimony, received 543 exhibits and heard 231 witnesses.

was moved up in order to avoid sky-wave interference.

FM Broadcasting

FM broadcasting, notable for high fidelity and freedom from static, is proposed to be moved from its 42-50 kc space in the spectrum up to 84-102 kc on the grounds that skywave interference in the lower region would be severe enough to impair the utility of FM to such an extent that its full development might be retarded. "Public interest," the report reads, "requires

that FM be established in a permanent place in the radio spectrum before a considerable investment is made by the listening public in receiving sets and by the broadcasters in transmitting equipment."

As of October 1944, 46 Commercial FM stations were in operation, seven were under construction and 248 applications were on file. Existing FM stations will not be required to move upward until new receivers capable of tuning in the new wave lengths are

(Continued on page 46)

PROPOSED ALLOCATIONS

25,000 KC TO 30,000,000 KC

25-30 mc.—Fixed and mobile operations	162-180—Government services and navigation aids
30-40—Fixed and mobile operations, except for aeronautical services	180-216—Television, government services, and non-governmental fixed and mobile services
40-42—Fixed and mobile operations	216-420—Government and amateurs
42-44—Fixed and mobile operations, except aeronautical, and to be used temporarily by FM	420-450—Amateurs and air navigation
44-50—The No. 1 television channel	450-460—Air navigation, temporarily
50-60—Amateurs 50-54, and television channel No. 2 from 54 to 60	460-470—Citizens radiocommunication service ("walkie-talkies")
60-84—Television, channels 3, 4, 5 and 6	470-480—Experimental facsimile broadcasting
84-102—FM	480-490—Experimental broadcast services, including television
102-108—Not allocated. Reserved for future assignment to FM or other services	960-1125—Navigation aids
108-118—Air navigation (dropping out former amateur band)	1125-1225—Amateurs
118-132—Aeronautical mobile service	1225-1325—Television relay experimentation
132-144—Government	1325-1450—Government
144-148—Amateur services	1450-1500—Air navigation
148-162—Police, fire, forestry and railroad services	1500-1550—Meteorological service
	1550-1650—Experimental aeronautical mobile services
	1650-1900—Government
	1900-30-000—Governmental and non-governmental services

DISCussion....

"COMPANION" RECORD SELLING

CUSTOMERS who "knew what they like," customers who "must have" this or that hot, or classic, or show tune; customers who come in just to browse (what with the advent of self-selection)—don't all come away with a package of records under their arms. But there's little excuse, if any, for allowing that to happen. Experienced dealers bank on one thing—the customer came in voluntarily. And that's all a good floor salesman needs to go on as he jockeys the self-confessed prospect into becoming a cash record customer.

Fellows who have served their time behind radio, appliance or record counters in the past, and who nowadays are most likely to be found browsing as customers do among the self-selection bins, racks, tables and what have you—are learning to think in terms of "families" of records. So if the eager but unwary customer asks for "A", your merchandiser-dealer's man will not only produce "A" (if he has it) but insinuate the thought that there's also "A-1", "A-2", "A-3" and so on. Helped along by the salesman, your customer may very likely give himself away by mentioning numbers that are associated in *his* mind with the particular record he happened to want when he entered the store. (Note: The masculine pronoun is used here in the neuter sense. It stands for "his-her").

Timing the "Build-Up"

And as every salesman knows, there comes a moment in the job of "processing" the prospect up to an order,

Records — like groceries and costume jewelry — are sold in "ensembles" by dealers who know how to bid for higher unit sales by merchandising buyer moods.

by LEWIS C. STONE
Managing Editor

when the customer is at the very peak of interest and self-persuasion. It is our belief that many more such "moments" can be generated profitably, with some effort. In record selling, salesman and customer can have that

essential meeting of minds when the seller takes just enough initiative to develop the "unit request" with which the customer came into the store into a "multiple acceptance" of suggested companion records that "go with."

For instance. Customer swaggers in (we hope) all hepped up about glee club recordings of hymns, let us say, and asks for the XYZ numbers. Not a too "hot" prospect for a build-up. In fact, a prospect most dreary. But that doesn't necessarily stop the dealer's man. Hymns are a sort of choral music—and *voila!* There's "Ballad for Americans," "Songs of the Red Army", "Christmas Carols"—might even unload a load of Bach chorales—right down the line. Or the customer may stagger in looking for marches—"Anchors Aweigh" for instance. Records that "go with" (and don't let the customer "go without") might be "Leathernecks March", "On the Hudson", "Stars and Stripes Forever", "Bogey March",—all the way to "Parade of the Wooden Soldiers". Even circus marches might be brought out, like "Old King Cole Medley March", "Broadway One-Step" and many more.



Blanche Thebom, ex secretary; Nan Merriman, prize winner, sign up RCA. Record manager J. W. Murray approves.

By no means is this a try at being smart and exhaustive about the possibilities of "upping" original buying intentions into higher unit sales. Dealers and their salesmen know far better than any writing guy (we are told) about the selling "breaks" that can be engineered in record retailing day after day and night after night, until closing. But we go on the theory that there isn't an honest-to-goodness merchandiser anywhere who can't benefit still more from his very own tricks-of-the-trade by "seeing it in print" on occasion.

When They Buy More

For another thing, setting up for better sales at this time of the year is good retail timing. Many people got (and gave as good as they got) Christmas gifts of records, singly or in albums. It is a known fact that no one buys records (or books) more readily than the person who has some already. For some time after the acquisition of records—by gift or purchase—many owners are in a state of stimulation which makes them akin to rabid "collectors."

So what's more natural, then, than to help them along in their eager pursuit of "more" by introducing them not only to particular numbers, but to groups of records which fit together into a wide framework of customer interest. Certain simple groupings quickly come to mind: Mood music, dances, the gay nineties, *le jazz hot* for dancing and for listening, show tunes, dinner music, waltzes, name bands, salon music, hit tunes, name tunes, movie theme songs, classics from light to heavy, opera from likewise to likewise. In short, the whole gamut of discs that (should) crowd the shelves, bulk the bins and load the island displays in the stores of radio and appliance dealers who are nowadays specializing in the sale of vast numbers of records of all available makes, brands and varieties. And mind you, we are thinking of the average record enthusiast—not the hep-cats who must be kept in leash as they froth at the mouth over their Sin—attra and intra.

"Companion" Samples

In pursuit of the "higher unit sale" a war-timely companion series suggests itself, consisting of records that represent to many of us the places throughout the world where our loved ones are fighting. Call the series (in your own mind) Folk Music of the World—and it is very possible that

Capt. Don Gentile, "One Man Airforce" gets his "Songs of the Service" album while exchanging smiles with companion.



you may have a very good merchandising springboard there. France may "come home" with say, "Chants D'Auvergne" and "Marseillaise"; Russia with "Panihida" and "Volga Boatmen"; England with "Pomp and Circumstance" and "Patter Songs from Gilbert and Sullivan"; Italy with the "Barber of Seville" and "Rigolletto". Numbers like "Roumanian Folk Dances" and "Hungarian Folk Tunes" speak for themselves. And so on, along the trails of global warfare.

Last, and most important, back home—in the U.S.A.—with the "Star Spangled Banner" given special treatment at the hands of some brilliant popular arranger or symphonic conductor or singing star. (How many of us *have* a recording of our National Anthem, by the way?) Then

there's all the wealth of our Negro spirituals, Cole Porter, Gershwin, Victor Herbert, et al. (Most of the mentions are available on Columbia and Victor records, and others).

Another "global" or "good neighbor" number, just released, and which we have seen around in point-of-purchase displays, is a language series devoted to Spanish. The set consists of sixteen double-faced records in two albums, a dictionary, study book, a reading text and a book of instructions. A high-unit "companion" seller in itself, it seems. (Decca).

We do not (as we pointed out before) even begin to pretend to be exhaustive. But here's the general idea: there are techniques basic to all retailing. And all too often particular branches of retailing overlook the basics. This is to remind you, just in case . . .

Is it news when a man "writes" dog? Anyway, it's David Street, new Vic star.



How to Adapt Standard

A profitable sideline for servicemen now and post-war, in modernization of standard broadcast and auto receivers to pick up police programs on the assigned frequencies.

SERVICE Dealers are swamped by and many cannot possibly keep abreast of the ever increasing volume of radio and appliance repair work being thrust upon them.

The acute shortage of needed replacement tubes, parts and components has resulted in a great backlog of "to-be-repaired" receivers and appliances.

While this condition obtains, quite naturally dealers will not aggressively seek additional repair work. But during the lulls that may occur while awaiting the delivery of needed replacements, dealers will find it expedient to go after a profitable type of modernization work which does not require the use of scarce components, the prime requisite being the use of ingenuity. We refer to the conversion of standard broadcast and automobile receivers so that they can receive police radio programs from the assigned police frequencies.

In any city which boasts of a police radio system, and in closely adjacent vicinities, there are many law enforcement officers, deputy sheriffs, constables, special policemen and the like, who would welcome the convenience of having a combination broadcast and short-wave receiver, especially for their private cars. Before the war many short-wave converters were available to meet this market, but now circuit revisions must be made.

State and municipal radio stations are assigned 30 different frequencies between 1610 Kc and 2490 Kc. The writer has adapted a large number of car receivers to the reception of police calls in this band by using a simple coil-switching scheme. The changes outlined can also be applied to home receivers which do not have short-wave bands.

What must be considered first in any superheterodyne receiver adaptation is the oscillator circuit, because the oscillator must be set at the correct frequency to beat with the incoming signal and produce the i-f frequency.

Three police frequencies—1658, 1730 and 2482 Kc.—have been selected

to illustrate the simple calculations by which a serviceman can determine the correct oscillator frequency for any given set. Some of the more common i-f frequencies are 175 Kc, 260 Kc and 455 Kc. The later is the frequency used in nearly all late model receivers and has been selected as standard for the broadcast band.

"Image" Frequency Operation

If the desired police frequency is 2482 Kc and the i-f frequency is 455 Kc, then the oscillator must be set to either 2482 plus 455 (2937 Kc), or to 2482 minus 455 (2027 Kc) to furnish the required beat frequency of 455 Kc.

Standard receiver practice is to make the oscillator frequency higher than the incoming signal frequency. However, if the reception of only one particular police radio station is desired, thereby involving no tracking problem, the oscillator frequency can be lower than the signal frequency.

This leads up to the simplest method of receiving police calls on a standard broadcast set, a method depending on a fortunate combination of desired signal frequency and i-f frequency and requiring no change at all in the receiver. All that is required is the finding of the proper place on the dial for the station to come in.

Assuming a police frequency of 2482 Kc and i-f frequency of 455 Kc, then the local oscillator must be tuned to 2027 Kc or 2937 Kc as previously shown. The lower frequency suits our purpose better in this case.

The trick then is to determine where to set our broadcast receiver dial to make the local oscillator frequency 2027 Kc. (The oscillator at this dial setting will be 455 Kc below the desired signal, thus making reception of the police station possible). Since we know that the local oscillator is always made higher than the signal frequency, let us subtract 455 from 2027 and we will find that the proper dial setting is 1572 Kc. If our receiver will tune this high, and most late models do, we then will be able

to receive the police calls within a short distance of the police transmitter. The simple formula to remember is: Set the broadcast dial to the frequency double the i-f frequency less the desired police frequency. Following are some examples.

DESIRED FRE- QUENCY	I-F FRE- QUENCY	BROAD- CAST DIAL
2482	455	1572
1730	455	820
1730	260	1210
1730	175	1380
1658	455	748
1658	260	1138
1658	175	1308

In each case the frequency in the first column is called an "image" of the frequency in the third column. In setting the broadcast dial remember that the calibration of the dial is not always correct. It should not be difficult to find the signal somewhere near the dial setting.

If it happens that the desired police radio station and a nearby broadcast station are on "image" frequencies, it may be necessary to tune the i-f stages to a slightly different frequency. For instance, if the police station is on 1730 Kc and the i-f frequency is 455

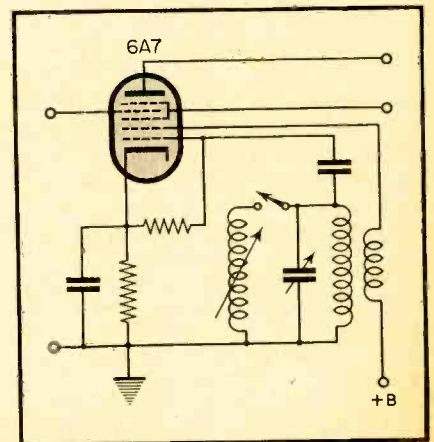


Figure 2

Receivers for Police Calls

by **GEORGE ING**

Chief Radio Engineer, Station KONO

Kc the spot to tune the broadcast dial would be 820 Kc. If there is a strong broadcast signal on 820 Kc, tune the i-f stages to 450 Kc. This moves the image frequency to 830 Kc.

Although this simple method works well close to the transmitter, it is not at all efficient because the r-f circuits are not tuned to the correct frequency. In fact, if sufficient pre-selection is used in the receiver it may not be possible to pick up the police calls.

Converter Grid Circuit

If the receiver does not have an r-f stage ahead of the converter, it is usually a simple matter to arrange some sort of switch so that the converter grid circuit can be tuned to the correct frequency. Figure 1 shows how the loop antenna of a typical midget set can be tapped to resonate the input circuit to a higher frequency. Many of these loops are wound in a spiral on a cardboard frame. Scrape off the insulation at several likely trial points between the ground end of the loop and the center. It is best to try each turn around the trial point that gives the most volume. Tap the turn giving the best results.

The broadcast dial should first be set to the spot where the police calls

come in. This assures us that the oscillator frequency is correct. Then, without touching the dial, the r-f circuit is tuned in the manner described. A signal generator set at the correct frequency is a great help in this work because the police radio station generally does not stay on long enough for tuning purposes. A low capacity switch with very short leads to the loop is recommended. The switch can be mounted right on the loop frame if space is available. One section of the gang type band selector switch is suitable.

Oscillator Frequency

Next let us consider the problem involved in the case of a less fortunate combination of desired signal frequency and i-f frequency. Suppose the police frequency is 2482 Kc and the i-f is 260 Kc. Doubling 260 and subtracting from 2482 leaves 1962. Obviously, this frequency is too high to be received on a regular broadcast receiver. It is clear, therefore, that in this case we cannot depend on "image" frequency operation to receive the desired signal. We must increase the oscillator frequency so that its beat with 260 Kc will give us 2482 Kc. The general rule to be

followed in all our short-wave adaptations is: Add or subtract the i-f frequency from the desired frequency to obtain the required oscillator frequency.

If the set is to be converted entirely to police frequency operation, the number of turns on the oscillator coil should be cut down. But if it is desired to switch back and forth from the broadcast to the police band, there are two methods which can be used. One involves making a tap on the oscillator coil and running it to a switch. This method has many disadvantages. Among these are, difficulty of tapping to fine wire on small coil forms and the necessity of cutting and trying with consequent assembling and re-assembling of coil mounting.

A much simpler method of increasing the oscillator frequency is to parallel a permeability tuned inductance with the tuned section of the oscillator coil. Most of us recall that in any parallel resonant circuit paralleling additional capacity will lower the frequency and paralleling additional inductance will increase the frequency.

Figure 2 shows how this scheme is applied to the oscillator section of a typical converter circuit. The switching must be done with a small, low capacity switch mounted close to the oscillator. Meissner or equivalent adjustable oscillator coils have been found suitable for this purpose. There are generally two separate windings—a plate winding of a few turns and a grid winding with a larger number of turns. Either winding may be used. The plate winding may be paralleled to the existing oscillator circuit if it is desired to make a large increase in frequency. However, paralleling the grid winding usually will be sufficient. In both cases screwing and unscrewing the iron core will change the inductance.

If adjustable oscillator coils are not available, adjustable antenna or r-f interstage coil may be used. The grid winding alone is used. It may be necessary to remove some of the turns in order to decrease the inductance. These permeability tuned inductances are small in size and it is possible to find space for them even in a car receiver.

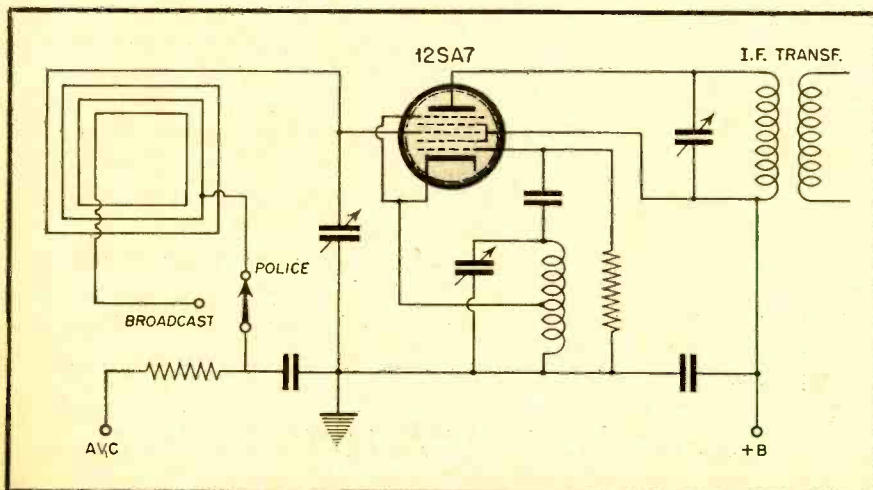


Figure 1

(To be Continued)

TUBE SUBSTITUTION CHARTS

SUBSTITUTE TUBE CHARTS—PART 3.

THE following charts are a part of a series which are being published to assist servicemen and dealers in meeting the present acute shortage of many tube types. They are intended to be more convenient, complete and reliable than most of those available but should not be followed blindly as many unusual circuits may be found which do not respond to any general treatment. There is still no substitute for experience in handling the tricky circuits.

The commonest changes are indicated by letters the meaning of which is explained in the chart headings and in greater detail in the footnotes. The number notes are to help when slightly more complicated changes may be necessary, or to indicate conditions under which it must be left to the serviceman's judgment as to whether the change will be satisfactory for his particular set, customer and location. (Footnotes are given below).

In general we have tried to list all the possible simple substitutions but experienced servicemen could work out others requiring more extensive modifications, such as changing from transformer to resistance coupled amplification in order to use a high-mu tube for an unobtainable low-mu type.

One of the biggest problems is finding a substitute which will fit mechanically into the space available. This must be found by trial for each job.

RADIO SERVICE DEALER will continue this series of tube substitution charts in consecutive issues. The whole series will include 150 ma. and 300 ma. tube types, battery tube types, and transformer and auto types. Please file this number of RADIO SERVICE DEALER for future reference. The introductory article explaining the circuit modifications requiring additional resistors appeared on page 18 of the November issue.

EXPLANATORY NOTES

- A. This is shown only when the tubes are directly interchangeable for all published ratings. Unusual operating conditions may require analysis.
- B. This means that the filament voltage on the substitute tube is different from the required type. In most cases this can be allowed for by use of a small resistor to drop the voltage to that required. In some cases a complete change-over of all tubes so as to use a new supply may be advisable. No listing is made for 2.0 volt tubes replacing 1.4 volt tubes because the additional battery and best circuit changes must be determined for each case.
- C. Indicates that the filament current of the substitute tube differs from that of the required type. If all tubes are used directly from the battery this will affect battery life only, but in many cases a series resistor or ballast may have to be changed, adjusted, or shunted. If in series on an AC-DC set a substitute with no change in current is required.
- D. Uses the same socket but pin connection is different. Watch out for tie points not used in the former tube which may be used in the substitute tube.
- E. Requires a different socket. Watch out for tie points as in "D".
- F. Realignment is recommended as good practice in all cases of RF and IF tube changes.
- G. Provision must be made for connection to the top cap of the substitute tube which was not originally required.
- H. The former top cap connection will have to be changed to connect to a base pin.
- K. Indicates that the substitute tube operates at a different bias for the applied plate voltage than the original tube. If some of the newer types are substituted good performance and improved battery life can be obtained by reducing the plate voltage to the rating of the new tube and applying its rated bias.
 1. The use of a sharp cut-off RF pentode in place of a remote cut-off tube may cause great distortion in locations where strong signals are available. If no other substitute is available all tubes on the A. V. C. system should be changed.
 2. The optimum load resistance for these types is more than 20% off. If tone is noticeably poor, transformer tap adjustment or a new transformer may be required.
 3. Requires addition of screen voltage, resistor and bypass condenser. Select resistor to give screen volts approximately equal to the actual plate volts.
 4. This type can be used as a triode by tying screen and suppressor to the plate.
 5. This substitution usable only if tube is used as a single diode.
 6. If voltage at screen is greater than 45 volts it should be reduced to rated voltage.
 7. Screen voltage may be increased for use with this type.
 8. Circuit for this substitution is given on last few pages of this booklet.
 9. Unused elements should be tied to negative filament.

* The G, GT, or GT/G types may be used interchangeably where space permits.

TUBE SUBSTITUTION CHARTS

REPLACEMENTS FOR BATTERY SET TUBES

REQUIRED TYPE	POSSIBLE REPLACEMENTS	REPLACEMENT ACTIONS										
		A	B	C	D	E	F	G	H	K		
		NO CHANGES	FIL. VOLTS	FIL. CURRENT	REWIRE SOCKET	CHANGE SOCKET	REALIGN	ADD CONNECTION	REMOVE TOP CAP	CHANGE BIAS VOLTAGE	DR. PLATE VOLTS	NOTE NUMBER

REQUIRED TYPE	POSSIBLE REPLACEMENTS	REPLACEMENT ACTIONS										
		A	B	C	D	E	F	G	H	K		
		NO CHANGES	FIL. VOLTS	FIL. CURRENT	REWIRE SOCKET	CHANGE SOCKET	REALIGN	ADD CONNECTION	REMOVE TOP CAP	CHANGE BIAS VOLTAGE	DR. PLATE VOLTS	NOTE NUMBER

1A4 (P or T)	1A4 (P or T)	A										
	1D5G					E	F					
	1E5G (P)					E	F					
	1LN5	B	C			E	F	H				1
	1N5GT/G*	B	C			E	F					1
	1LC5	B	C			E	F	H				1
	1T4	B	C			E	F	H				1
	1L4	B	C			E	F	H				
	34					E	F					
	32					E	F					1

1A5GT/G*	1LA4					E						8
	1LB4					E					K	
	1NG6				D						K	
	1C5G*										K	
	1Q5G*		C								K	2
	3Q5GT*		C		D						K	2
	3D6/1299		C			E					K	2
	3S4		C			E					K	2
	1S4		C			E					K	2
	3Q4		C			E					K	2
	3LF4		C			E					K	2

1A6	1C6					C				F		
	1D7G					E	F					
	1C7G					E	F					
	1A7G*	B	C			E	F	H	K			
	1LA6	B	C			E	F	H	K			
	1LC6	B	C			E	F	H	K			

1A7GT*	1LC6					E	F	H				6
	1LA6					E	F	H				
	1B7G*		C			E	F					
	1D8GT		C		D	E	F					9
	3A8GT		C		D	E	F					9
	1R5		C			E	F					8

1B4 (P or T)	32					E	F					
	1E5G (P or T)					E	F	H				
	1LN5	B	C			E	F	H				
	1LC5	B	C			E	F	H				
	1T4	B	C			E	F	H				
	1N5G*					E	F					
	1P5G					E	F					

1B7GT*	1A7G					C				F		
	1LC6					C				E	F	6
	1LA6					C				E	F	
	3A8GT				D					F		9

1C5GT*	1LB4					C				E		K	2
	1A5GT*					C				E		K	2
	1LA4					C				E		K	2
	1Q5GT*											K	
	3Q5GT*				D							K	
	3D6/1299		C			E						K	
	3S4					E						K	
	1S4		C			E						K	
	3Q4					E						K	
	3LF4		C			E						K	

1C6	1A6								C			F	
	1C7G											E	F
	1D7G											E	F
	1A7GT*	B	C									E	F
	1LA6	B	C									E	F
	1B7GT*	B	C									E	F
	1LC6	B	C									E	F

1C7G	1A6								C			E	F
	1C6											E	F
	1D7G											E	F
	1A7GT*	B	C									F	K
	1LA6	B	C									F	K
	1B7GT*	B	C									F	K
	1LC6	B	C									F	K

1D5G (P or T)	1A4 (P or T)											E	F
	34											E	F
	1N5GT*	B	C									F	K
	1E5G (P or T)											F	
	1B4											F	
	32											F	
	1P5GT*	B	C									F	
	1LN5	B	C									E	F
	1LC5	B	C									E	F

1D7G	1A6											E	F
	1C7G											E	F
	1C6											E	F
	1A7GT*	B	C									F	K
	1LA6	B	C									F	K
	1B7GT*	B	C									F	K
	1LC6	B	C									F	K

1D8GT Requires both 1N6G and 1E4G or 1LB4 & 1LH4

1E4G	1G4GT*												K
	1LE3											D	E
	1N5GT*											D	G

1E5G (P or T)	1B4											E	F
	32											E	F
	1N5GT*	B	C									F	K
	1D5G (P or T)											F	
	1A4 (P or T)											E	F
	34											E	F
	1LN5	B	C									E	F
	1LC5	B	C									E	F

1E7G 2-Type 1F5G or 1F4-No single tube

1F4	1F5G											E	
	33											E	
	1G5G											E	
	1A5GT*	B	C									E	
	1C5GT*	B	C									E	
	1Q5GT*	B	C									E	
	1LB4	B	C									E	
	3D6/1299	B	C									E	
	3LF4	B	C									E	

TUBE SUBSTITUTION CHARTS

REPLACEMENTS FOR BATTERY SET TUBES

REQUIRED TYPE	POSSIBLE REPLACEMENTS	REASON FOR SUBSTITUTION									
		NO CHANGES	FIL. VOLTS	FIL. CURRENT	REWIRE SOCKET	CHANGE SOCKET	REALIGN	ADD TOP CAP CONNECTION	REMOVE TOP CAP CONNECTION	CHANGE BIAS OR PLATE VOLTS	NOTE NUMBER
		A	B	C	D	E	F	G	H	K	

REQUIRED TYPE	POSSIBLE REPLACEMENTS	REASON FOR SUBSTITUTION									
		NO CHANGES	FIL. VOLTS	FIL. CURRENT	REWIRE SOCKET	CHANGE SOCKET	REALIGN	ADD TOP CAP CONNECTION	REMOVE TOP CAP CONNECTION	CHANGE BIAS OR PLATE VOLTS	NOTE NUMBER
		A	B	C	D	E	F	G	H	K	

1F5G	1F4 33 1G5G 1A5GT* 1C5GT* 1Q5GT* 1LB4 3D6/1299 1J5G 3LF4					E				K	2
1F6	1F7G 3A8GT 1S5 1LD5	B	C			E	F			K	
1F7G	1F6 3A8GT 1S5 1LD5	B	C	D		E	F			K	9
1G4GT*	1E4G 1LE3					E				K	
1G5G	1F5G 1F4 33 1T5GT 1A5GT* 1C5GT* 1Q5GT* 1LA4 1LB4 3D6/1299 3LE4 3LF4 3Q5G 1J5G		B	C		E				K	2
1G6GT*	1J6G 19 3B7/1291	B	C			E				K	
1HG4	30 1E4G 1G4GT* 1LE3	B	C			E				K	
1H5GT*	1B5 1H6G 1LH4 3A8GT 1LD5	B	C	D		E			H	K	8
1H6G	1B5 1H5GT* 1LH4 3A8GT	B	C		D	E				K	5

1J5G	1G5G 1F5G 1F5G 1F4 33 1A5GT 3LF4 1C5GT* 1Q5GT* 3Q5GT* 3D6/1299 1D8GT 1T5GT*									A		K	
1JG6	19 1G6G 3B7/1291	B	C			E							
1LA4	1A5GT* 1C5GT* 1Q5GT* 1D8GT 3D6/1299 3Q5GT* 1LB4 3LF4									C	E		K
1LA6	1A7GT* 1LC6 3A8GT									C	E	F	H
1LB4	1LA4 3D6/1299 3LE4 3LF4 1T5GT* 1A5GT* 1C5GT* 1S4									C	D		K
1LC5	1LN5 1L4 1N5GT* 3A8GT											F	K
1LC6	1A7GT 1LA6 3A8GT									C	E	F	G
1LD5	1S5 1D8GT 1N6G 3A8GT									C	E	F	K
1LE3	1G4GT* 1E4G 1D8GT											E	K
1LH4	1H5GT* 3A8GT 1LN5											E	

TUBE SUBSTITUTION CHARTS

REQUIRED TYPE	POSSIBLE REPLACEMENTS	REASON FOR CHANGE										
		NO CHANGES	FIL. VOLTS	FIL. CURRENT	REWIRE SOCKET	CHANGE SOCKET	REALIGN	ADD CONNECTION	REMOVE TOP CAP OR PLATE VOLTS	CHANGE BIAS	NOTE NUMBER	
		A	B	C	D	E	F	G	H	K		

REQUIRED TYPE	POSSIBLE REPLACEMENTS	REASON FOR CHANGE										
		NO CHANGES	FIL. VOLTS	FIL. CURRENT	REWIRE SOCKET	CHANGE SOCKET	REALIGN	ADD CONNECTION	REMOVE TOP CAP OR PLATE VOLTS	CHANGE BIAS	NOTE NUMBER	
		A	B	C	D	E	F	G	H	K		

1LN5	1N5GT* 1LC5 3A8GT					E F E	F F F				6 9
1N5GT*	1T4 1LN5 1LC5 3A8GT				D	E E E	F F F	H H H			8 6 9
1N6G	1D8GT			C	D						9
1P5GT*	1N5GT* 1LN5 1LC5 1T4 3A8GT					E E E	F F F				1 1 1-6 6 9-1
1Q5GT*	1T5GT* 1C5GT* 1A5GT* 1D8GT			C					K		2 2 9-2
1Q5GT*	3D6/1299 1LA4 1LB4 1S4 3LF4			C		E E E			K		2 2 6
1R5	1LA6 1LC6 1A7G					E E	F F				8 8
1S4	3S4 1LB4 1LA4 1A5GT* 3Q4				D	E E			K		2 2 2
1S5	1LD5 3A8GT			C		E	G				6 6
1T4	1LN5 1LC5 1P5GT*					E E	G				1-7 1-6 7
1T5GT*	1A5GT* 1Q5GT* 1C5GT* 1D8GT 1LA4 1LB4 3D6/1299 3LF4			C					K		2 2 2 9 2 2 2 2
3A8GT	No single tube 1LH4 and 1LN5 or 1H5G and 1N5G										

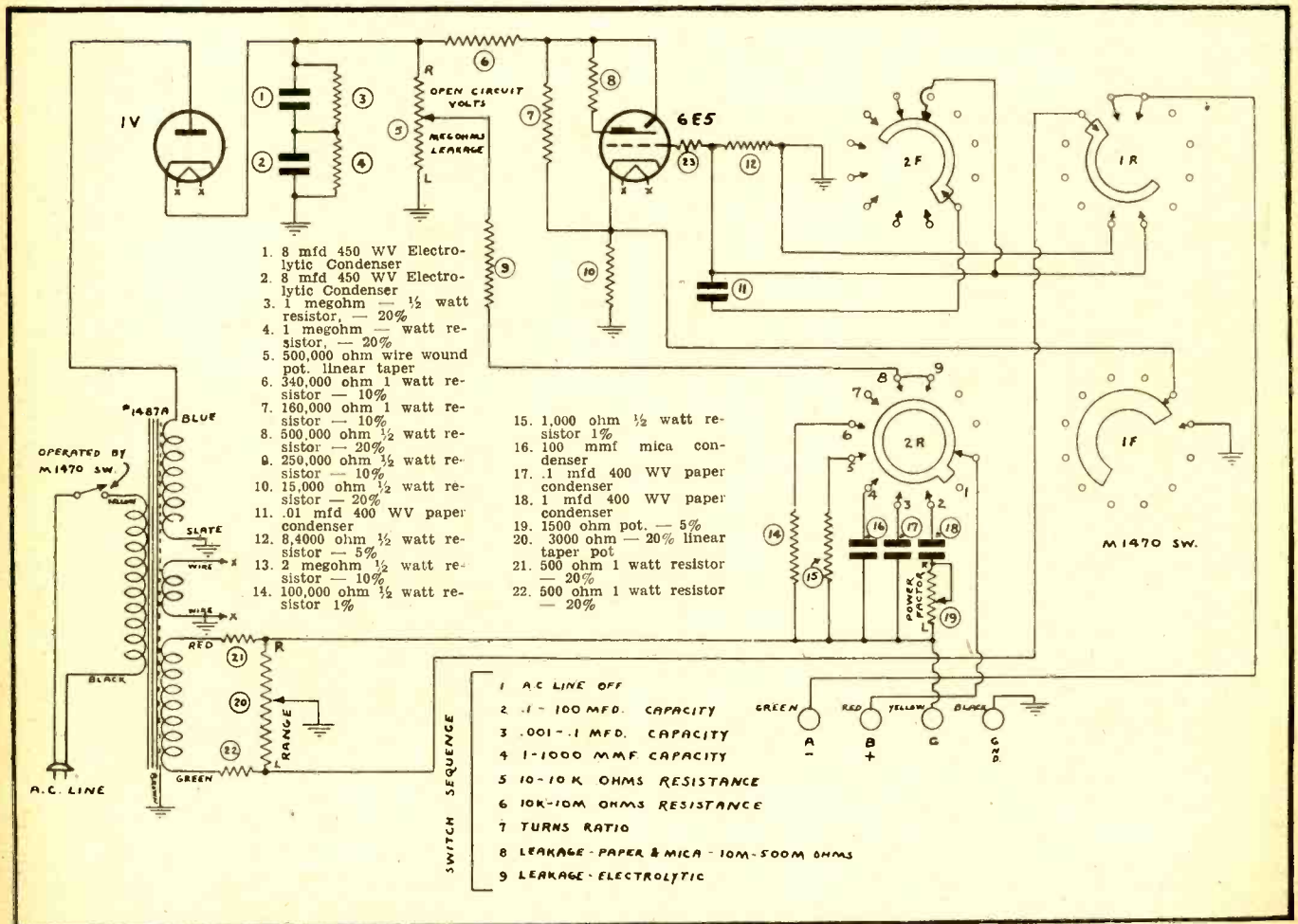
3Q5GT*	1Q5GT*									D			
At 1.4 volts	1C5GT* 1T5GT* 3D6/1299 1A5GT* 3LF4 1D8GT 1LA4 1LB4 3S4									D D C C D C C	E E E E E E	K K K K K K	2 2 2 2 2 2 2 2 2
At 2.8 volts	3LF4 3S4 3Q4									E E E		K K	6 2
3S4	3Q4											K	7
At 1.4 volts	1Q5GT 1S4 3D6/1299 1C5GT* 3LF4 1LB4									D	E E E E	K K K K	7 7 7 2-7
At 2.8 volts	3Q4 CLF4 3Q5GT*										E E	K K K	7 7 7
19	1J6G 1G6GT*								B	C	E		
30	1H4G 1E4G 1G4GT* 1LE3								B	C	E E E	K K K	
32	1B4 (P or T) 1E5G 1LN5 1LC5 34 1A4 (P or T)								B	C	E E E E F	H H	K K 7 6
33	1F4 1F5G 1G5G 1J5G 1A5GT* 1C5GT* 1Q5GT* 1T5GT*								C C C C B B B		E E E E E E	K K K K K K	2 2 2 2 2
34	1A4 (P or T) 1D5G (P or T) 1P5GT* 1B4 32 1E5 (G or P)								B	C	E E F F F E	K	1 1 1

Technical Service Portfolio

Section XLV

TEST EQUIPMENT CIRCUITS—Part 5

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.



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**TELLS YOU JUST WHAT TO DO —
EXACTLY HOW TO DO IT**

Mr. Ghirardi spent years in collecting the material it contains—plus months more in revising this new 3rd edition and bringing it strictly up-to-date to help busy wartime servicemen do better work in less time. He visited hundreds of service shops, contacted leading receiver and parts manufacturers, checked carefully on every available bit of useful servicing information—and prepared it in the most convenient possible form for quick, easy reference . . . all thoroughly indexed!

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solved a tough job. Ghirardi is a star!" R. E. LOCKE, CALAIS, ME.

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WANTED—2 or 3 tube AC receiver in good condition; not over \$4.50. Lyle Sandin, 74 Wall st., Binghamton, N. Y.

WANTED—Phono motor, 60-c, 110-v. 78-rpm or dual speed. Also good 0-1 m.a. meter. Edwin Conrad, 900 Gay Bldg., Madison 3, Wis.

FOR SALE—Precision 910 tube tester good as new Tests tubes from 1.5-v. to 117-v. Guaranteed excellent. Rex Radio Service, 1303 University ave., Tuscaloosa, Ala.

WANTED—Good recorder, complete with cutting head magnetic or crystal and matched mke. Pay cash. Fred Armstrong, 179 CO. Road, Evanston, Wyo.

WANTED—Full set Rider's Manuals in good condition. Also other service notes. Leonard De Stefano, 174 Sixteenth st., Brooklyn, N. Y.

FOR SALE—Tubes, 1.4-v to 117-v, new and used; AC-DC portable radio (needs 1T5 tube) \$22.50. Zenith console radio (needs 1E5 tube) \$27.50. Smitty's Radio Service, 625 E. First st., Piqua, Ohio.

WANTED—Back numbers, all years, C.D. Capacitor; Aerovox Research Worker; RCA Radio Service News. State price. Wm. Dressler, 2030 Seventy-first st., Brooklyn 4, N. Y.

WANTED—Urgently! "A" and "B" voltage power pack; voltmeter 0-50-v.; ampere meter 0—50-amp; and ohmmeter. Cash. Allen S. Green, 955 Walton ave., New York 52, N. Y.

WANTED—Badly need 1st and 2nd I.F. coils for a Clarion No. 100. O. C. Smith, 912 Defstine ave, Lansdale, Pa.

FOR SALE OR TRADE—Three I. F. transformers 456KC inputs; Delco No. 7237632, Meissner Nos. 16-5712 and 16-6658. Arnold L. Kennedy, R. No. 1 Easton, Maine.

WANTED—Used tube tester or tube checker. Must be in good shape. Luther Mayberry, Box 122 Ironton 3, Mo.

WANTED—Modern tube tester or signal generator at reasonably low price. Badly needed to service soldiers' radios at local airfield. Sgt. Frank Thaxton, Section C, 2524 A.A.F.B.U. Independence, Kans.

WANTED—Howard 436 or Hallcrafters Sky Champion in good condition. State price. Have Junior Instructograph with tapes to sell or trade. Wm. E. Martin, R.R. 3, Monticello, Ill.

FOR SALE—Brand new Meissner 5-band coil assembly No. 13-7617 for 280 Mm/d condenser. Tuning range; 540 KC to 31.6 MC, in five steps, \$30. prepaid. Roy Y. Nakano, 7113-B, Tule Lake Center, Newell, Calif.

FOR SALE—Readrite #430 tube tester in A-1 operating condition, \$20. C.O.D. Bremer Tully 12-in. dynamic speaker, AC field, \$4.; 5-in. dynamic speaker for No. 43 tube with 400 ohm OPT and 500 ohm field, \$2.; 50 carbon resistors 1. 1/2 and 3/4 watt) 7¢ ea. E. C. Entler, Bonaparte, Iowa.

WANTED—RCA Service notes manual, 1929-30. National Radio Service, 379 Merritts ave., N.E. Atlanta, Ga.

FOR SALE—Webster Type H.B. 59 public address system. Has 3-stage class B amplifier with 20-watt output. Complete with carrying case and 12-in. dynamic speaker in case \$75. Burcher's Electrical Store, 513 Main st., Honesdale, Pa.

FOR SALE OR TRADE—Following tubes at 45% off list 2—1A4; 6—1C6; 2—107G; 2—105G; 5—1H4G; 3—1J6G; 1—1B5; 1—19; 12—30; 7—32; 5—34; 4—33; 2—950; 4—951. All types aluminum cased electrolytic con-

densers at dealer's prices. One modulation transformer, Jefferson #467-526 heavy duty for push-pull 6L6's, \$9. Want following tubes; 25Z6, 35Z5, 117Z6, 25L6, 43, 43Z3. Ray Doering's Radio Service, R #2, Akron, Ind.

NEEDED BADLY—One each following tubes; 35Z5, 12SQ7, 12SA7, 1A7, 1N5, 1H5, 1Q5, 80 Cash. Henry Dean, Box 766 Cedar Rapids, Iowa.

WANTED—Ecophone EC-1 and an all-wave tuning unit, both in good condition or repairable. A/c W. E. Thurston, Class 4518, Shaw Field, Sumpter, S. C.

WANTED—Good tube tester for latest tubes, including 117-v. Want sig. tracing equipment. Also 3Q5, 12K8 tubes; 0-1 millimeter and vacuum tube volt meter. Walt's Radio Service, RFD 1, Box 52, Norfolk, Va.

WANTED—1 1/2 volt a—90 volt "B" A-B packs. One or a dozen. State prices. Want 1A7, 1N5, 1A5, 12SA7, 25B8, 70L7 tubes. Ellison Radio Service, Centertown, Ky.

FOR SALE—New and used radio tubes; 6K7, 6D6, 6A7, 12SQ7, 12SA7, 50L6, 35L6, 35Z5, 41, 45, 78, 27, 24 and others; also new condensers, output transformers and speakers. Send for complete list. Friendly Radio Service, 11 South st., Lockport, N. Y.

FOR SALE—Regenerative all-wave battery receiver set in modernistic cabinet, with 8-in. speaker in separate cabinet. Perfect condition. Price \$15 postpaid, including coils and tubes. Howard Newcombe, Myrtle Creek, Oregon.

WILL SWAP—New Million sig. gen. 100 KC to 25MC for 6 or 8-in. circular cut-off saw; phono motors and crystal P.U.'s. Or what have you? Franz Radio, 1527 Liberty st., Erie, Pa.

WANTED—Rider's manuals 9 to 12. Gustave Mondrush, 600 Beechmont st., Dearborn, Mich.

WANTED—Ecophone EC-1 in excellent condition. Cash. Charles W. Seruton, Box 542, Hillsboro, New Hampshire.

WANTED—Hickok traceometer or RCA chanalyt; also oscilloscope and late style complete portable tester. Prefer Supreme. Gilbertson's, 620 Washington st., Gary, Ind.

WANTED—Supreme set and tube tester; sig. gen. 0-1 DC. milliammeter, 3-in. cathode ray tube. F. G. Harigle, 829 Wood st., Bethlehem, Pa.

FOR SALE OR TRADE—Tube tester and condenser-battery checker; small quantity tubes (5Y3, 30, 75, 76, 57, 25Z5, 6J7, 6K7, 12SK7, 6B4 and 6F6); also ultra-high frequency transceiver and 80# #14 wire. Would like to sell as one lot for \$50 or trade as part payment for Halli-

crafters 6X-25 Super Defiant, S22R Sky-rider Marine or similar. Dean O. Buchanan, 50 North University. Blackfoot, Idaho.

WANTED—Modern tube tester and sig. gen. Also Riders Manuals. Kalman Magdich, 2235 Brown st., Fort Wayne, Ind.

WANTED—Good V-0-M for testing AC and DC voltages. T/5 George J. Jackson, P. O. Box 592, Ojal, Calif.

FOR SALE—Pilot Super Wasp receiver, plug-in coils, 500-14 meters; National Velvet B Pack, tubes, diagram; Teleplex code machine, handwound, 4 Morse tapes; Jewell volt-ammeter DC, 3, 30, 150 volts; 3, 3, 5, 35, 350 amps. leads. L. L. Creighton, 433 E. Bellevue ave, San Mateo, Calif.

FOR SALE—RCP 12 University non-resonant, radial cone 360° projector (less speaker) \$22.50. RCA Junior or Velocity microphone, new with floor stand, \$50. Have you pick-ups, phono motors, Hypex? B & B Sound Systems, Two Rivers, Mich.

FOR SALE—Clough-Brengle Signal gen. all wave, 30 K.C. to 30 M.C., continuous in five bands. AC A-1 condition. \$28. Mrs. Carl Morris, P. O. Box 1094, Lexington, Ky.

WANTED—Dual speed recording unit such as General Industries. Or would consider better unit. Prefer combination recorder and play-back unit. Jim Larson, Shelby, Mont.

WANTED—Following or similar; Supreme tube and set tester 504; Triplett sig. gen. 1632; Precision 920P; RCA Test oscillator 167; Radio City sig. gen. 702; Weston 774, 778 or 776. Cash. Louis Flalkoff, 143-48 Forty-first ave., Flushing, L. I.

FOR SALE OR TRADE—Two Thordarson T-11M75 multi-match modulation transformers, 75 watt. Never used. Need output meter. Ted Patrick, % Wheeler Electric Co., Toppensish, Wash.

FOR SALE—Hick's "Principles and Practice of Radio Servicing," second edition. Nearly new, \$2.75. William O'Brien, 609 W. First st., Fulton, N. Y.

FOR SALE—ECK 1-KVA motor generator, single frame; motor 220-v DC generator 110-v AC; 120 cy; 1800 rpm. Starter and two field rheostats mounted on slate panel. Weight 500 lb. Perfect condition. F. B. Chambers & Co., 6102 Market st., Philadelphia 39, Pa.

FOR SALE—Jackson 680 tube-and-set tester; Superior oscillator 1130-S; new pocket size V-0-M; good substitutes for 1A7's and 1H5's in adapters, \$2.25. Four to a customer. Pierce, 201 W. Washington st., McAlester, Okla.

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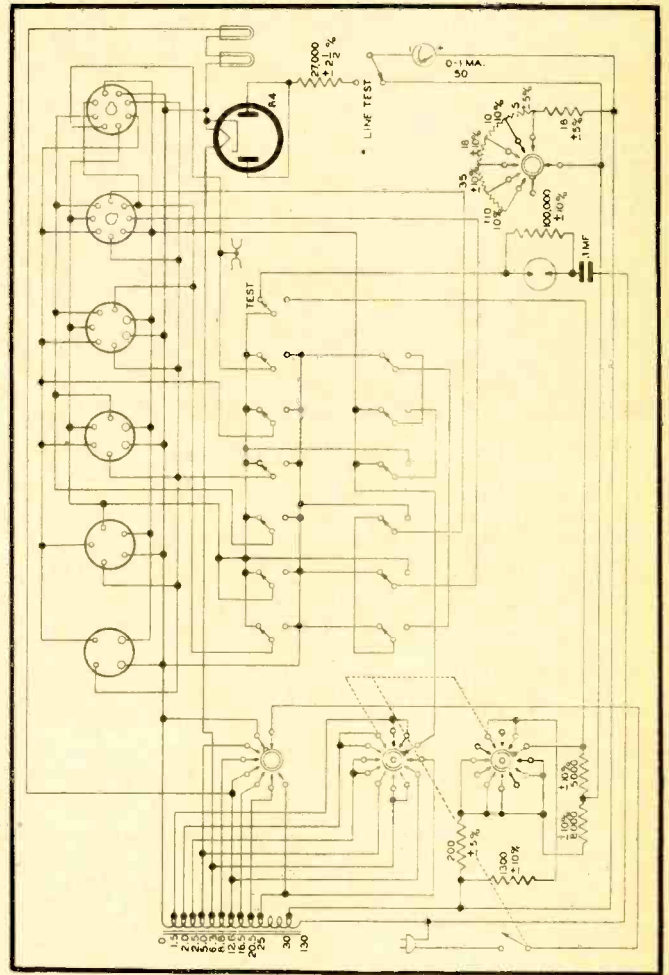
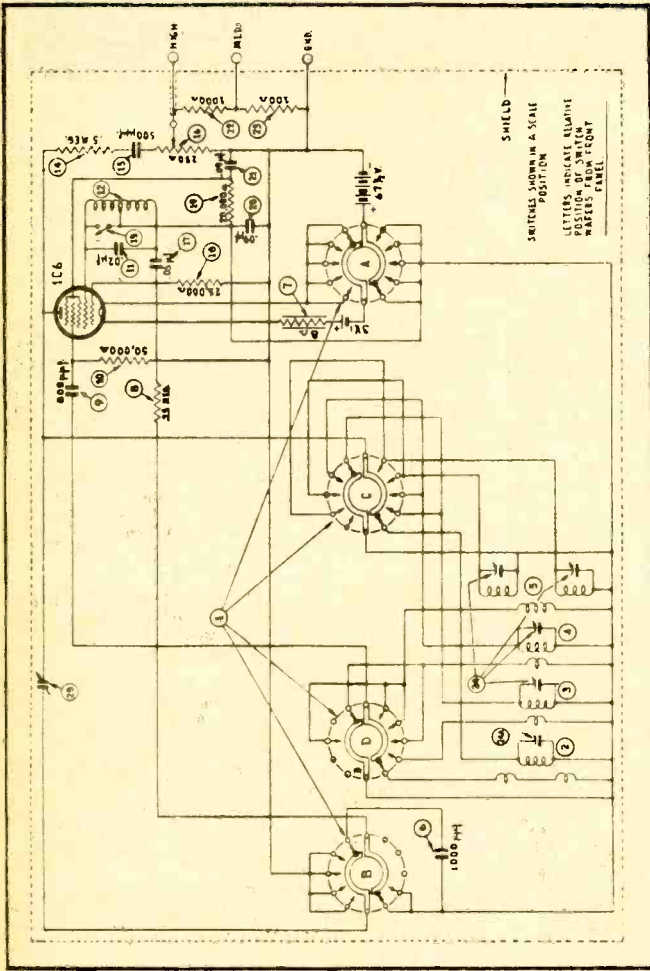
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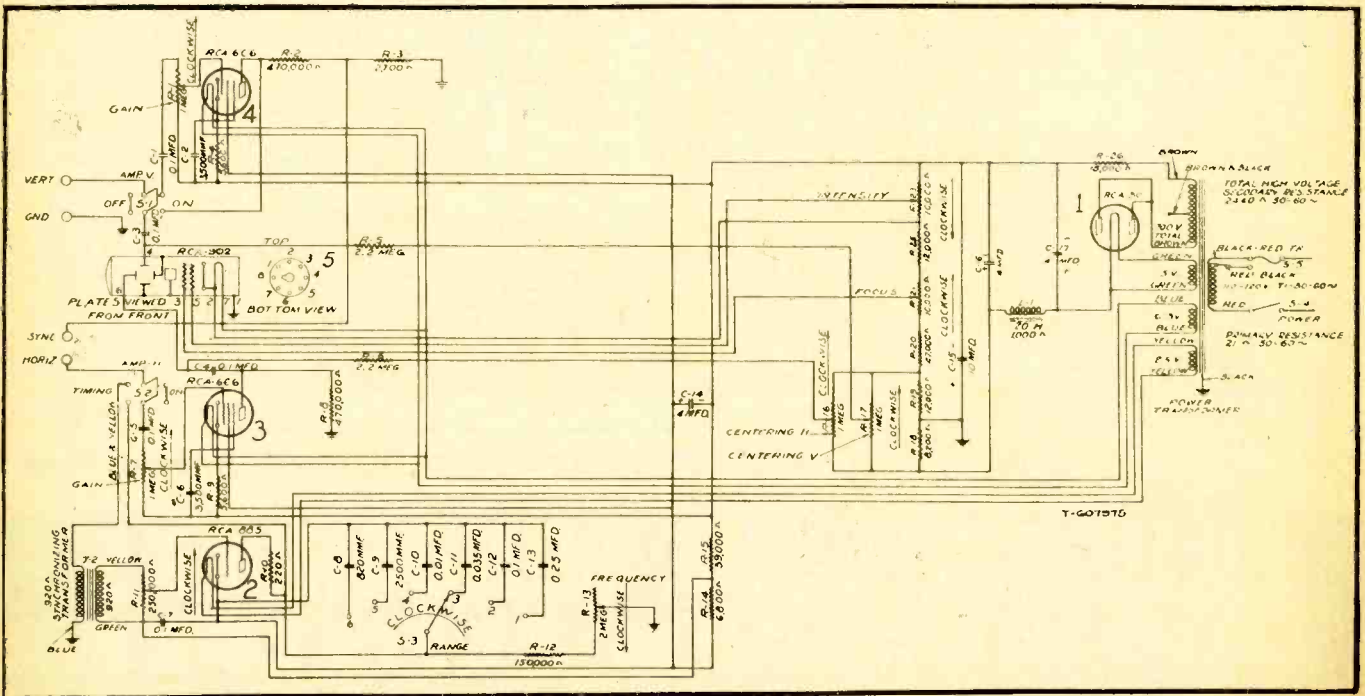
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Philco Corp. (left) Signal Generator (Model 088). Right: Tube Tester (Model 033)



Radio Corp. of America C-R Oscillator (Model 151-2)

RECIPE FOR "PRECISION-EL"

(MT. CARMEL STYLE)



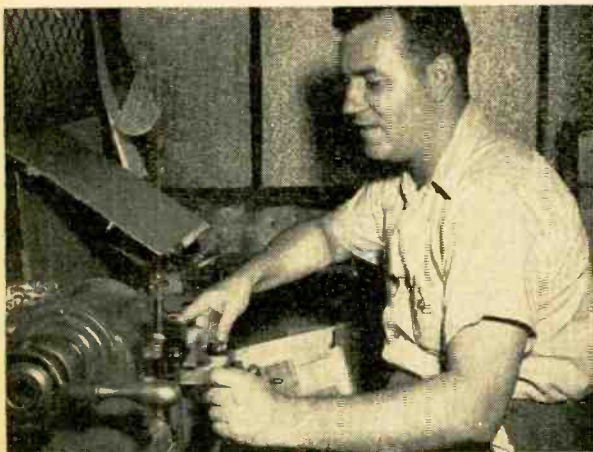
Back to work with a smile—These men and women look forward to their jobs each day. They're Meissner's famed "precision-el." With many of them working to produce vital electronic equipment for the Armed Forces is a "family affair," for a place in this home front army of "precision-el" isn't restricted only to dad — mother, brother and sister contribute to the quality of Meissner products, too.

Take Mt. Carmel, Illinois, a typical American city, where men and women can work to produce and acquire the better things of life. Add pleasant and congenial working conditions like those you'll find at Meissner, exacting jobs like those you'll find in electronics — wait for the smile that means pride in a precision piece of work well done, and — presto — there you have it — "precision-el."

The men and women whose progress is shown on these pages are typical of Meissner famed "precision-el." Look at them. You'll find them just one more reason why Meissner products, precision built by "precision-el," do your job better.



"Precision-el" at work—still smiling, intent on the job at hand. Now it's a job that will bring victory nearer . . . After victory, it will be a job that makes for better living. Always, it's a better job, thanks to the smile that's always there.



Splitting thousandths of an inch is all in the days work for this skilled machinist, yet he finds new reason to smile with each job done better. He, and hundreds like him, are responsible for the recognition of Meissner's "precision-el" by an exacting precision industry.



Easy Way To "Step Up" Old Receivers!

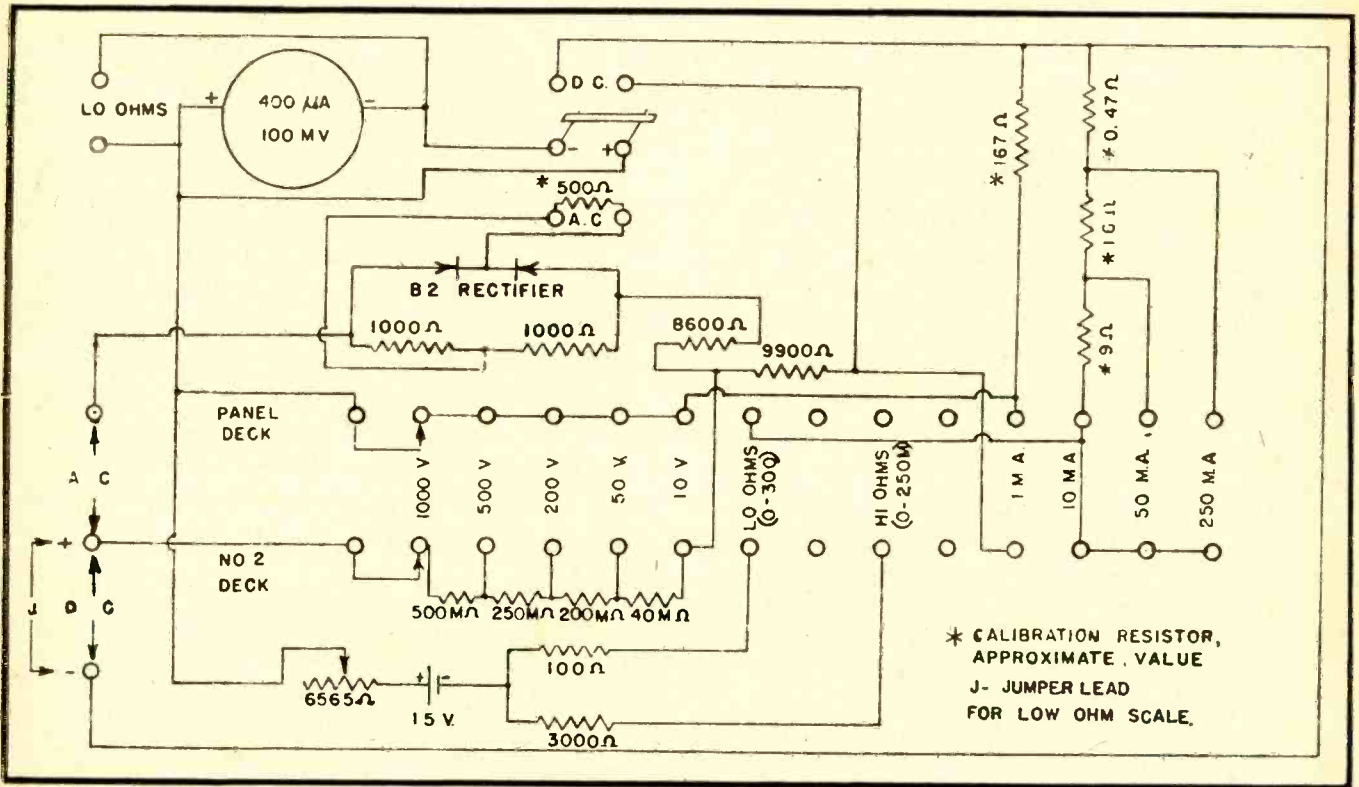
Designed primarily as original parts in high-gain receivers, these Meissner Ferrocort I. F. Input and Output Transformers get top results in stepping up performance of today's well-worn receivers. Their special powdered iron core permits higher "Q" with resultant increase in selectivity and gain. All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



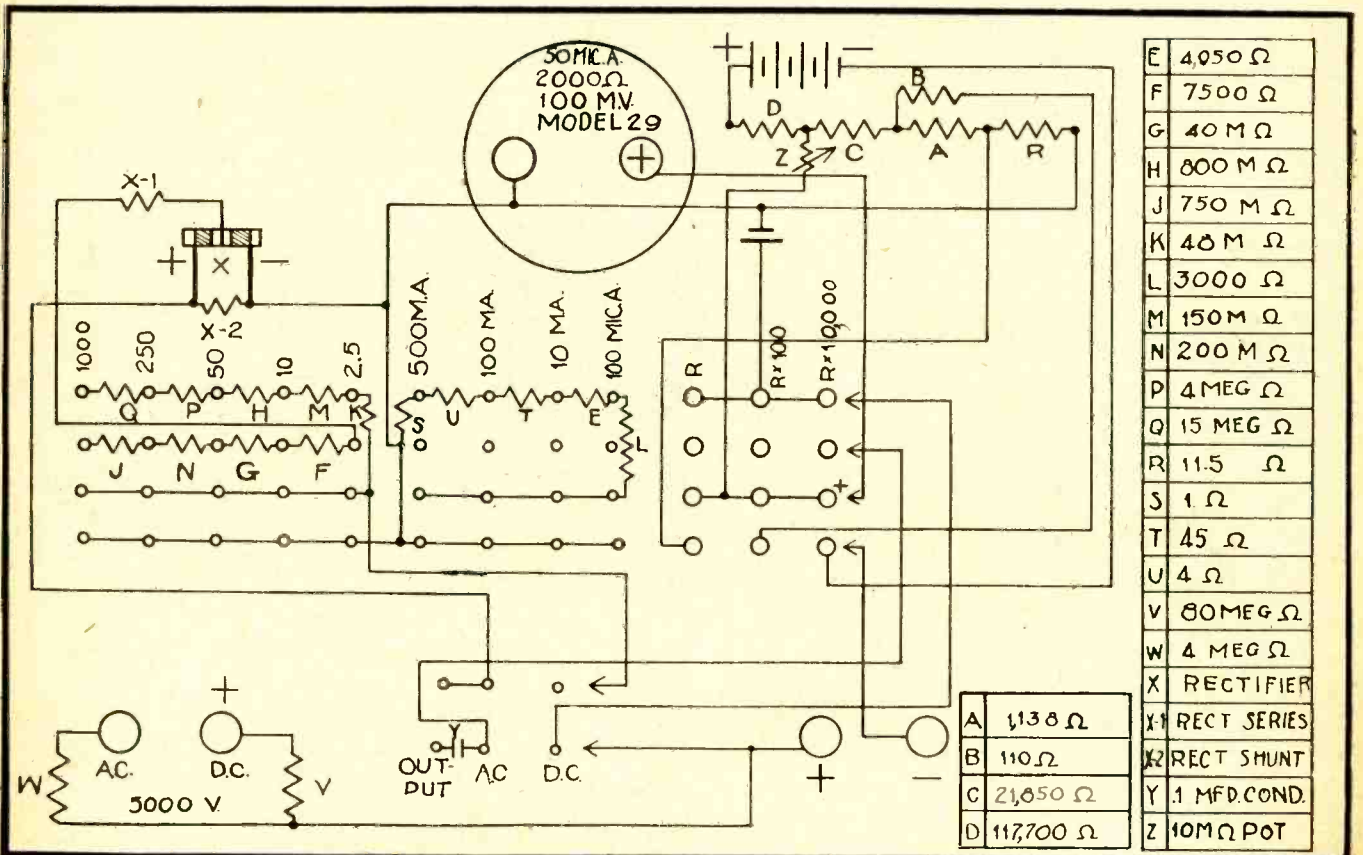
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Triplet Electrical Instru. Co. Tube Tester (Model 666)



Simpson Electric Co. High Sensitivity Set Tester (Model 260)

A GUIDING HAND

FLIES WITH HIM



American airmen never fly alone! Riding with them go the combined skills and efforts of many thousands of war workers and technicians. To their targets... and safely back to their bases... the finest equipment that man can produce flies with them.

Eastern is proud of the part its equipment plays in these great missions. Before the war, amplifiers were thought of only for their use in sound amplification. Today, thanks to the

tremendous advancement in Army and Navy practice, amplification finds new fields of service in step with vital war instruments.

Our contribution to this development has broadened the long-standing experience of Eastern engineers, who are looking ahead to your post-war needs... not only in sound reinforcement, but also in special amplification related to industrial instruments. But first, Eastern is applying every resource to its war-time production.



EASTERN



AMPLIFIER CORPORATION

794 East 140th Street, New York 54, N.Y.

Buy **MORE** War Bonds

EASTERN

AMPLIFIERS

Post War Radio Spectrum

(from page 29)

generally available. The cost to the public will not be great. The present 500,000 FM sets are principally combination sets capable of receiving both AM and FM. They are several years old. Some of them can be converted. In any event, the existing FM receivers or attachments would become partially obsolete if the recommendations of the FM industry to widen the band were followed. Cost of remodeling FM

transmitters will not be substantial.

Television

At present, six commercial television stations are in operation, three are under construction, and three experimental stations are rendering a limited program service; 100 applications for commercial stations are on file. It is estimated that there are about 7000 television receiving sets.

Commercial television is permitted to remain roughly where it is in the lower part of the spectrum. Specifically, it now has 18 channels six mc wide at intervals from 50 to 294 mc. The new allocation gives it six channels, also six mc wide, from 44 to 84 mc and six from 180 to 216 mc. This gives television the same number of channels—12—below 225 mc as heretofore. No additional frequencies can be assigned to television between 225 and 300 mc because all these frequencies are required for government services.

However, to permit the development of a system for color pictures and higher definition monochrome pictures through the use of wider channels, the Commission proposes space for experimental television between 480 and 920 mc in the ultra high frequency portion of the spectrum. Whether television should stay "downstairs" or go "upstairs" was one of the most controversial questions discussed at the allocation hearings.

Police Radio

Criminals of the future will find the way of the transgressor harder as the police build up radio communication networks with the greatly-increased number of frequencies allocated by this allocation. The number of channels in the 30 to 44 mc band is increased from 29 to 56. In addition a band from 152 to 156 mc was assigned. With suitable equipment likely to be available in the near future, the Commission has provided channels which will make possible facsimile networks for transmitting photographs and fingerprints from one police department to another and to the FBI in Washington.

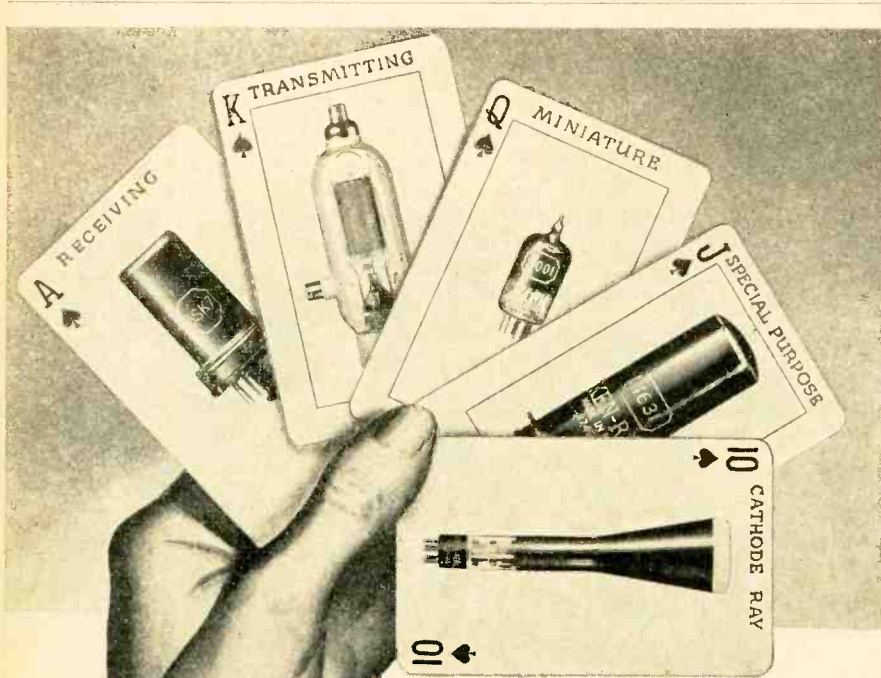
Fire Service

Channels are provided for much wider use of the radio by fire departments which hitherto have largely depended on an outgrown arrangement of sharing police radio systems. Ninety-two cities of over 100,000 population have indicated their intention of using radio for fire service.

Emergency and Miscellaneous Services

Increased channels are allocated for forestry and conservation radio systems; for electric, gas and water companies, for buses, streetcars, trucks, and highway maintenance departments; for oil companies drilling in inaccessible areas, for the location of oil by seismograph recording, for motion picture crews out on location and for press associations and newspapers

(Continued on page 48)



KEN-RAD ELECTRON TUBES

All Naturals!

KEN-RAD

EXECUTIVE OFFICES

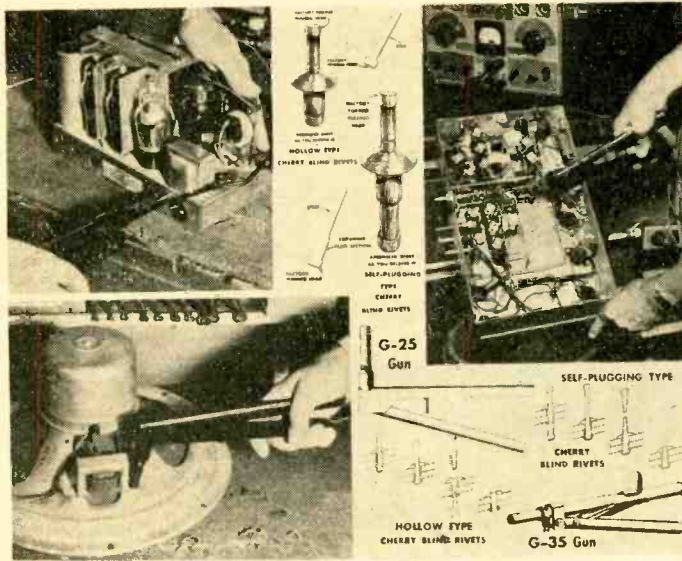
OWENSBORO · KENTUCKY

EXPORTS 15 MOORE STREET NEW YORK

TRANSMITTING TUBES SPECIAL PURPOSE TUBES
CATHODE RAY TUBES RECEIVING TUBES

• Write for your copy of Essential Characteristics, the most complete digest of tube information available

TRADE PRODUCTS



Rivets Replace Fasteners

Advancement in rivet design and usage during wartime has resulted in new types of rivets, tools and installation methods, as well as many entirely

new rivet applications. Particularly interesting to the radio construction and repair fields is the use of rivets in place of conventional fastening methods. The Cherry Rivet engineers have designed

rivets and tools especially adaptable to this type of installation.

For radio repair work, the hollow rivet is especially applicable. Because of unusual tolerances, this rivet does not require exact hole drilling in the material to be riveted. Assembled at the plant, it consists of an aluminum stem inserted into this hole and extending above and below the rivet. The top of the stem is notched in such a manner that it fits securely into the specially designed Cherry Rivet guns. The bottom of the stem has a factory-formed head, larger than the rivet shank.

In application, the rivet and stem are placed in the material hole, and the stem top is inserted into the gun head. The pulling force of the gun draws the stem against the rivet shank, forcing the shank to spread and clinch into the material with a clinching force of from 300 to 600 pounds. Then the stem breaks into two parts, both parts falling free of the rivet and leaving a tightly clinched hollow rivet.

Radio repair shops use the hollow rivets for such installations as fastening tube sockets, transformers, name plates, loudspeaker shields, parts to chassis, lid hinges on portables—al-

(Continued on page 54)

"RSD" Subscribers, ATTENTION

"RSD's" subscription lists are at the saturation point. New subscribers can be served only when an old subscriber fails to renew an expiring subscription. This condition will obtain until our paper quota is increased. Meanwhile, future issues of "RSD" will carry more pages of text than ever before.

"RSD" subscribers are notified one month before their subscriptions expire. By renewing about-to-expire subscriptions promptly old readers are sure to be served regularly and not miss issues. Subscribers who neglect to send a renewal order promptly will have their orders placed on the waiting list along with new subscribers becoming eligible for reinstatement when an opening occurs.

We are striving to take care of old friends first, after which it's a case of "first come — first served". Please cooperate. Answer expiration notices promptly or extend your present subscription now. Thank you.



Extend YOUR "RSD" Subscription NOW

A 1-year renewal subscription to RADIO SERVICE DEALER costs — \$2.00 — 2-year renewal subscription costs \$3.00.
Canadian & Foreign Subscriptions are \$3.00 per year.

reporting events at places where regular facilities are not available.

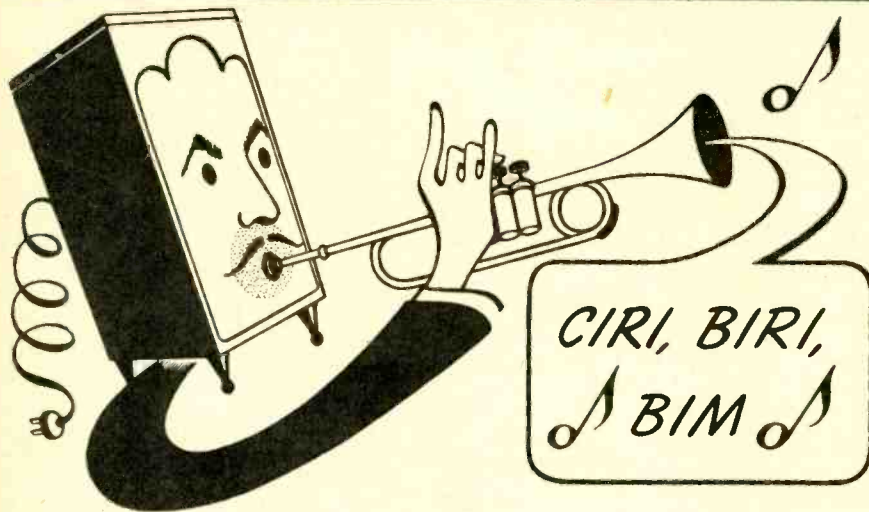
Facsimile Radio

To provide for the future growth of facsimile broadcasting—the sending of script, printed or typed matter, sketches, drawings or pictures—the Commission will permit it to use the regular FM channels and also a band between 470 and 480 mc.

Subscription Radio

No specific allocation is made for subscription radio, the service which would carry no advertising but would be supported by rental of a device to eliminate a super-imposed "big-squeal." If this service proves technically feasible and the Commission decides to license stations of this type, applicants will be permitted to apply for channels in the regular FM commercial band.

RIDER VOLUME XIV COVERS 1941-42 RECEIVERS



That's me back in '41 when I was new. Among the first programs I carried was one of a new band, headed by a Harry James. The kids said he played "divinely." I played pretty well myself then, too, but I've worked so many long steady hours in the past four years I should be in a service shop this very minute. A lot of my contemporaries are. It's a lucky thing for us—and radio

servicemen—that Rider Manual Vol. XIV is now out for they make the diagnosis and correction of our ills easy, fast and accurate. We radios have our war job and we want to be working at it with as few interruptions as necessary. When you order Rider Manual Vol. XIV from your jobber, please be patient if he is out of it right then. He and the Rider folks will get your volume to you as fast as WPB limitations permit.

NEW RADIO SERVICES

"Walkie-Talkie"

The success of the "walkie-talkie" on the battlefield and the possibilities for its varied uses in peacetime have induced the Commission to allocate the band from 460 to 470 mc for a new radio service to be known as the "Citizens Radiocommunication Service." Small portable radios can be used, for example, to establish a physicians' calling service, for communication to and from trucks and tractors operating in and around large plants, on farms and ranches, on board harbor and river craft, in mountain and swamp areas. Sportsmen and explorers can use them to maintain contact with camps. Department stores, dairies, laundries and other business organizations can use the service to communicate with their delivery vehicles.

Common carrier operation will not be permitted and no charge can be made for messages. Only the minimum requirements of the Communications Act plus a few minimum traffic rules will be set up. No technical knowledge will be required.

Railroad Radio

Its week-long hearing in September on the use of radio on railroads having shown that it will contribute to the safety of life and property and should be of almost universal benefit to the public, the Commission has set aside a sizeable number of channels for that purpose.

Rural Telephone Service

Provision is made for a Rural Telephone Service to furnish a radio-telephone link for isolated communities, farmers, ranchers, miners and others who cannot be or are not served by wire line facilities. The Commission does not set aside specific frequencies for this service but will permit it to share the band of frequencies allocated to television, most of which will be concentrated in urban areas.

General Mobile Service

Certain frequencies have been designated for ultimate use by urban and interurban mobile units such as trucks, buses, taxicabs, doctors' cars, ambulances, etc. Before assigning any frequencies in this band, however, the Commission will determine the most efficient plan by which they may be employed.

Industrial and Medical Service

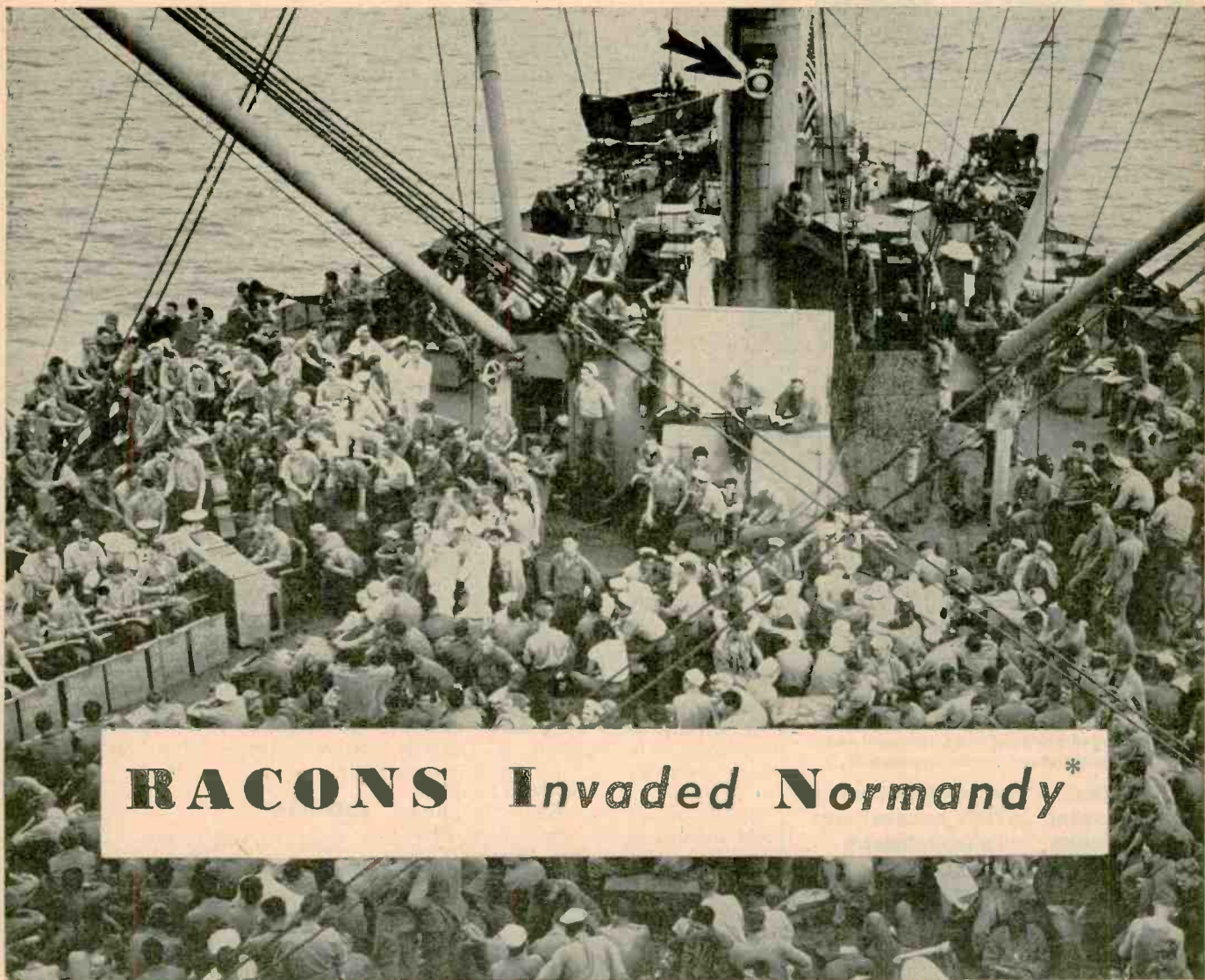
Three bands are assigned for industrial and medical radio equipment to prevent interference with other radio services.

RIDER MANUALS (14 VOLUMES)
Volumes XI to VII . . . 12.50 each volume
Volume VI 9.50
Abridged Manuals I to V (1 vol.) 15.00
Automatic Record Changers and Recorders 7.50
OTHER RIDER BOOKS YOU NEED
The Cathode Ray Tube at Work
 Accepted authority on subject 4.00
Frequency Modulation
 Gives principles of FM radio 2.00
Servicing by Signal Tracing
 Basic Method of radio servicing 4.00
Servicing Superheterodynes 2.00

The Meter at Work
 An elementary text on meters 2.00
The Oscillator at Work
 How to use, test and repair 2.50
Vacuum Tube Voltmeters
 Both theory and practice 2.50
Automatic Frequency Control Systems
 —also automatic tuning systems 1.75
A-C Calculation Charts
 Two to five times as fast as slide rule 7.50
Hour-A-Day-with-Rider Series—
 On "Alternating Currents in Radio Receivers"—
 On "Resonance & Alignment"—
 On "Automatic Volume Control"—
 On "D-C Voltage Distribution" 1.25 each

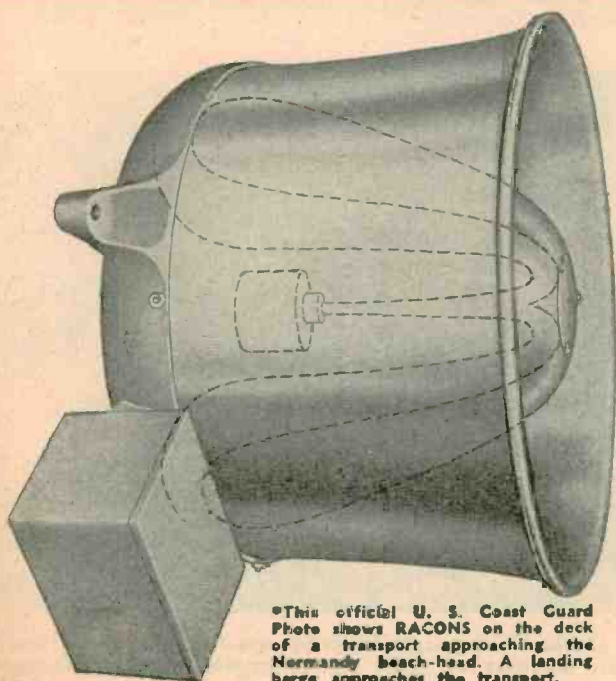
JOHN F. RIDER PUBLISHER, INC. 404 FOURTH AVE., N.Y. 16, N.Y.
 Export Division: Rocke-International Corp. 13 E. 40th Street New York City Cable: ARLAB

RIDER MANUALS *are complete*
IN 14 VOLUMES



RACONS Invaded Normandy*

Official U. S. Coast Guard Photo



*This official U. S. Coast Guard Photo shows RACONS on the deck of a transport approaching the Normandy beach-head. A landing barge approaches the transport.

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

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

Send for our catalog

HURRY!
THEY'RE GOING FAST



CONCORD

RADIO CORPORATION'S

New

"SPECIAL SUPPLEMENT"

HARD-TO-FIND RADIO AND ELECTRONIC COMPONENTS

16 pages crowded with listings and descriptions of such wartime essentials as...

- METERS
- VOLUME CONTROLS
- RESISTORS
- TEST ACCESSORIES
- SWITCHES
- TRANSFORMERS
- SPEAKERS
- RHEOSTATS
- RELAYS... and hundreds of others!

Each page overflows with critical parts and equipment . . . urgently needed by industry, laboratories, government agencies, training schools, radio servicemen, military services, etc. Everything is the product of a leading American manufacturer. All are first quality. And all are marked at prices typical of startling Concord values! Hurry! Our edition of these supplements is moving fast. And, since all items are subject to prior sale, we suggest that you wait no longer. Send for your FREE copy today!

Rush this coupon . . . and we will send you the new 16-page Supplement by the fastest possible means.

CONCORD RADIO CORPORATION
901 W. Jackson Blvd., Chicago 7, Ill. Dept. No. K-15

Please rush me the new 16-page "Special Supplement" by Concord Radio Corp

NAME.....
ADDRESS.....
CITY..... STATE.....

CONCORD RADIO CORPORATION

Lafayette Radio Corporation

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

DISTRIBUTOR NEWS

The following new distributor appointments are announced by officials of the various companies listed:

BENDIX:

Leonard C. Truesdell, general sales manager, home radio: Distributors will handle forthcoming line of AM and FM radios and radio-phonograph combinations. Philadelphia Electronics, Inc., Phila., include eastern Pennsylvania, southern New Jersey and all of Delaware. Enterprise Wholesale Furniture and Stove Co., Kansas City, Mo., for eastern Kansas and western Missouri. Schwabacher Hardware Co., Seattle, for western Washington. Southern Bearing & Parts Co., Charlotte, N. C., for Piedmont section of North and South Carolina. Mid-Atlantic Appliance Distributors, Inc., Washington, D. C., for the city and southern Maryland, eastern West Virginia and Virginia. Local Distributors, Wichita, Kan., for the city and western Kansas.

Newburgh Distributing Co., Newburgh, N. Y., for southern New York state, south of Albany and north of metropolitan New York area. Crest Corp., St. Louis, Mo., for southwest Illinois and eastern Missouri. Acme Floor Coverings, Indianapolis, Ind., for central Indiana and portions of Illinois. F. A. Davis & Sons, Baltimore, Md., for the Baltimore area. Sampson Electric Co., Chicago, for the city, surrounding counties in Illinois and Indiana, and Peoria, Aurora, Elgin, Rockford and Kankakee, Ill; Gary, Valparaiso, Ind.; Davenport, Iowa. Miller-Jackson Co., Oklahoma City, for the state of Oklahoma and the Texas Panhandle area. Youngstown Equipment Co., Boston, Mass., for eastern Massachusetts, New Hampshire and Maine. E. B. Latham & Co., Newark, N. J., for north-

ern New Jersey. Graybar Electric Co., Los Angeles, Cal., for southern California and Arizona; from Salt Lake City, for Utah, southern Idaho, eastern Nevada and western Wyoming.

CROSLEY:

E. C. Brode, manager of distribution: Georgia Appliance Co., Atlanta Ga., for the state of Georgia. Joseph E. Vaughan, El Paso, Tex., for western Texas and the state of New Mexico. Arizona Appliance Mart, Tucson and Phoenix, Ariz., for the state. Norman-Young Appliance Co., Dallas, Texas, for northeastern Texas. Modern Distributing Co., Cincinnati, O., for the city, southern Ohio, northern Kentucky and southeastern Indiana. Legum Distributing Co., Baltimore, Md., for Maryland and parts of West Virginia, Virginia and Delaware. Graybar Electric Co., Inc., Providence, R. I., for the state. Jules Alexandre, Inc., Harrisburg, Pa. (succeeds firm of Golling-Alexandre, Inc.), for central Pennsylvania. Lines include refrigerators, radios, washing machines, gas and electric ranges and other home appliances.

Canadian distribution and partial manufacture will be handled by Moffats, Ltd., of Weston, Ontario. Mexican distribution will be handled by a company branch in charge of Antonio Rejas Villalba, Mexico City.

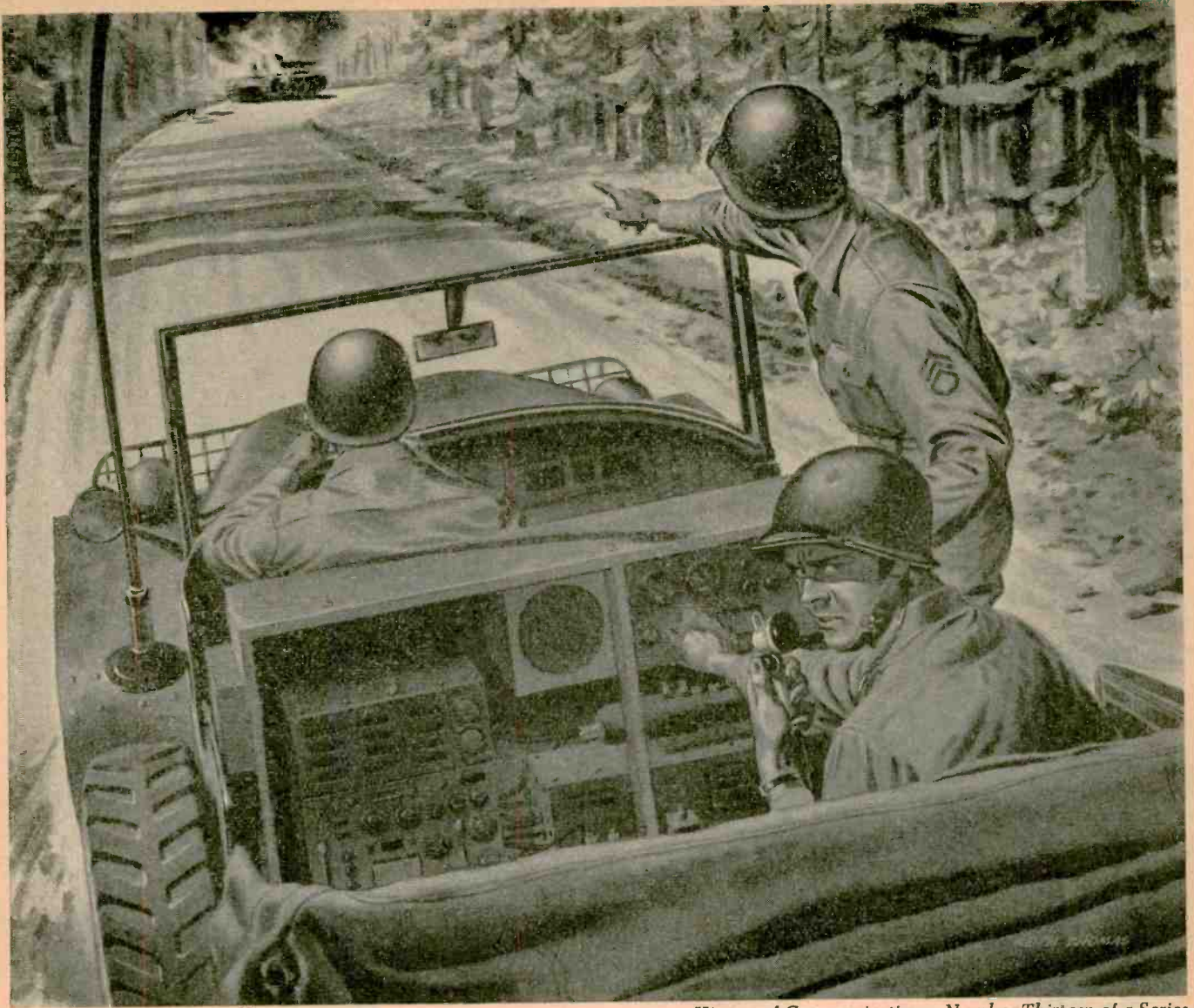
EMERSON:

Charles Robbins, vice president in charge of sales: Herrlinger Distributing Co., Cincinnati, O., for that territory. Nelson Hardware Co., Roanoke, Va., and Utility Co., Inc., Clarksburg, West Va., for their respective trading areas. J. George Fischer & Sons Co., Saginaw,

(Continued on page 52)



C. L. Bell and R. L. Clark, Allentown, Pa. distributors, discuss post-war marketing with C. J. Hunt, manager of radio sales, Stromberg-Carlson Company.



History of Communications. Number Thirteen of a Series

MILITARY RADIO COMMUNICATIONS



Today the allied military radio equipments represent the "tops" in engineering design. Progress from the spark transmitter of World War I to present-day equipment is, indeed, a far cry. Taking up where they left off December 7, 1941, Universal Engineers, with their added experience with precision military equipment, shall produce for the public, electronic devices not of fantastic design — but of proven utility and quality.

After Victory is ours, radio amateurs, affectionately known as "hams," will be back after their experience with military radio equipment with an even greater desire to operate their own "rigs." It will be then that Universal will again have Microphones and recording components available on dealers' shelves.

< FREE—History of Communications Picture Portfolio. Contains over a dozen pictures suitable for office, den, or hobby room. Write for your "Portfolio" today.



UNIVERSAL MICROPHONE COMPANY
INGLEWOOD, CALIFORNIA



FOREIGN DIVISION: 301 CLAY STREET, SAN FRANCISCO 11, CALIFORNIA · CANADIAN DIVISION: 560 KING STREET WEST, TORONTO 1, ONTARIO, CANADA

DISTRIBUTOR NEWS

(from page 50)

Mich., and Toledo Appliances, Inc., Toledo, O. Foster Distributing Co., Louisville, Ky. Canton Hardware Co., Canton, O. Lines include following radio types: table models, phonoradios, portables, pocket sets, television sets.

GENERAL ELECTRIC:

P. A. Tilley, manager of company appliance distributing branches: C. W. Hartenfels manages branch in Pittsburgh, Pa., area, replacing Ochiltree Electric Co., which G-E acquired. S. B. Maher

manages branch in Los Angeles, Cal., for territory from Santa Barbara to Mexican border and east to the Arizona state line. Lines: home refrigerators, ranges, water heaters, home laundry equipment, dishwashers, Disposalls, kitchen cabinet equipment and automatic blankets.

MOTOROLA RADIO:

William H. Kelley, general sales manager: Mueller and Selby, Omaha, Nebraska, for the state. Brady Electric Inc., Elmira, N. Y., and (post-war) Binghamton, N. Y., for Steuben, Chemung, Yates, Schuyler, Tompkins, Tioga and Broome counties in New York state; Susquehanna, Bradford, Tioga and Potter counties in Pennsylvania. McGrew Distributing Co., Wichita, Kan., for en-

tire state of Kansas as far as a line bounded by counties of Marshall, Pottawatomie, Wabaunsee, Lyon, Woodson, Wilson and Montgomery. Lines: FM and AM table models, consoles, and automatic phonographs; AC-DC battery portables, "Playboy" and battery consoles and table models for farms, and new auto radios.

RCA-VICTOR:

David J. Finn, Chicago regional manager: Associated Distributing Co., Indianapolis, Ind., for central Indiana. George W. Onthank Co., Des Moines, Iowa, for the city and Davenport, Cedar Rapids and Sioux City.

J. W. Cocke, Dallas regional manager: Radio and Appliance Distributors, Inc., Chattanooga, Tenn., for the trading area. Lines: radios, victrolas, television instruments, combinations, Victor and Bluebird records, electron tubes, parts and test equipment, package sound products, replacement parts and accessories.

Kill Those Noises!



★ The best cure for that noisy wartime radio is a Clarostat volume control. In the first place, the original control is usually worn out by now, after years of faithful service. But in the second place, the present-day Clarostat control with its *stabilized* element—stabilized for humidity, wear and tear, and for years of service—is as quiet as a mouse. Yes, kill those noises! Please your customers; keep the old sets perking for the duration at least; and build up your good will and bank roll at the same time.

★ Ask Our Jobber . . .

Ask him for Clarostat volume controls for wartime service. Ask for the Clarostat Interim Line Catalog. Or write us direct.



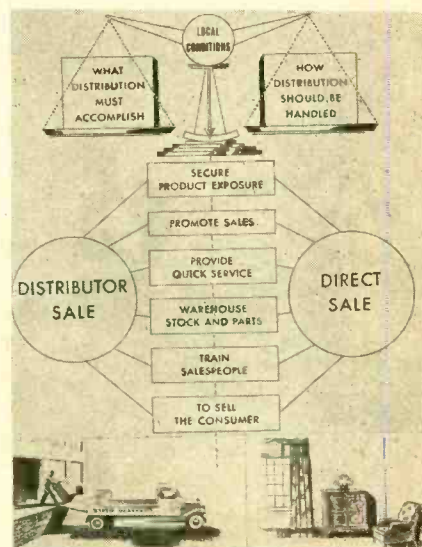
CLAROSTAT MFG. CO., Inc. • 285-7 N. 6th St., Brooklyn, N. Y.

TYPE OF DISTRIBUTION DEPENDS ON LOCAL CONDITIONS

Clifford J. Hunt, manager of radio sales, announces that plans for post-war distribution of Stromberg-Carlson radios and combinations are completed. In adjusting distribution to local conditions, the company made market studies in every community analyzing such factors as density of population, buying habits, traffic flow, shipping and warehousing facilities and so on.

As a result of these studies, two methods of distribution have been adopted. A few areas will be served direct, where the studies revealed market conditions which would make for better service to dealers by direct sale through factory branches and field representatives. In other areas, the company appointed exclusive distributors, selected on the basis of their merchandising record and facilities for service.

In both cases help in thorough training



of sales personnel and merchandising aids will be available to carefully selected retail outlets, to the end that the lines will yield better and more enduring profits to dealers.

Zenith Distributor Meetings

H. C. Bonfig, vice president in charge of household radio, Zenith Radio Corp., Chicago, announces that a group of sales executives under his direction have completed a series of meetings held for distributors in New York, New Orleans and Chicago during December.

The purpose of these meetings was to continue the program of dealer organization begun last summer.

Mr. Bonfig discussed the overall sales policies and sales programs for "Z-Day", the day Zenith civilian production begins. Mr. Edgar G. Herrmann, assistant vice president and dir-

ector of advertising, told of the public acceptance given to the company's present "Radionics Exclusively" campaign.

Orrin E. Wolf, assistant to J. J. Nance, vice president and director of sales, described the distribution problems that the industry will face after reconversion and suggested methods of solving them. E. R. Tayler, sales promotion manager, outlined the program of dealer help which will be put into operation on "Z-Day."

Distributors reported that the dealer survey program had been very successful, and that dealers were very enthusiastic about the company's plans and policies for post-war.

In Trade

(from page 16)

Jensen Radio's New President

A. Leslie Oliver, chairman of the board, Jensen Radio and Manufacturing Co., announces the appointment of Thomas A. White as president and general manager to succeed W. E. Maxson, retired. Under Mr. White's sales direction the Jensen company has pioneered numerous loud speaker innovations and has forged ahead to a leading position in the acoustic field. Mr. White moves to his new post from a vice-presidency; Mr. Maxson will remain on the board of directors.

West Coast Electronic Meeting

James L. Fouch, president of Universal Microphone Co., was elected treasurer of the West Coast Electronic Manufacturers Association at its annual meeting held last December at Los Angeles. Other officers: Howard Thomas, (Packard Bell Co.) president, with H. Leslie Hoffman (Hoffman Radio Corp.) retiring; Lew Howard (Peerless Electrical Products Co.) vice president. Mr. Hoffman continues on the Council with the officers elected, joined by Dave Marcus (Electronic Specialty Co.), Frank Fisher (Radiation Products, Inc.), and Ashford Wood (Littlefuse, Inc.).

The Association was organized in 1943. There are chapters in San Francisco and Los Angeles, with sixty institutional memberships.

Crosley Adds Kitchen Equipment

J. H. Rasmussen, general sales manager, The Crosley Corp., announces that the company will introduce a line of steel kitchen cabinets and cabinet sinks. E. A. Bonneville, former regional sales manager, assumes duties as kitchen cabinet product manager. The new line, it is stated, will embody substantial improvements over pre-war models and will incorporate an important exclusive feature. Production will be from new and exclusive Crosley tools and dies. "With this new line we plan to introduce a new technique in the merchandising of kitchen cabinets — a technique which will greatly simplify the stocking and merchandising of this equipment. Before joining Crosley, Mr. Bonneville had been associated with the Times Appliance Co. of New York for 14 years.

Universal Price List

Universal Microphone Co., Inglewood, Cal., issues its first price list since Pearl Harbor. It is bulletin 1460, "Pre-Catalog Listing" to give the trade something to go on preliminary to publication of the 1945 catalog of all the company's items. The new list includes 27 styles and types of microphones: carbon, dynamic and velocity types being listed in palm, stand, throat, lip, hand and cartridge styles. List is available from the manufacturer.

*Ready for
Bigger
things...*



PLUG IN ELECTROLYTICS

● These plug-ins, facilitating the checking, replacement and servicing of capacitors in continuous service and in other vital equipment, symbolize the coming ELECTRONIC AGE. ● But Aerovox isn't stopping there. For in addition to new types geared to the ELECTRONIC AGE, Aerovox is also providing significant, timely, invaluable data. ● The monthly *Aerovox Research Worker* is mailed FREE to any radio worker endorsed by an Aerovox jobber. ● Ask your Aerovox jobber for a FREE subscription.

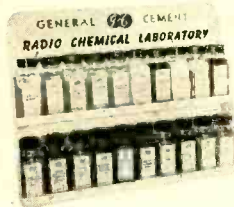
SPEED UP REPAIRS WITH THESE G-C AIDS!



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.



Radio Chemical Laboratory

Twenty 2 oz. bottles. A complete assortment of cements, solvents, coil dopes, lubricants, cleaners, etc. Brushes in bottle caps. Indexed steel rack.



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.

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



GENERAL CEMENT MFG. CO.
ROCKFORD, ILLINOIS



INDIVIDUALLY TESTED

AEROVOX CORP., NEW BEDFORD, MASS., U. S. A.

In Canada: AEROVOX CANADA LTD., HAMILTON, ONT.

Export: 13 E. 40 ST., NEW YORK 16, N. Y. Cable: 'ARLAB'

\$1.00 PAID FOR SHOP NOTES

Write up any "kinks" or "tricks-of-the-trade" in radio servicing that you have discovered. We will pay \$1 in Defense Stamps for such previously unpublished "SHOP NOTES" found acceptable. Send your data to "Shop Notes Editor," RADIO SERVICE DEALER, 342 Madison Ave., New York 17, N. Y. Unused manuscripts cannot be returned unless accompanied by stamped and addressed return envelope.

Trade Products

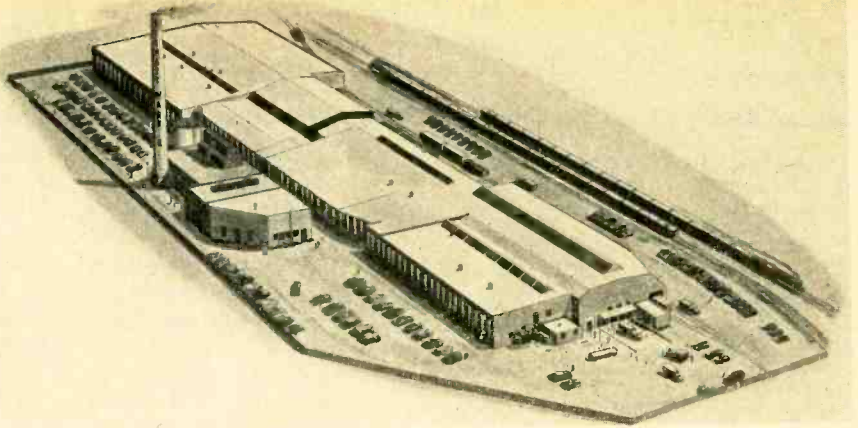
(from page 47)

most any place where fastening is required.

To install their rivets, the company has designed several special guns. One, the G-15, is air-powered. All the others are hand operated. Of these, the G-25 and G-35 guns are especially useful for small shop installations.

The G-35 gun, built on the ratchet principle, is 11½ inches overall, and can be operated with one hand. It has snap-on pulling heads interchangeable to fit any Cherry Rivet.

The G-25 Gun, working on the leverage principle, is 9½ inches overall, and can be operated with one hand. It is especially handy for fastening jobs, and is priced for small shop purchase. Both guns and rivets are manufactured by the Cherry Rivet Company, 231 Winston Street, Los Angeles 13, California.



Stewart-Warner's huge South Plant will convert to turning out 3,500 radios daily on 8-hour shift 60 days after easing of present government restrictions.

Stewart-Warner Promotes

Frank A. Hiter, senior vice-president, Stewart-Warner Corp., Chicago, Ill., announces three appointments of men "from the ranks". This, it is pointed out, is illustrative of the company's policy of promoting men from within. The appointees are: Arden LeFevre, as vice president and director of engineering of Division One (alemite, instruments and radio); Fred R. Cross,

advertising manager; George W. Oehlsen, Jr., assistant director of engineering.

"Insiders" LeFevre, Cross and Oehlsen have each had 20 years' experience with Stewart-Warner, in various capacities. The connections have been continuous, except for Mr. Cross who took up other duties with another company for a few months in 1943.

P-A Amplifier

The Langevin Company, Inc., New York, new type 101-A amplifier is designed primarily to transmit low frequency wave form at high output levels. The unit will feed groups of wide range loud speakers for music reproduction.

Internal input impedance is 1500

ohms, high gain, and 25,000 ohms bridging. Output impedance is adjustable to match loads from 1 to 1000 ohms. The amplifier delivers 50 watts to a nominal load impedance with less than 3% RMS harmonic distortion at 400 cycles. Weight approximately 45 pounds, and finish light gray baked enamel over zinc plating.

FIFTH EDITION

WARTIME RADIO SERVICE

86 PAGES — OVER 1500 TESTED TUBE SUBSTITUTIONS

THE ONLY BOOK OF ITS KIND — WILL SAVE ITS COST OVER AND OVER IN TIME SAVED — THOUGH YOU MAY KNOW THE SUBSTITUTION YOU SAVE THE TIME IT TAKES TO FIGURE THE CHANGES.

EACH SUBSTITUTION SET DOWN LIKE THE EXAMPLE BELOW

TUBE	SUBSTITUTE	CIRCUIT CHANGES NECESSARY
12SA7	12KB8	Make adapter as follows:
No. 1 on base to No. 1 on top		No. 5 on base to No. 5 on top
No. 2 on base to No. 2 on top		No. 6 on base to No. 8 on top
No. 3 on base to No. 3 on top		No. 7 on base to No. 7 on top
No. 4 on base to No. 4 & 6 on top		No. 8 on base to cap

THE LAST THIRTEEN PAGES CONTAIN A VERY COMPLETE TUBE CHARACTERISTICS CHART WITH CLEAR BASE VIEWS.

REPAIRING BURNED OUT TUBES

Changing 1.4 & 2.0 volt Farm Radios for Electric Operation

Best Methods for Making Adaptors price \$3.00 postpaid

Get this money-making time-saver from your distributor today or order from

CITY RADIO CO.

the RADIO CITY OF PHOENIX, ARIZONA
EAST WASHINGTON AT FIFTH STREET
DISTRIBUTORS AIRMAIL TODAY FOR PROPOSITION

FADA Permanent NEEDLES



List \$1.00

Special Introductory Offer 39¢
Plus Postage

(TO DEALERS ONLY—IN LOTS OF 6 OR OVER)

- Plays 4M Records without changing
- Better Tone Reproduction
- Help Reduce Background Hiss
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928 BROADWAY NEW YORK 10 N.Y.

Large Stock of Replacement Parts and Cabinets

• Ted McElroy

World's Largest Manufacturer of
Wireless Telegraphic Apparatus
COMPLETE CENTRAL OFFICE EQUIPMENT

McElroy Manufacturing Corp.

82 Brookline Avenue • Boston, Massachusetts



These people buy a battleship — every week!

Meet John S—— and Mary D——

John works at an electronics plant on Long Island, and makes \$85 a week. Almost 16% of it goes into War Bonds.

Mary has been driving rivets into the hide of one bomber after another out at an airplane plant on the West Coast. She makes \$55 a week, and puts 14% of it into War Bonds.

John and Mary are typical of more than 27 million Americans on the Payroll Savings Plan who, every single month, put a half a BILLION dollars into War Bonds. That's enough to buy

one of those hundred-million-dollar battleships every week, with enough money for an aircraft carrier and three or four cruisers left over.

In addition, John and Mary and the other people on the Payroll Plan have been among the biggest buyers of *extra* Bonds in every War Loan Drive.

When you come to figure out the total job that John and Mary have done, it's a little staggering.

They've made the Payroll Savings Plan the backbone of the whole War Bond-selling program.

They've helped keep prices down and lick inflation.

They've financed a good share of our war effort all by themselves, and they've tucked away billions of dollars in savings that are going to come in mighty handy for both them and their country later on.

When this war is finally won, and we start giving credit where credit is due, don't forget John and Mary. After the fighting men, they deserve a place right at the top of the list. They've earned it.



You've backed the attack—now speed the Victory!

RADIO SERVICE DEALER

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

Quality SHOP COATS



for
Repair men
Service men
Store clerks

... and many others will find a use for this handy garment. Designed and built to meet the demands of industry. Protects clothes, expertly tailored, full cut, high quality Sanforized material, neutral color. Large handy reinforced pockets with flaps. Collar can be worn open or closed. A quality coat — \$3.50 each, two for \$6.90.

CANVAS PRODUCTS CORPORATION

466 McWilliams Street
Fond du Lac, Wisconsin

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UNIVERSAL MIDGET TOOLS: DANDY SIXTEEN PIECE SET: Midget Pliers, Diagonal Cutters, Four Midget End Wrenches, Needle-nose Pliers, Screwdriver, Six Punches & Chisel, Round File, Midget Crescent Wrench. \$14.85
IMMEDIATE DELIVERY, Remit Today, Catalogue Free With Order. DEALERS TOOL SUPPLY, 1527 GRAND RA, KANSAS CITY, MISSOURI.

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REPAIR SERVICE

Hard to get new testing instruments? Let our well-equipped Service Shop put your instrument in tip-top condition. For the duration — all makes — all repairs made by EXPERTS.

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DEPARTMENT 45

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AUTHORIZED SUPREME SERVICE STATION

AVAILABLE

from

Radio Warehouse



TEST LEADS



Reg. \$1.35 pr. List

50¢ Pr.

in War Stamps

LOOK AT THESE SWELL FEATURES!

Each set of Leads has color-coated cables and leads—one black, one red. Right-angle pin tips to keep wire from breaking. Six-inch probes with best kinkless, rubber-covered cables. Brother, here's a bargain!

FREE CATALOGS! Mailed to you monthly on request.

MAIL COUPON TODAY

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73-B Mill St., Akron, Ohio

Please send me _____ pairs of Test Leads at 50¢ per pair.
I enclose _____ in War Stamps.

NAME _____

ADDRESS _____

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RADIO AND ELECTRONIC DEVICES

For...

TRADE... INDUSTRY... COMMUNICATION... PUBLIC UTILITY... VOCATIONAL AND EXPERIMENTAL APPLICATIONS

BURSTEIN-APPLEBEE CO.

1012-14 MCGEE ST.

KANSAS CITY 6, MISSOURI

SEND

SHOP NOTES

See Offer on Page 53

"Make it a Stromberg-Carlson for the main radio in your home."

That's the story that Stromberg-Carlson is currently telling to your post-war radio prospects through 475,000,000 impressions in leading magazines.

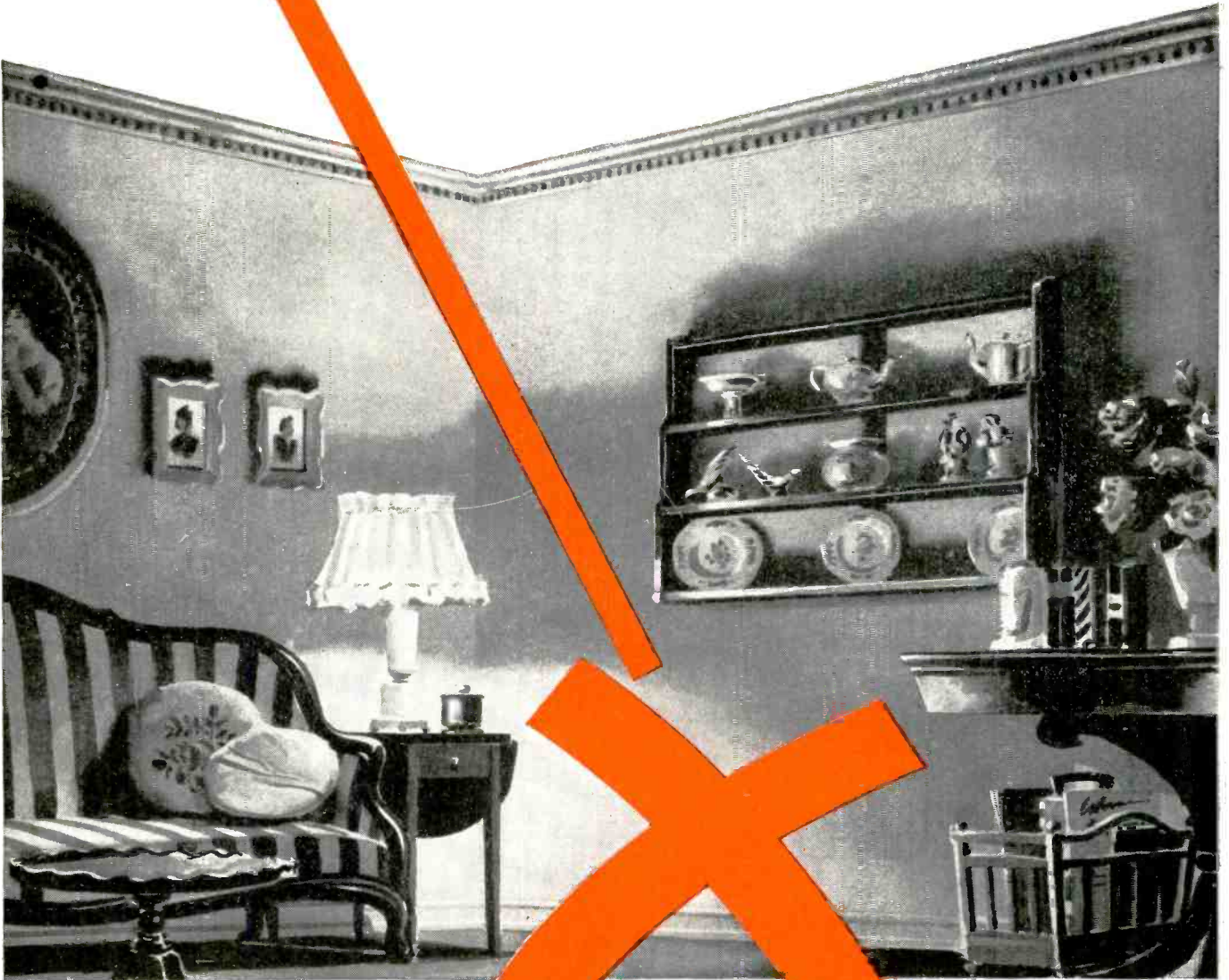
This is far more than just a 'sales story.' It's a basis for a very sound sales policy for you and for us, alike. For, since the main radio in any home should be as good a radio as the purchaser can buy—a true quality musical instrument—and, since there's nothing finer than a Stromberg-Carlson, it stands to reason that thousands of Stromberg-Carlsons are slated to fill that spot marked

"X" in thousands of homes of every type.

So plan your merchandising about this theme, and remember that Stromberg-Carlson is:

- the important radio unit
- the radio unit carrying real profit-opportunity
- the radio unit with easy-selling public acceptance

Organize your post-war sales around this potent Stromberg-Carlson sales theme. You'll find the Stromberg-Carlson "main radio" a consistent profit maker—whether in an outstanding table model, console, or radio-phonograph combination.



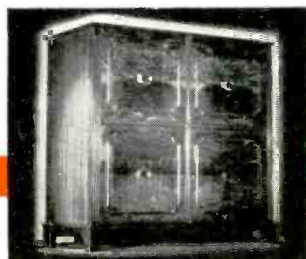
"X" MARKS THE SPOT

make it a

STROMBERG-CARLSON

ROCHESTER 3, NEW YORK

RADIOS, TELEVISION, TELEPHONES, AND SOUND EQUIPMENT



for the main radio

in your home!

The Best
Show
On the Air
Saturday
Night!



"MEET YOUR NAVY"
Now Carries the RAYTHEON Name
into 3,500,000 Radio Homes Each Week!

Free!

Ask your Raytheon distributor
for colorful attention-getting
"Meet Your Navy" display to
tie in with this great program.
Easel-mounted, 17 1/2 x 20 1/2".



Every Saturday Night

ENTIRE BLUE NETWORK

Coast to Coast 181 Stations



RAYTHEON MANUFACTURING COMPANY

Waltham and Newton, Massachusetts



All Four Raytheon Divisions
Have Been Awarded Army-
Navy "E" with Three Stars

RAYTHEON

High Fidelity



ELECTRONIC AND RADIO TUBES

DEVOTED TO RESEARCH AND THE MANUFACTURE OF TUBES AND EQUIPMENT FOR THE NEW ERA OF ELECTRONICS