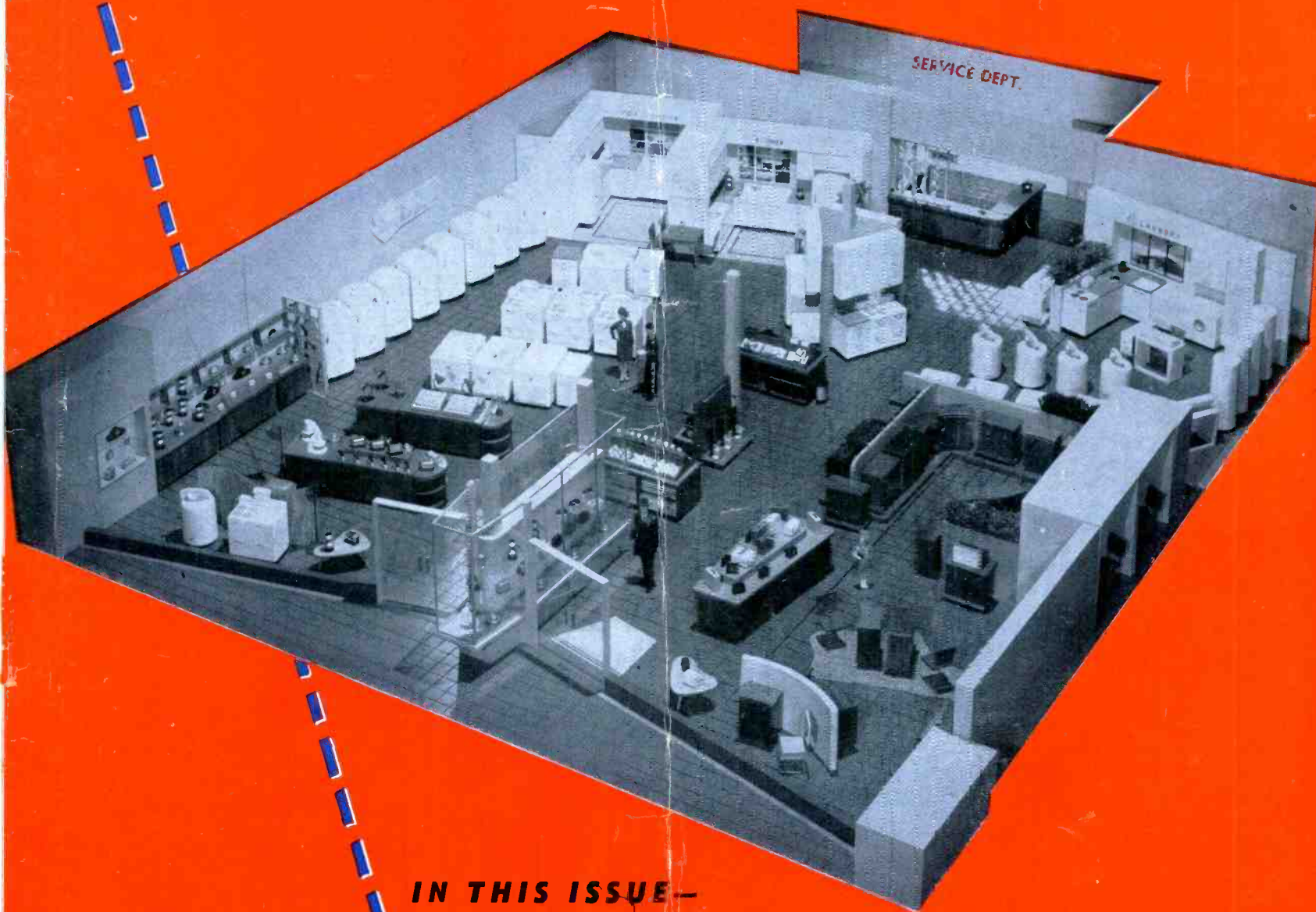


radio service dealer



IN THIS ISSUE—

RADIO REVIEW AND PRE-VIEW 1946

1946 Radio Service Data

"On-Sight" Selling

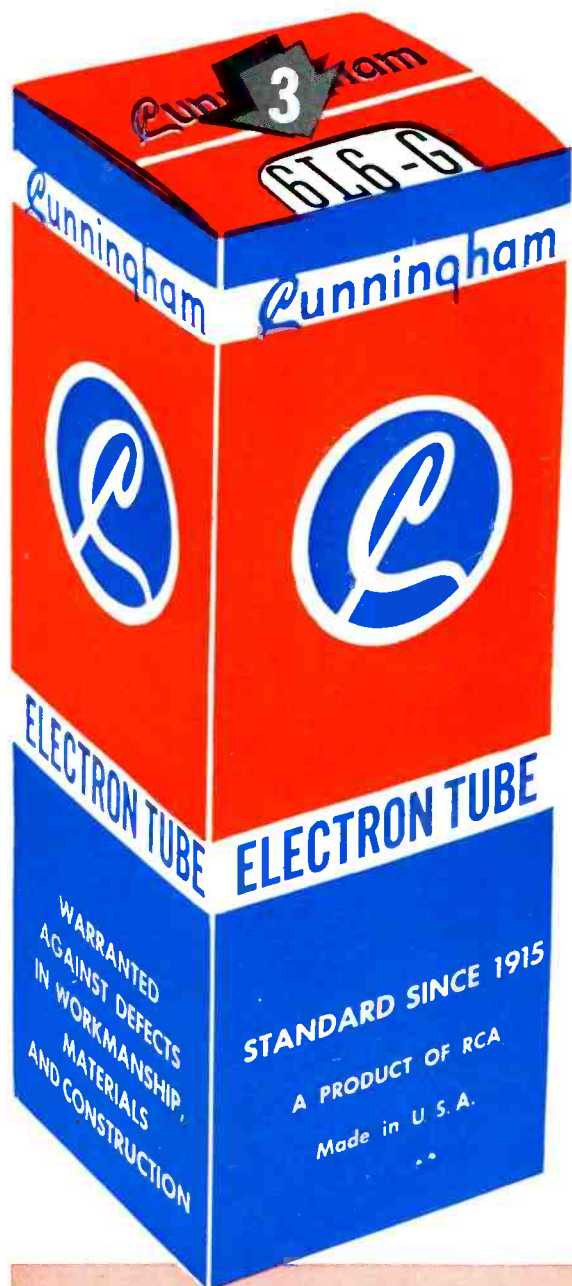
How To Get More Service Jobs

**January
1946**

"BIG C"

in new dress!

Take a look at her—



- 1** She's decked out in the old, familiar blue and orange—but vivid and sharply cut.
- 2** "Big C" is telling the world she's an *ELECTRON TUBE*—ready for what today *and tomorrow* will bring.
- 3** She's got her type numbers *out front*—in black, bold type—on the carton top, for easy identification on stock shelves.

What's more, "Big C" is exclusive. She's strictly for Radio Service-Dealers. And you can be sure that her 30-year reputation for quality and top performance will roll up the profits.

Ask your Cunningham Tube Distributor for full details today.

**A QUALITY PRODUCT FOR RADIO SERVICE-DEALERS
BY THE RADIO CORPORATION OF AMERICA**

New!

Series 200

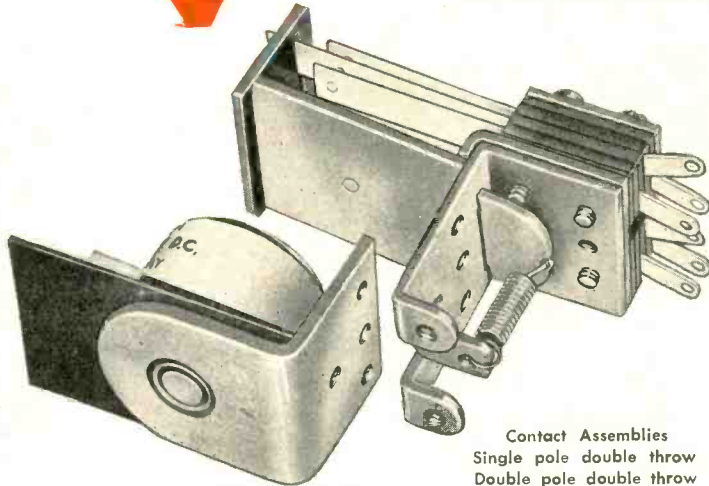
A RELAY BY GUARDIAN

with *Interchangeable Coils*

BUILT IN TWO PARTS

A. C. Coil Assemblies available for 6 v., 12 v., 24v., 115v.
D. C. Coil Assemblies available for 6 v., 12 v., 24 v., 32 v., 110 v.

★Two basic parts — a coil assembly and a contact assembly — comprise this simple, yet versatile relay. The coil assembly consists of the coil and field piece. The contact assembly consists of switch blades, armature, return spring, and mounting bracket. The coil and contact assembly are easily aligned by two locator pins on the back end of the contact assembly which fit into two holes on the coil assembly. They are then rigidly held together with the two screws and lock washers. Assembly takes only a few seconds and requires no adjustment on factory built units.



SERIES 200 RELAY

Contact Assemblies
Single pole double throw
Double pole double throw

On Sale at Your nearest jobber NOW!

See it today! . . . this amazing new relay with interchangeable coils. See how you can operate it on any of nine different a-c or d-c voltages — simply by changing the coil. Ideal for experimenters, inventors, engineers.

TWO CONTACT ASSEMBLIES

The Series 200 is available with a single pole double throw, or a double pole double throw contact assembly. In addition, a set of Series 200 Contact Switch Parts, which you can buy separately, enables you to build dozens of other combinations. Instructions in each box.

NINE COIL ASSEMBLIES

Four a-c coils and five d-c coils are available. Interchangeability of coils enables you to operate the Series 200 relay on one voltage or current and change it over to operate on another type simply by changing coils.

Your jobber has this sensational new relay on sale now. Ask him about it. Or write for descriptive bulletin.



GUARDIAN ELECTRIC

1633-A W. WALNUT STREET CHICAGO 12, ILLINOIS

A COMPLETE LINE OF RELAYS SERVING AMERICAN INDUSTRY

OVER AND OVER AGAIN THE IMPOSSIBLE BECOMES POSSIBLE

Over and over again, Hytron has licked the problem of making smaller and smaller radio tubes. Its BANTAM GT, which other tube engineers said was impossible, telescoped glass receiving tubes to the T-9 bulb (bantam and loktal), and has since become the most popular receiving tube.

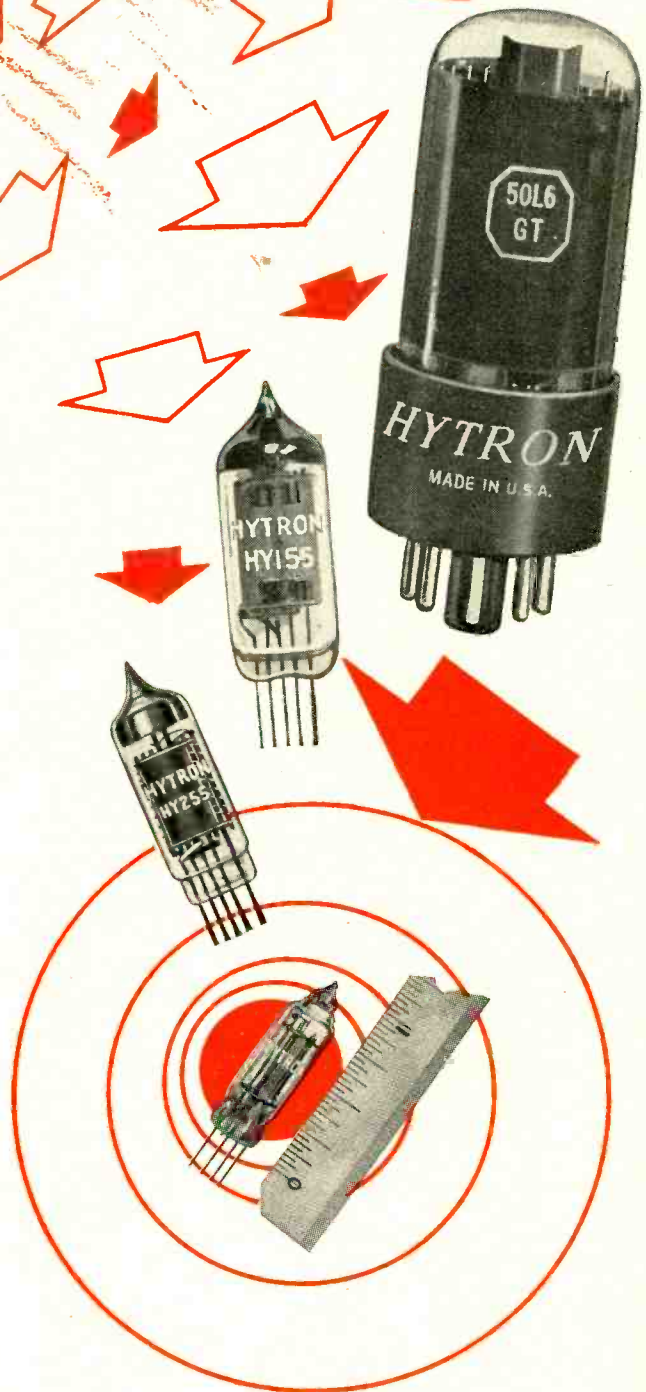
Next Hytron sweated out development of the BANTAM JR.—the first subminiature. The HY155 was soon superseded by the even tinier HY255.

It was only natural that the Navy and OSRD should turn to Hytron in 1940, to design diminutive, rugged tubes for the VT or variable time fuse. Fired from a gun, such tubes, despite their size, must withstand 20,000 G's and 475 rps.

Months of research at Hytron resulted in the smallest tube which has ever been mass-produced. The tube's internal cubic volume is approximately half that of the smallest competitive tube. Again new horizons were explored by Hytron. New techniques and production equipment solved fabrication, assembly, glass, and exhaust problems.

The same skills which created the BANTAM GT, the BANTAM JR., and the smallest VT-fuse subminiature are now concentrated primarily on production of Hytron GT's and T-5½ miniatures for home receivers. You can count, however, on Hytron's continuing leadership in vacuum tube development.

ALL TUBES ACTUAL SIZE



OLDEST MANUFACTURER SPECIALIZING IN RADIO RECEIVING TUBES



HYTRON

RADIO AND ELECTRONICS CORP.



MAIN OFFICE: SALEM, MASSACHUSETTS

radio service dealer

Member Audit Bureau of Circulations

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

VOLUME 7 NUMBER 1

JANUARY, 1946

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Cover: Selling "Layout" for Dealers,
1946 Style. (Courtesy of General
Electric)

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EVERYTHING IN RADIO AND ELECTRONICS

R. W. T., world's oldest and largest Radio Supply House, is ready again with tremendous stocks of sets, parts and equipment. You can depend on our quarter-century reputation for quality, sound values and super-speed service. Orders shipped out same day received. All standard lines already here or on the way, including: National, Hammarlund, R. C. A., Hallicrafters, Bud, Cardwell, Bliley and all the others you know so well.

Radio Wire Television Inc.

100 Avenue of the Americas, New York 13 • Boston, Mass. • Newark, N. J.

ORIGINATORS AND MARKETERS OF THE FAMOUS *Lafayette Radio*



R.W.T. DEPT. SA6, 100 AVENUE OF THE AMERICAS,
NEW YORK 13, N. Y.

I want your big new post-war Catalogue.

NAME _____

ADDRESS _____

HAM? (CALL LETTERS) _____

ENGINEER? SERVICEMAN? STUDENT?

EVERY WESTINGHOUSE RADIO

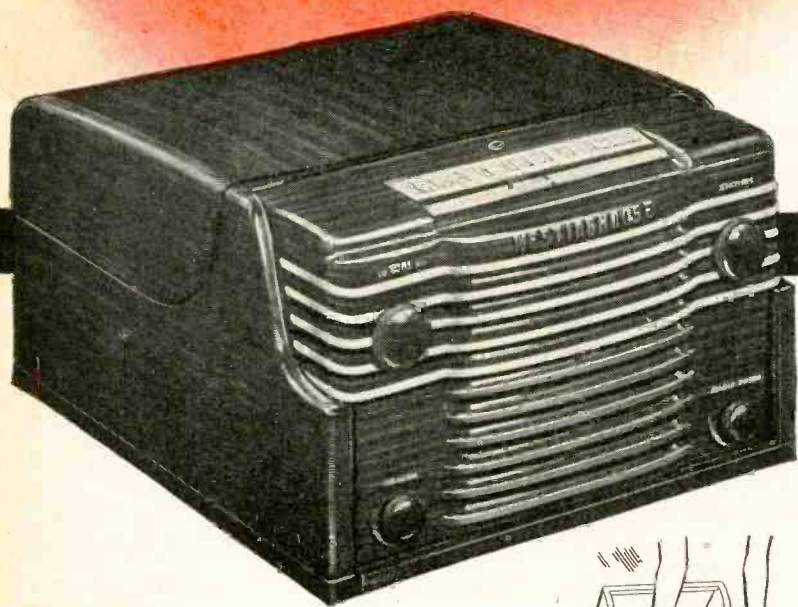
IS

Completely new!

**NOT A SINGLE "WARMED OVER" PRE-WAR MODEL.
EVERY SET IS PACKED WITH REAL SALES ADVANTAGES**

These pace setting Westinghouse radios are examples of the resourceful engineering and the originality that characterizes the entire Westinghouse Inc. Every set is packed with new sales features that you can demonstrate and sell.

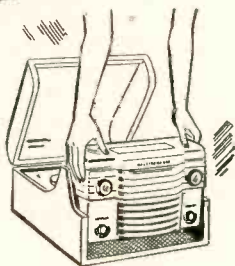
Get in touch with your Westinghouse radio distributor today and make a date to see and hear these fine instruments. Home Radio Division, Westinghouse Electric Corporation, Sunbury, Pa.



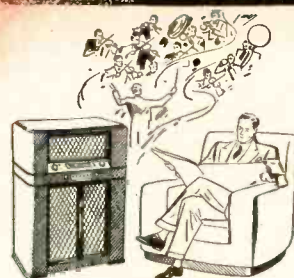
THE DUO

A revolutionary new radio-phonograph with an automatic record changer and a slide-out carryabout radio that can be used anywhere in the house! The low slung, compact, air-stream cabinet is in beautifully marked mahogany veneer . . . the automatic changer is operated with a single button—it is simple and will stay in adjustment . . . built-in loop antenna . . . continuously variable tone control . . . 6 tubes, including rectifier . . . Standard Band.

Lift out the radio . . .



. . . and play it anywhere.



**THE
AMAZING
NEW
PLENTI-POWER
CIRCUIT**

THE CONCERT GRAND

An automatic radio-phonograph in an exquisite low front cabinet. The exclusive PLENTI-POWER CIRCUIT gives

this moderately priced, 7-tube instrument 10 watts of undistorted output—more than most 12-tube sets had prewar. Extra large record storage space. Six electric push buttons

Single button control automatic record changer. Continuously variable tone control . . . 7 tubes including rectifier. Standard and Shortwave Bands.

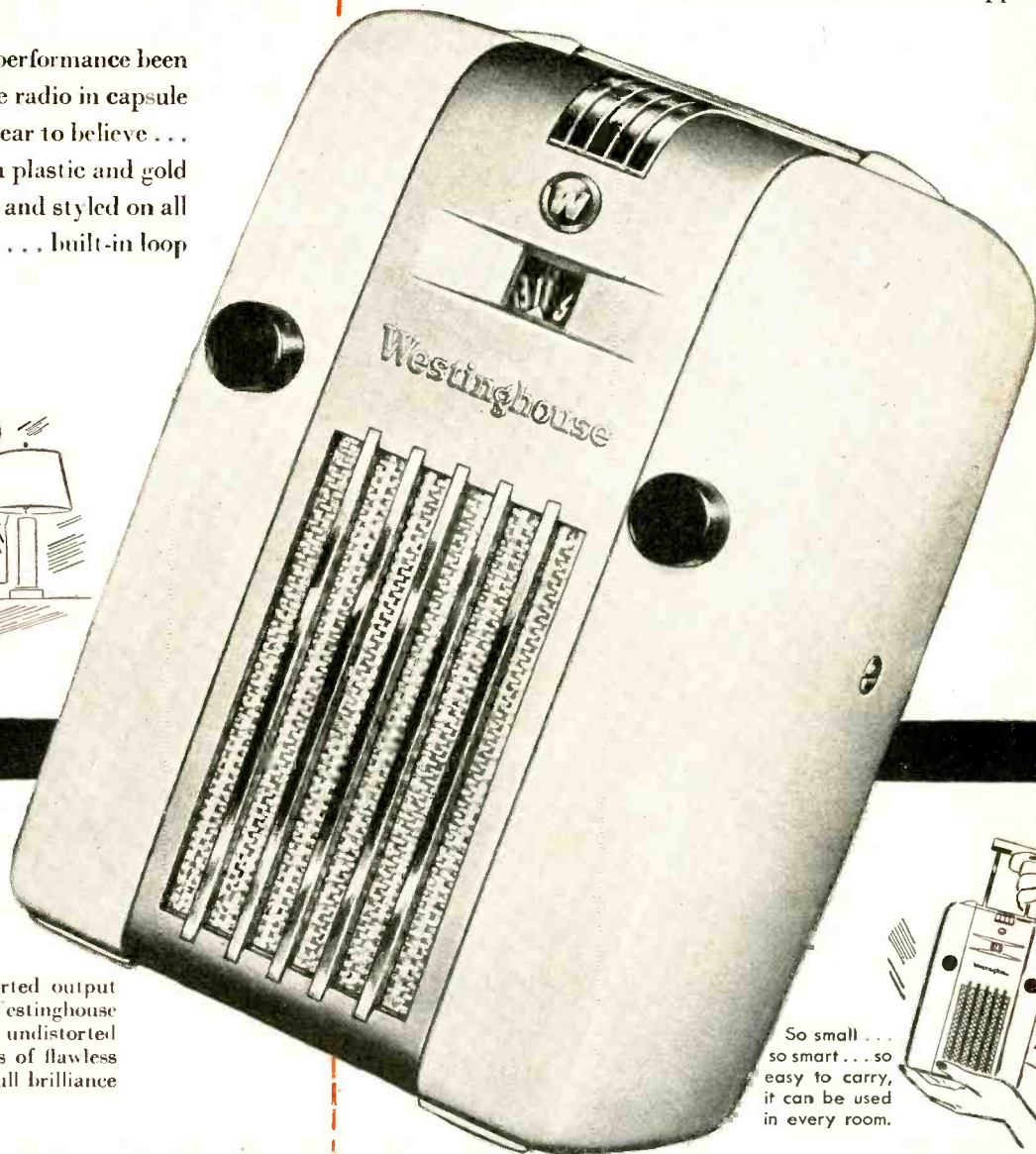
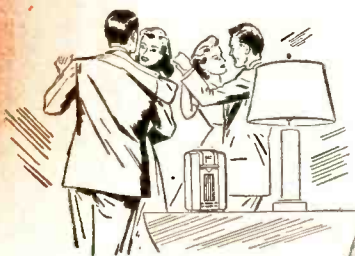


RADIO'S FIRST NAME

THE LITTLE JEWEL

Only 9¼" x 6" x 6". Never before has such performance been packed into a set of this size. It's a console radio in capsule form—with power output you'll have to hear to believe . . . air-stream cabinet in ivory or pastel green plastic and gold satin finish metal . . . completely enclosed and styled on all sides . . . retractable, disappearing handle . . . built-in loop antenna . . . 6 tubes including rectifier. Standard Band.

Never before has such performance been packed into a set of this size.



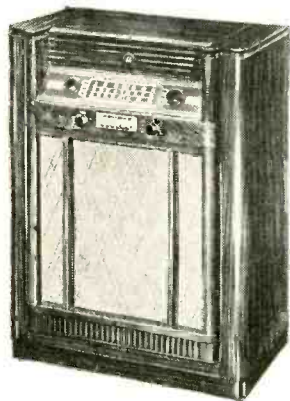
So small . . . so smart . . . so easy to carry, it can be used in every room.



The exclusive Westinghouse PLENTI-POWER CIRCUIT provides the extra reserve of power you need for true-to-life performance. For example, it gives the popularly priced 7-tube Westinghouse sets more undistorted output than most 12-tube sets had prewar. And the Westinghouse 14-tube instruments have nearly *twice* as much undistorted power as comparable prewar sets . . . 17 watts of flawless output that reproduces the program with the full brilliance of *completely natural* tone.

THE FM CENTURY

The finest reception of FM, AM, and Shortwave—at the lowest possible cost! You can't buy finer radio engineering at any price. The exclusive Westinghouse PLENTI-POWER CIRCUIT provides 17 watts of undistorted output—nearly twice as much undistorted output as prewar sets with a comparable number of tubes. It provides the *full power* you need for *full-color* reception. Rich mahogany veneer cabinet . . . tuning eye . . . six electric push buttons . . . 14 tubes, including rectifier. FM, Standard, Shortwave and facsimile bands.



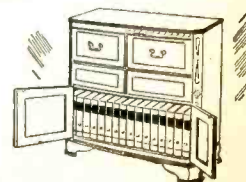
THE SYMPHONIC 14

A magnificent musical instrument . . . a masterpiece of cabinet craftsmanship! The exclusive PLENTI-POWER CIRCUIT gives this instrument 17 watts of undistorted power . . . true-to-life FM that only the finest engineering can provide . . . the most dependable automatic record changer ever built . . . entire width of cabinet is available for record storage space . . . hand-rubbed crotch mahogany veneer cabinet. 14 tubes including rectifier. FM, Standard and Shortwave Bands.



6 to 10 times the record storage space as in the same size prewar cabinet.

IS **Westinghouse**
RADIO TELEVISION



with the publisher.....

Service Dealer Headaches

DURING the war, when no new merchandise seemed imminent, the public avidly tried to have its radios and appliances kept in repair. Scarcity of parts caused Service Dealers untold heartaches. They did a remarkable job which wasn't genuinely appreciated by the layman.

V-J Day approached and the public, with ample cash reserves, set its mind toward buying new products rather than have old ones repaired. Service Dealers felt the change in their cash registers. Now, months have passed and still no sizeable quantity of saleable merchandise has been delivered to Service Dealers. What to do about it?

New Circuits

IN the near future schematic diagrams of postwar model circuits will be available. (The first such postwar circuits are published elsewhere in this issue... a scoop! They will fit into any standard looseleaf manual).

You will be amazed at some of the radical new circuit developments that have resulted from wartime laboratory research. But don't expect to see these achievements for some time to come. The few radios now coming off production lines are aptly called "kick-off" models. In general they employ the old, familiar Super Het circuits common prewar. Manufacturers endeavoring to reconvert to civilian output as expeditiously as pos-

Sans Fanfare

ALTHOUGH the print-paper shortage remains acute, effective with the December, 1945 issue, "RSD" returned to its prewar trim size of nine by twelve inches and a finer quality whiter paper is again being used. The changes allow greater wordage per issue and at the same time reduce eye-strain in the reading of schematics and line-drawings.

We do not propose to indulge in "leg-art" and "window-dressing". Rather, every attempt to expand editorial scope will lie strictly within the horizon of the practical every-day business problems facing radio-appliance Service Dealers. For example, the new vest-pocket radios coming to market use sub-miniature tubes. Quite likely these tubes will outlive and outlast the set's case; seldom if ever requiring replacement. But when tube replacement is necessary, it may need a soldering operation. Profits lost from lack of tube replacement will be more than offset by high re-

We've warned of the danger of "hold-back buying" and "hold-back servicing."

As this writer emphatically pointed out on several recent occasions, every Service Dealer must do an educational job on the public. We must aggressively teach the public to continue to have defective radios and appliances repaired while awaiting the availability of new merchandise. Service Dealers who have continued to go after repair jobs have suffered less, financially, than others. It is concrete proof that the service phase of the radio-appliance business is and ever should be held in high regard as *the very foundation* upon which a successful Service Dealer establishment is to be maintained

sible would be slowed down too much if they also tried to retool, reconvert and retrain assemblers simultaneously. But more of a deterrent factor to the immediate use of new circuits is the unsettled industry condition caused by OPA.

Manufacturers working under OPA edicts are finding it difficult, almost impossible, to obtain equitable pricings based upon "comparable prewar models and costs." No wonder they hesitate to attempt pricing any new commodity of radical design. But the public is radio-appliance starved, and the pentup demand is a bright spot on the horizon. Given a half-way even break, this year should augur well for Service Dealers. Patience is prerequisite.

placement sales of the miniature batteries. In somewhat similar pattern the vast potential market opening in civilian use of Handie-Talkies for unrestricted two-way communications is, to say the least, intriguing. And the industrial use of radio in aviation, (private planes) transportation, (trucking, taxiing), etc., are without doubt to be just as important as selling, servicing and installing FM and television radios, appliances and phonograph records. Store modernization, merchandise display and merchandising itself are arts in which the novice cannot hope to compete successfully unless forewarned of pitfalls. In other words, we'll try to help our readers do things the correct, easy way—the way others have found, through pioneering, to be most practical. Simplifying your business, from technical aspects onward, is our business.

S. R. Lowan
Publisher

SYLVANIA NEWS

RADIO SERVICE EDITION

JAN.

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

1946

RADIO SERVICEMEN KNOW THEIR BUSINESS; HAVE COUNTRY'S COMPLETE CONFIDENCE, SURVEY SHOWS

National Research Bureau Reports Findings to Sylvania

A recent nationwide, independent survey — conducted by one of America's leading market research organizations — reveals that not only do 93% of the thousands of set owners interviewed firmly believe that the radio serviceman does a good

job, but also that 89% say he charges a fair price for his work!

That's a flattering record — since the ground covered was scientifically selected, both from the geographical distribution standpoint and income group.

WHAT THIS MEANS TO YOU

To radio servicemen this means they are virtually assured of the continuance of this public trust in the busy years ahead. For, if this confidence was main-

tained throughout the past *difficult* period, it certainly may be expected to continue — and grow — in the following years, when the millions of radio tubes and parts needed will be *available*.

All of this spells opportunity for the radio serviceman. Knowing that he has the public confidence, he can combine the other ingredients of quality components and high class equipment, backed by aggressive promotion, to form an unbeatable recipe for success.

**SYLVANIA
SERVICEMAN
SERVICE**

by
FRANK FAX

Now that the war's over, radio tube production is rapidly getting into its stride. All the pre-war tubes should be available gradually — and along with them will come the newly developed tubes, or improvements and modifications of some of the older ones.

So to keep you in step with the latest tube characteristics and base diagrams, we at Sylvania are having prepared a brand new Radio Tube Characteristics Sheet as well as an up-to-date Base Chart.

You can get both your copies — free — from your Sylvania Jobber or send your request direct to me at Emporium, Pa.

OK

**YOU SAY
WE DO GOOD WORK**

A NATIONWIDE SURVEY
CONDUCTED FOR US
AMONG THOUSANDS OF
RADIO SET OWNERS REVEALS . . .

93% SAY
REPAIRS MADE ON THEIR
RADIOS WERE SATISFACTORY

89% SAY
THE CHARGES FOR THE
SERVICE WERE REASONABLE

• LET US SERVICE YOUR RADIO
• EXPERT WORK AT REASONABLE COST
• WE USE SYLVANIA RADIO TUBES

This is the
special poster — in color —
mailed to radio servicemen with Sylvania News

SYLVANIA ELECTRIC

Emporium, Pa.

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

In & Around the Trade

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



William P. Lear, president of Lear Inc., demonstrates wire recording magazine which will be included in many models of the Lear Home Radio line.

1946 RADIO PARTS AND ELECTRONIC EQUIPMENT CONFERENCE AND SHOW

THE 1946 Show is being run under the joint sponsorship of the Association of Electronic Parts and Equipment Manufacturers, the Parts Division of Radio Manufacturers As-

sociation, Sales Managers Club, Eastern Division, and National Electronic Distributors Association. The display of merchandise and participation in the show is limited to companies

which belong to any of the three sponsoring manufacturers associations.

Displays are limited to the showing of radio parts, electronic equipment, service tools and equipment regularly handled by radio parts and electronic equipment distributors. No manufacturer will be permitted to show, either in his booth or hotel room, any complete unit designed as a conventional home phonograph, home or auto receiver, hearing aid, health and diathermy equipment, X-ray and other such types of electronic equipment.

The entire industry is looking forward with great anticipation to this first post-war conference and show.

Dates: May 13 to 16.

Lear Sets Ad Campaign

Homer M. Snow, advertising manager of the Home Radio Division of Lear, Inc., announces the 1946 magazine and radio advertising schedule for this division of the company will include full pages in color in national magazines, including Saturday Evening Post, Colliers, Liberty, Cosmopolitan, Redbook, and others, as well as an active campaign in the radio trade publications.

Lear's aircraft radios and the new "PX'er," the powerful compact post-war receiving and transmitting set, will be advertised in the aviation trade press as well as in popular aviation magazines.

Sylvania Acquires Wabash

Walter E. Poor, President of Sylvania Electric Products, Inc., announced Dec. 7th, that the Wabash Appliance Corporation, one of the largest independent manufacturers of photoflash and incandescent lamps, would merge with the Wabash Photolamp Corporation and Birdseye Elec-

[see page 12]



Range sales manager W. M. Davis, Norge division of Borg-Warner Corp., greets dealer Dust & Son's manager T. R. Jaycox as latter receives first of the range models to be produced for the trade. Right, appliance is loaded in dealer's truck for display in his Effingham, Ill., store.

For a fast-moving line



A FEW TYPES COVER A LOT OF TERRITORY

—hitch on to RCA Preferred-Type Radio Batteries

The Batteries That are Radio-Engineered for Extra Listening Hours

You gain four ways when you carry the line of RCA Preferred-Type Radio Batteries:

1. **MORE PROFIT**—Relatively few types meet the requirements of 99% of all battery-operated receivers. So, you enjoy increased sales on a smaller inventory.
2. **MORE CUSTOMERS**—The high acceptance value of the RCA seal on every carton will bring more people to your shop.
3. **MORE TO SELL**—You get a 2-product line to push . . . RCA Preferred-Type Radio Batteries and RCA Preferred-Type Tubes. Your customers will buy both.
4. **MORE REPEAT BUSINESS**—RCA Preferred-Type Radio Batteries are Radio-Engineered to give extra listening hours. Satisfied customers are the result.

You can't do better than phone your local RCA Tube Distributor today for full details. Or use the coupon.

*Listen to "THE RCA SHOW,"
Sundays, 4:30 P.M., E.T., NBC Network*



WATCH THIS FAMILY GROW

Mr. RCA Tube Distributor:
I want to know more about the line of RCA Preferred-Type Radio Batteries.

Name _____
Company _____
Address _____



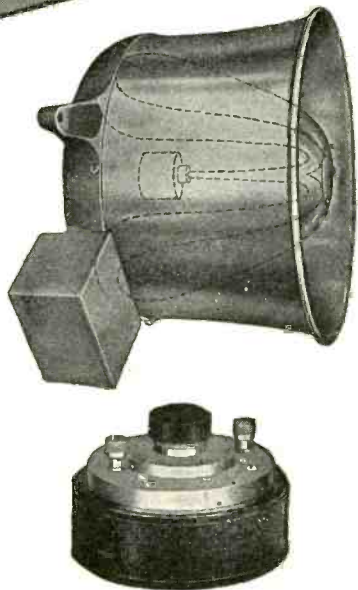
TUBE DIVISION
RADIO CORPORATION of AMERICA
HARRISON, N. J.

<i>Sun.</i>	<i>Mon.</i>	<i>Tue.</i>	<i>Wed.</i>	<i>Thu.</i>	<i>Fri.</i>	<i>Sat.</i>
					4	5
6						12
13						19
20						26
27	28	29	30	31		

**Every Day, Every
Month, Every Year**

RACON SPEAKERS

**Are Preferred By
Sound Experts**



The RACON Marine Horn Speaker is used both as a loudspeaker and as a microphone. Approved by the U. S. Coast Guard for all emergency loudspeaker systems on ships. A double re-entrant type speaker, completely waterproofed and weatherproof. Ideal for general P.A. and Marine use. Several sizes available. RACON Permanent Magnet Horn Units are available in operating capacities of from 10 to 50 watts.

In judging the value of sound reproduction equipment, the month-after-month, year-after-year dependability and efficiency of loudspeakers are prime considerations along with fidelity, output and initial cost.

RACON has never compromised with quality. RACON Speakers and Driving Units are recognized as the standards by which other loudspeakers are judged. RACONS are used on U. S. Army Transport and Navy vessels — by other branches of the Military — in factories, schools, auditoria, shipyards, etc. RACONS are available for every conceivable application. Specify RACON when planning your next sound or public address installation

RACON ELECTRIC CO., INC., 52 East 19th St., New York, N. Y.

RACON



Early American Type Automatic—
Complete with FM.



Modified Modern Type Automatic—
Complete with FM.

Sparton—ready to roll!

SPARTON is ready and *waiting!* Waiting for that long-delayed “Go-ahead” signal!

When the green light flashes—a host of new and beautiful Spartons will start moving your way.

Consoles—Table Models—FM Combinations! Better in tone and finer in styling than anything offered before!

If you are interested in being the *exclusive* Sparton dealer in your community and in receiving shipments on a direct factory-to-dealer basis, write Ed Bonia, Sales Manager, The Sparks-Withington Company, Jackson, Michigan.*

THE SPARKS-WITHINGTON COMPANY, JACKSON, MICHIGAN

SPARTON

RADIO'S RICHEST VOICE SINCE 1926

*All Sparton Radios are sold under the SCMP (Sparton Cooperative Merchandising Plan) to one dealer in each community.



Compact Automatic Radio-Phonograph
for small homes and apartments.



Sheraton Type Automatic—
Complete with FM.

See and Hear
These Beautiful Radios
at the
**AMERICAN
FURNISHINGS
MARKET**
BOOTH 17-K
Furniture Mart — Chicago
December 30—January 19

NEW!

**BURGESS
PROMOTION**



makes it easy for you to sell

BURGESS *Hearing Aid* BATTERIES

THIS

DEPARTMENT-IN-A-PACKAGE

offers you new profits from a big, growing market!

Every hearing aid user is a battery buyer! And Burgess makes it easy for you to sell and resell these new customers with this minimum stock assortment of the popular hearing aid battery types. Attractive counter merchandiser takes only small space... simplifies reordering... makes it easy for you to stock and sell profitable hearing aid batteries.

Ready-Packed Assortment includes 24 No. 2ES, 30 No. 1ES, 12 No. TE, 6 No. XX30E, and 1 No. XX22E.

YOU GET THESE FREE SALES HELPS

Your Burgess "Department-In-A-Package" includes eye-catching display card for counter or window—battery guide chart to quickly show you correct Burgess types for leading hearing aids—ad mat for newspaper or handbill advertising.



BURGESS BATTERIES

MR. DISTRIBUTOR:

- () Send us one of the new Burgess "Department-In-A-Package" hearing aid battery assortments.
- () Send us full particulars on this new promotion.

Name.....

Address.....

City..... Zone..... State.....

OR WRITE TO: BURGESS BATTERY COMPANY • FREEPORT, ILL.

In Trade

[from page 8]

tric Corporation on January 1, 1946, to become a wholly-owned but independently operated Sylvania subsidiary. A. M. Parker remains as president and general manager of Wabash with headquarters at Brooklyn, N. Y. Sales staffs, sales policies, product brands and distribution outlets remain unchanged.

New Wabash products slated for immediate development and improvement include new types of photoflash bulbs and other photographic lighting units, ultra-violet and infra-red heat lamps and light conditioning bulbs.



James M. Blacklidge

Stancor Promotes

The Standard Transformer Corporation announces the promotion of James M. Blacklidge as General Sales Manager. For the past nine years he has been associated with Stancor in a number of capacities. His operations as Sales Manager of the Industrial Division contributed greatly to the company's distinguished war production record.

Mr. Blacklidge is assisted by a newcomer to Stancor's Distributor Sales Division, Mr. Earl T. Champion, who was associated with Centralab of Milwaukee. Mr. Burt O. Anderson will continue to assist Mr. Blacklidge in the Industrial Division.

Sylvania Promotions

E. Finley Carter and H. Ward Zimmer were elected Vice Presidents of Sylvania Electric Products Inc., according to an announcement by Walter E. Poor, President.

Mr. Carter, who joined the company

in 1932, becomes Vice President in Charge of Engineering.

Mr. Zimmer, with a record of over 26 years of service with Sylvania and its predecessor companies, now becomes Vice President in Charge of the Radio Tube Division.

Hallicrafters Elects

The board of directors of the Hallicrafters Company was increased from three to seven members at the annual meeting of the stockholders held Monday, Dec. 3.

The new members are: J. DeForest Richards, president of the National Boulevard Bank of Chicago; James C. Cardwell, chairman of the board of Cardwell Westinghouse Company, Chicago; Leo J. Doyle, president, Doyle, O'Connor & Co., Chicago, and Henry C. Forster, retired, formerly president of Radio Speakers, Inc., Chicago. Re-elected are William J. Halligan, president of Hallicrafters; R. W. Durst, executive vice-president, and J. J. Frendreis, secretary-treasurer.

Philco Plans

Plans to manufacture 4,000,000 radio receivers in 1946 were announced by John Ballantyne, president of Philco Corporation.

"Philco is spending \$7,000,000 on its reconversion program," Mr. Ballantyne said. "A large plant to cost upwards of \$1,000,000 for the manufacture of radio-phonographs is now under construction in Philadelphia."

Snyder Expands

Snyder Manufacturing Company, of Philadelphia, manufacturers of radio antennas and automotive accessories, has opened a midwest sales office and showroom at 333 N. Michigan Ave., Chicago, it was announced by Ben Snyder, company president. New office will be headquarters for the Snyder midwest representatives, Dwight Nelson and Leo Gibrich.

Emerson Appoints

Harold E. Karlsruher has been appointed Eastern Regional Sales Manager for Emerson Radio and Phonograph Corporation, Edgar G. Herrmann, Sales Manager, announced. Mr. Karlsruher, who has been with the company for thirteen years, will cover the Metropolitan New York area, New Jersey, Eastern Maryland, Baltimore, and Washington. Mr. Herrmann also announced the appointment of C. R. Bowers as field representative for the corporation with headquarters in Denver Colorado.

[see page 42]

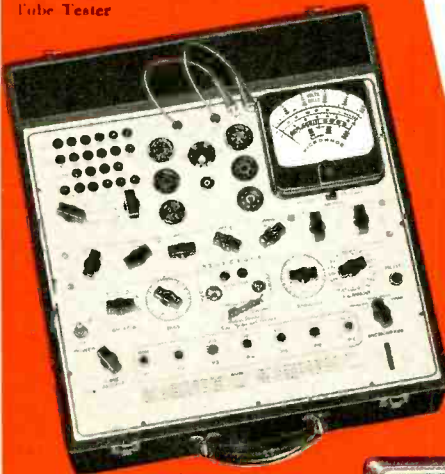
Wait for these new

HICKOK

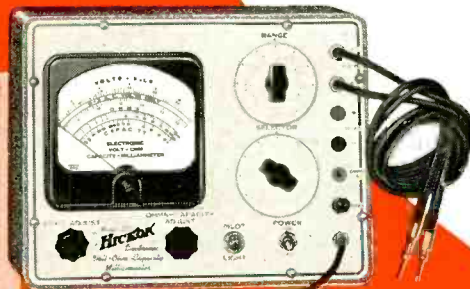
Radio Service Instruments



Model 532
Tube Tester



Model 534
All Purpose Tube and Set Tester



Model 203
Electronic Volt-Ohm Capacity Millimeter

If It Isn't A Hickok Indicating
Micromhos It's Not
Dynamic Mutual Conductance

Your patience in waiting for these new 1946 HICKOK models will be richly rewarded for these new HICKOK tube and set testers make still closer tests, with finer accuracy, rejecting tubes that might get by with an ordinary tester.

Now you have 7 selector switches instead of 2. That aims to prevent obsolescence. Isn't that worth waiting for?

What's more, Dynamic Mutual Conductance, indicated in Micromhos, is a duplicate of the manufacturer's method of checking when he makes the tubes. Remember, if it isn't a HICKOK Indicating Micromhos, it isn't Dynamic Mutual Conductance.

The new Electronic Volt-Ohm-Capacity Millimeter Model 203 reads as low as 1.0 mmf and up. It will measure at frequencies to over 10 mc with no frequency error and the ohm meter will measure up to 10,000 megohms.

Keep patiently in touch with your jobber and you will soon get the instruments that are held in highest esteem.

**THE HICKOK
ELECTRICAL
INSTRUMENT CO.**

10533 Dupont Avenue
Cleveland 8, Ohio

N. U. BATTERIES

by the Carload!



Get Immediate Deliveries of All Types for Standard Radio and Other Replacements

Now you can bring many thousands of good, serviceable battery-powered radio sets *back to life*. Portables—Farm Radios—"carry-about" sets! Here are the batteries you need to bring in this flood of profitable service and parts business. Order now and *tell* your customers to come on the run for the batteries they need.

In batteries as in other products, N. U. quality helps you build for the future. The patented construction of N. U. Batteries permits more active materials—more service hours per dollar. Every N. U. Battery is engineered to the highest initial equipment standards and is designed for universal replacement.

PLACE YOUR BATTERY ORDER TODAY—with YOUR N. U. DISTRIBUTOR

Renew with N. U. . . . the quality line that brings repeat sales at full profit to radio service men!

NATIONAL UNION RADIO CORPORATION, Newark 2, New Jersey

NATIONAL UNION RADIO TUBES AND PARTS

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



by **R. C. COSGROVE,**
President, Radio Manufacturers
Association

RADIO REVIEW

AND PRE-VIEW—1946

TWENTY-SECOND BOARD of DIRECTORS R. M. A. 1945-46



Left to right. *Top*: Frank M. Folsom; Paul V. Galvin; E. Alschuler; J. J. Nance; David T. Schultz; W. R. G. Baker, director Eng. Dept.; T. A. White, vice pres.; R. C. Sprague, vice pres., chairman, Parts Div.; Ben Abrams; A. H. Gardner; P. S. Billings; John Ballantyne; F. R. Lack. *Middle*: Ray H. Manson; Joseph Gerl; J. J. Kahn; H. J. Hoffman; E. A. Nicholas, vice pres., chairman Set Div.; R. C. Cosgrove, president; M. F. Balcom, vice pres., chairman Tube Div.; George Lewis, vice pres.; Walter Evans; G. W. Thompson; A. S. Wells. *Bottom*: Ernest Searing; R. E. Carlson; Ray F. Sparrow; S. I. Cole; A. Blumenkrantz; Bond Geddes, exec. vice pres., general manager; Leslie F. Muter, treasurer; John W. VanAllen, general counsel; Frank A. Hiter; Herbert A. Bell; Monte Cohen; G. Richard Fryling; F. C. Best.

WHAT are the plans of the members of the Radio Manufacturer's Association for the year 1946? There are over 300 companies in the association, in four main groups: Transmitter Manufacturers; Tube Manufacturers; Parts Manufacturers; Set Manufacturers.

All of these manufacturers have been affected by the war and by its aftermath. Some companies manufacture receiving sets and tubes; several manufacturers, transmitters and sets. However, the large majority of the members specialize in one of the four types of manufacture, and many are specialty companies devoting themselves exclusively to this kind of production. During the war some of the tube companies were consolidated with set companies, and there have been a few other consolidations (as faithfully and amply reported in the trade publications).

The radio industry made great contributions to the Armed Services — Radar, Sonar, VT-Fuse, etc., to mention some. The art was advanced under the pressure of war emergencies in many directions, and what could be

considered a ten year normal advancement was realized in less than half that time. While a great many of these developments are at the present time

beyond the scope of home receivers and television, a great deal of fine advanced information and experience [see page 40]

DEALERS' PROFITS ASSURED

RADIO DEALERS, just entering an era of clean-cut, profitable volume sales based on sound merchandising practices, can look forward to their businesses becoming among the most substantial in the retail field. This is the consensus of sales leaders in the Radio Manufacturers Association, who point to the elimination of too-liberal trade-ins and other sales tools which robbed dealers of fair profit margins before the war as a big step in putting retail radio selling on the strongest merchandising foundation in its history.

The heavy demand for radio sets, sure to continue for many months, in combination with government pricing formulas, places practically all dealers on the same footing as far as sales and profit opportunities are concerned.

Competitive selling of radios in 1946 will center around the merits, improvements and greater values offered in individual products with a background of impressive, large scale advertising and sound merchandising methods. In the organizations of radio dealers, these methods will take the form of modern store displays, well-planned direct mail, sensible salesmanship and other means of making profitable sales today and building solid business for tomorrow. Cut prices, out-of-line premium and gift offers, questionable advertising procedures and other means of attaining large but unprofitable sales volumes will be conspicuous by their absence.



IN THE BLACK: Dealer and assistant save time by taking time out for systematic posting of job and sales slips in simple, summarized "Business Record" form — designed as a business control and also to save a lot of detailed accounting when income tax statement time comes around. "Time Saving Business Methods" is listed fifth in this article, but is first in importance for profitable operation. "Up" on costs . . . "In" on profits.

50 Million Service Jobs ** —AND HOW TO GET YOUR SHARE

by H. G. KRONENWETTER*

Let your "partner" — the manufacturer — help make your selling job easier with business-building aids.

WHAT is a sale? Regardless of Mr. Webster's definition, sales are what will provide the 50 to 60 million jobs necessary for us Americans to maintain and better our present standard of living in the years ahead.

A manufacturer can only *start* a sale. As a radio service-dealer you *make* the sale. Most manufacturers recognize this fundamental principle, and constantly and consistently through sales and advertising campaigns make the consumer WANT their products and services so that it is easy for you to SELL them.

No longer need the radio service-dealer feel like the forgotten man, one who merely buys and resells goods. With carefully selected lines backed up

**See "Radio Service Survey Chart", p. 22, RADIO SERVICE DEALER, July 1944.

by advertising and point-of-sale promotion, he can profitably identify himself as a real partner of the manufacturer, a partner who is on the job, on location to serve the wants of the consumer.

The retailer who does not avail himself of the advertising and promotional material supplied by the manufacturer of the products he merchandises is without question selling the HARD way.

Real point-of-sale promotion is the thing the radio service-dealer will look for in any dealer proposition. It is the extra something that some manufacturers take pride in giving the man who sells or services his product right through to the consumer. In the radio field, and in almost every other dealer-

*Manager of Advertising Production
Sylvania Electric Products Inc.

service field, point-of-sale promotion that sells the manufacturer's goods will become increasingly important with the anticipated expansion in all service-dealer industries.

Point-of-sale promotion has never been produced by manufacturers out of mere kindness of heart. It has been conceived, designed and produced to sell more goods and service by boosting the acceptance of their product. They know they can't make a personal sales call on the set owner to sell tubes, products needed for repairs, or the new sets their ultimate customers need. But they do know they can help the service-dealer do that job better. They accomplish this with point-of-sale material, the sales tool of many uses.

Service-dealers who are aware of their share in this activity are the ones who prosper by accepting and using these sales tools. They know that they are inexpensive, pay-as-you-profit tools. They know that manufacturers make them available on a shared-cost basis, that they are investments that earn increased profits all along the line.

So make your number one postwar merchandising resolution now. Resolve to take the utmost advantage of advertising patterned for your particular business and offered by the manufacturers of the lines you feature. Do this and you will find that manufacturers can help you to increased sales and increased profits . . . your full share of the fifty million radio service jobs predicted for the years just ahead.

You will find that point-of-sale promotion will do far more than the job of building general good will for your business. You will find that it gives you the sales tools for at least five specific things which will make your business prosper:

- 1) Professional Appearance
- 2) Attractive Display Material
- 3) Tested Promotional Items
- 4) Something to Really Remember You By
- 5) Time Saving Business Methods

Now let's take a longer look at those five things of major importance to your own business. Professional Appearance includes not only testing equipment and some "jigs and fixtures" but your own personal appearance. Remember if you are selling service your customers look at the way their service is packaged. Attractive shop coats, the kind that give you a trim, professional look and inspire customer-confidence are one of the professional touches that cost little but will pay dividends. They suggest an orderly shop personality that probably will be reflected in a more efficient service job.



Mr. Round and his store

ADVERTISING Your Services BRINGS ORDERS

by **GRIER LOWRY**

The average Radio Service Dealer doesn't invest enough in newspaper advertising. Properly planned, consistent schedules pay.

WE CAN FIX IT!
RADIO REPAIR IS OUR BUSINESS

No job is too large or too small for our Radio Technicians. No matter the ailment, we can diagnose it and cure it. Call 2-9775 at the first sign of trouble.

Parts and Work Guaranteed

2001 Frederick Ave.
ROUND SERVICE RADIO
DIAL 2-9775

OUT IN FRONT
Keep Up With World Events

Have Your Radio Checked by Expert Radio Technicians

ROUND SERVICE RADIO

LABOR AND PARTS GUARANTEED

Auto and Home Radio

Phone 2-9775 2001 Fred. Ave.

WE ARE THE ANSWER TO YOUR RADIO REPAIR TROUBLES

Bring Sets to 2001 Fred. Ave.

Just Phone 2-9775

- All Parts Guaranteed
- Service Guaranteed

ROUND SERVICE RADIO

AUTO AND HOME RADIOS

WE PUT NEW LIFE IN DEAD RADIOS

Our Radio Technicians Will Put Your Radio in Perfect Condition

ROUND SERVICE RADIO

PHONE 2-9775 2001 FRED. AVE.

WORK AND PARTS GUARANTEED

RADIO TROUBLE?

DIAL 2-9775

Whatever the Trouble, Our Experts Will Find It

NEW PARTS SUPPLIED WHEN NECESSARY

Parts and Work Guaranteed

2001 Frederick Ave. Dial 2-9775

ROUND SERVICE RADIO

SATISFACTION COUNTS

2001 Fred. Ave. PHONE 2-9775

ROUND SERVICE RADIO

That Is What You Will Receive When Your

Auto or Home Radio Is Serviced by Our EXPERIENCED RADIO TECHNICIANS

Six typical small-unit advertisements run by Round Radio in newspapers serving his market community

“A CONSISTENT, frill-less advertising campaign is the greatest one implement that a radio service shop owner can employ in developing his trade,” declared Walter Round, who speaks with the voice of authority because he has availed himself generously of this one merchandising vehicle in placing the merits of his completely-equipped radio shop before the radio-owning public of St. Joseph, Missouri.

A concentrated advertising drive in the *St. Joseph News-Press* has been the “big stick” wielded by Walter Round in his persistent efforts to obtain a hustling radio repair trade that would fully exercise the repair talents of himself and his two skilled technicians, Marion Goolsby and Earl Steeb. Attesting to the success of the youthful-appearing radio repairman’s zealous efforts to promote his shop’s welfare via the printed word are the statistics on repair work for the first eight months of 1945, which reflect that 2,320 radios underwent repair operations, or an average of almost 300 radios per month. One sweltering summer day found 400 radios awaiting repair, representing the top number of defective sets on hand at one time. To keep pace with the incoming sets, the three repairmen toiled hours overtime in order that there would be no let-up in the brand of service purveyed.

Commenting on his advertising program, Walter Round said, “Advertis-



Left to right: Marion Goolsby, Earl Steebe and Walter Round strive to catch up on the backlog of repair jobs

ing on a contractual basis, with a leading newspaper, not only saves the radio dealer dollars, but it places him on a regular advertising basis, takes him away from the random, once-in-awhile method of publicizing his shop."

Fancy advertising layouts have no spot in the campaign planned by Mr. Round. Greatest accolade extended by Walter Round goes instead to simply-worded, straightforward messages with a minimum of illustrative material. His advertisements, on a twice-weekly basis, in the leading St. Joe news sheet, which serves this city of 85,000 persons and the surrounding territory, consists of an outlay of only \$50.00 per month. They are laid out by the versatile Mr. Round himself, who knows what he wants, and has quite a well-pronounced flair for composing advertising copy with a somewhat different slant. Timely messages often appear in his copy, and during the war he dinned away at the newspaper readers for the necessity of keeping their radio sets in smooth working shape to avoid missing the eventuality of a world-shaking pronouncement. "It's still a pretty good angle," concedes Mr. Round. Round service ads appear on Sunday and Monday — Sunday because it has the widest-read coverage, and the day on which surveys show people peruse their newspapers most closely, and Monday because Mr. Round likes the plan of following up with another message immediately in order to drive home a point.

Pressing the steady advertising program closely for top honors in the

three-year record of this shop are two other factors which have also been instrumental in the high degree of success obtained — the completeness of the repair trappings which adorn the repair division of the shop, and the repair skill of the three men. A Messner Analyst, most modern tube-testing equipment available, latest generators on the market, etc., adorn the two service benches, one sixteen-foot bench which is used for home sets, and a twelve-foot bench for the exclusive use of Mr. Round in charge of all car radio repairwork which comes to the shop.

Car radio repair represents one-third of the total shop repair trade, and most of it is secured through the car companies who have taken cognizance of the fact that Walter Round is set up to capably handle car radio repair. A rear drive-in is available for motor car servicing. His superior testing and repair equipment have also been responsible for the motor car firms allocating his shop the lion's share of the auto repairwork. His reputation for superlative craftsmanship is accountable to some extent for the shop's getting the nod from the majority of the car companies. Car firms are billed at the end of the month for car radio service work.

Physical aspects of the Round shop are noteworthy. The handsome structure is on a well-trafficked thoroughfare leading out of St. Joseph, and has three-way parking privileges for the clientele, no unimportant factor to the curb-service-minded customers who

may drive up on any of the three sides, honk, and have the satisfaction of seeing some member of the staff promptly answering the summons. A dazzling neon sign garnishes the building, has Radio Service on one side; Radio Sales on the other.

Sales has of necessity been an empty word to the firm during the war, but now it promises to become something more. Entire first floor of the downstairs of the building will be devoted to show-casing radios and small appliances which will be stocked soon. Instead of only one front display window, an aperture will be sliced through one side of the building, converting the entire first floor into a merchandise display for the firm. Service will not be relegated to a secondary position in the activities despite the fact that the service branch will be moved to the second floor. A dummy elevator will be installed on the first floor, furnishing an easy means of transferring the radios to the upstairs repair shop.

Sound systems also demand some of the repair artistry of the shop, and practically all of the servicing of the big amplifiers owned by nightclubs are offered a ready servicing by Mr. Round. About one-tenth of the entire servicework of the firm has been on record players.

Rosecrans Field, an army base at which army transport flyers are trained, is situated near this city, and has accounted for some of the city's wartime business boom which has proved advantageous to the Round Radio Service. Wives of hundreds of army flyers who came to the city to be near their husbands brought radios for repair to the shop, and it is to the credit of Mr. Round that these young women were granted top priority on work when possible. Realizing that many were homesick, lonely when their husbands were on duty at the field, and that radios were the only cheerful note in their lives, sympathetic Walter Round decreed that these sets were to have the green light.

It is with unabated enthusiasm that Walter Round is viewing the futuristic sales schedule. Selling is another forte of his, and he served several years with a leading mail order company in their appliance sales division. Two outside sales men will be added to complete the staff, and practically the same business formula that has been utilized in developing the excellent radio service business will function in the sales department.

"Advertising, of course," noted Mr. Round with emphasis, "will continue to be a stalwart in our promotional program. Advertising proved its mettle to us during the war."

PREFERS "ON-SIGHT" SELLING

Well-established suburban dealer takes the long view in considering advance deposits by customers.

BY discouraging customers from placing orders with him for merchandise that is to be delivered in the future, Jack Pritchard, manager of the Mort Farr Radio and Record Shop, Upper Darby, Pennsylvania, firmly believes that he is building a better future for this store.

"Customers that drop into our store, every so often approach me and ask when a certain make radio will be on the floor for sale", says Mr. Farr. "In various cases of models and makes, I try to give them as much reliable information as possible. But in most cases it is necessary for me to say, that we do not have that particular item at present, but expect to shortly. Whereupon the customer then asks if it would be satisfactory with us if they left a deposit on that particular radio model to assure their getting one as soon as they are available. In numerous cases, dealers have been doing that—we don't care to.

Why Deposits Are Declined

"Our main reason for that is, that we expect approximately ninety per-

cent of all depositor customers are likely to be dissatisfied with the radio that they are now buying sight unseen, tone quality unheard, delivery indefinite. As we want only customers that are sure to be entirely pleased with our services, we have to turn down their requests, for we believe that later on, when all models are available, these customers will remember us and return.

"Stores that have plodded along during the past merchandise shortages and have had very little to sell, should not break down their reputations on the verge of one of the greatest merchandise sprees that they have ever seen, by accepting deposits on specific models and makes of sets. For sure enough, with the many new designs coming out, containing numerous improvements over another, customers are going to feel sorry for what they have done. They may request an entire refund of their deposits or demand that it be applied towards the purchase of another set. And in this latter case, which I believe will be the foremost, many dealers are going to be stocked up with a number of sets that will be far greater than the quantities that they

can use. And in it all, there will be quite a bit of controversy between dealer and customer that may harm future business. For this reason, we try to explain to our customers why we don't want their initial deposits, and when we see how quickly a customer understands exactly what we are driving at, we know that we have done them a good turn and that we can expect them back".

Window Explanation

On the wall, in the large modernized window of the store, has been placed a large sign of explanation to customers. This sign measures five by nine feet and letters are approximately three inches high. The sign reads as follows:

Take it easy! — people are asking us to take advance orders on radios, phonographs and combination even though we do not even have a sample model to show.

And if some of you are willing to place such orders, we are extremely reluctant to sell on this basis although Mort Farr had and soon again will have, large stocks of these items which will include many makes and models.

We urge you to wait until you actually see them. That is the most honest service that we can give you. Certainly part of our value to the community is that we are experienced in seeing that what we offer is sound and desirable merchandise. We don't think that we can do this without seeing the goods. We can't do it from pictures or by listening to descriptions — and if we can't do it,—CAN YOU!

Certainly we do not say that you can not, with confidence, place an order for say-a-radio made by a firm whose reputation is known. But if you wait until you see that model and other models put out by that firm and other firms, you will be a lot surer of lasting satisfaction.

Don't misunderstand us!—It is our business to sell radios and appliances, and if you wish to place an order, sight unseen, with us, we will take it, but we don't think that's the way satisfied customers are made. You have waited four years for these items, take your time now. One thing we can promise—the time you'll have to wait will not be long.

And until that time, you can get proper service on your present radios and combinations by calling our number Boulevard 3400, if you care to, or bring in your small set and save time and money, and you will receive Farr Better Service.

"For over twenty years we have tried to service and sell this suburban



Above: The modernized store front has a large right window and small view window opposite. Mort Farr has made arrangements to give free parking — as most suburbanites travel by auto.

Right: The dealer still stocks some small radios and replacement parts, and has always maintained a radio section so that customers would not forget that the store will eventually handle new ones.

Below: Rear of the store is walled off by a record rack. A small doorway here leads to the service department.



area, and in my opinion," states Mr. Pritchard, "the suburban areas are going to do as much or more buying than city areas. I feel that way because I know that suburban tenants do not have as many places to visit, and also, when suburbanites get home, they have had much more travel during the day than the major portion of city dwellers and they do not care to leave their homes in search of social entertainment. Hence the large part that radios and combinations play in the lives of suburbanites."

A dealer who looks ahead can probably see some of the pitfalls on accepting deposits on specific items now. If he will give some thought to his future business right now, he may be able to avoid many unnecessary disputes later on.



Extreme left: New Philco automatic 1201 record player innovation. When record is placed in slot motor starts, tone arm places itself (for any size record), music plays. Motor stops automatically when finished. Patent pending. 5 tubes, including rectifier. Standard broadcasts. *Middle:* 420-Ivory, AC-DC, 6 tubes including rectifier. Electrodynamic speaker; beam power pentode audio system. R.F. stage. Illuminated radial dial. Standard broadcasts.

INNOVATIONS

A COMPLETELY new post-war line of 43 radio receivers and radio-phonographs, 12 refrigerators, 4 home freezers and 4 air conditioners, has been announced by Philco.

Featured in the radio line is the new Advanced FM (see above) which is claimed by Philco to be the first true FM detector ever invented for commercial radio; a portable radio employing the war-developed miniature tubes; an automatic record player that is said to make the single-record, manual radio-phonograph obsolete.

In the new Philco record player you have to put a record of any size in a specially designed slot and the rest of the operation is automatic. The motor starts, the tone arm places itself, the music plays and the motor stops when the record is finished—all automatically.

Philco also introduced two new automatic record changes incorporating the results of a consumer and dealer preference survey. The new De Luxe Record Changer operates on the "push-off" principle and changes 10 twelve-inch or 12 ten-inch records with great rapidity. A removable spindle in the center of the turntable facilitates loading or unloading of records, and by its special design makes it impossible for the mechanism to release more than one record at a time for reproduction.

Employed in the new line of radio-phonographs is a Dynamic Reproducer, of a type heretofore used only in broadcasting studios for the highest tonal fidelity and freedom from noise in the reproduction of records. Ap-

plying only $\frac{3}{4}$ of an ounce of pressure to a record—approximately half that of any previously known home

reproducer — the new Dynamic Reproducer achieves better "tracking", cleaner, crisper and more solid reproduction of all frequencies, according to Philco.

The pickup has a permanent jewel in a flexible mounting.

THE NEW FM CIRCUIT

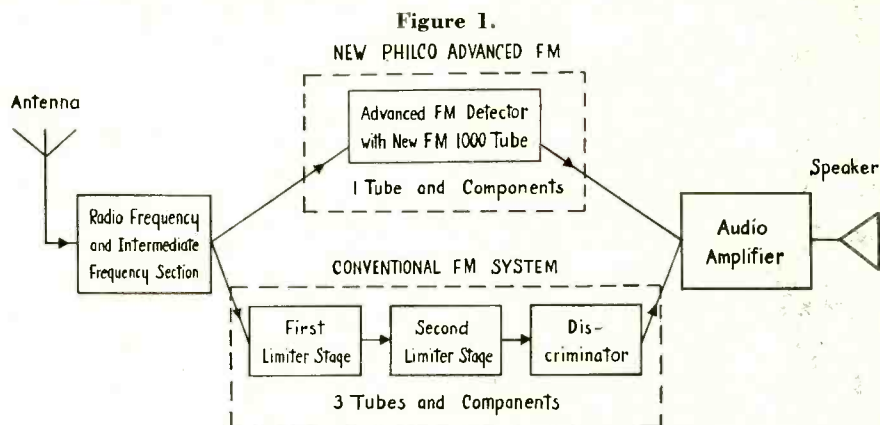
by **DAVID B. SMITH**
Director of Research, Philco Corp.

THE new Philco Advanced FM circuit affords the clearest reception ever achieved because it actually refuses to receive both natural and man-made noise. Built around a new seven-element vacuum tube and circuit that comprise the first true FM detector ever invented, the new Philco receiver circuit, as shown in *Fig. 1*, does away with the need for two limiter stages plus the discriminator used

in conventional FM circuits.

The Advanced FM circuit includes a phase detector, a quadrature circuit, and a controlled oscillator. A single new tube performs the complete function of detection. By the novel method of using radio frequency signals to control the quadrature circuit and oscillator, the new circuit ignores AM noise completely. Not only does it

[see page 49]



Left, top: Radio-phonograph, 14-BM-76-PA. 14 tubes, including tuning eye. 110-V AC Superhet. 12" speaker. 4 bands — standard, 2 shortwave (9-18 mc), FM (88-106 mc). 6-button tuning. Built-in loop antenna and folded doublet FM antenna. Roll-out phono; 2 compartments for record storage; automatic changer. Early American type.

Bottom: 14-CM-76-PA. Same specifications as above. Sheraton type in mahogany.

Right, top: 14-AM-76-PA. Same specifications as above. Classical type in mahogany veneers.

Bottom: 10-AB-76-PA. 10 tubes including tuning eye. 110 V-AC Superhet. 10-inch speaker. 3 wave bands — standard, shortwave (6-18 mc), FM (88-106 mc). Other specifications as above, but no automatic push button tuning. Conservative Modern.



STYLED

FOR THE HOME

COMMENTING on the new Spar-ton line of home radio receivers, Edward C. Bonia, general sales manager, Radio & Appliance Division, The Sparks-Withington Co., Jackson, Mich., stated: "Among models shown in previews at the factory are the Early American, Sheraton and Modified Modern types, all of them automatic, all of them complete with FM.

"Another model that attracted favorable comment from the trade was the compact Automatic Combination which has been especially designed to

meet the requirements of families who live in smaller homes and apartments.

"In addition to the models named there is an array of table models cased in both fine woods and colorful plastics, including a single record player combination.

"We have employed Magda Ranney, internationally famous stylist, to give the essential feminine touch so particularly desirable in the design of larger sets that must be good furniture in addition to being good radios."

The line which is now in production,

according to Mr. Bonia, was shown from December 30 through January 19 at the Furniture Mart, Chicago. Factory salesmen familiar with the line, the probable prices and all mechanical details were on hand to answer questions.

As of this date, Bonia says the company has 4,500 top-flight dealer accounts with new franchises coming in at the rate of from 50 to 100 a day. Firm orders on hand total more than 4 times the company's going rate the last few months of pre-war production.

NEW PRODUCTS

radios



Bendix

Model 616-A; 6-tube super het AC wood cabinet table radio. All-woven metal grill. Illuminated 3-color slide-rule dial. Covers standard and police bands, 535-1725 kc and shortwave band 5.7-12.5 mc. Built-in antenna. AVC. Phonograph connections. Bendix Radio Div., Towson, Md.



Stewart-Warner

Model 9001-C; 6-tube, 2-band walnut table radio. Push button tuning. Range 540-1725 kc. and 9-12 mc. phono jack. Stewart-Warner Corp., 1828 Diversey P'kway, Chicago 14, Ill.



Farnsworth

Model EK 264; 6-tube walnut chairside phonograph radio combination with lightweight tone arm and crystal pickup. Farnsworth Telev. Radio Corp., Ft. Wayne, Ind.



Magnavox

Regency symphony AM 13-tube radio-phonograph record-changer model with 8-push-button tuners. Optional FM chassis uses additional 8 tubes. Two 12" duosonic speakers. Ranges: broadcast band 4.9-18.3 mc shortwave. Magnavox Corp., Ft. Wayne, Ind.



Howard

Model 902-W; 5-tube AC-DC super het table model radio. Full vision dial. Built-in antenna. Range 540-1700 kc and 6-18 mc. Howard Radio Co., 1731 Belmont Ave., Chicago, Ill.



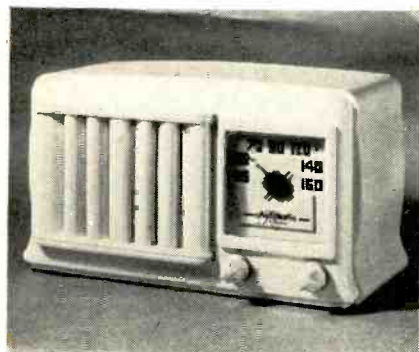
Bendix

Model 646-A; 6-tube AC-DC super het and table radio in Sheraton period cabinet having invisible phantom dial. Built-in antenna, AVC. Covers standard and police bands, 535-175kc. Tilted speaker baffle. Stands 27 1/2" high. Bendix Radio Div., Towson, Md.



Westinghouse

Super 7 deluxe table model, walnut or mahogany cabinet. Push button tuning. Ranges: 500-1600 kc and 5-18 mc. Has phonograph-FM jack. Westinghouse Elec. Corp., Sunbury, Pa.



Automatic

Ivory plastic case 5-tube AC-DC radio. Built-in antenna, full-vision dial, PM dynamic speaker. Automatic Radio Mfg. Co., 122 Brookline Ave. Boston, Mass.



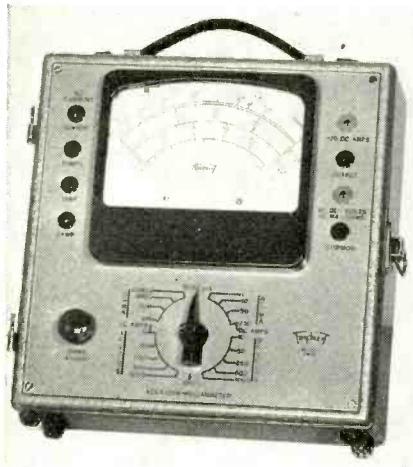
Motorola

Model 55 x 12 5-tube AC-DC plastic cabinet radio. Super het circuit. Electrodynamic speaker. Full vision illuminated dial. Built in antenna. Galvin Mfg. Co. 4545 Augusta Blvd., Chicago, Ill.



Trav-Ler

Model 5002; 6-tube AC-DC plastic cabinet table model radio. Super het circuit, AVC, built in antenna. List \$23.15. Trav-Ler Korenola Radio & Tel. Corp., 571 W. Jackson Blvd., Chicago, Ill.



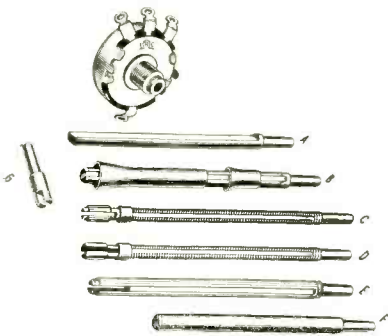
Triplet

Volt-Ohm-Milliammeter model 2405 (25,000 ohms/volt) for Voltage, Current and Resistance measurements.

Ranges are: D.C. Volts: 0-10-50-250-500-1000, 25,000 ohms per volt; A.C. Volts: 0-10-50-250-500-1000, at 1,000 ohms per volt; D.C. Amperes: 0-10; A.C. Amperes: 0-0.5-1-5-10; D.C. Milliamperes: 0-1-10-50-250; D.C. Microamperes: 0-50; Ohms-Megohms: 0-4000-40,000 ohms-4-40 megohms; Output: Condenser in series with A.C. Volts.

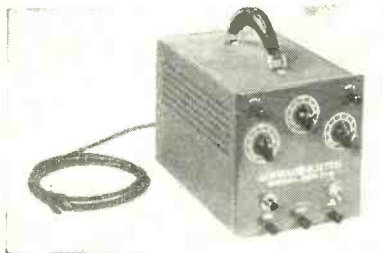
The large 6" model 626 Microammeter is adjusted to 40 Microampere; the 5.6" scale enables clear, easy readings.

Case is metal, 10" x 10" x 5 3/4", complete with detachable, hinged cover and compartment for instructions and accessories, attractively finished in tan "hammered" enamel. Leather strap handle for portable use. Batteries self-contained. Leads furnished. Weight approx. 11 lbs. The Triplet Electrical Instrument Co. Bluffton, Ohio.



International

Type D universal control with 7 popular sized tap-in shafts, interchangeable, double slotted and flatted. International Resistance Co., 401 N. Broad St., Phila., Pa.



Electronic Switch

Type YE-9, designed for special electrical studies of wave form, phase, frequency relationship, and for the comparison of amplitude. May also be used with any oscilloscope with a horizontal sweep voltage and available connections to the plate of the cathode-ray tube.

Operating on any sweep frequency of from

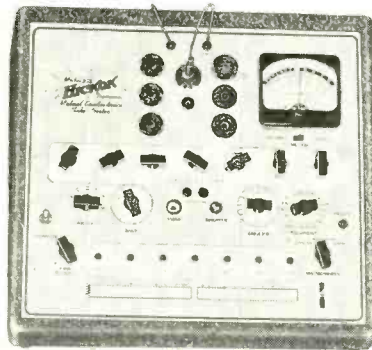
10 cps to 12,000 cps, continuously variable, has an amplifier frequency response of 4 cps to 450 kc (flat within 3 db). Input voltage is 110-125 volts, 50-60 cycles, and its maximum signal input is 250 volt rms. General Electric Co., Electronics Dep't., Schenectady, N. Y.



National Union

A new half-wave high vacuum rectifier type 1Z2 with voltage handling capabilities (20,000 volts in a 2 3/8" bulb) heretofore possible only in a large tube. In addition to its usual application as a half-wave rectifier at line frequencies, is suited for application in other forms of rectifier circuits, e.g. in fly-back pulse rectifiers, and R.F. supplies for television circuits.

Detailed ratings and application data on the N.U.-1Z2 as well as on the NEW MINIATURE Series are available on request. National Union Radio Corporation, 15 Washington St., Newark, 2, N. J.



Hickok

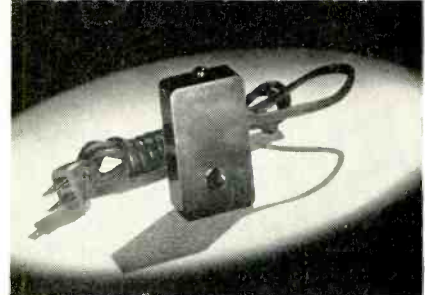
Model 532C (Counter Model) and 532P (Portable) radio tube and set testers designed with the Dynamic Mutual Conductance circuit. Fitted with easy-to-read scales having Micromho ranges from 0-3-000, 0-6-000, 0-15-000 with legends indicating "Replace", "Doubtful" and "Good". Also provides for noise, gas, and hot and cold shorts tests. Diodes are tested separately with low voltage to prevent paralysis of the elements. Line voltage is indicated from 100 to 130 volts. Rectified current is used to energize plates and grids using two rectifiers and tests can be made of grid controlled rectifier tubes. Filament voltage is in steps to 117 volts. A roll chart in the modern panel helps locate tube data. The tester is 17 x 18 x 8 1/2" in size and operates on 110-130 volts from 50-60 cycles. Tube complement consists of 1 No. 83 and 1 No 5Y3 GT. Tests all tubs, including Octal, Loktal, Miniature, Ballast and Magic Eye and, in addition, provision for future tube designs has been taken care of. Hickok Electrical Instrument Company, 10533 Dupont Avenue, Cleveland 8, Ohio.



"M" Terminal Blocks

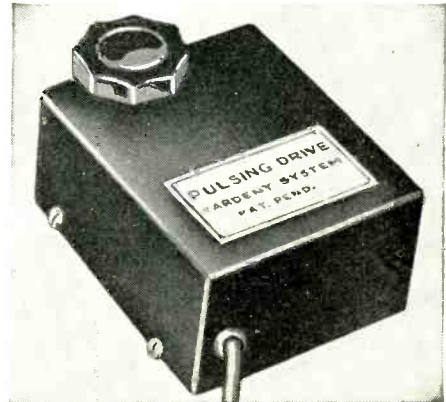
Specifically designed for installations where it is necessary to conserve space. Any number of terminals may be assembled from one to twenty-four and held rigid in a metal channel. To insure against terminal screw grounding, the screw holes

are not completely through the block, thus permitting the base to be one solid insulator adjoining the metal channel. For circuits carrying up to 300 volts, 10 amperes. Curtis Development & Mfg. Co., 1 North Pulaski Road, Chicago 24, Illinois.



Grayhill

Demagnetizer for small tools with a diameter of 7/16 of an inch or less. The unit is 3" by 1 3/4" by 3/4". Operates from 115 volt A. C. The Demagnetizer is energized by depressing the switch button and de-energized by releasing the button. Unit will demagnetize or magnetize ferrous metals. Grayhill, 1 North Pulaski Rd., Chicago 24, Ill.



Yardeny Pulsing Control

Provides precise control over any type reversible motor. Slow clockwise rotation results in a corresponding motor motion in proportional increments, fast or slow. Counter-clockwise knob causes reverse motor control as desired. Operates on all currents on all currents and frequencies. Yardeny Engineering Co., 105 Chambers St., New York 7, N. Y.



Soldering "Gun"

A new transformer type electric soldering "gun", Model B, heats in 5 seconds. The trigger switch must be held closed to provide heat. The small tip permits access to tight corners. 100 watts, 115 volts, 60 cycles. Weller Manufacturing Company of Easton, Pa.



Pricing And Inventory Rule

Makes instant conversions between gross, dozen and single unit prices. Gives unit selling price from cost per gross, dozen or unit, based upon either percentage of profit required, discount from list or mark-up required. Instantly shows total value of inventory based upon cost per gross, dozen or unit. Figures simple discounts with one setting. Figures price range from 2¢ to \$20.00 per unit, cost range from 1 1/2¢ each to \$1,500 per gross. Lawrence Engineering Service, 338 Monroe Street, Peru, Indiana.

Applying Negative Feedback

AUDIO feedback is the process of transferring a portion of the output audio voltage of an amplifier to the input circuit. Negative audio feedback presupposes that the signal fed back is in a direction opposite to the input signal.

In Fig. 1, an amplifier without feedback is shown in block diagram form. If we now tap off a portion of the output voltage by means of the voltage divider network R_1 and R_2 , as in Fig. 2, the voltage drop appearing across the resistor, R_2 , will be applied to the input terminals of the amplifier in series with, and in phase opposition to, the incoming signal.

If e_2 is the voltage of the amplifier with feedback, then the voltage fed back to the input circuit is:

$$\text{Feedback voltage} = \frac{R_2}{R_1 + R_2} \times e_2$$

$$= \beta \times e_2$$

Beneficial effects of negative feedback amplifiers: reduction of hum, noise, amplitude and frequency distortion; also effective output impedance. How servicemen can apply negative feedback on receivers which do not utilize it, for benefit of clients.

where β represents the ratio of feedback resistance to the total resistance, and hence, the ratio of the feedback voltage to the output voltage.

The output voltage with feedback is derived from the original output voltage without feedback by the following relationship:

$$e_2 = e_1 \frac{1}{(1 - A\beta)}$$

where: e_2 is the amplifier output voltage with feedback
 e_1 is the voltage without feedback
 A is the gain of the amplifier
 β is the same as defined above.

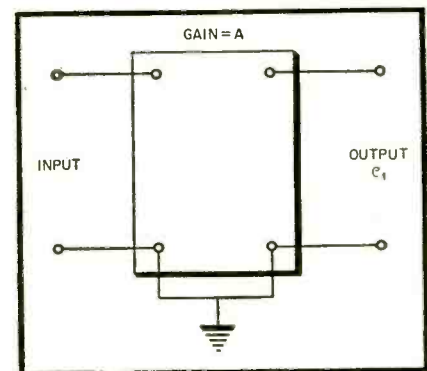


Figure 1. Block Diagram of amplifier without feedback.

The product $A\beta$ is called the *Feedback Factor*. Since this feedback is essentially negative, this factor is also negative.

Effect of Feedback on Amplifier Gain

The gain, A' , of an amplifier with feedback is given by the expression:

$$A' = \frac{A}{1 - A\beta}$$

where: A is the gain of the amplifier without feedback

Thus, in Fig. 2, if the value of A is 100, and the feedback voltage is 10% of the output voltage, the gain reduces to:

$$A' = \frac{100}{1 + 10} = 9.09$$

Increasing the percentage of feedback reduces the amplifier gain still further. Also, for the same percentage of feedback, the effect will be more pronounced in high gain amplifiers than in low gain. This can be readily seen in Fig. 3, which illustrates the effects of different feedback percentages on the voltage gain of an amplifier.

Since the gain of amplifier is reduced without feedback, sufficient sig-

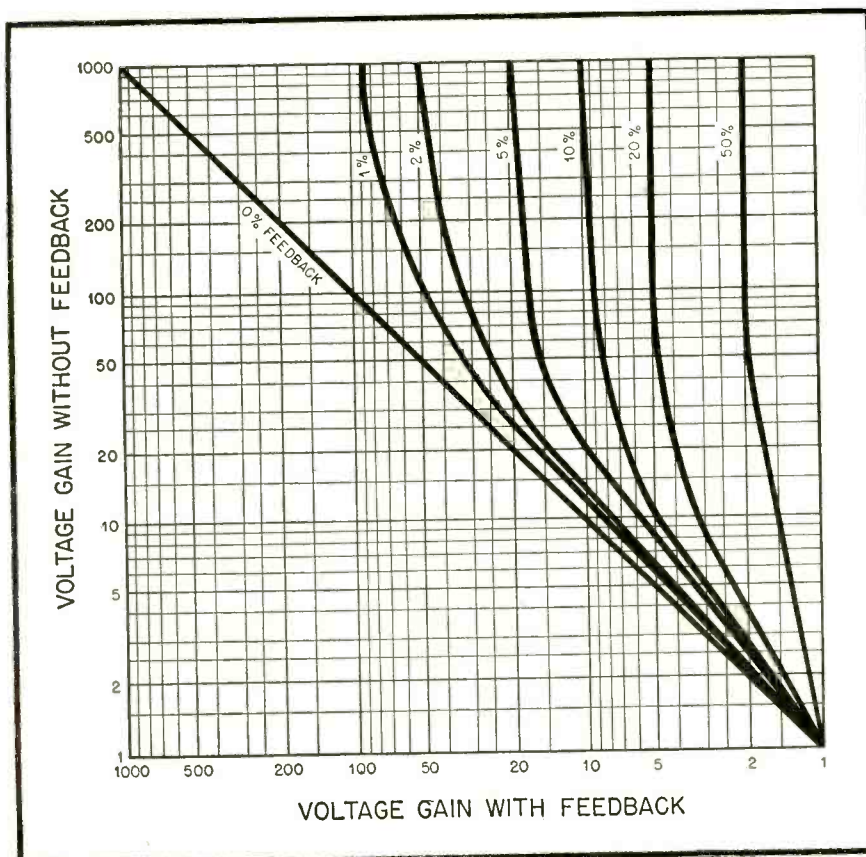


Figure 3. Effects of different feedback percentages on voltage gain of an amplifier.

In Audio Amplifiers

by S. L. MARSHALL

PART I

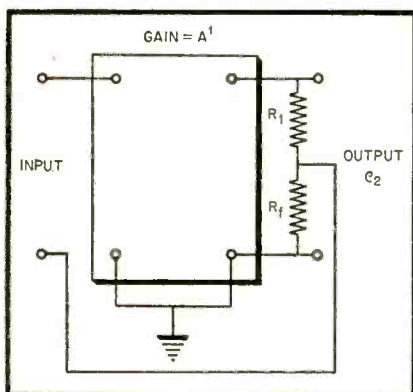


Figure 2. Block Diagram of Amplifier with feedback.

nal must be available from the driving device to make up for this loss if the original power requirements are to be met. In other words, an amplifier must have *volume to spare* before negative feedback can be applied to it.

Effect of Feedback on Amplitude Distortion

Amplitude distortion which may be present in amplifiers is reduced by the factor:

$$D'_a = \frac{D_a}{1 - A\beta}$$

where D_a is the amplitude distortion without feedback

D'_a is the amplitude distortion with feedback

This type of distortion is generated *within* the amplifier itself, and is not an input component. Therefore, when the signal input is increased to make up for the decrease in amplifier gain due to negative feedback, no increase in distortion takes place.

Let us take, as an example, an amplifier with an input signal of 1 volt, a gain of 100, and 5% amplitude distortion. An output signal of 100 V is necessary in order to obtain rated power output. Assume a feedback ratio

of 10%, the distortion component will be:

$$5\% \times 100 = 5 \text{ volts}$$

With feedback, the undistorted output voltage component is:

$$E' = \frac{100}{1 + 10} = 9.09 \text{ volts}$$

Also, the distortion component is now:

$$D' = \frac{5}{1 + 10} = .455 \text{ volt}$$

By increasing the input signal, the output voltage can be raised from 9.09 volts to the required 100 volts for rated power output. This will have little or no effect on the overall amplitude distortion which has been reduced from 5 volts to .455 volt.

In Fig. 4 a graph is shown illustrating the effect of feedback on non-

linear or amplitude distortion for various values of amplifier gain. In the above problem, a graphical solution by means of the graph in Fig. 4 indicates a reduction in distortion of .09 times the original value. This works out to be $.09 \times 5 = .450$ V, which checks pretty close with the value of .455 V obtained in the solution of the problem.

Effect of Feedback on Frequency Distortion

Frequency distortion, which gives rise to uneven amplification of the frequencies being amplified, may also be reduced by employing negative feedback. Suppose that the original gain of an amplifier at ordinary frequencies is 100. Suppose also, that at a particular frequency the amplitude rise due to frequency distortion is 110.

[see page 39]

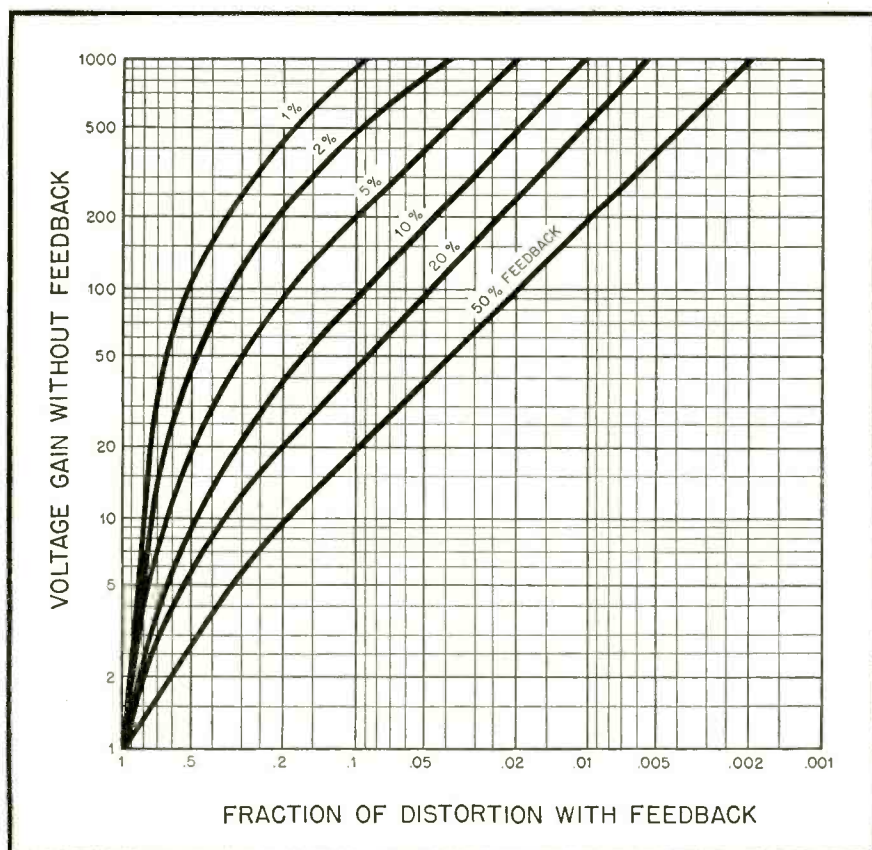
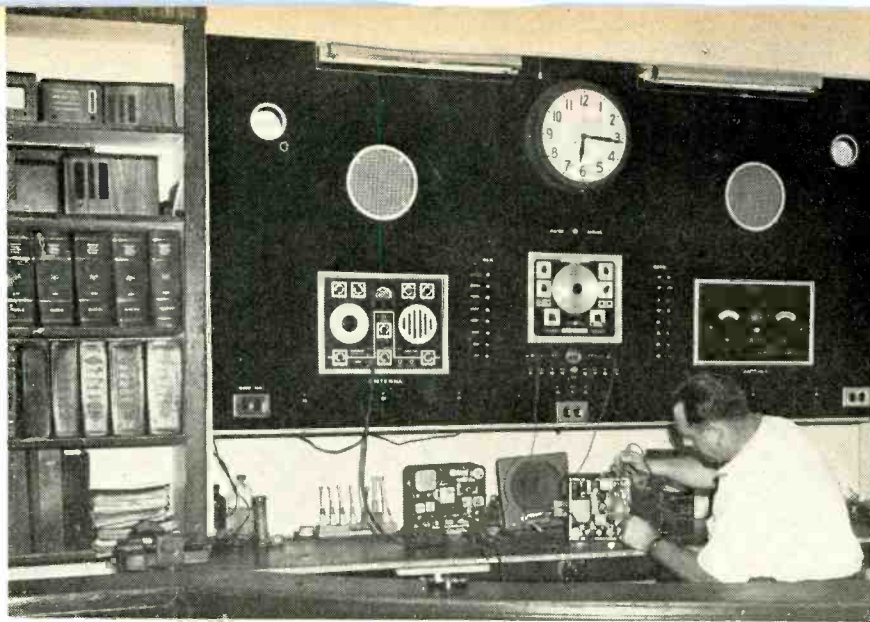


Figure 4. Effects of feedback on distortion.



Every instrument within easy reach for servicing radio receivers and appliances. Handsome panel attracts attention, brings new business.

MASTER PANEL BRINGS TRADE

SERVICE Manager Leo Stein, of Leading Radio & Appliance Co., Mt. Vernon, N. Y., reports that their new master test panel has been a means of improving service work on radio receivers and appliances. Not only is every instrument needed within easy reach, but the panel itself attracts a lot of attention and has brought in quite a number of new accounts. That must be because the handsome new panel also looks business-like. It is solid black, with chrome trim, lighted up with two fluorescent units (see illustration).

At top right and left are two indicators for appliance short tests, connected to a dual test outlet, located at lower left. Two speakers are used: the one at left is for auto radios; at right, for home radio receivers. Change-over switch for either type or receiver is just below the clock. The speakers are connected to a universal output transformer, with taps at lower center of panel.

Test equipment built into the panel: left, Supreme Audolyzer; middle, Precision Oscillator; right, Supreme

Analyzer and checker. Below the oscillator is an ammeter and outlet for 6 volts D. C. for auto radio receiver tests. Antenna taps are brought out at bottom of panel, 1 each for auto radios, for midget home receivers, and for outdoor antenna. Between the Audolyzer and Oscillator is a vertical resistance bank for substitutions. Between the Oscillator and Analyzer is a vertical condenser bank for substitutions.

The firm employs two bench men, and two outside men for service calls, etc.

RADIO SERVICE DEALERS PREPARE FOR TELEVISION

Cooperation between manufacturers, broadcasters and radio service dealers is absolutely essential for proper service to their mutual customers — the public — Samuel B. Levaux, sales manager of television receivers, Allen B. DuMont Laboratories, Inc., told the members of the Hudson Valley Radio Servicemen's Association recently, at Poughkeepsie, N. Y.

He described the tremendous efforts being made by broadcasters to bring local and national programs of interest and importance to the public in order that audiences may be built up as soon as possible. He showed how the manufacturers are designing attractive receivers which will go well with furniture now in the home and that the price range would fit a cross-section of the public. Dealers, too, he explained, are making plans to merchandise television receivers so that sales will be many, fast and permanent.

Mr. Levaux's suggestions to the service dealers included:

1. Keep the shop clean and attractive with well planned and arranged displays.
2. Be particular about the quality of all installations and television receiver repair work.
3. Insist on personnel maintaining pleasing appearances and personalities.
4. Study literature supplied by the various manufacturers.
5. Support your own trade associations and help them cooperate with retailers, broadcasters and manufacturers' trade groups for their common purpose of quality television reception.
6. Set prices fairly.
7. Plan a constructive public relations job for even the smallest shops to offset ill will engendered by war shortages.

New British Television System

A new system of television transmission which makes use of the principle of radar "pulses" was announced

on October 31 by a British firm, Pye, Ltd.

The new system embodies the transmission of sound by pulses lasting but a few millionths of a second, quite like in radar. It enables a home vision receiver to receive both vision and sound from a single transmitting unit. Hitherto, a transmitting station had to have two distinct single-purpose transmitting units, one to transmit the picture, and the other to broadcast sound. The public had to have a vision receiver and a sound receiver, either on separate sets or housed in one cabinet. This was one of the main reasons for the comparatively high cost of a television set.

The use of the new system would considerably reduce the cost of television, both for the broadcasting station and for the home public, the inventors claim, since stations incorporating the new dual-purpose transmitter will be less costly to erect, while the new combined sound-vision receiver will be less costly to manufacture.

[see page 52]

GENERAL ELECTRIC

SERVICE DATA

for

MODELS 100, 101, 103 & 105

SPECIFICATIONS

CABINET:

Model	100	101	103	105
Material	Plastic	Plastic	Wood	Wood
Color	Brown	Ivory	Mahogany	Maple
Height	7 1/2"	7 1/2"	8 1/4"	8 1/4"
Width	12"	12"	13"	13"
Depth	7 1/2"	7 1/2"	7 15/16"	7 15/16"

ELECTRICAL RATING (INPUT)

Voltage	105-125 volts a-c or d-c
Frequency on a-c	25 to 60 cycles
Wattage	40 watts

OPERATING FREQUENCIES

Broadcast Band	540-1600 kilocycles
I-F Amplifier	455 kilocycles

POWER OUTPUT (117 VOLTS LINE)

Undistorted	1.25 watts
Maximum	2.0 watts

LOUDSPEAKER

Type	Alnico P.M.
Outside Cone Diameter	5 1/4 in.
Voice Coil Impedance (400 cycles)	3.5 ohms

TUBE COMPLEMENT

Oscillator-Converter	Type 12SA7
I. F. Amplifier	Type 12SG7
Detector-Audio	Type 12SQ7
Power Output	Type 50L6GT
Rectifier	Type 35Z5GT/G
Pilot Lamp	G-E, Type C7, 115-volt, 10-watt, clear, candelabra screw base

ELECTRICAL CIRCUIT ALIGNMENT

ALIGNMENT FREQUENCIES

R-F	1500 kilocycles
I-F	455 kilocycles

EQUIPMENT REQUIRED

1. Test oscillator with audio tone modulation
2. A-C output meter, 1 1/2 volts full scale
3. 0.05 mf. paper capacitor
4. 50 mmf. mica capacitor
5. Insulated screwdriver

PROCEDURE—GENERAL

1. Turn dial scale pointer as far counter-clockwise as possible. The pointer should coincide with the first marking at the left of the scale. If it doesn't, remove chassis and slip pointer on shaft until pointer is under reference mark when chassis is bolted in place.
2. For i-f and r-f alignments, the output meter is connected across the loudspeaker voice coil terminals.

3. Keep radio volume control at maximum and attenuate test oscillator signal output so that the output meter reading never exceeds 1 1/4 volts.

4. The chassis must be removed from the cabinet during I-F alignment. For R-F alignment bolt the chassis in the cabinet securely, the rf and osc. trimmers are then available through the hole in the Beam-a-scope assembly when the back cover is removed.

5. Connect the capacitor as listed in column 2, between the output "High Side" of test oscillator and the point of input specified.

ALIGNMENT CHART

Step	Connect test oscillator to	Test osc. setting	Pointer setting on radio	Adjustment for maximum output
1	12SG7 grid in series with 0.05 mf. cap.	455 kc	1,500 kc	2nd I-F Trans. Trimmers
2	12SA7 grid in series with 0.05 mf. cap.	455 kc	1,500 kc	1st and 2nd I-F Trans. Trimmers
3	Ant. Post in series with 50 mmf.	1,500 kc	1,500 kc	C3 (Osc.)
4	Ant. Post in series with 50 mmf.	1,500 kc	1,500 kc	C2 (R-F)

STAGE GAIN AND VOLTAGE CHECKS

Stage gain measurements by vacuum tube voltmeter or similar measuring devices may be used to check circuit performance and isolate trouble. The gain values listed may have tolerances of 20%. Readings taken with low signal input so that AVC is not effective.

- (1) R-F Stage Gains.
 - Antenna post to 12SA7 grid 4 @ 1000 kc
 - 12SA7 grid to 12SG7 grid 30 @ 455 kc
 - 12SG7 grid to 12SQ7 diode plate 150 @ 455 kc
- (2) Audio Gain.
 - 0.06 volt at 400 cycles across volume control (R8) with control set at maximum will give approximately 1/2-watt output across speaker voice coil.
- (3) Oscillator Grid Bias.
 - D-C voltage developed across the oscillator grid leak (R3). Averages 7.7 volts at 1000 kc.
- (4) Socket Pin Voltages.
 - Figure 4 shows voltages from all tube pins to B- unless otherwise specified. Voltage readings much lower than those specified may help localize defective components or tubes.

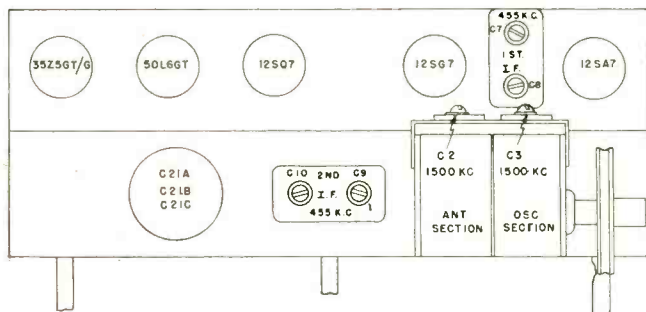


Fig. 1. Tube and Trimmer Location

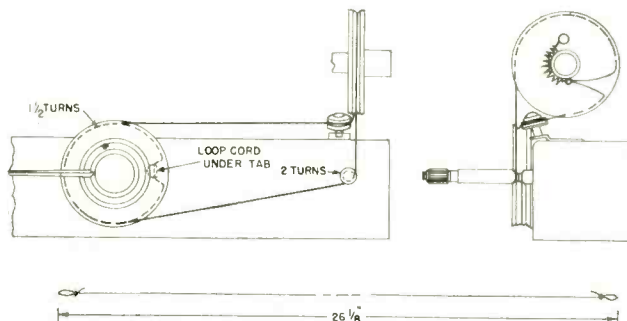
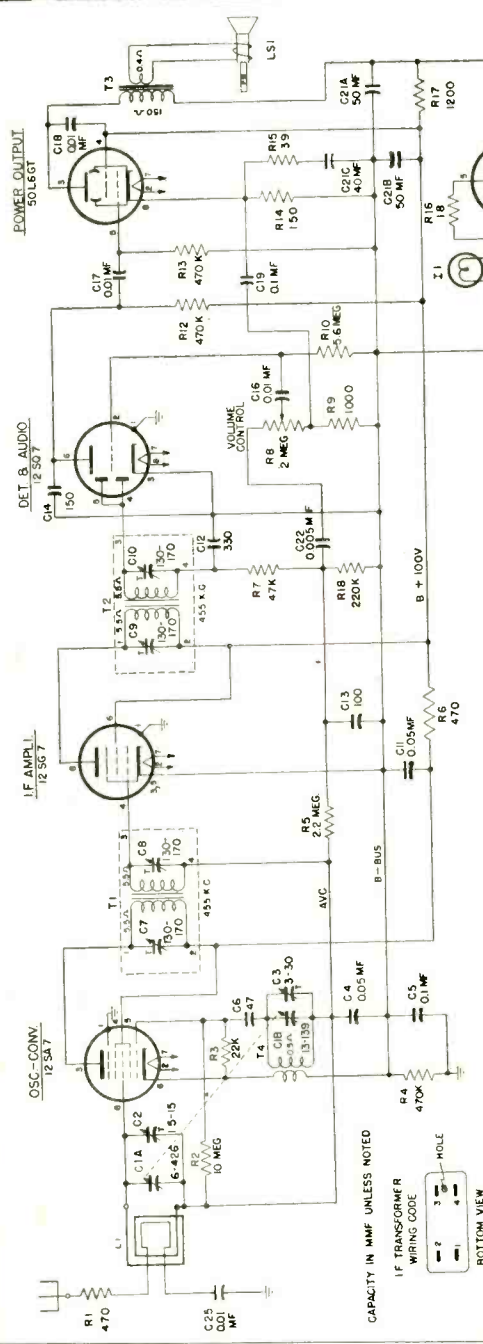


Fig. 2. Dial Stringing Diagram

REPLACEMENT PARTS LIST

PART NO.	SYMBOL	DESCRIPTION
UNIVERSAL G-E REPLACEMENT PARTS		
UCC-013	C19	CAPACITOR—0.1 mfd., 200 v., paper
UCC-039	C22	CAPACITOR—0.005 mfd., 600 v., paper
UCC-040	C25	CAPACITOR—0.01 mfd., 600 v., paper
UCC-045	C4, 11	CAPACITOR—0.05 mfd., 600 v., paper
UCC-048	C5	CAPACITOR—0.1 mfd., 600 v., paper
UDL-018	I1	PILOT LAMP—115 v., 10 watt, candelabra base
URD-015	R15	RESISTOR—39 ohms, 1/2 w., carbon
URD-029	R14	RESISTOR—150 ohms, 1/2 w., carbon
URD-041	R6	RESISTOR—470 ohms, 1/2 w., carbon
URD-049	R9	RESISTOR—1,000 ohms, 1/2 w., carbon
URD-081	R3	RESISTOR—22,000 ohms, 1/2 w., carbon
URD-089	R7	RESISTOR—47,000 ohms, 1/2 w., carbon
URD-105	R18	RESISTOR—220,000 ohms, 1/2 w., carbon
URD-113	R4, 12, 13	RESISTOR—470,000 ohms, 1/2 w., carbon
URD-129	R5	RESISTOR—2.2 megohms, 1/2 w., carbon
URD-139	R10	RESISTOR—5.6 megohms, 1/2 w., carbon
URD-145	R2	RESISTOR—10 megohms, 1/2 w., carbon
URE-007	R16	RESISTOR—18 ohms, 1 w., carbon
URF-051	R17	RESISTOR—1200 ohms, 2 w., carbon

PART NO.	SYMBOL	DESCRIPTION
SPECIALIZED G-E REPLACEMENT PARTS		
RAB-001		BACK—Cabinet Back Cover (Models 103, 105)
RAB-002		BACK—Cabinet Back Cover, white (Model 101)
RAB-003		BACK—Cabinet Back Cover, brown (Model 100)
RAD-001		BRACKET—Antenna Bracket, right rear
RAD-002		BRACKET—Antenna Bracket, left rear
RAU-002		CABINET—Brown Plastic, with grille assembly (Model 100)
RAU-003		CABINET—Ivory Plastic, with grille assembly (Model 101)
RAX-001		ASSEMBLY—Idler pulley assembly
RCC-040	C16, 17, 18	CAPACITOR—0.01 mfd., 600 v., paper
RCC-045	C20	CAPACITOR—0.05 mfd., 600 v., paper
RCE-001	C21A, 21B, 21C	CAPACITOR—50 mf., 150 v., 50 mf., 150 v., 40 mf., 25 v., dry electrolytic
RCT-001	C1A, C1B	CAPACITOR—Tuning capacitor assembly
RCU-110	C2, C3	CAPACITOR—47 mmf., 500 v., mica
RCU-112	C13	CAPACITOR—100 mmf., 500 v., mica
RCU-113	C14	CAPACITOR—150 mmf., 500 v., mica
RCU-115	C12	CAPACITOR—330 mmf., 500 v., mica
RDC-001		ASSEMBLY—Dial drive cord
RDD-001		DRUM—Dial drive drum
RDE-001		ESCUTCHEON—Dial scale escutcheon (Models 103, 105)
RDF-001		WASHER—Felt washer for controls (Model 101)
RDF-003		WASHER—Felt washer for controls (Models 100, 103, 105)
RDK-001		KNOB—Control knob (Model 101)
RDK-004		KNOB—Control knob (Models 103, 105)
RDK-006		KNOB—Control knob (Model 100)
RDP-002		POINTER—Dial scale pointer
RDS-001		SCALE—Dial scale (Models 100, 101)
RDS-002		SCALE—Dial scale (Models 103, 105)
RDX-001		ASSEMBLY—Dial scale back plate assembly
RHG-001		GROMMET—Tuning capacitor mounting grommet
RHM-001		RING—Pointer shaft retainer ring
RHM-002		CLIP—Speaker mounting clip
RHM-004		CLIP—Dial scale mounting clip (Models 100, 101)
RHM-005		CLIP—Dial scale mounting clip (Models 103, 105)
RHU-001		SPACER—Scale back plate spacer
RHU-002		SPACER—Tuning capacitor mounting spacer
RJS-001		SOCKET—Pilot lamp socket
RJS-003		SOCKET—Octal base tube socket
RJS-004		SOCKET—Electrolytic capacitor mounting socket
RLC-001	T4	COIL—Oscillator coil assembly
RLL-001	L1	BEAM-A-SCOPE—Loop antenna assembly
RMM-001		SHIELD—Tube shield
RMS-001		SPRING—Drive cord tension spring
RMU-001		SHAFT—Tuning control shaft
ROP-005	LS1	LOUDSPEAKER—5 1/4-inch permanent magnet
RRC-002	R8, S1	VOLUME CONTROL—2.0 megohm potentiometer (includes power switch)
RTL-001	T1	TRANSFORMER—1st i-f transformer
RTL-002	T2	TRANSFORMER—2nd i-f transformer
RTO-001	T3	TRANSFORMER—Output transformer
RWL-001	P1	CORD—Power cord and plug



Schematic Diagram, Models 100, 101, 103 and 105

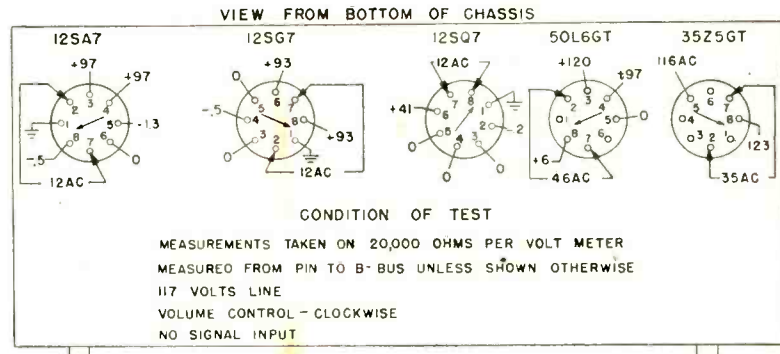


Fig. 4. Socket Voltages

Production changes were made to all Models 100, 101, 103 and 105 radios having serial Nos. 5000 and over. The corrected schematic is printed here. Changes were made as follows:

- (1) C18 connects between the output plate and screen instead of between plate and ground.
- (2) The plate and screen filter (C11, R6) is moved from the IF amplifier circuit to the converter plate and screen circuit.
- (3) The filament connections (Pins 2 and 7) to the 12SA7 converter tube are interchanged.
- (4) Part Number UCC-013, Symbol C19, becomes Part Number RCC-013.

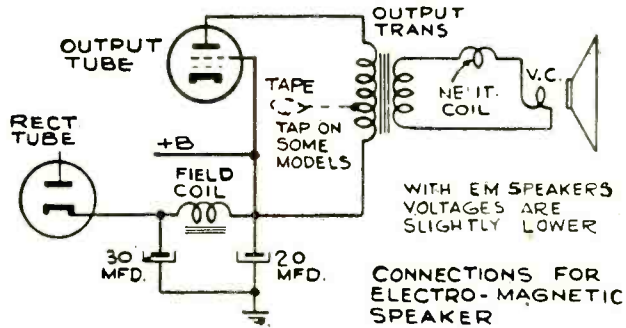
RCA MODEL 56X5
RCA VICTOR DIVISION—RADIO CORP. OF AMERICA

Chassis No. RC-1023, Mfr. No. 274

SERVICE DATA

Specifications

Frequency Range	
Broadcast	540-1600 kc
Short Wave	8.9-12 mc
Intermediate Frequency 455 kc	
Tube Complement	
(1) RCA-12SG7	R-F Amplifier
(2) RCA-12SA7	1st Det.—Osc.
(3) RCA-12SK7	I-F Amplifier
(4) RCA-12SQ7	2nd Det., A.V.C., and A-F Amplifier
(5) RCA-35L6-GT	Power Output
(6) RCA-35Z5-GT/G	Rectifier
Pilot Lamp Mazda No. 51, 6-8 volts, 0.2 amp.	
Power Output	
Undistorted	1.0 watts
Maximum	1.5 watts
Loudspeaker (92510-1) "PM"	
Size	5-inch
V.C. Impedance	3.4 ohms at 400 cycles
Power Supply Rating	
105-125 volts, AC, 50 or 60 cycles, or DC	30 watts



	Width	Height	Depth
Cabinet (overall)	14 ³ / ₄ in.	8-13/16 in.	8 ¹ / ₈ in.
Chassis Base	11 ⁵ / ₈ in.	2-1/16 in.	4-1/16 in.
Chassis (overall)	11 ⁵ / ₈ in.	7 in.	7 ⁷ / ₈ in.
Shipping Weight			13 ¹ / ₂ lbs.
Tuning Drive Ratio			20:1

Replacement Parts

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES RC 1023		
39606	Capacitor—Mica, 12 mmf. (C15)	14583	Resistor—220,000 ohms, 1/4 watt (R3, R9, R12)
39622	Capacitor—Mica, 56 mmf. (C4)	30648	Resistor—470,000 ohms, 1/4 watt (R10)
39632	Capacitor—Mica, 150 mmf. (C3)	12928	Resistor—3.3 megohms, 1/4 watt (R6)
70417	Capacitor—Mica trimmer, 140-250 mmf., mounted on antenna coil (C22)	30931	Resistor—4.7 megohms, 1/4 watt (R8)
39839	Capacitor—Adjustable mica, comprising 1 section of 190-260 mmf. and 1 section of 450-600 mmf. (C29, C30)	38785	Resistor—15 megohms, 1/4 watt (R5)
39640	Capacitor—Mica, 330 mmf. (C9)	36897	Shaft—Tuning knob shaft
70627	Capacitor—Paper, .005 mfd. (C10, C12)	34449	Socket—Lamp socket
70712	Capacitor—Paper, .0018 mfd. (C8)	37605	Socket—Tube socket, moulded
70652	Capacitor—Paper, .01 mfd. (C1, C13)	31251	Socket—Tube socket, wafer
70711	Capacitor—Paper, .02 mfd. (C7, C11)	31418	Spring—Drive cord tension spring
70635	Capacitor—Paper, .035 mfd. (C14)	39837	Switch—Range switch (S2, S3)
70615	Capacitor—Paper, .05 mfd. (C16)	36800	Transformer—Output transformer (T1)
70617	Capacitor—Paper, 0.1 mfd. (C2, C19, C31)	70411	Transformer—First I-F transformer (L10, L11, C23, C24)
39152	Capacitor—Electrolytic, comprising 1 section of 30 mfd., 150 volts, and 1 section of 50 mfd., 150 volts (C17, C18)	70412	Transformer—Second I-F transformer (L12, L13, C5, C6, C25, C26)
70416	Coil—Antenna coil (L3, L4, C22)	33726	Washer—"C" washer for tuning knob shaft
39892	Coil—Oscillator coil (L6, L7, L8, L9)		SPEAKER ASSEMBLY 92510-1
70418	Coil—Peaking coil (L5)	70413	Speaker—5-inch P.M. speaker complete with cone and voice coil
39838	Condenser—Variable tuning condenser (C20, C21, C27, C28)		NOTE: If stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker and full description of part required.
36242	Control—Volume control and power switch (R7, S1)		MISCELLANEOUS ASSEMBLIES
32634	Cord—Drive cord (approx. 49 inches overall length)	39777	Back—Cabinet back
70392	Cord—Power cord	70419	Dial—Glass dial scale
36237	Drum—Drive drum	33006	Feet—Rubber feet for cabinet (4 required)
37068	Indicator—Station selector indicator	X1337	Grille—Cabinet grille cloth
11765	Lamp—Dial lamp	36886	Knob—Range switch knob
70980	Lead—Antenna lead	36722	Knob—Volume control or tuning knob
39841	Loop—Antenna loop (L1, L2)	30900	Spring—Retaining spring for knob
36229	Plate—Dial back plate complete with drive cord pulleys less dial		
36230	Pulley—Drive cord pulley		
30189	Resistor—120 ohms, 1/4 watt (R1, R11)		
30731	Resistor—1200 ohms, 1/4 watt (R2)		
6134	Resistor—1200 ohms, 1 watt (R13)		
30492	Resistor—22,000 ohms, 1/4 watt (R4)		

Alignment Procedure

Critical Lead Dress

1. Dress blue and green leads of both I-F transformers back in shield cans, leaving them as short as possible.
2. Dress R-F plate filter capacitor (C2, 0.1 mf.) back against rear chassis apron.
3. Dress yellow and brown leads from 2nd I-F away from all other leads.
4. Dress all heater leads next to chassis.
5. Dress capacitor (C13, .01 mf.) parallel to osc. coil and approximately 3/16 inch from coil.
6. Dress tone control lead and speaker field leads next to chassis and front apron.
7. Dress pilot lamp leads away from ant. coil.
8. Dress leads from loop to ant. coil around rectifier tube towards end of chassis.
9. Dress output plate lead against chassis.

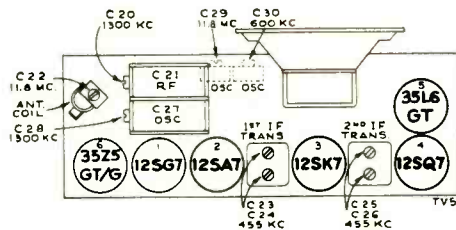
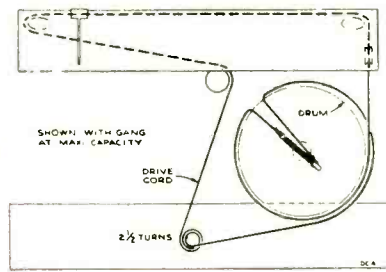
Test Oscillator.—Connect high side of test oscillator as shown in chart. Connect low side through a .01 mf. capacitor to common "B." Keep the output signal as low as possible to avoid A.V.C. action.

Output Meter. Connect meter across speaker voice coil. Turn volume control to maximum clockwise position, station selector switch to broadcast maximum high position (pos. 1), for broadcast alignment and to position 3 for high frequency band.

Dial Pointer Adjustment. Rotate tuning condenser fully counter-clockwise (plates fully meshed). Adjust indicator pointer to left (max. cap.) mark on dial back plate.

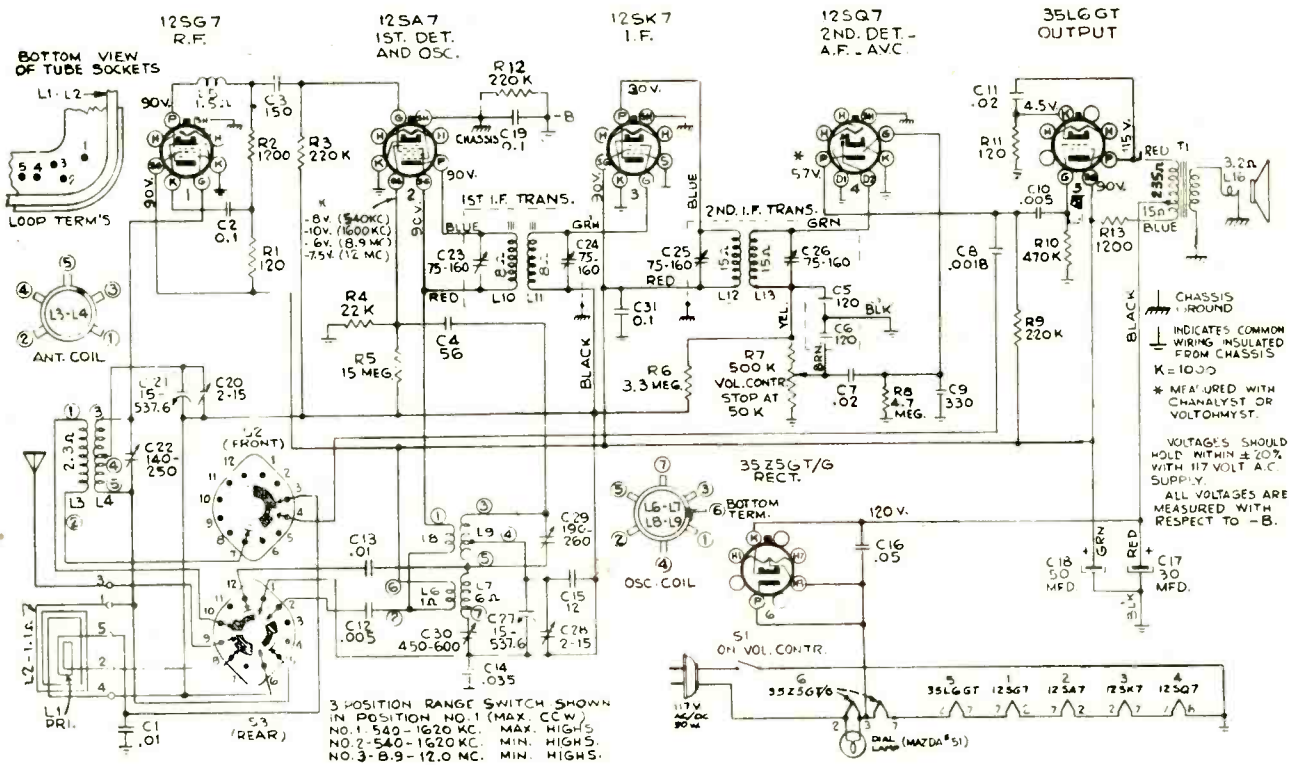
Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the dial backing plate.

Power Supply Polarity.—For operation on d.c. the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a.c. reversal of the plug may reduce hum.



Steps	Connect high side of the test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	Pin 5B of 12SA7 in series with 0.1 mfd.	455 kc	Quiet Point at 1.600 kc end of dial	C25, C26 2nd I-F trans.
2				C23, C24 1st I-F trans.
3		600 kc	600 kc "A" Band	C30 (osc.) Rock gang
4	Ant. terminal in series with 220 mfd.	1300 kc	1300 kc "A" Band	C28 (osc.) C20 R-F
5		Repeat 3 Rocking gang		
6		Repeat 3, 4 and 5 for exact cal.		
7	Ant. terminal in series with 0.1 mfd.	11.8 mc	11.8 mc	C29 (osc.) Rock gang
8	Ant. terminal in series with 47 mfd.	11.8 mc	11.8 mc	C22 (R-F) Rock gang
9	Repeat steps 7 and 8			

* Use minimum capacity peak if two can be obtained. Check for selection of correct peak by tuning receiver to approximately 10.9 mc where a weaker signal should be received.



SPRAGUE TRADING POST

A FREE Buy-Exchange-Service for Radio Men



A PERSONAL MESSAGE TO EVERY USER OF THE SPRAGUE TRADING POST

With the gradual reappearance on the market of peacetime radio parts and equipment, it becomes obvious that the four-year-old Sprague Trading Post has outlived its usefulness. Rather than buy old materials, you will want factory-fresh new ones. Instead of trading obsolete equipment, you will now want to avail yourself of the many developments that wartime engineering has produced.

Thus, we are sure that the thousands of radio men, amateurs, experimenters, instructors and those in the nation's armed forces who have benefited through this free buy-trade-sell advertising service will fully understand our reasons for discontinuing it with the December issues of the six leading radio magazines wherein it has appeared.

In closing this chapter of Sprague cooperation with our friends throughout Radio, it is interesting to recapitulate briefly:

During the life of the Sprague Trading Post, approximately 12,000 individual classified advertisements were run absolutely free of charge. As a result, hard-to-get equipment was made rapidly available through those who no longer had need for it. Tubes, test equipment, manuals, receivers, transmitters, and dozens of other items including complete service shops were bought, sold and exchanged in tremendous quantity. So many ads were sent in to us that, on several occasions, we

*Trademark Reg. U. S. Pat. Off.

had to increase our advertising budget in order to buy enough magazine space in which to accommodate them all. All told, we invested over \$70,000.00 to make this special wartime service as effective as was humanly possible.

What does the Sprague Products Company expect to get out of all of this? Well, the answer to that one is easy. It is simply that we believe that anything we can do to help our friends is good business for us. Now that Sprague Capacitors, *Koolohm Resistors and Test Equipment are again becoming available in complete lines, we believe we can count on the loyal support of every radio man we tried to help when the going was tough. We believe we can count on you to use Sprague materials wherever possible—and if you do, we assure you that you will be getting the best, most dependable units money can buy.

Meanwhile, should any new opportunity for a cooperative service such as the Trading Post present itself, you can count on Sprague to render it to the utmost. Not only this, but I'll personally welcome suggestions and correspondence along this line from all of you who have benefited even a little through the Sprague Trading Post effort during the hectic wartime years.

Harry Walker
SALES MANAGER

SPRAGUE PRODUCTS CO., NORTH ADAMS, MASS.



CAPACITORS FOR EVERY SERVICE, AMATEUR AND EXPERIMENTAL NEED

CIRCUIT COURT

DE LUXE POWER AMPLIFIER

An unusual power amplifier is included in the 22-tube Zenith AM-FM Models 22H698 and 22H699, chassis 22 B1, receivers. This amplifier has a rated power output of 50 watts, and feeds both high and low frequency speakers. As shown in Fig. 1, the output of the first stage amplifier is coupled to two 7A4 driver tubes, which feed the low and high frequency power amplifiers. These driver stages are identical with the exception that the low-frequency stage uses a larger coupling condenser than the other.

As illustrated, the output tubes are 6A3 triodes, the low frequency section consisting of four tubes in push-pull, parallel connection. The 100-ohm resistors R5, R6, R7, and R8, are inserted in the plate leads to each tube to prevent oscillation, which sometimes occurs when power tubes are used in parallel. This value of resistance is so low in comparison with the plate resistance that there is little power loss from their use.

The high-frequency section does not require so great a power output, therefore the single push-pull stage is adequate. Bias for all power tubes is derived from the power supply through the filament supply return circuit.

UNIQUE TONE CONTROL CIRCUIT

Tone control in the Chevrolet Div., General Motors Model 985794 receiver is accomplished by means of a four-

position switch and associated components. The various circuits which are thus switched in are shown in Fig. 2. For music, no tone control components are added and the circuit is as shown in Fig. 2A. For the "bass" position, Fig. 2B, the .035 mfd condenser C1 is shunted across the first stage output circuit, reducing the high-frequency response to a considerable degree. The "soft" position, Fig. 2C, operates in the same manner, but the capacity of C2 is less, so there is less attenuation of high frequencies. For voice reception, the circuit of Fig. 2D results, in which the condensers C1 and C2 are used, with the former shunted by a 22,000-ohm resistor to produce more pleasing reception of voice frequencies.

This switching system eliminates the need for variable resistor replacements and still provides a variety of choice in the character of reception secured.

ADDING HEADPHONES

A method of opening the speaker circuit when using headphones for reception is illustrated in Fig. 3. This circuit is employed in the Sea Pal Model 6P21, Series A, receiver. Note that a tapped output transformer is used and that one terminal of the headphone jack connects to this tap. In this manner the output impedance is adjusted to provide a better match to magnetic type headphones. While the B voltage passes through the headphones in the circuit shown, the resulting current is small when high resistance phones are used. In the event a

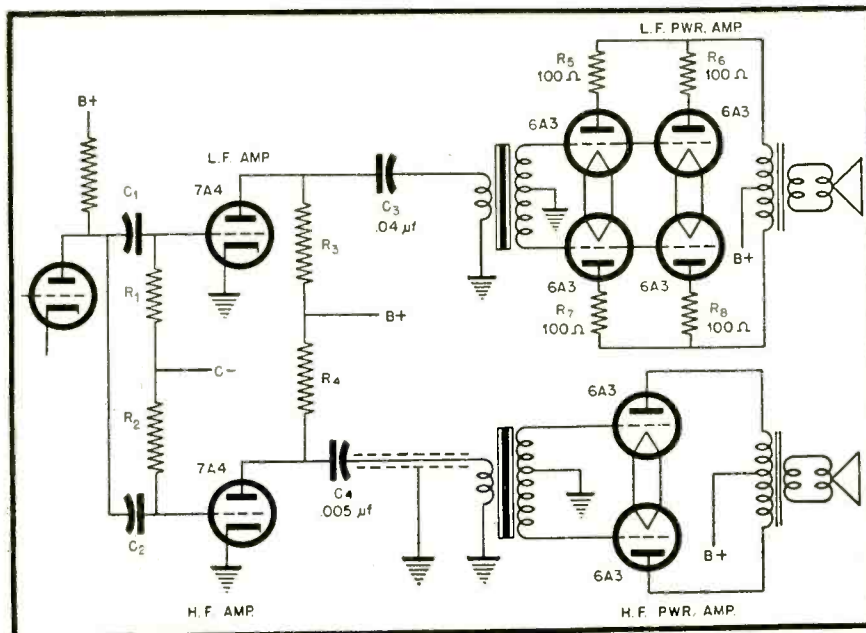
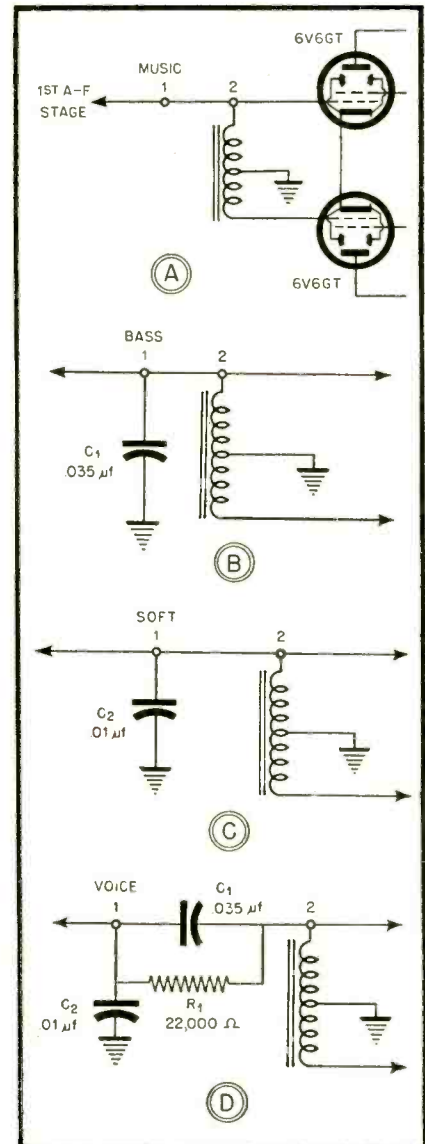


Figure 1.



Figures 2A, 2B, 2C, 2D

similar circuit should be desired, and the headphones are not of a type designed to carry the current resulting from this form of connection, the blocking condenser C1, of approximately .01 mfd. may be inserted as shown in the dotted lines. With this addition, any type of headphone may be employed.

When the headphones are plugged in, the voice coil circuit is opened so that the speaker becomes inoperative.

DOUBLE CONVERTER CIRCUIT

An unusual cascade converter circuit is employed in the General Electric Mod-

[see page 36]

Precious Moments Live for Years on

"The Wise that Remembers"



All too soon the days are gone when Mother, Dad and the youngsters sing together like this. All too soon such precious memories might wane and dim with time.

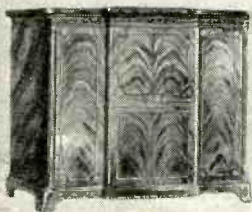
But not today! Such priceless moments can be caught and kept to be heard and cherished again and again as often as you wish.

How? With the Learecorder—a way of recording that puts hours of entertainment on a compact spool of thin gleaming wire.

The Learecorder is just one of the good things you find in Lear Radios. Television, advanced FM, world-wide short wave, record-players and automatic record-changers—all will be offered in Lear sets.

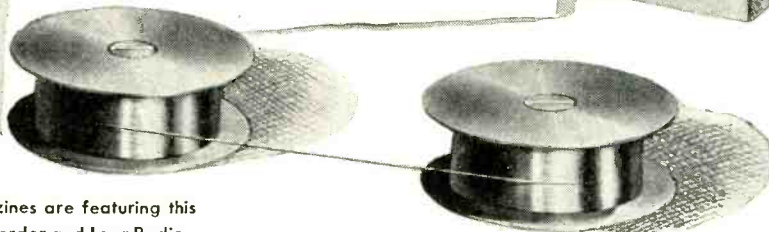
And every radio that Lear builds reflects the craftsmanship and rare engineering skill of this company which for sixteen years has devoted all its resources to making precision radio instruments for aircraft.

So you can expect unusual quality in a Lear Radio for your home. From the moment you hear one, you'll realize that this is the kind of radio you've hoped for. At the first opportunity visit your Lear dealer and hear for yourself.



Designed and Made in Grand Rapids

LEAR RADIO



Current, big-circulation national magazines are featuring this advertisement about the Lear Wire Recorder and Lear Radios. It's just one in a series that is taking the news about Lear Radios into many millions of America's homes.

And besides, every Sunday over the American Broadcasting Company network, Lear presents the Orson Welles Almanac, featuring this noted actor, writer and narrator. See your local paper for time.

All this, together with aggressive merchandising and promotion programs, is building a fast-growing acceptance for

Lear Radios—an acceptance that means money to Lear dealers.

If you would like to be able to offer your customers these unusual radios, write today for full information about the Lear Franchise.

LEAR, Incorporated, Home Radio Sales and Merchandising Division: Furniture Mart, Space 1730 B & C, Chicago 11, Illinois. Radio Division, Grand Rapids 2, Mich.

CIRCUIT COURT

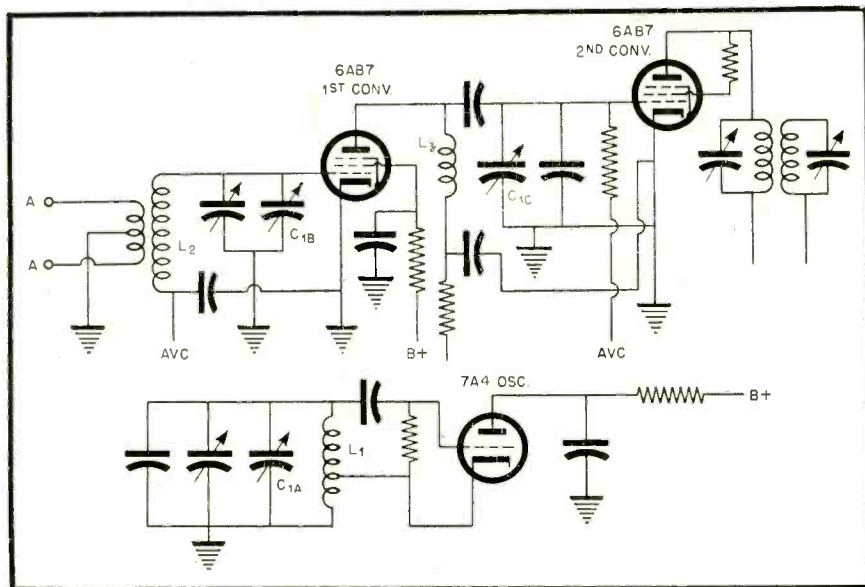


Figure 4.

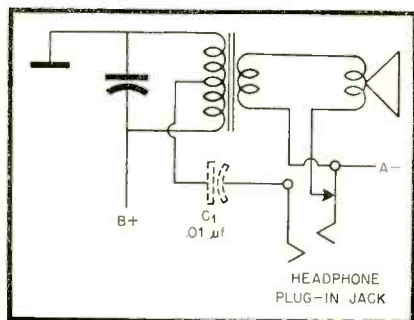


Figure 3.

el JFM-90 FM receiver. This instrument covers the band from 42 to 50 mc, and the antenna circuit is tuned to signals within this range. As shown in Fig. 4, the signal is then applied to the first 6AB7 converter. The 7A4 oscillator coil L1 is inductively coupled to the converter input coil L2, so that the oscillator signal heterodynes the incoming signal within the 42-50 mc range to produce in the interconverter circuit a beat frequency of from 23.15 to 27.15 mc. The oscillator frequency can be tuned over a range of from 18.85 to 22.85 mc.

In operation, the oscillator signal beats

with both the incoming signal and interconverter output to produce an intermediate frequency of 4.3 mc. Just how this is done may be understood from the following: Assume an incoming signal of 50 mc. The oscillator frequency is adjusted to 22.85 mc, and this heterodynes with the 50-mc incoming signal, to produce an interconverter signal of 27.15 mc. This 27.15-mc signal likewise beats with the oscillator signal, which is still set at 22.85 mc, to form the final intermediate frequency of 27.15-22.85 mc, or 4.3 mc.

The condensers C1A, C1B and C1C are ganged to tune simultaneously the oscillator, first converter input and interconverter circuits. This double converter circuit increases the gain through the r-f circuits so that a strong i-f signal is fed to the i-f amplifier. In this way it is possible to deliver a stronger signal to the limiter without using excessive i-f gain. One of the bugbears of early f-m receivers was the instability which resulted from the need for extremely high gain in the i-f amplifier. In order to secure proper limiter action and consequently good noise reducing operation. The cascade converter circuit is one way of overcoming this trouble.

New Type Dipole

The new Farnsworth television antenna atop a 14-story structure in New York City is giving satisfactory performance in the elimination of shadows, according to Madison Ca-

wein, Farnsworth's manager of research.

Shadows, or "ghosts", occur when the transmitted signal strikes an object which reflects a secondary wave. This secondary wave, picked up by the receiving antenna over a different

path at a later time, produces a "ghost" which is displaced from the primary picture.

The new Farnsworth antenna is adapted to the horizontal polarization of television broadcast waves now being used in this country, and is so constructed that the operator can get the strongest signal with the weakest reflection. This is accomplished by remote control with which the user can rotate the dipole and extend or retract its arms.

Within the case are two motors, one for orientation and one for tuning. Four push buttons on a control board allow for the operator of the television or radio set to rotate the antenna clockwise or counterclockwise through 180 degrees and to increase or decrease the frequency of resonance.

Such an antenna mounted on the roof can be remote-controlled from the living room. The orientation can be set to eliminate shadows due to reflection of television broadcast waves from tall buildings.

Orientation, which is the main feature of this antenna, decreases shadows to a minimum by aligning the receiving antenna as nearly as possible with the transmitting antenna, in compromise with the direction of strong reflected waves which create delayed images on the television screen.

The de luxe Farnsworth antenna installation has a three-section, arm extension with a frequency range of $2\frac{1}{2}$ to 1, from $46\frac{1}{2}$ megacycles to 117 megacycles. It has three sections of telescopic tubes which form the extensible members of the tunable dipole. The length of each half of the dipole is controllable from 26 to 66 inches as measured from the midpoint.

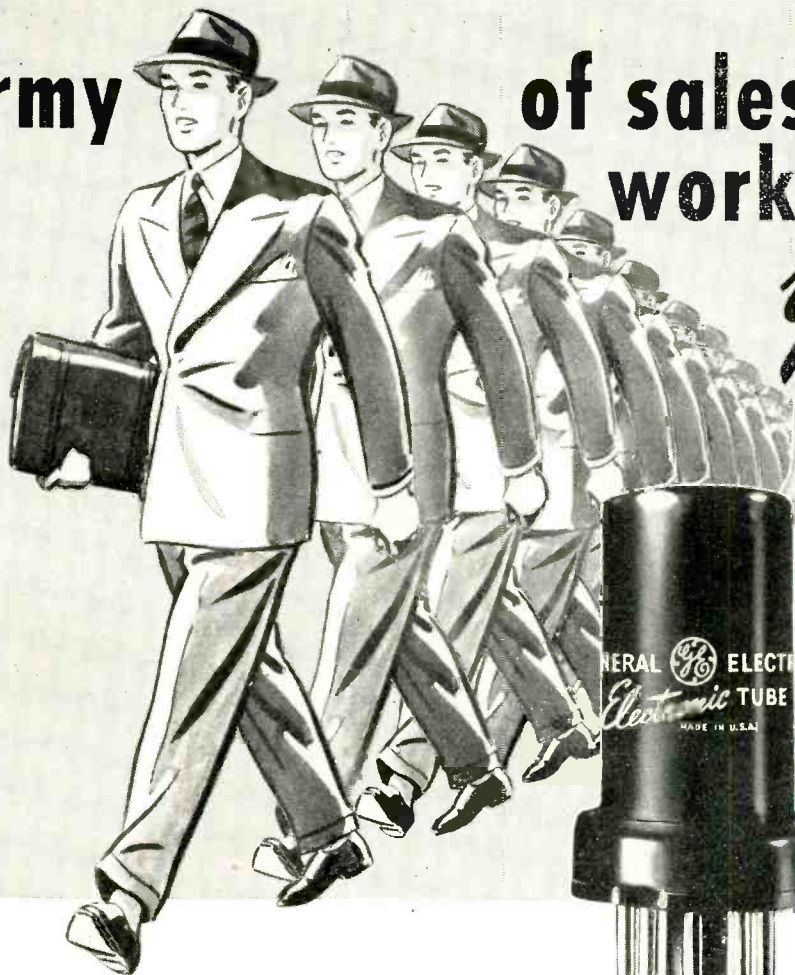
A smaller antenna having two sections of telescoping tubes, with a frequency range of 1.8 to 1, from $46\frac{1}{2}$ megacycles at the bottom end, when extended, to 85 megacycles at the top end when retracted, is also being field-tested and made ready for production. The length of this antenna is 36 inches when closed and 66 inches when open, measured on either side from center.

The frequency range can be increased by the addition of extra, telescoping sections. For example, with a five-section antenna, the frequency range can be 3.6 to 1, from $46\frac{1}{2}$ to 16 megacycles.

The antenna can be rotated clockwise and counterclockwise, through plus or minus 190 degrees. Although only 180 degrees is needed, an overlap of 10 degrees is provided. An automatic stop limits the angle so that the antenna cable will not be twisted.

An army

of salesmen is
working for
you...



...when you handle  radio tubes

SOUNDS too good to be true, eh? But it's a fact—this is why: . . . Ever stop to think how many homes have one or more G-E lamps, fans, irons, refrigerators, and other appliances, aside from G-E radio sets? *The G-E monogram is everywhere*—famous sign of quality and owner satisfaction. Right in your area, thousands of G-E products, by their dependable performance, are *pre-selling*

radio owners on the fact that tubes carrying the G-E monogram are the **BEST!** . . . As a G-E radio tube dealer, put this army of 24-hour home salesmen to work for *you*—then watch profits increase! Don't delay. Write for information about G-E tube selling rights to:

*Electronics Department,
General Electric Company,
Schenectady 5, New York.*

Every tube dealer and service man should have G.E.'s handy, fact-filled Tube Characteristics Booklet ETR-15. Write for your free copy today!

GENERAL  ELECTRIC

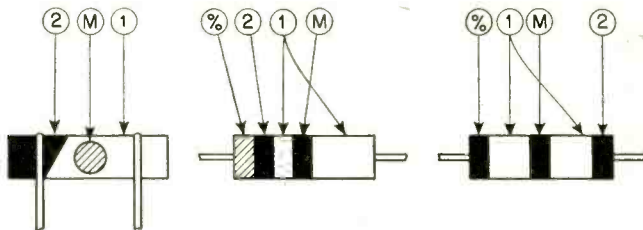
176-E1-8850

R. M. A. RESISTOR & CONDENSER CHART

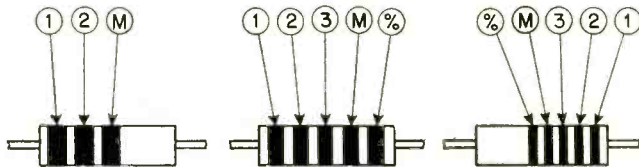
The second of a series of Charts, invaluable to technicians, containing important, time-saving data on new standards, codes, etc.

RADIO SERVICE DEALER, JAN. 1946

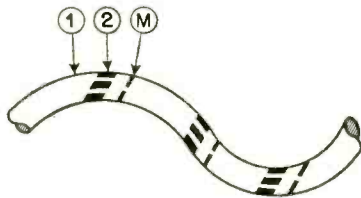
COPYRIGHT 1946, COWAN PUB. CORP.



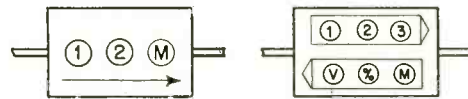
OLD SYSTEM



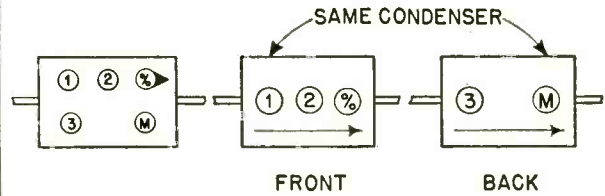
NEW SYSTEM



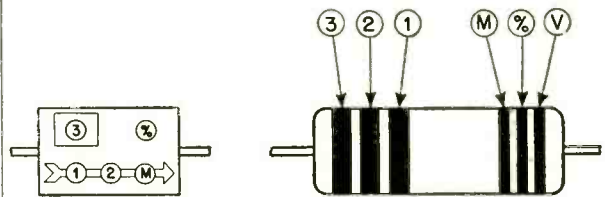
FLEXIBLE WIRE-WOUND



NEW SYSTEM



OLD SYSTEM



OLD TYPE

TUBULAR TYPE

NOTE: MICA CONDENSERS WITH NO VOLTAGE RATING MARKING ARE RATED AT 500W.V.

RESISTORS (OHMS)

COLOR	1 ST FIG.	2 ND FIG.	3 RD FIG.
BLACK	0	0	0
BROWN	1	1	1
RED	2	2	2
ORANGE	3	3	3
YELLOW	4	4	4
GREEN	5	5	5
BLUE	6	6	6
VIOLET	7	7	7
GRAY	8	8	8
WHITE	9	9	9
GOLD			
SILVER			
NO COLOR			

CONDENSERS (MICRO MICRO FARADS)

MULTIPLIER	TOLERANCE	VOLTAGE
(M) 1	1%	100 (V)
10	2%	200
100	3%	300
1,000	4%	400
10,000	5%	500
100,000	6%	600
1,000,000	7%	700
10,000,000	8%	800
100,000,000	9%	900
1,000,000,000	5%	1,000
.1	10%	2,000
.01	20%	500

RESISTORS ARE NOT INCLUDED IN GROUP FROM 1% TO 9%

CONDENSERS ONLY

Negative Feedback

[from page 27]

The percentage of frequency distortion present will be:

$$D_z = \frac{110 - 100}{100} = 10\%$$

Now consider this same amplifier with 10% feedback. At the frequencies where no frequency distortion takes place, the gain, A' with feedback is equal to:

$$A' = \frac{100}{1 + 10} = 9.09$$

At the frequency at which distortion is present this gain changes to:

$$A' = \frac{110}{1 + 10} = 9.17$$

This represents a difference of:
 $9.17 - 9.09 = .08$ volt

The percentage of frequency distortion is now:

$$\frac{.08}{9.09} = 0.9\%$$

Comparing this value with value of 10% obtained without negative feedback reveals at once the effectiveness of negative feedback in reducing frequency distortion.

Effect of Feedback on Hum, Noise, Etc.

Negative feedback will reduce hum, noise, and other such effects caused by unstable circuit and current conditions within the boundaries of the amplifier itself. As in the case of distortion reduction, the factor by which this hum, noise, etc. is reduced is equal to:

$$\text{Hum, noise, etc. reduction factor} = \frac{1}{1 - A\beta}$$

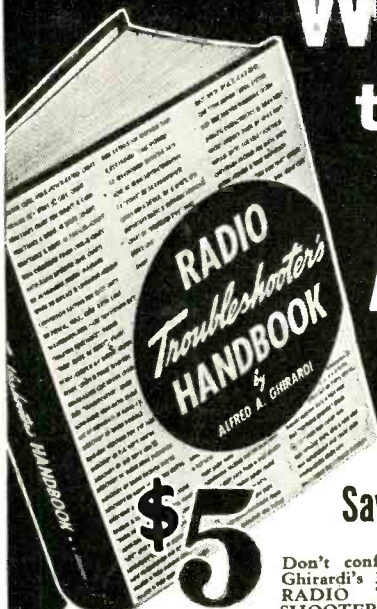
This does not apply to such hum, noise, etc. which is introduced into the amplifier within the signal from an external source. Thus, if hum is being picked up by a signal before it enters the amplifier, negative feedback will not be of any help in its reduction. On the other hand, if hum is introduced in the first stage or in any of the succeeding stages of an amplifier because of the circuit conditions within these stages, it may be effectively eliminated by the suitable application of negative feedback.

[To be continued]

Wood Upped by GE

Walter D. Wood has been appointed assistant to the manager of the appliance distributing branches of the General Electric Company, it has been announced by P. A. Tilley, manager of the branches.

WE'LL PROVE this 4 lb. book IS WORTH ANOTHER MAN in your shop!



Saves You Time on 4 Jobs Out of 5

Don't confuse A. A. Ghirardi's 3rd Edition **RADIO TROUBLE-SHOOTER'S HANDBOOK** with books on servicing theory! It simply isn't that kind. You don't study the **HANDBOOK!** You just look up the Make, Model, and Trouble Symptom of the Radio to be repaired — and go to work!

TELLS EXACTLY WHAT TO DO!

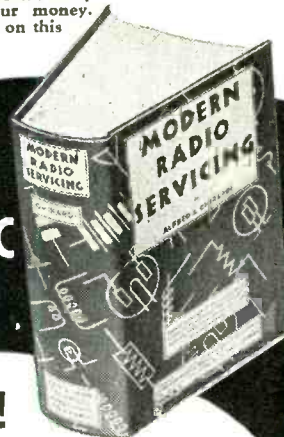
Clear instructions tell exactly what the trouble is likely to be — **EXACTLY** how to fix it. This big, 4 pound, 744-page manual brings you quick, specific repair data for every radio in use — over 4,800 models of Home and Auto Radio receivers and Automatic Record Changers of 202 manufacturers! Pays for itself the first time you use it. In

addition, there are hundreds of pages of repair charts, data on tuning alignment, transformer troubles, tube and parts substitutions, etc. etc. — all indexed for quick easy reference.

WE'LL PROVE IT

The **HANDBOOK** is the ideal book for training new helpers, repairing either cheap or expensive sets profitably, substituting tubes and parts accurately, eliminating useless test time and equipment. Because it helps you fix **TWO SETS IN THE TIME YOU'D NORMALLY TAKE FOR ONE** it's every bit as valuable as another helper in your shop — and we'll prove it. Send for the book now! Let it work for you for 5 full days. If not more than satisfied, return it and we'll refund every cent of your money. Take us up on this offer now!

... and this 1300 Page Book is worth every cent of a COMPLETE RADIO-ELECTRONIC SERVICING EDUCATION



Every Conceivable Service Subject!

A. A. Ghirardi's big 1300-page **MODERN RADIO SERVICING** is the finest, most complete instruction book on Radio-Electronic service work for either the novice or the professional Radio - Electronic Serviceman — bar none! Actually, it gives a **COMPLETE MODERN EDUCATION** in truly professional service work that is an Open Sesame to real opportunities in post war Radio-Electronic Service work where the call will be for **TRAINED** men with a **BROAD** knowledge of modern test equipment and testing techniques — and not poorly-trained screw-driver mechanics.

**TEST INSTRUMENTS —
TROUBLE-SHOOTING —
REPAIR**

Read from the beginning, it is a complete servicing course from **A** to **Z**. Used for reference, it is an invaluable means of "brushing up" on any work that puzzles you. Gives complete information on all essential service instrument types; how they work (with wiring diagrams), how, when, and why to use them; how to build your own; preliminary

trouble checks; circuit and parts analysis; parts repair, replacement, substitution; obscure troubles; aligning and neutralizing; interference reduction — and **HUNDREDS** of other subjects including How to Start and Operate a Successful Radio-Electronic Service Business. 706 illustrations; 720 self-testing review questions. Only \$5 complete (\$5.50 foreign).

**MONEY-SAVING
OFFER!**

Get **BOTH** the **Handbook** and **Modern Radio Servicing** — radio's most famous complete service library totalling over 2030 pages — at a bargain Combination price. See coupon.

5-DAY MONEY-BACK GUARANTEE

Technical Division, MURRAY HILL BOOKS, Inc., Dept. R.S.D. - 16, 232 Madison Avenue, New York 16, N. Y.

Enclosed find \$..... for books checked; or [] send G.O.D. (in U.S.A. only) for this amount plus postage. If not fully satisfactory, I may return the books at the end of 5 days and receive my money back.

[] **RADIO TROUBLE-SHOOTER'S HANDBOOK** \$5 (\$5.50 foreign) [] **MONEY SAVING COMBINATION.** Both books for only \$9.50 (\$10.50 eign)

Name

Address

City & Dist. No. State
(Please print or write plainly.)

RADIO REVIEW AND PREVIEW - 1946

[from page 15]

was accumulated which will reflect itself in time in the quality and capacity of the new home radio receivers.

Many new people came into the radio manufacturing industry, people who had previously not even been remotely associated with radio before. One company, for instance, established seventy-five crystal sources alone, many of whom had previously no intention of being in the radio business. This multiplied itself many times with many different components, and so a very large manufacturing group was put together.

Today the capacity for producing the four classes of products previously mentioned is very large indeed. Despite this increase in facilities and people to build radio sets for the home and transmitters for broadcasting — we are seeing very little of either. When and how will this condition be improved, so makers can make sets and dealers sell them to millions and millions of eager customers? I will attempt to state what it seems to me as President of the RMA is liable to take place in the year 1946, as to the production and other plans of the mem-

bers of three groups of the Association, with which dealers are most directly concerned.

TUBES

The tube manufacturers had a very large expansion during the war, because so much of the war equipment involved transmitters due to the two-way radio communications requirements. This group have had some major reconversion problems, since in general the tubes used for war purposes are not like the ones used in domestic equipment.

There seems to be adequate tube capacity in the industry, and reconversion seems to be moving along quite rapidly. However, the tube people have had other problems, such as OPA price limitations, which seemed for a while as if they would hold up tube production. And there are labor troubles which have delayed some of the plants very seriously.

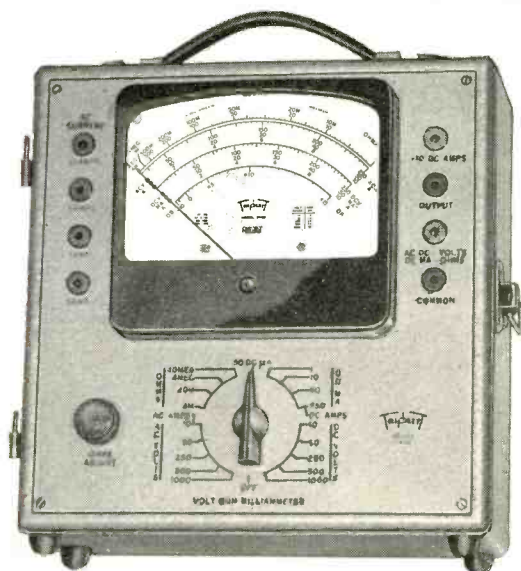
On the whole the tube program seems to be making better headway than the other divisions and there seems to be an adequate number of

tubes of the right characteristics available today to take care of replacement purposes and also for new equipment. There has been considerable advancement in tube designs, particularly the sub-miniature tubes.

PARTS

The parts manufacturers have had a really hard time. Some materials were very hard to get and reconversion took up a considerable amount of time. But the main delay in the component parts program was the OPA pricing setup which discouraged most manufacturers from going ahead aggressively with the development and production of peacetime components.

The very nature of the parts making industry, being in most instances composed of quite small and quite specialized units, but which nevertheless made hundreds and in some cases thousands of modifications of the various items, made it very difficult to provide the pricing information the OPA required. The parts manufacturers had a very large percentage increase in labor rates, and their other



NEW ENGINEERING • NEW DESIGN • NEW RANGES 30 RANGES

Voltage: 5 D.C. 0-10-50-250-500-1000 at 25000 ohms per volt.
5 A.C. 0-10-50-250-500-1000 at 1000 ohms per volt.
Current: 4 A.C. 0-.5-1-5-10 amp.
6 D.C. 0-50 microamperes — 0-1-10-50-250 milliamperes—0-10 amperes.
4 Resistance 0-4000-40,000 ohms—4-40 megohms.
6 Decibel -10 to +15, +29, +43, +49, +55
Output Condenser in series with A.C. volt ranges.

Model 2400 is similar but has D.C. volts Ranges at 5000 ohms per volt.

Write for complete description

MODEL 2405

Volt-Ohm-Milliammeter

25,000 OHMS PER VOLT D.C.

STANDARDS ARE SET BY

TRIPLET

SPECIFICATIONS

NEW "SQUARE LINE" metal case, attractive tan "hammered" baked-on enamel, brown trim.

- PLUG-IN RECTIFIER—replacement in case of overloading is as simple as changing radio tube.
- READABILITY—the most readable of all Volt-Ohm-Milliammeter scales—5.6 inches long at top arc.
- RED-DOT LIFETIME GUARANTEE on 6" instrument protects against defects in workmanship and material.

Triplet

ELECTRICAL INSTRUMENT CO.

BLUFFTON OHIO.

costs went up percentage-wise more than other elements in the radio industry.

Months elapsed without any price determination of an acceptable nature to many parts manufacturers and as a consequence the industry lost some three months of production. This inexcusable waste of time and money is deplorable because the OPA arrived by slow stages at what the manufacturers should have had in the beginning. Only as of "today" has a fairly satisfactory program finally developed which could have developed more than three months ago had the OPA made a determined effort to arrive at an equitable solution.

The detailed information and the conferences required by the OPA discouraged many of the parts manufacturers. It is going to be some months longer before this segment of the industry will really be getting out production with enthusiasm and volume.

Some items are in good supply, such as record changers, but today we are far from having the production we should have on parts.

SETS

All of this affects the end product groups, or the set manufacturers.

They purchase parts from many different specialized component manufacturers, and some particular parts from only a limited number of manufacturers, because of the patent situation or the nature of the business. When one segment of the parts industry is not given more production costs of its products, that segment can hold up the entire industry because it is necessary to have a complete set of parts to make a radio set.

So the set manufacturers, of necessity, are way behind schedule because of their inability to obtain parts.

Only a very limited amount of production is being gotten out in spite of the fact that the set manufacturers were well equipped to start in manufacture immediately after V-J Day. The reconversion problems of the home radio receiver manufacturers were not major ones because most of them were making sets for the Armed Services, and had trained personnel to get into civilian production quite rapidly.

There was a great deal of talk in the War Production Board about the large number of radio sets that would be available before the end of 1945. And the OPA declared itself frequently as to the speed with which the industry was going to reconvert.

This has not happened.

Instead of the millions of radio sets that were promised by last Christmas, a few hundred thousand were actually manufactured. I know of one company that set up for the production of 40,000 home radio sets in September; 60,000 in October; 80,000 in November and 100,000 in December, which got out not more than 30,000 sets before Christmas. And that company was ready with designs, facilities, people—everything but material.

This is characteristic of the receiving set manufacturer's situation, and the material has not been available mainly because the OPA would not approve prices to the component manufacturers which would enable them to recover their actual production costs.

This has been deplorable, and it is going to take quite some time to clear up. The set manufacturers are now facing a problem with OPA somewhat similar to that experienced by the parts manufacturers, and are having difficulty in getting prices approved because the component prices are being changed almost daily as modifications are made in them by the OPO. (In my own company we spent over \$750 in time, traveling expenses and tele-

[see page 48]

AUTOMOBILES ↙
HOMES ↙
BOATS ↙
HANDY TALKIES ↙

ANTENNAS

SNYDER
MANUFACTURING CO.
PHILADELPHIA 40, U.S.A.

MANUFACTURERS—START TO FINISH

In Trade

[from page 13]

RCA Record Division Expands

Reorganization of the RCA Victor Record Division personnel has been announced by J. W. Murray, General Manager of the division.

According to Mr. Murray, the reorganization steps were taken to adequately handle the division's expanding post-war operations.

Mr. Seklemian becomes General Sales Manager, responsible for sell-

ing and promotional activities. J. L. Hallstrom, as Merchandise Manager, will be responsible for artist and repertoire activities in conjunction with the development of the record merchandise line and merchandise planning. H. J. Allen has been appointed Field Sales Manager, and will supervise field activities of district managers. Hilton S. Clifton has been named to direct the record division's chain store activities and will work in cooperation

Decca

Decca Distributing has opened a new branch sales office at 8 Hudson Avenue, Albany, New York. Mr. James Cary is the manager.

Dykstra to Bendix

E. J. Dykstra has been made District Manager of the Chicago area for Bendix Radio. As Chicago District Manager, he will direct the sales of Bendix Radio's new line of AM-FM radios and radio-phonographs in northern Illinois, Wisconsin, and Minnesota.

Mark Simpson Expands

Predicting big business in the sound equipment field for the next several years, Mark Simpson Manufacturing Company has launched its plans for expansion by erecting a new 50,000 square foot building in Long Island City.

Emerson Appoints L. Gordon

The L. Gordon Distributing Company of Syracuse, N. Y., has been appointed distributor for Emerson Radio & Phonograph Corporation in Central New York, Edgar G. Hermann, Emerson Sales Manager announced.

Widlar Upped by Mec-Rad

Walter Widlar has been appointed General Manager of the Mec-Rad Division of Black Industries, Cleveland, Ohio, by F. G. Gepfert, Chairman of the Board.

Mr. Widlar announces that Mec-Rad's post-war program includes the manufacture of radio and phonograph loudspeakers and radio phonographs.

Briggs Rejoins Howard

Howard Radio Company of Chicago announces that Lieutenant Comdr. Howard C. Briggs, associated with the Navy's Radio and Radar Procurement Division in Washington for the last 3½ years, has returned to his former position as Vice President in charge of domestic sales.

Aeverman Promoted

Richard A. Graver, Vice President of the Radio Division, Admiral Corporation, Chicago, announced the appointment of Wally Aeverman as Manager of the Accessory Division

[see page 45]



The advertisement features a large, stylized graphic of a record changer with a lightning bolt symbol above it. The text 'MODEL 56 WEBSTER RECORD CHANGER' is prominently displayed. Below the graphic is a photograph of the actual record changer. The ad includes several key selling points and a list of features.

**MODEL 56
WEBSTER
RECORD CHANGER**

*— easier to play
— cuts service calls*

This new Webster changer will soon appear in the finest radio phonograph combinations. It was selected by quality manufacturers on its performance in comparative tests.

The choice of music lovers

READ THESE FACTS

Built to last. Fast change cycle. Simple, fool-proof operation. Automatic shut-off. Feather light needle pressure. Longer life for records. Quiet running Webster 4 Pole motor—cushion mounted.

WEBSTER CHICAGO

5610 Bloomingdale Avenue, CHICAGO 39, ILLINOIS
31 years of Continuous Successful Manufacturing

Group Subscribers — Save Money!

Form A Group — Join A Group

Here's why EVERY Service Dealer will want his own copy of "RSD" from now on:



New Service Data

As new radios are released, the circuits and service data of popular models will be published in RSD. It's a feature every Service Dealer will welcome.

New Test Equipment

Articles describing new test equipment and new postwar servicing techniques are in preparation to help all Service Dealers do their work more efficiently, in less time, at greater profit.

New Merchandising Techniques

Avoid mistakes in merchandising and store management by following the tips given by successful Service Dealers. Watch future issues of RSD.

Look at the Record!

During the past two years RSD has published over 305 pages of exclusive technical data and nearly 200 pages of general, semi-technical character—more than any other trade paper carried on these subjects. RSD is a fine investment, so get aboard NOW.

Group Subscribers Save Up To \$1 Each

The bigger the Group the more each man saves! 2 men subscribing together, each saves \$.25—4 men Groups save \$.75 per man—6 men Groups save \$1.00 per man. Present subscribers may join a Group to extend their subscription.

Use This Coupon For Convenience

(The coupon below can be used for 1 to 6 subscription orders. Use it today!)

—TEAR OUT—MAIL TODAY—

RADIO SERVICE DEALER

342 Madison Ave., New York 17, N. Y.

Please enter 1 year subscription orders for the names given below. Our remittance is enclosed.

NOTE: If you do not wish to tear this order blank out, just print or type the information on a single sheet of paper, following the style given. Each subscriber's occupation must be clearly described.

	U. S. & Canada	Foreign
<input type="checkbox"/> One 1-year subscription	\$2.00	\$3.00
<input type="checkbox"/> Two 1-year subscriptions	\$3.50	\$5.50
<input type="checkbox"/> Three 1-year subscriptions	\$4.50	\$7.50
<input type="checkbox"/> Four 1-year subscriptions	\$5.00	\$9.00
<input type="checkbox"/> Five 1-year subscriptions	\$5.50	\$10.00

Groups of 6 or more U. S. and Canadian subscriptions will be accepted for \$1.00 each. Foreign at \$1.50 each.

Name

Address

Describe Title or Position and Type of Business

State whether a New Subscriber or Renewal Order

Name

Address

Describe Title or Position and Type of Business

State whether a New Subscriber or Renewal Order

Name

Address

Describe Title or Position and Type of Business

State whether a New Subscriber or Renewal Order

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Address

Describe Title or Position and Type of Business

State whether a New Subscriber or Renewal Order

Name

Address

Describe Title or Position and Type of Business

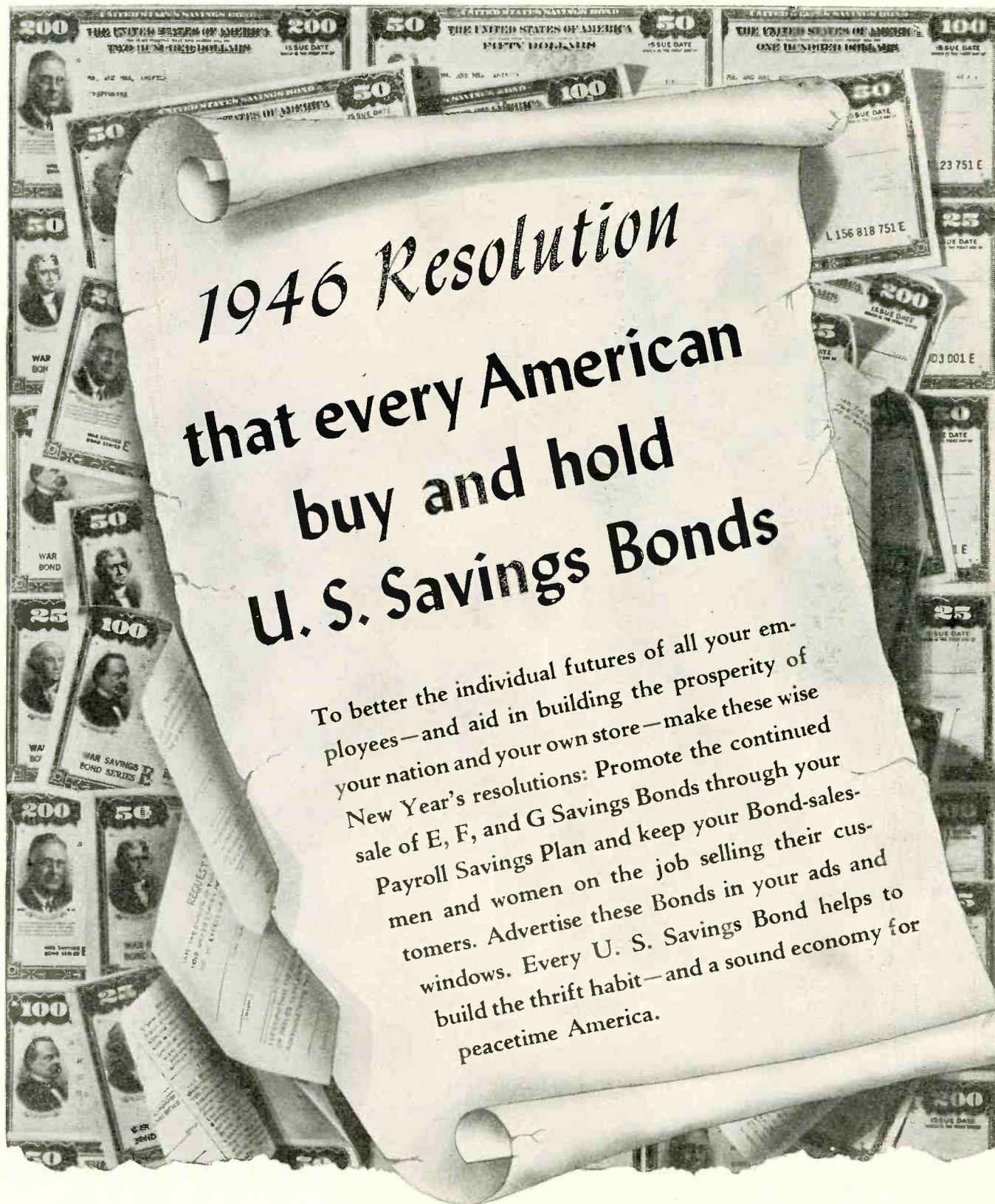
State whether a New Subscriber or Renewal Order

Name

Address

Describe Title or Position and Type of Business

State whether a New Subscriber or Renewal Order



1946 Resolution that every American buy and hold U. S. Savings Bonds

To better the individual futures of all your employees—and aid in building the prosperity of your nation and your own store—make these wise New Year's resolutions: Promote the continued sale of E, F, and G Savings Bonds through your Payroll Savings Plan and keep your Bond-salesmen and women on the job selling their customers. Advertise these Bonds in your ads and windows. Every U. S. Savings Bond helps to build the thrift habit—and a sound economy for peacetime America.

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

RADIO SERVICE DEALER

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

In Trade

[from page 42]



Captain David Saltman returns to his former position as Advertising Production Manager of **RADIO SERVICE DEALER**. Dave saw 4-and-a-half years of service in the Army. He was with the 9th U. S. Army when it pushed out of Holland into Germany; with the 1st Army during the Battle of the Bulge. Welcome home, Dave (say we) and to the joys of peacetime occupation. Good luck!

GECC in Louisville

The General Electric Credit Corporation has reopened its Louisville Office in the Starks Building, at 4th and Walnut Streets, Louisville, Kentucky, as part of GECC's program of establishing additional representation to serve the many dealers in this area selling General Electric and Hotpoint appliances.

Mr. S. W. Dail has been appointed Manager for the Louisville office, and will supervise all company activities in this territory.

Tolmay Rejoins Columbia

Paul Southard, Vice President in charge of Sales of Columbia Recording Corporation, announces the appointment of Rudy Tolmay as Columbia District Manager for the Philadelphia and Baltimore territories.

NEMA

Ray W. Turnbull, president, Edison General Electric (Hotpoint) Appliance Co., was elected vice president of National Electric Manufacturers Association. He is a member of the board of governors of the association.

Crosley Appoints

Appointments of three new regional sales managers for Crosley Corpora-

tion were announced by E. C. Brode, manager of distribution.

George C. Tanty will become southwest regional sales manager representing Crosley in Texas, Oklahoma, Arkansas, Louisiana, and Mississippi.

Inwood Smith heads up the central district, which includes Ohio, Kentucky, Michigan and Indiana.

Associated with Smith in the cen-

tral district will be Philip W. Pugh as promotional manager.

Stromberg-Carlson

Clifford J. Hunt, manager of radio sales for the Stromberg-Carlson Company, announced that the Callander-Lane Company of Columbus, Ohio, has been appointed area distributors for the company's line of home radio and television receivers. The territory embraced by the distributing company takes in the central Ohio trading area.

[see page 46]

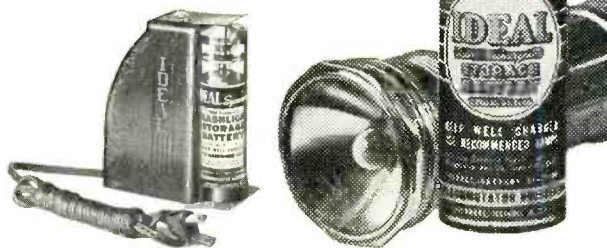
BRIGHTER LIGHT for Service Jobs! NEW, IMPROVED

IDEAL Rechargeable Flashlight STORAGE BATTERY

More and more radio servicemen are using IDEAL Rechargeable Storage Batteries for Flashlights because they are sure of a brighter, better light at all times, simply by recharging regularly from any handy electrical outlet. Economical too, one IDEAL battery can replace up to 400 or more dry cells. Fits any standard flashlight case using two or more 1 1/4" size D dry cells. Recent improvements give the IDEAL Storage Battery 40% greater discharge capacity.

IDEAL Battery Charger lasts for years. Available in single, six and twelve gang sizes.

GUARANTEED



PROMPT DELIVERY

Write for Bulletin
BB 345

IDEAL Sycamore

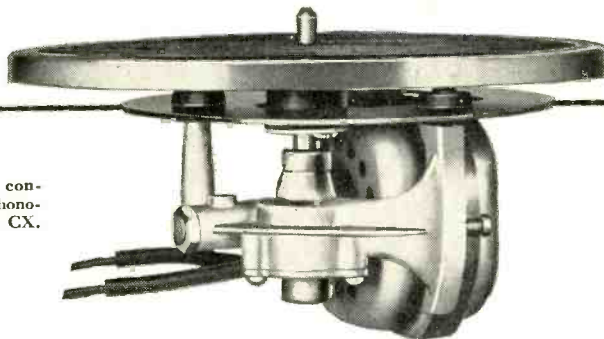
Storage Battery Division

IDEAL COMMUTATOR DRESSER CO.

5104 Park Ave., Sycamore Ill.

Sales offices in all principal cities

READY... ON THE DOWN BEAT!



General Industries constant-speed electric phonograph motor—Model CX.

Grand opera, swing or sweet music is recorded or played back with equal fidelity on General Industries phonograph mechanisms. They're always ready for the down beat with instant starting and fast pickup.

That's because they're driven by those velvety, *Smooth Power* motors, and because every detail of manufacture is carefully watched.

General Industries turntable motors, recorder assemblies and

combination record-changer recorders will, as always, bring outstanding satisfaction to you and your customers.



THE
GI GENERAL INDUSTRIES COMPANY
DEPT. M ELYRIA, O.

In Trade

[from page 45]

12 Philco Refrigerators

The newly-designed line of 12 post-war refrigerators range in size from the 9-foot "Advanced Design" model with 16.4 square feet of shelf space, large freezer locker, Conservador Shelf-lined inner door, and capacity of 84 ice cubes to Model 622 with 13.3 square feet of shelf space, large freezer locker, and ice capacity of 56 cubes. All Philco refrigerators include a large freezer locker, "Easy Out" ice trays, vegetable crisper, covered meat storage compartment and vegetable bin.

Freezers Introduced

To serve the fast growing market for frozen foods storage facilities, Philco introduced four freezers. The smallest is a 2½ cubic foot model that reaches 25 degrees below zero. A unique feature of this unit, and all other Philco freezers, is a warning bell which rings automatically in the event of a blown fuse or electric power stoppage. Other freezers have a capacity of 5, 7½ and 10 cubic feet, the two largest sizes being upright models.



IT'S NEW! - Yet PROVED!

SUPREME MODEL 576 OSCILLATOR

Incorporates Proved Features of Model 571 .. New Features Added

- **SIMPLE OPERATION** ... all ranges read on two basic scales.
- **DUAL TUNING RATIO.** One for speed ... one for vernier adjustments.
- **ELECTRON** coupled circuit giving greatest stability. Iron core coils.
- **LADDER ATTENUATOR** minimizes leakage.
- **DOUBLE SHIELDING**

R. F. RANGES
65-205 KC.; 205-650 KC.; 650-2050 KC.; 2050-6500 KC.; 6.5-20.5 MC.; Harmonics to 82 Megacycles.

AUDIO FREQUENCY:
400 cycle—Voltage output continuously variable from minimum to maximum.

POWER SUPPLY 115 Volts—60 cycles. Special voltage and frequency on request.

SUPREME INSTRUMENTS CORP.
GREENWOOD, MISSISSIPPI

SPECIFICATIONS
INTERNAL MODULATION:
R. F. Carrier modulated at approximately 50%.
EXTERNAL MODULATION:
Jack provided for external audio modulation.
Size 9½" x 8-11/16" x 7-3/8"



Elmer R. Crane
Manager, Radio Division,
Lear, Inc.

Bendix Appoints Parks

Appointment of Parks Aircraft Sales and Service, Inc. of East St. Louis, Illinois, as the first representative to handle Bendix Flightweight personal plane radios marks the beginning of a new method of distribution for Bendix aviation radio equipment.

Bendix Radio is now entering into sales agreements with top-flight aircraft distributors throughout the coun-

try who will represent Bendix Flight-weight Radio exclusively over a number of states, and who are equipped to offer complete service and sales promotional effort for Bendix radios especially designed for light planes, as well as for the well-known Bendix airline-type equipment for executive planes.

Throughout Illinois, Indiana, northern Ohio, Missouri, Kansas, Iowa and Nebraska, Parks Aircraft Sales and Service is establishing service dealers who will sell and service the Flight-weight line.

Oliver L. Parks, who founded the Parks Air College in 1927, is head of the East St. Louis organization. He believes that the merchandising of the private airplane, radio, and accessories will, in many respects, duplicate that of the automobile.



Claude Leach, Jr.
Sales Promotion Manager,
Bendix Radio Division



J. Lee Conover
Manager, New York Branch,
The Crosley Corp.



Ray C. Ellis
Vice-Pres., Raytheon Mfg. Co.

RCA Shifts Winlund

Appointment of Edmund S. Winlund as RCA Victor Industrial Electronics Engineer for the Pacific Region, with headquarters at 621 Hope Street, Los Angeles, is announced by the Electronic Apparatus Section of the RCA Victor Division.

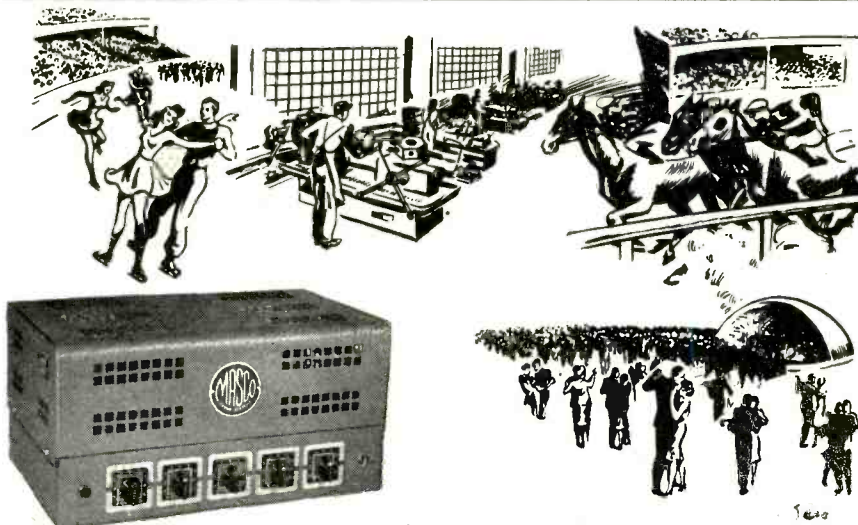
His work will include assistance to West Coast industries on application engineering, high-frequency induction and other industrial uses of electronic power.

Jester Upped By Maguire

Oden F. Jester has been named general sales manager of the radio and phonograph division of Maguire Industries, Inc., it was announced by Russell Maguire, president of the company.

Under Mr. Jester will be sales of the Meissner radio-phonograph and all other products to be made by the company's Meissner Manufacturing Division at Mt. Carmel, Ill., record

[see page 51]



50 WATTS OF TRULY RATED POWER OUTPUT

Incorporating latest circuit designs
DELIVERY NOW

At Ice Palaces, Industrial Plants, Race Tracks, Music Festivals, Football and Baseball Stadia, you'll always satisfy them with sound by Masco.

Model MA-50 Amplifier operates 2 to 12 speakers. Other features include individual bass and treble equalizers; 2 high impedance microphone inputs and one for phono pick-up; dependable performance that has stood the test of years; excellent tonal quality; designed for long hour usage; tapped output; safety fused.

Model MA-50 Amplifier with streamline cover, less tubes 100.00
Kit of Matched Tubes for above 17.50

List Price

MARK SIMPSON MANUFACTURING CO.

MANUFACTURERS OF

Masco Sound Systems and Accessories

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

Telephone CHelsea 2-7112-3-4



TIME WILL TELL!

33 Years of Experience

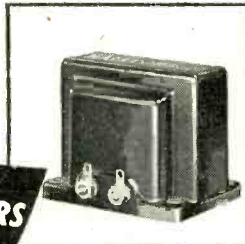
• THE HALLDORSON COMPANY has continuously manufactured for industry since 1913. Since inception, this firm has been and is still an individual firm . . . not a subsidiary or branch of another company.

Each and every HALLDORSON transformer is backed by 33 years of experience, research and actual field knowledge. A new and more complete line of transformers is now being developed in the HALLDORSON laboratories. Soon . . . we hope, in the very near future . . . these transformers will be available.

JOBBERs: Get on our mailing list today!

THE HALLDORSON COMPANY
SINCE 1913
4500 Ravenswood Avenue • Chicago 40, Illinois

HALLDORSON Vacuum Sealed TRANSFORMERS



RADIO PRE-VIEW

[from page 41]

phone calls to get one single table model set approved).

WHAT TO EXPECT

It is almost impossible to get receiving sets properly priced. The OPA is pricing every single set and it is necessary to have a price tag on the set before it leaves the factory containing the approved OPA ceiling price. It seems as if every obstacle has been placed to block the radio industry. But in spite of this we are going to get out radio sets, though most of the early ones are going to be table models in small wood or plastic cabinets.

It is almost impossible today to get console cabinets as the manufacturers who previously made these wood cabinets are devoting themselves to the production of furniture, since the furniture business is a more attractive business to them than the radio business due to price limitations established by the OPA.

Many manufacturers are also incorporating FM reception in their radio sets, but this will come in the larger sets and the console type models. This means that the number of such sets that will be available to the public will be considerably less than we all expected. Some manufacturers are pushing their television production, and some television receivers in small volume should become available about the middle of the year.

The television volume and its acceptance to the public will be determined to a large extent by the programming that is available, and some companies are doing a great deal of work in developing suitable programs. (Radio Service Dealer,) It is the feeling in some segments of the industry that radio sets would be in adequate supply by the middle of 1946, but some of the delays I have mentioned above will make this time the latter part of 1946.

The radio industry is a very optimistic industry. There never has been in the past any handicap that hasn't been overcome. Every manufacturer is confident that he will make and sell a great deal more products than ever before. The spirit is good, and the very nature of the radio business, which is a romantic business, will overcome any obstacles.

NOTE: Based on a recent speech before the Radio Executives Club, in New York City.

OLSON Special Low Price!
AUTO ANTENNA

- Triple Chrome Plated Brass
- Shielded Cable Included!
- Extends to 68 Inches!
- Fine Construction!
- Gasket Seals!

\$1.79
PLUS 10c POSTAGE
(No C.O.D.s)

This 3-section side cowl Antenna fits most cars. Shielded lead-in, equipped for Motorola or Bayonet Radio connection. A super value!

Send for our free Bargain Bulletins.

This offer good only in U. S. A.



RMA RESISTOR COLOR CHART

Printed on 3"x5" plastic card. Shows old and new color codes, tolerances, ruler, Ohms Law formulas!

5¢

Clip and mail this coupon today!

OLSON RADIO WAREHOUSE

73 E. MILL ST., DEPT. 9, AKRON, OHIO

Please send me..... Auto Antennas @ \$1.79 plus 10c postage.

Also RMA Color Chart for 5c. I enclose \$.....

NAME

ADDRESS

NEW FM CIRCUITS

[from page 22]

achieve the utmost in noise elimination, but it requires fewer tubes than in previous FM systems.

Improvement Over Conventional FM

In the entire past history of commercial radio, no one had heretofore ever been able to develop a true frequency modulation detector. All that was available was a regular AM detector. So in designing an FM circuit, we found it necessary to receive a signal that is a mixture of both FM and AM, convert that signal into regular amplitude modulation and then detect it with a conventional AM detector.

Then came the problem of eliminating the noise. In general, noise produces amplitude modulation of the signal. The conventional FM receiver wipes off this AM noise by the use of one or preferably two limiter tubes. After that, a discriminator takes the FM signal, converts it to AM and sends it on through the circuit.

In our laboratories we have been working on this problem for several years, trying to get rid of this roundabout method of detection. The new Advanced FM is the solution that we have developed, and we believe that its availability will make a great contribution to popularizing FM.

Advanced FM responds only to FM signals and is insensitive to AM. The circuit therefore ignores all AM noise, such as the whirr of a vacuum cleaner or an electric razor. In other words, while conventional FM sets have to get rid of the AM noise by an involved and costly series of devices, our receiver simply ignores the noise. No limiter tubes are needed, because there is nothing for them to do. The new circuits created by this invention will doubtless have widespread applications in other fields of electronics as well as in home and automobile radio receivers.

Improved Tonal Quality

Consumer surveys have established that tonal quality is the most important factor in radio performance for most listeners. To meet the demand for beauty and clarity of tone, the Advanced FM system includes new audio features, while speaker characteristics have been improved to provide much higher power output without distortion, resulting in better rounded and more resonant tonal quality and depth.

AMERICAN CAPACITORS

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UNIMETER

This unit fulfills an extremely important need for general utility portable service equipment. It has wide range coverage for both a-c and d-c measurements of voltage, current measurements on d-c and the popular ranges on resistance.

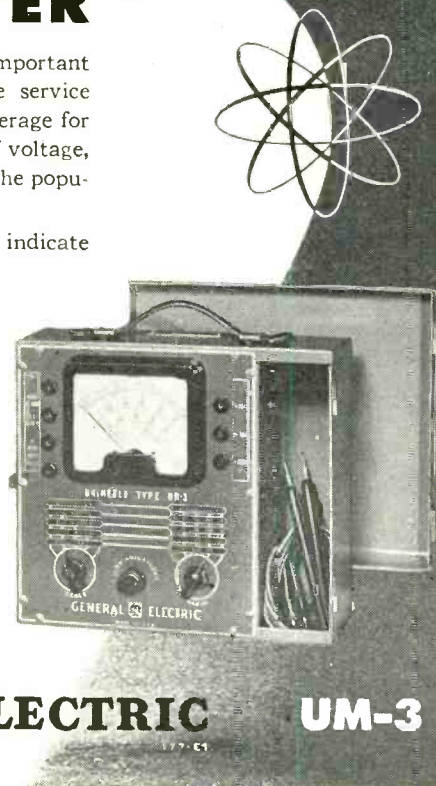
The UM-3 is designed to clearly indicate all the functions which aid in the prevention of application of high voltages when preparing for current or resistance measurements. Other G-E units for better servicing include: Tube Checker TC-3, Unimeter UM-4, and Oscilloscope CRO-3A.

For details write: *Electronics Dept., Specialty Division, General Electric Company, Syracuse, New York.*

Electronic Measuring Instruments

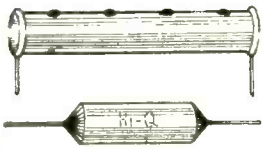
GENERAL ELECTRIC

UM-3



Hi-Q

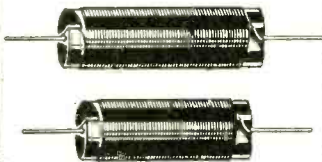
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WIRE WOUND RESISTORS



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Shop Notes

1T4 SUBSTITUTION

In using 1T4 tube and adapter instead of 1N5 tubes, it will be found that in some sets this will not work properly—squeals and loss of volume will develop. This can be easily corrected by running wire from No. 1 pin on adapter to center metal piece in top of 1T4 socket and enclosing in grounded metal shield.

It is sometimes well to align set with a 1N5 tube first before attempting to get the 1T4 and adapter working. But once this is done, there should be no more trouble.

W. H. Carter, Tennessee

SILVERTONE MODEL R1181

This model has a .005 mfd. condenser connected across the high voltage secondary of the power transformer. This is unusual since it is not a vibrator-powered radio but operates from the 120-volt 60-cycle current. If the radio receives but has a continual frying sound, replace this condenser with a 1,600-volt unit or leave it out if none is available—as it does not seem to affect the operation of the set.

Submitted by Ralph Hunter

1A7 TUBES

Weak 1A7 and 1LA6 tubes may be made to oscillate satisfactorily by increasing the value of the screen resistor to about 75,000 ohms.

Submitted by Spears Radio Service

REPLACING CHOKE FILTER WITH R-C FILTERS

When replacement filter chokes are not available, sets may be maintained in operation through substitution of a resistor for the missing choke and adding sufficient filter capacitors to give hum-free operation. A typical filter of this type used in ac-dc sets is illustrated in the diagram.

This filter employs two 20 mfd., 250-volt units in parallel in the input section and one 50 mfd., 150-volt unit to terminate the filter. The same scheme may be used in replacing electrodynamic speakers with burned-out field coils by using PM speakers. In all cases make sure that the voltage rating of the capacitors and the wattage rating of the resistors used provide an adequate margin of safety.

Courtesy, Solar Capacitor Sales Corp.

6F5 SUBSTITUTION

A 6J7 or 6K7 may be used to substitute for a 6F5 tube without necessitating socket changes. Melt solder out of end of No. 3 pin on either 6J7 or 6K7 and rock pin off, being careful not to break the wire within the pin. Solder this wire to adjacent No. 4 pin. Next, melt off No. 5 pin. This exposes the suppressor wire

which should be soldered to the No. 1 pin. (As the wire isn't long enough, solder a small piece onto it). Cover this wire with spaghetti before making the connection to pin No. 1 as it must be insulated against contact with other pins. If the 6J7 or 6K7 is of the G type and has no No. 1 pin, the suppressor wire should be connected to the No. 8 pin instead of the No. 1 pin.

Orin Thompson, Wisconsin

PHILCO 37-62 (HIGH-PITCHED SQUEAL)

When a squeal is the complaint, or if local stations come in very faintly, replace condenser No. 4 in Philco diagram. This .05 mmd condenser connects between terminal of antenna coil nearest chassis (or No. 5 lug on strip) and ground.

C. E. Weigel, Kentucky

RCA MODELS 15X, 26X1, 6X2, 55X, ETC.

When the special tapped output transformer gives trouble on these sets it may be difficult to obtain a replacement. By using a standard output transformer and a small a.-c./d.-c. choke, very satisfactory operation may be obtained if the illustrated circuit is used.

PHILCO TH15-TH17 (HUM OR DISTORTION)

In these model check the cathode resistor No. 21 in schematic. The resistance value should be 130 ohms but the complaint may be due to the value having changed or the resistor having shorted. Take your reading from socket terminals.

C. E. Weigel, Kentucky

25Z6 SUBSTITUTION

Where plate and cathodes are tied together a 25Z6 can be replaced with a 35Z4 by shunting the filaments of the latter with a 200 ohm, 10-watt resistor. Spaghetti the leads as solder directly to 35Z4 tube prongs leaving the resistor stick up alongside of the tube. The extra 10 volts of the 25Z4 will distribute over the string and help hold down high line voltage.

C. L. Van Liew, Washington

1T4 SUBSTITUTION

In using a 1T4 tube and adapter instead of 1N5 tubes in some sets the substitution will not work—squeals and loss of volume will develop. This can easily be corrected by running a wire lead from No. 1 pin on adaptor to center metal piece in top of 1T4 socket, and enclosing in grounded metal shield. It is preferable to align the set with a 1N5 tube first before attempting to get the 1T4 and adapter working.

Carter Service, Tennessee

In Trade

[from page 47]

changers and similar products of the Maguire plant in Bridgeport, Conn., all products of the Thordarson Electric Manufacturing Division in Chicago and of the Radiart Corp., Maguire subsidiary in Cleveland, Ohio.

Vice President Raymond Koontz has been named general manager of all the company's operating divisions. In his new capacity, Mr. Koontz will supervise all manufacturing operations of the company and its subsidiaries, Columbia Machine Works, Inc., of Brooklyn, and the Radiart Corp. of Cleveland.

The Meissner radio-phonograph, deliveries of which are expected to start soon, will be sold on a direct factory to dealer basis, but other Meissner products and Thordarson products will be marketed through radio parts jobbers as in the past.

Mr. Jester, a veteran radio executive, was a vice president of the Meissner organization before it was acquired last year by Maguire Industries and was previously vice president in charge of sales of Utah Radio Products in Chicago.

Wood Radio Cabinets

An order, effective October 16, 1945, bases manufacturers' ceiling prices on the prices they charged for cabinets delivered to radio set manufacturers between July 1, 1941 and October 31, 1941. To determine their ceiling prices for the same models, manufacturers apply a price increase factor of 18 per cent to their 1941 prices for models delivered between July 1 and October 31, 1941. If a cabinet was not delivered during this period, but has an established ceiling under the consumer durable goods regulation, an increase factor of 12 per cent may be applied to each price to determine the new ceiling price. The following pricing methods are provided for new models of cabinets and for the output of new manufacturers:

1. For new models comparable to models on which ceiling prices are fixed by the order, the manufacturer figures his own ceiling price by computing his unit direct cost for the comparable model and for the new model, based on current costs, and applying the mark-up he would realize on the comparable model.

2. For new models not comparable to other models with established maximum prices, and for all models pro-

[see page 54]

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STEEL
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Every Serviceman needs a G-C Dial Belt Kit. Save money—be ready for that repair job. Finest woven fabric replacements. Easy to install—no stretch—no adjustments. Supplied in kits of 25, 50, 100, 200 or 300 Belts in sturdy metal box with slide-in drawer. Free Belt Guide and measuring device.



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G-C has a complete line of Dial Drive replacement cables. Available by the spool for prompt servicing of all sets. Every Serviceman should have a complete assortment. Best quality—extra strength. Preferred by Radio Men everywhere.

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The best cement for Speaker and Radio Work. Especially suitable for cementing replacement cones and repairing rattling cones and torn cones. Also used on glass, to seal adjustments, hold wires in place, etc. Dependable, vibration proof, water-proof and fast drying.

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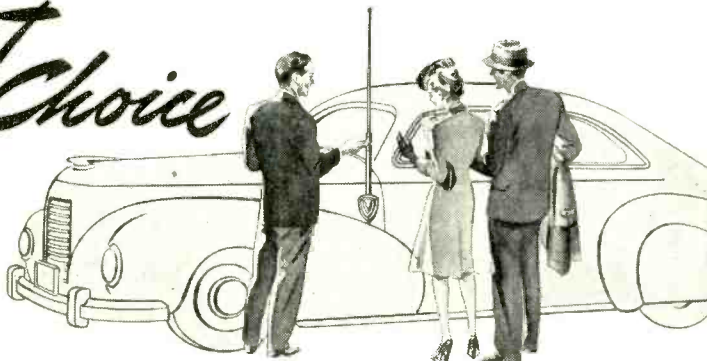
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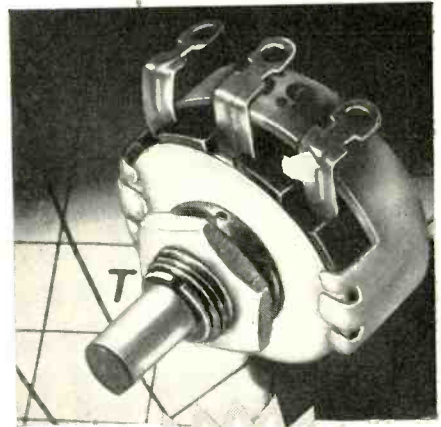
[from page 28]

When the television transmitter is in operation, there are short intervals of time during which no signal is being broadcast. These intervals occur during the time that the spot which traces the picture is returning to its starting point preparatory to making another line, and each represents rather one-tenth of the total transmission time. Each of these idle periods lasts for ten-millionths of a second, and there are just ten thousand of them during each second. It would now be possible to use the television transmitter during these idle periods to transmit the sound program. This would be done by taking a "sound snapshot" of the sound part of the program whenever the transmitter is not transmitting the vision part of the program.

With the system in operation, this modification to the transmitted wave form would enable both vision and sound to be transmitted on a single carrier by a single transmitter with a single aerial system. This pulse would be separated from the vision program in the television receiver and the variation of its width would be made to operate a loudspeaker.

The new system embodies many other far-reaching improvements:

- (1) It would eliminate the possibility of interference in the television receiver between sound and vision.
- (2) An efficient television receiving aerial would be far simpler to make.
- (3) Less frequency space would be needed for each television transmitter, because it would no longer be necessary to provide separate frequencies for vision and sound transmitters.
- (4) Pictures would be held steady, even during severe fading of signals. This is because the system can incorporate automatic gain control.
- (5) It would give a clear reception for television sound programs to localities distant from the transmitting station, because there will be less noise and interference.



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Caltron Pickup

The Caltron Company, manufacturing and sales division of the research and engineering firm of Frank Rieber Inc., Los Angeles 34, California, announces a new vibrating reed magnetic phonograph pickup.

A national sales organization to handle the new pickup and other Caltron products has been completed. R. Stanley Clarke, Vice President and Sales Manager, announces appointment of the following representatives: Leroy W. Beier Co., Chicago 5, Illinois; Art Cerf & Co., Newark 2, New Jersey; J. P. Davenport, Detroit, Michigan; Herb Erickson Co., Hendersonville, North Carolina; Edward Lundgren, Kansas City 6, Mo.; Lloyd Marsh, Seattle 1, Washington; J. U. McCarthy, St. Paul 5, Minnesota; Courtney L. Pugh Co., Columbus 8, Ohio; J. Earl Smith, Dallas, Texas; W. G. Stewart, Philadelphia 31, Pa.; George S. Tivy, Los Angeles 15, California.

REPAIR ANY RADIO QUICKLY-EASILY with the help of FEILER SIGNAL TRACER TS-1



Locates causes of dead or weak sets, noise, hum, poor sensitivity. Locates speaker defects, short tuned or open coupling condensers, open or shorted antenna coils, loops or transformers. Checks faults due to faulty

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MODEL TS-1 COMPLETE WITH TUBE, BUT LESS BATTERIES AND PHONES \$9.85
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SMALL ELECTRIC APPLIANCES GET PRE-WAR PRICES

THE dozens of small electric appliances that have been off the market since 1942 will return to dealers at approximately pre-war prices. In an action effective December 21, 1945, OPA set ceilings at all levels of sale for all small electric heating or powered appliances for household and personal use. Typical of the goods covered by this action are:

- Table broilers
- Hair driers
- Vibrators
- Vaporizers
- Toasters
- Space heaters
- Coffee makers
- Curling irons
- Flat irons
- Hot plates
- Waffle irons
- Mixers
- Heating pads
- Blankets
- Shavers

MANUFACTURERS have been allowed an increase of eight percent over their October 1-15, 1941, selling prices to compensate for part of the relatively permanent cost increases that have occurred during the war. Alternatively, manufacturers may take as ceilings the prices they charged during March 1942, a month in which some manufacturers' prices to distributors were already about eight percent above levels of the previous fall. If manufacturers sell direct to ultimate consumers, they are held to present ceiling prices on these sales.

DEALERS are guaranteed minimum margins on sales which, although slightly below average initial margins of 1941, are equal to or greater than margins actually realized during that year. With consumer demand for these appliances at an all time high, net profits of distributors and dealers, even with the absorption required in this order, should be at least as great as during normal times.

When the 10 percent Federal excise tax is in effect on an article it will be paid by the consumer in the dollar amount levied at the manufacturing level. No seller is permitted to take a mark-up on any part of the tax. Manu-

facturers will tag all merchandise with its correct retail ceiling price, inclusive of the excise tax.

Two Price Zones

This action divides the country into two zones. Any article manufactured in one zone and sold in the other will have a retail ceiling price five percent higher than when the added freight is paid by the distributive levels. One zone is composed of Arizona, New Mexico, California, Washington, Oregon, Idaho, Nevada, Utah, Colorado, Wyoming, Montana and the following counties of Texas: El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, Brewster, Terrell, Pecos and Reeves. The rest of the country constitutes the other zone.

Manufacturers are required under this order to maintain approximately their pre-war proportion of low end to high end merchandise under penalty of having reconversion increases reduced or revoked. Another provision aimed to prevent hidden cost-of-living increases is that prohibiting dealers from requiring tie-in sales, credit sales, trade-ins, etc., as a condition of sale.

Manufacturers with well established uniform ceiling prices in effect at retail before the war, and who wish to reinstate their selling pattern, may apply for permission to do so, providing the retail prices applied for do not exceed the prices that would be arrived at under other provisions of this order. Normal differentials between retail prices in specialty and other independent retail stores on the one hand, and chain stores and mail order houses on the other, are maintained in this order.

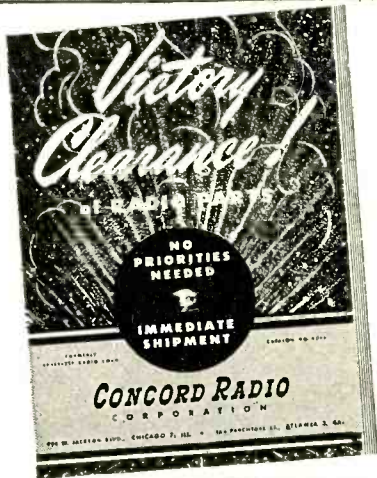
Concerning small electrical appliances already having ceiling prices under Order 4332 of Maximum Price Regulation 188 which provides a special method for setting tentative ceilings by new small volume manufacturers, the following situation now prevails.

Newcomers

Review of the tentative prices set by new small-volume manufacturers



[see page 55]

RADIO PARTS ELECTRONIC EQUIPMENT



FREE! CONCORD Victory Clearance Flyer

Ready now! 32 Bargain-packed pages listing thousands of standard-make, top-quality radio parts and electronic supplies—now available without priority at low VICTORY CLEARANCE prices. The values listed below are typical of the important savings offered in Meters, Condensers, Transformers, Resistors, Controls, Relays, Switches, Test Equipment, Generators, Microphones, Tools, and hundreds of Repair, Replacement, and Accessory Parts.

<p>D.C. Milliammeters</p>  <p>2 1/4" flange mtg. type. Metal case dull black finish. G.E. 0-200 M.A. C10650. Specially priced. \$4.95</p>	<p>Output Transformer</p>  <p>Hermetically sealed. Six studs, 1, 2, and 3 are pri. 4, 5, and 6 the sec. Pri. ind. at 5 V. 1000 cy. .20 H. Ratio sec. to pri. 3.02:1. Size: 3 1/4 x 2 1/4 64" 5B5045 Your cost... \$1.95</p>
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City..... State.....

In Trade

[from page 51]

duced by new manufacturers, ceiling prices must be obtained by application to OPA. The agency-approved prices will be in line with the price level set for other models under the order.

No provision is made for resale prices, since the greater part of all cabinet production is sold directly to radio set manufacturers. A survey of the radio industry now is in progress, however, to determine the increase factor to be applied to this group. Price increases allowed for cabinet manufacturers will be included in the increased materials costs used to compute the increase factor for the radio set industry.

Manufacturers who are required to apply to OPA for ceiling prices may not sell the models affected until they have received specific authorization from the agency. The present order provides for the establishment of ceiling prices to classes of purchasers other than radio set manufacturers. It also authorizes the agency to act on its own initiative in setting ceiling prices when manufacturers fail to make application or to file complete records. (Order No. 2 under Section 1499.159e of Maximum Price Regulation 188—effective October 16, 1945.)

Elected Vice Presidents of Sprague

At a recent meeting of the directors of the Sprague Electric Company, North Adams, Mass., Julian K. Sprague and Dr. Preston Robinson were elected vice presidents. Mr. Sprague's association with the firm dates back to 1926 when he became one of the original group of four employees at the old Quincy, Mass., plant where he served as production manager. He has been actively engaged in sales engineering phases of the business since that time, and is a member of the board of directors. Dr. Robinson, also a director, has been associated with the company since 1929, serving as chief engineer and director of research.

Stromberg-Carlson Dealer Manual

The radio sales division of the Stromberg-Carlson Company, Rochester, N. Y., started its full-scale campaign to introduce its 1946 line of home radio receivers, with nationwide mailing of sample copies of the company's new dealer manual. The four-color 54-page manual, with a pressed-board cover, simulates a rec-



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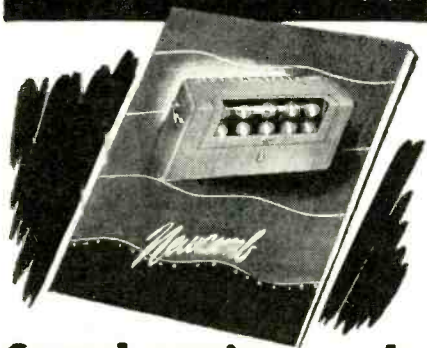
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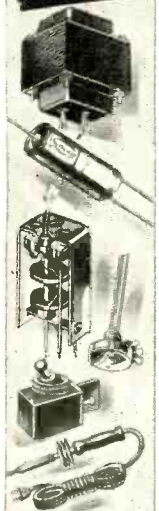
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Please send FREE Buying Guide Supplements

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ORDER FROM RADOLEK

ord album. Each of the nineteen set models in the line* is given a full page, true-to-life photograph and a complete description.

Clifford J. Hunt, manager of radio sales, declared: "Market research studies, and the consistent high records attained by company advertising and sales promotion have broadened consumer acceptance, and paved the way for sales and profits."

The mailing of the dealer manual was completed ten days after the coast-to-coast mailing of the second edition of the Stromberg-Carlson Dealer "Speaker". This included a 4-page center spread of the map of the United States with a photo of each of the company's distributors and factory branch representatives, each in its correct geographic location on the map.

*See "Merchandise Pre-Views", page 41, October, 1945 **RADIO SERVICE DEALER.**

Small Appliances

[from page 53]

under Order 4332 since its issuance has revealed serious abuses in the field of small appliances. Some items have been found with ceilings three or four times as high as the adjusted ceilings of established manufacturers. Furthermore, the proportion of total supply appearing at exorbitant prices is so high as to defeat the purposes of Order 4332 and the acquisition of materials and arts at artificially high costs is interfering with orderly reconversion.

In the light of this situation, OPA has concluded that the method originally provided for repricing the articles tentatively priced under Order 4332 will not prove satisfactory. OPA is now developing a method of repricing these articles to be used in place of the original method. This method, which will recognize the special problems of the new small-volume manufacturers, will be announced shortly. Manufacturers will be informed as to what information must be filed by them.

New ceiling prices must be established by February 1, by the use of the method to be announced. On that date all tentative ceilings established for small electrical appliances under Order 4332, together with any ceilings already fixed under that order on the basis of three months' production experience, will expire and will be superseded by the new ceilings. (Order No. 6, Small Electric Appliances—under MPR 188—effective December 21, 1945.)

LAKE'S

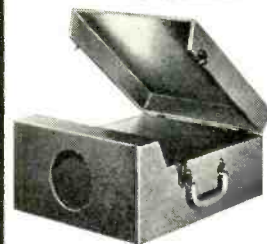
RADIO CABINETS & PARTS

NOW AVAILABLE Postwar 2 Post RECORD-CHANGERS



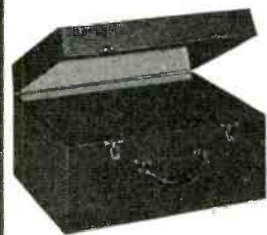
In luxurious brown leatherette portable case, 15" L x 15" W x 10" D. Latest electronic developments make this modern record-changer the finest on the market today!

List Price... \$49.95 Dealer's Net... \$29.97



Portable Phonograph Case in brown leatherette covering. Inside dimensions 17 1/2" long, 13" wide, 7 1/2" high. Has blank motor board and opening for speaker. As illustrated at left, specially priced at

\$7.95



Portable Phonograph Case of sturdy durable plywood, in handsome brown leatherette finish. Inside dimensions 16 1/2" long, 14" wide, 9 1/2" high. Has blank motor board. As illustrated at left, specially priced at

\$6.95

Also blank table cabinets of walnut veneer in the following sizes, with speaker opening on left front side:

#1	8 1/4"	L x 5 1/2"	H x 4"	D \$1.95
#2	10 1/4"	L x 6 3/8"	H x 5"	D \$2.75
#3	13 1/2"	L x 7 3/8"	H x 6 1/4"	D \$3.25
#7*	10 3/4"	L x 7"	H x 5 1/2"	D \$2.50
#8	17"	L x 9"	H x 9 3/4"	D \$4.50
#9	21"	L x 9 1/4"	H x 10 1/2"	D \$5.50

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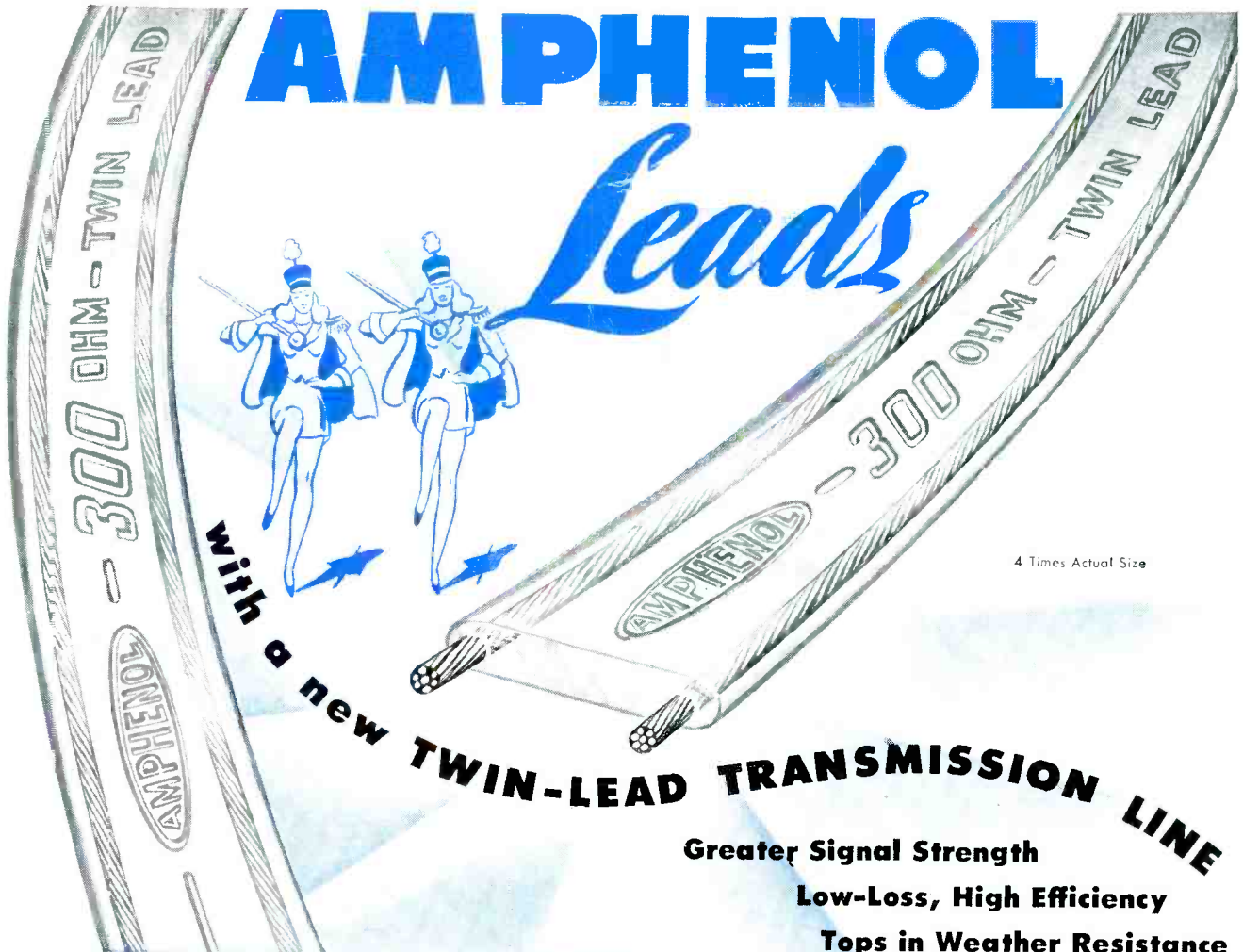
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AMPHENOL

Leads



Greater Signal Strength
Low-Loss, High Efficiency
Tops in Weather Resistance

ELECTRICAL DATA

TWIN 300 OHM

Amphenol "Twin-Lead" Transmission Line is available in 300 ohm impedance value. RMA standardized on 300-ohm lead-in line for Television as the most efficient over broadband operation.

TWIN 150 OHM

Amphenol also supplies 150 ohm twin-lead to those interested in particular applications and experimental work.

TWIN 75 OHM

Designed especially for amateurs who operate in very narrow bands of frequency or one particular frequency. Ideal for dipoles with a nominal impedance of 72 ohms at the frequency for which they are cut.

Dielectric constant of Polyethylene—2.29. Capacities (mmf per ft.): "300"—5.8; "150"—10; "75"—19.

Velocity of propagation (approx.): "300"—82%; "150"—77%; "75"—69%

Power factor of Polyethylene—up to 1000 Mc—.0003 to .00045. Attenuation—FM and Television Band.

Megacycles	DB per 100 Ft.		
	300-ohm	150-ohm	75-ohm
25	0.77	0.9	1.7
30	0.88	1.03	2.0
40	1.1	1.3	2.5
50	1.45	1.8	3.4
80	1.8	2.25	4.3
100	2.1	2.7	5.0
200	3.6	4.7	8.3

Amphenol's "Twin-Lead" is a solid dielectric line that transmits signals from antenna to FM and Television receivers with extremely low loss. It's tough . . . inexpensive . . . easy to install . . . repels water . . . and is unaffected by acids, alkalies and oils because the dielectric is Amphenol Polyethylene.

In temperatures as low as -70°F . Twin-Lead Transmission Line stays flexible and does not become brittle after continuous aging in sunlight. In such outstanding qualities Amphenol's "Twin-Lead" is a wire of exceptional efficiency, life and utility.

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Chicago 50, Illinois

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profits
start!



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