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Radio Service Dealer

Test Equipment Schematics
Multi-Testers for New Service Plan
Records Build Store Traffic

September, 1944 25¢
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It’s true some radio parts are hard to get—but there’s no shortage of helpful service information. With these valuable Mallory handbooks, you’re assured of a speedy answer to ‘most every problem that pops up.

Servicemen everywhere are depending on these comprehensive reference works to speed up work and to save valuable man hours. Here are some of the subjects covered:

**M. Y. E. Technical Manual**—408 pages packed with information on radio practice and theory. Covers Loud Speakers and Their Use... Superheterodyne First Detectors and Oscillators... Half-Wave and Voltage Doubler Power Supplies... Vibrators and Vibrator Power Supplies... Automatic Tuning... Frequency Modulation... Television... Capacitors... Phono-radio Service Data... Practical Radio Noise Suppression... Vacuum Tube Voltmeters...

Useful Servicing Information... Receiving Tube Characteristics. Available from your Mallory distributor. Price $2.00.


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Sylvania offers you ready-made forms, imprinted with your name, at cost, to streamline your paper work.

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BUSINESS RECORD BOOK. A simple week-by-week bookkeeping system, specially designed for your business. Used with Three-in-One Service Forms, it gives you complete business records for tax and other purposes. $1.00.

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Radio Service Dealer

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

VOLUME 5, NUMBER 9  SEPTEMBER - 1944

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SANFORD R. COWAN....Editor & Publisher LEWIS C. STONE.......Managing Editor
CHARLES H. FARRELL .Advertising Manager SYLVIA BORNKOFF.......Circulation

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Resumed Civilian Production

ALTHOUGH appliance manufacturers have been given the go-ahead signal by WPB, material shortages greatly retard most production schedules, and will for a while. Motors for mixers, refrigerators and vacuum cleaners and chrome-nickel wire for toasters and ironers are practically unobtainable.

No civilian radio set production is likely to be authorized this year but will be as soon as Germany falls. Signal equipment orders exceeding a quarter-billion dollars a month are being processed by manufacturers, leaving them no facilities for civilian production.

Most receiver manufacturers have already announced that they are all set to resume civilian production and merely need a green light. Dealers, distributors and the buying public are straining at the leash waiting for merchandise. When Germany goes “Boom!” radio-appliance dealers will enjoy a boom, and that’s not double-talk.

War Veteran Subsidies

IT is rumored around the Capitol that legislation is being considered whereby honorably discharged war vets, who want to start their own business, may be granted a Government loan, subsidy or bonus approximating $2,000. Such an amount would amply suffice to establish a radio-appliance service dealer business. Millions of men in the Armed Forces have learned a lot about radio in the past two years and naturally many plan to make it their postwar life profession.

Progressive dealers, meanwhile, are already accepting down-payments on to-be-delivered radios and appliances, with customers to be served in order of receipt of their commitments. Better start looking into this clever merchandising idea.

“Victory Line” and L-76 Revoked

WPB made two excellent moves on August 28th. First, the production of so-called “Victory Line” components was ordered stopped so manufacturers can concentrate their efforts on standard lines, the increasing over-run of which is to be made available for civilian use. Second, L-76 which prohibited the production of many tube types, especially battery set types, and which limited production to 117 types, was revoked. Dealers must not expect distributors to get immediate delivery of standard parts or scarce tubes for the “Victory” parts will still come through for some time, and tube makers are not able to swing into restricted-type tube production at once. But the over-all picture is brighter.

Impending Industry Conference

THE October 19-21 Electronic Parts & Equipment Industry Conference being held at Chicago, co-sponsored by the RMA’s Parts Division, Sales Managers Clubs and NEDA should accomplish great deeds for the industry as a whole, and particularly for dealers and distributors.

It is regrettable that no one organization, national or sectional, exists to represent the interests of all service dealers at the Conference. As the bulk of the Nation’s leading service dealer establishments subscribe to this publication, we shall try to represent them, “sincerely although not with official authorization.”

S.R. Cowan
measuring mighty muscles
of midget motors

- The might of this midget motor is no secret to this special dynamometer used in the Utah laboratory. It accurately measures the horsepower; actually predetermines the successful performance of this Utah motor in its many vital functions in actual use.

Utah's complete testing service is playing an important part in the war effort today, and is scheduled for an equally important role tomorrow ... in adapting war-born electronic and radio developments to commercial and consumer needs.

Every Product Made for the Trade, by Utah, Is Thoroughly Tested and Approved

Keyed to "tomorrow's" demands: Utah transformers, speakers, vibrators, vitreous enamel resistors, wirewound controls, plugs, jacks, switches and small electric motors.

Utah Radio Products Company, 836 Orleans Street, Chicago 10, Ill.
Zenith Policy for Dealers

H. C. Bonfig, vice president, in charge of household radio, announces that Zenith Radio Corporation's program of future expansion has now reached the point where it is time for distributors to begin active work on adding strength to the company's already virile and aggressive dealer organization.

Zenith has already decided on a number of fundamental policies: "First," Mr. Bonfig stated, "Zenith is committed to a policy of remaining in the radionics field exclusively. This was announced at a Philadelphia conference with distributors-the first active in virtually all other fields of radio research, development and manufacture. The radio division at Baltimore and the company's lamp division at Bloomfield, N. J., build basic electronic equipment for broadcasting stations.

Motorola's Trade Plans

The sales management of the Galvin Manufacturing Corp., is now developing complete plans for post-war radio distribution, many of which will soon be announced to the trade. The company will resume the civilian production of a complete line of AM and FM home radio, automatic phonographs, portable and personal radios, standard and specific automobile sets, and 2-way radio telephone systems. Immediately the green light has been given by WPB, Motorola will be in an excellent position for quick conversion, as they have concentrated wholly upon radio manufacture throughout the war period.

Bendix Home Radio Sets

Ernest R. Breech, president, announces the Bendix Aviation Corporation will manufacture and market a line of home radio sets through Bendix Radio Division, as soon as the military situation permits. Improvements in quality and performance of chassis components, speakers and record-playing mechanisms will be features of the complete line of AM-FM home radio and radio-phonograph combinations, to be manufactured at the Baltimore plant.

Models will be offered to the public at popular prices through selected distributors and retailers. Campaigns in national and local media acquainting the public with the new lines will begin as soon as the company's war production program is complete. This production includes aircraft radio receivers and transmitters, ultra high frequency and micro-wave equipment, aircraft instrument landing systems, precision static dissipators, and more recently adaptations of military models to intercommunication units for railways and municipal mobile equipment.

Mr. W. P. Hilliard, general manager of the Radio Division, believes that the tremendous volume of production for war (which recently reached a $200,000,000-a-year level) has pointed the way to production of high quality radio equipment at a price well within the range of the average person's peacetime pocketbook. In the meantime, the company is establishing distribution and sales channels to prepare for transition to peacetime production, merchandising and employment.

Stromberg-Carlson Gets Set

Clifford J. Hunt, sales manager of the radio division of the Stromberg-Carlson Co. of Rochester, N. Y., announcesthe appointment of Frank J. McCloskey as division sales representative. He will contact distributors and key dealers of the company's lines of radio, F-M and television sets. Mr. McCloskey will also aid in the establishment of distribution and sales representative positions, opening of key trading areas in readiness for the time when the post-war line is available and supervising the selection, training and assignment of sales personnel.
CAMERAMAN TRACKS DOWN A TRADITION

Come war or high water, there is one tradition in the radio industry that continues to stand the test of time! It is the traditional quality for which every Meissner product is famous. With this in mind, our roving photographer recently made another trip to Mt. Carmel, Ill., just to track down the source of this priceless asset.

Interesting, intricate are words which might well describe some of Meissner's highly specialized equipment (above and below) but "precision-el" is the one word which fits the company's highly trained personnel.

Father and (right background) son are typical of the way Mt. Carmel families have turned to electronics for lifetime work. Meissner is Mt. Carmel's leading industry.

MEISSNER
MANUFACTURING COMPANY • MT. CARMEL, ILL.
ADVANCED ELECTRONIC RESEARCH AND MANUFACTURE
(Export Division: 25 Warren Street, New York; cable, Simontrice, New York)

September, 1944
Sprague's New Capacitor Catalog

Dry electrolytic capacitors are establishing new standards of performance on applications formerly reserved for more costly types, and the new Sprague Dry Electrolytic Catalog No. 10 contains compact "Size Factor Tablets" to make it easy to select a capacitor of the proper size, shape, voltage, and capacity, or any desired combination. Types cataloged include cardboard and metal tubulars, cylindrical metal container types, high-capacity low-voltage, cylindrical "FP" types, octal base, A-C motor starting and special purpose types. Application notes include a number of characteristic charts. Copies can be had from the Sprague Electric Co., North Adams, Mass.

Emerson Distributors

Charles Robbins, vice president, announces appointment of Neidhofer & Co., Milwaukee, Wis., and Auto Equipment Co. of Denver, Colo., Dixie Radio Supply Co., Columbia, S. C., and James Supply Company, Chattanooga, Tenn., as distributors of Emerson Radio products in those territories. Activity on the widely heralded Emerson Radio "P.D.Q." Plan will be instituted by these firms immediately. Under this plan, the dealer issues a preference certificate to the consumer, which helps expedite early delivery of the type of radio set for which the consumer expresses preference when signing the "P.D.Q." Register in the dealer's store. The plan is being utilized by thousands of dealers throughout the country.

White Star to Utah Radio

Fred R. Tuerk, president of Utah Radio Products Co., announces a White Star Award signifying that the firm has maintained the high standard set six months ago when they won the Army-Navy "E" pennant. Three Chicago plants and another in Huntington, Indiana, are producing radio and electrical equipment for the armed forces.

E. Bruce McEvoy

Sylvania Personnel Changes

C. W. Shaw, general sales manager of the radio tube division of Sylvania Electric Products Inc., announces promotion of Philip M. Pritchard to manager of equipment tube sales for the east central division. The new manager was for eight years a member of the company's radio division sales staff. E. Bruce McEvoy is appointed as assistant to L. S. Raynor, radio tube equipment sales manager for the eastern division. Recently discharged from the army, Mr. McEvoy was formerly with North American Lamp Company and with Ken-Rad Incandescent Lamps Division. Both appointees will work out of the New York office.

Weston Staff Changes

Caxton Brown, president of Weston Electrical Instrument Corp., Newark, N. J., announces changes in the engineering department. John H. Miller is promoted to chief electrical engineer; Karl M. Lederer is assistant director of research, and W. N. Goodwin, Jr., continues as vice-president in charge of research and engineering.

Jobs for Signal Corps Veterans

Wesley M. Angle, president of Stromberg-Carlson Co., Rochester, N. Y., is chairman of the subcommittee on post-war employment problems of the National Association of Manufacturers. In an article published by the Institute of Radio Engineers, he makes the point that today's war-accelerated uses of radio, radar and electronics makes it imperative that the nation's radio engineering-minded youth in the armed forces or at school assume their places in the profession with the least possible delay. These young engineers of recent training must be looked upon as the "new blood" and the potential discoverers of new applications of communications' principles. The field of communications engineering promises to offer richer, fuller and more compelling interests than its sister fields in tomorrow's world.

Aerovox Awarded "E"

For excellence in war production, the Army-Navy "E" Award has been made to Aerovox Corporation, New Bedford, Mass.
Ranges Coming In

A drop in the bucket compared to the estimated demand is WPB’s authorization of three manufacturers to produce a total of 5,638 standard, four-burner ranges this year. It’s said that production might be delayed by the need for preparing equipment for conversion.

The Government hopes to authorize production of 88,000 electric ranges for household use this year, or about 16 per cent of the pre-war output. But none of the four-burner ranges will reach dealers until late in the year, and most of them not until early in 1945. Then, only for essential replacements sales.

(Continued on page 8)

General Mills Appoints Imhoff

Harry A. Bullis, president of General Mills, announces the appointment of Roscoe E. Imhoff as sales manager in charge of home appliance sales with headquarters in Minneapolis. The home appliance line is part of the company’s Mechanical Division under the supervision of A. D. Hyde, vice president.

The company’s plans provide for a line of volume-selling small home appliances, as typified by coffee makers and home mixers, to be sold through conventional trade channels.

With Westinghouse since 1919, where he had last been sales manager of the merchandising division, Imhoff left in 1940 and joined Proctor Electric Company as vice president and general sales manager. With this appointment, General Mills begins to build a sales organization to market its lines of appliances which are expected to be ready as soon as reconversion permits.

These 2 GHIRARDI BOOKS
Will help you to Diagnose, Locate and Repair Receiver Troubles
EASIER • BETTER
and FASTER

RADIO TROUBLESHOOTER'S HANDBOOK

444 big pages, check-full of just the kind of time-saving, money-making, tabulated and charted servicing data that servicemen are finding invaluable! Only $5.00 each!

HERE'S HOW TO TEST A RADIO IN 2 MINUTES or less!

Ghirardi's RADIO TROUBLESHOOTER’S HANDBOOK isn't a "study book." It is an on-the-job data book to be referred to in your everyday work for troubleshooting on every model you are called upon to repair! First, look up its model number in the big Trouble Case History Section of the Handbook which lists common troubles and their remedies for over 5,000 models of receivers and record changers. Then, in the big New Model section, you get data that will help you diagnose and locate the trouble quickly - and without anything to do with any test instruments! It's the largest, most comprehensive, most up-to-date guide to servicing radio equipment in the world. Only $9.50 each! Mail this order blank today!

Make More Money!

RADIO TROUBLESHOOTER'S HANDBOOK

5-DAY MONEY-BACK GUARANTEE

MAIL THIS COUPON NOW!

EASY • BETTER

REPAIR ANY KIND OF RADIO EQUIPMENT
PREPARE FOR A BETTER JOB AS A RADIO-ELECTRONIC TECHNICIAN

Name ____________________________
Address ___________________________
City (and Dist. No.) ____________________ State ___________________________

DIAGNOSE, LOCATE AND REPAIR ELECTRONIC TROUBLES

Ghirardi's RADIO TROUBLESHOOTER’S HANDBOOK: 2 big handbooks weighing over 4 pounds in paper and 1500 pages of data will make more money for only $5 complete ($5.50 foreign). Order today!

EASY • BETTER

REPAIR ANY KIND OF RADIO EQUIPMENT
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A drop in the bucket compared to the estimated demand is WPB's authorization of three manufacturers to produce a total of 5,638 standard, four-burner ranges in October, November and December. They are: Frigidaire division, General Motors Corp.; 2,344 ranges; 2,500 ranges from General Electric division, Proctor Electric Co.; and 794 ranges from General Electric division, General Motors Corp., which are expected to be ready as soon as reconversion permits.

Ranges Coming In

A drop in the bucket compared to the estimated demand is WPB’s authorization of three manufacturers to produce a total of 5,638 standard, four-burner model electric ranges in October, November and December. They are: Frigidaire division, General Motors Corp., 2,344 ranges; 2,500 ranges from General Electric division, General Motors Corp., and 794 ranges from A. J. Lendemann and Hoverson.

These producers are able to meet their quotas without interference with war work. Since standard ranges have not been made for about two years, it is said that production might be delayed by the need for preparing equipment for conversion.

The Government hopes to authorize production of 88,000 electric ranges for household use this year, or about 16 per cent of the pre-war output. But none of the four-burner ranges will reach dealers until late in the year, and most of them not until early in 1945. Then, only for essential replacements sales.

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(Continued on page 8)
Radio Service Dealer

Men Trained in Radio and Electronics
Now Available Through V.S.C.

Veterans Service Centers Now Placing
Technicians Trained by Army and Navy

New York—Sept. 1, 1944—Employers seeking the services of trained Army and Navy technicians, who have been working on radio, electronic, and communications equipment are advised to communicate with:

1. The local draft board; and its Re-employment Committee.
2. The local United States Employment Service office. Veterans apply here when they know the work they want.
3. The Veterans Service Center. To this Center go servicemen in doubt about the kind of work they want.

There are thousands of men who know something of radio before the war, who have spent their term of service working thoroughly in the theory and practice of electronic equipment.

During the past three years Rider Manuals and Rider Books have been providing "The Extra Hand" needed to replace radio servicemen who had joined the armed forces. Now, however, men are being released; more will be available with each victory.

Thousands of them are trained radio and electronic equipment maintenance men who can help you turn out the huge volume of work you have in your shop.

But they will need authoritative servicing information if they are to operate at peak efficiency.

Check your Rider Manuals. Do you have all thirteen volumes—a set for each bench? Check, too, the list of Rider Books at the right. These are chock full of helpful hints on civilian set maintenance; should be made available to all your new men.

PLACE YOUR ORDER TODAY

RIDER MANUALS
GIVE YOU THE HELP YOU NEED!

Get EVERYTHING!

Standardize on STANCOR Transformers

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In Trade

Government to Release
Surplus Tube Stocks
Through Manufacturers

According to Bob Almy, manager distributor sales, Sylvania Electric Products, Inc., radio tubes are one of the first items in the electronic classification which the government has listed for disposal. Radio tubes were selected because there are relatively few manufacturers and a critical civilian shortage exists.

The first lot of radio tubes which has been declared surplus by the government will soon be released. The exact quantities are not yet known. It is believed that the majority of receiving types can be absorbed quickly in the civilian market, if they are not needed for war orders.

Bob Almy questions if the first tube release will make a sizable dent in the overall shortage condition; and when distributed nationally, will not be particularly noticeable to individual radio service dealers and their customers.

On tube production, reports from the field show that deliveries of "MR" tubes have generally improved during the past sixty days. Certain types such as the 12SA7GT/G and the battery types continue on the "acute" list.

Of the 4,500,000 "MR" tubes scheduled by WPB for the third quarter of this year, it is doubtful if the goal of 1,500,000 per month will be exceeded appreciably. The WPB is reviewing fourth quarter schedules, though, with the view of authorizing additional "MR" production, particularly critical types. Our feeling is that the fourth quarter will see gradual improvement in "MR" deliveries in types and quantities.

(Continued on page 34)
The Army-Navy Production Award for outstanding achievement in producing vitally important materials essential to the war effort will be an added incentive to the management and employees of WARD PRODUCTS CORPORATION to keep producing more and better equipment for the men who are doing the fighting. While yesterday WARD Antennas were accessories for pleasure, today they are implements of War.
WANTED

"HOME ENTRY" AND "CONFIDENCE" WORKERS

BIG OPPORTUNITY FACING YOU

As a result of your knowledge and skill in radio, you are welcome in the homes of your community. Your statements carry weight because your customers have confidence in you. Have you thought what this sales advantage means to your future? To meet that future, when there may be less service work, MECK has planned a line of Radios and Phonographs that are Built to Perform and Priced to Sell. MECK is offering you "Rosy Future's" Date Book—Free—to record the future needs of your present service customers. Send for your copy today. Then — when "Delivery Day" comes, meet those customers' needs with MECK Radios and Phonographs.

Built to Perform—Priced to Sell!

WRITE FOR Free "DATE BOOK" NOW
Pocket size, durable—get started on YOUR post-war plans now. Just write—it's free!

BUY MORE BONDS—AND KEEP THEM!

DISTRIBUTED NATIONALLY THRU RADIO PARTS JOBBERS

MECK INDUSTRIES, PLYMOUTH, INDIANA, U. S. A.
ADDRESS DEPT. RSD-9

Radio Service Dealer
According to the findings of a meeting of the Electronics Distributors Industry Advisory Committee held recently in Washington under the auspices of the War Production Board, lines of radio replacement parts will remain standardized in accordance with the restrictions of WPB L-293, which is in effect for the primary purpose of conserving critical materials. Standard lines are now in existence on paper and electrolytic condensers, transformers and choke coils. Standardization of volume controls is not as necessary now as it was 2 years ago when the order was issued. As far as radio and radar equipment is concerned, the bottleneck is in manufacturing facilities and not in materials.

Deliveries of victory line transformers have been, according to reports, very poor, particularly on power transformers. It is believed that the victory line might as well be eliminated since transformers were fairly well standardized anyway. A further objection to the victory line is the lack of a small, 6-volt transformer, which would probably be the largest-selling type. The dimensions of the victory line transformers are too large for the chassis of a table model radio because the line is made to better specifications, involving additional materials such as larger core and more wire.

But some of the restrictions contained in the above order have been relaxed. Condenser manufacturers, for example, have been permitted to use aluminum cans. A similar step is planned for transformers, since producers who request it will be authorized to make specific quantities of their regular transformers for replacement purposes. That does not mean that a special run will be allowed, but merely an increase beyond the quantity for which the company has military and industrial orders. At present it does not appear that much production will be authorized until the fourth quarter of 1944, but by the end of the year the transformer situation should be better. In general, however, the radio industry may be one of the last to be freed from all restrictions.

Replacement Tubes

Early this year the WPB began issuing firm production directives on all glass GT receiving tubes. Manufacturers were directed to produce certain quantities of tubes of each type, marking them "MR" and to interchange a specified number with each of the other manufacturers on a basis comparable to the 1941 inter-manufacturer distribution. Manufacturers have been asked to allocate tubes to their distributors in accordance with their 1941 pattern for the sale of carton-packed tubes. Private-brand lines for which carton-packed tubes are purchased are included in the allocation, but equipment manufacturers who buy tubes in bulk and then repack them are not. Each tube manufacturer has presented a definite distribution plan, which has been approved by the WPB.

But radio service dealers should bear in mind that the peak in war production has not yet been reached in the electronics industry. To meet this year's schedules the industry must produce during the last half of the year at a rate 25 per cent greater than ever before. But in receiving tubes, all military requirements for metals, glass GT's, and locktals should be met during the third quarter.

On the basis of a yearly requirement of 18,000,000 tubes, virtually all civilian requirements should be produced during the third quarter (which ends in September). Since the going rate for the first 5 months has been only 16,000,000 a year, the situation is improving. While the

Tubes for Dealers

Insofar as distribution of tubes is concerned, the point might be made (which RADIO SERVICE DEALER has made time and again) that in metropolitan areas especially dealers are not receiving fair treatment, because numbers of distributors are holding tubes to use in their own servicing departments rather than allocating them to dealers. Because of complaints received from consumers in small markets, changes in WPB-547 have been suggested which would rate distributors on their past sales and the number of large and small orders they filled. The total number of tubes actually manufactured. But it is generally believed that no change should be made, and that the present system in which quantities to which ratings were assigned were based only on distributor's past sales, should be given a longer trial. And anyway, many of the complaints are considered unjustified, in view of conditions. If there were sufficient production of a limited number of critical types for one quarter, the problem would clear up automatically.

There are about 20 types of tubes that are the most urgently needed, and except for the fact that the greatest complaint in rural areas has to do with the lack of battery tubes, production of which was stopped by L-76, other complaints are not always so well justified. The loudest protests come often from those who were not in the radio business in 1941 or from dealers who are unwilling to take any stock except the most critical types of tubes. Actually, distributors have been reluctant (to put it mildly) to allocate any tubes to dealers who are entitled to them unless they agreed to buy a lot of extremely slow turnover tubes as well. —L.C.S.
WEEKS & DICKINSON have been in the record-merchandising business for over 25 years. The war has changed many aspects of their record-vending business but it has added new and unusual selling methods which are well worth discussing.

Weeks & Dickinson believe that the average defense worker invariably is thoroughly tired after putting in a hard day at a lathe or drill press. Music is the most satisfactory way of giving them a “lift.” For that reason, this music dealer sponsors a half-hour weekly radio program consisting of recordings of music requested by defense workers in the community. Any worker may come into the store and leave the name of his or her favorite tune—classical or otherwise—to be played on a forthcoming program. Names are not mentioned but the recordings are played and the worker recognizes his desired musical number.

Another feature of Weeks & Dickinson's wartime program is the establishment of a “Service Bar.” This counter features musical recordings which can be sent to boys and girls in the service. Practically every domestic camp has one or more phonographs available and the boy or girl receiving his or her recordings from home can easily arrange to have them played without undue difficulty.

At this counter may be found the “Service Hit Parade,” a list of numbers especially popular with servicemen and servicewomen. This acts as a guide to the purchase of records.

In business 25 years, this record merchandiser makes a “specialty” of variety in discs. “Service Bar” offers special numbers for armed forces. Children are made record-conscious thru clubs

by George Whittaker

12

Record Exchange

BUILDS STORE TRAFFIC

Radio Service Dealer
In order to especially plug this "Service Bar," Weeks & Dickinson recommends a five-minute weekly radio program entitled, "In the Service." On this program news of promotions, transfers, and other happenings of interest to armed forces are mentioned. Naturally, the commercial stresses the desirability of giving records to servicemen on their birthdays, anniversaries, or just any old time.

Nor is this the only "Bar" at Weeks & Dickinsons. They have a "Salesroom Bar" which has another section of the store where musical recordings of interest to boys and girls from the first grade through high school are featured.

Boys and girls have a special club of their own where they make a purchase of at least two recordings per month. At the end of four months, when eight records have been purchased, they receive a record absolutely on the house. Selected lists of recordings are made up and a mimeographed copy of the list is given to each pupil in the school system. The list is divided into sections, each section featuring recordings which have particular interest to students of say the first, second, fifth or seventh grades. Teachers are more than happy to give out these lists to pupils because it makes their classroom more musically inclined. It takes but a little time to mimeograph these copies and children are asked to look over the list and talk over the list with their parents.

Weeks & Dickinson realize that the average family is more apt to have a victrola in its home that is not being used than it is a radio. Families are so used to twisting a dial to pick up the radio news that they do not think of the enjoyment to be derived from their phonograph. For this reason, the firm runs a series of newspaper displays pointing out the advantages of phonograph usage. Among the advantages mentioned in the ad are (1) ability to play a tune over again as often as desired; (2) freedom from static or man-made interference; (3) usefulness of the victrola to allow children who practice on the piano or some other musical instrument to appreciate the way a real professional plays a certain tune or passage.

Also, they run ads pointing out that by running the phonograph more and the radio less for the duration, scarce radio tubes and other parts may be conserved, for it is a well-known fact, says Weeks & Dickinson in the ad, that if a radio gives out, it may not be repaired for some weeks or even months.

The company also promotes a record exchange where possessors of recordings two, three or four years old may trade them for other used recordings. Those having used records bring them to the store to trade them for others which they desire. This department is in charge of a saleslady who concentrates entirely on the recordings from one to fifteen years old. The trades are usually "even-steven," though occasionally money is involved. Weeks & Dickinson makes no direct profit—or very little, it is true, but this department but it is one of the greatest traffic-builders this store has ever known.

Emerson's Dealer support—P. D. Q.—keeps consumers "tuned-in" on buying radios.

Cover photo, showing actual point-of-sale easel display.

Announced by Ben Abrams, president of Emerson Radio and Phonograph Corporation, the company's new radio program, "You Can't Take It With You," is important to the marketing side of the radio industry as it will be used as a vehicle to publicize the great post-war plan for Emerson Radio dealers known as the "P.D.Q. Plan."

With the P.D.Q. Plan, the dealer gets: streamers for window display, point-of-sale counter easels, a Preference Delivery Quota Register with room for about 150 names on detachable blanks and a stub book of certificates. The customer gets: advice—to register with the dealer right then and there. In three stages the customer is moved along to the final result: 1. Sign the Preference Delivery Quota Register now. Write in your choice of the type of set you think you will want.

2. You will be given a Preference Delivery Quota Certificate to keep until sets become available.

3. Then all you will need do is bring in your certificate and every effort will be made to give you preference in your purchase of an Emerson Radio.

When civilian production begins it will take more than a year to catch up with the public demand for new radios... This is not an order. You will be under no obligation to buy. You pay nothing until you have made your purchase. Your Preference Delivery Quota Certificate simply means that you will be assured early delivery of a new postwar radio...

Dealers are asked to return only completely filled in register forms, direct to the manufacturer, although they may have gotten the register folios through their jobbers.

Naturally, this merchandising plan has attracted many "write-in" applicants. That is, those who have never before been radio or appliance dealers, but wanting to enter the field after the war find the PDQ plan tailor-made to help them break in to what promises to be a gigantically lucrative business. According to the advertising manager, the company considers such applicants, with few exceptions, to be sheer opportunists. They are eager to get in on the first "cream" demand, but will drop out when that tapers down to more normal levels. Well established outside retail outlets (such as department stores, or hard goods stores where radios are logical plus lines) may, however, be added to the roster of legitimate dealers where it is warranted by local competitive conditions.

The PDQ plan serves more than one purpose:
1. It qualifies the buyers well ahead of time, together with the models wanted.
2. Since the register provides spaces for checking two varieties each of radios, phono-radios and portables, besides "other types" (which customers fill in with "television" "FM" and the like) the company gets a preview of the kinds of models it should put into production first. Some customers have been found to indicate a "full-line" purchase, such as: 3 table models, 1 console combination, 1 3-way radio, 2 personal radios and 1 television set.

3. The column, "price I would pay," gives the company an idea of the range of models that can be most profitably produced for immediate postwar demand. With few exceptions Emerson finds that the prices entered by customers fall within established ranges, so the entries offer reasonably accurate indications of the kind of money the customer actually has for post-war radio buying.

The customary quotas for distributors and dealers are not being set up as yet—too early. But the stir being created by the P.D.Q. plan in the trade, and with customers through the radio program "You Can't Take It With You," is accomplishing a great deal towards making the public radio-purchase-conscious, against the strenuous competition offered by other types of consumer goods.
Advice to worn appliance users in handy booklets arranged for dealer-imprints.

NEW Servicing Plan “KEEPS 'EM WORKING”

by LEWIS C. STONE
Managing Editor

A STREAMLINED household appliance service plan designed by General Electric to improve service facilities to the consumer, and at the same time to cooperate fully with WPB's material conservation effort by conserving replacement parts for use only in making essential repairs, is in operation in San Francisco, Boston, Atlanta, New York, New Jersey, Philadelphia and Chicago, with additional locations being planned. A separate service program for radios and combinations is being developed by the radio, television and electronics department of the company.

This operation need not interfere in any way with already well established and smoothly functioning distributor and dealer service facilities. With the aid of local advertising the centers make it easier for housewives to avail themselves of reliable servicing, and it may mean a permanently improved system of appliance service to the public. The way the regional service centers may operate will vary with the particular problems and requirements of the areas which they serve.

Some distributors, for instance, (particularly in metropolitan areas) may call on the service centers for parts only. Others will encourage their appliance service center dealerships (qualified service dealers) to make use of the regional centers not only for parts, but also for service facilities over and above the standard services performed by dealers.

Each distributor or dealer within servicing distance of the regional centers will have the advantage of drawing upon a more complete local stock of replacement parts than he might be able to maintain, and he will not be required to have a large investment tied up in parts. Moreover, there will be fewer replacement parts lying unused on the shelves of one regional service center than would be required to fill the shelves of each of several distributors. Therefore, the plan allows a smaller backlog of parts in each region, thus conserving parts and making them readily available to the customers who need them.
**Dealer Service Centers**

G. E. dealers who are in a position to offer adequate repair facilities in accordance with minimum standards outlined in the plan, are authorized as local G. E. appliance service centers in their communities. Fundamental and refresher courses of instruction are available to the servicing personnel of appointed dealers. Such dealers are required to have the following qualifications:

1. Adequate trained personnel.
2. Adequate stock of supply parts on all products serviced by the dealer.
3. Shop equipped to make minimum standard repairs.
4. Installation and service records.
5. Up-to-date file of service manuals, price lists and catalogues.
6. Handle with courtesy calls for service which he is not equipped to render, which means either sub-letting the job to the nearest qualified shop or directing the customer to one.
7. Identify his store adequately as a headquarters for G. E. service, with decalcomania displays and local advertising.
8. Equip all servicemen with adequate tools.

**How It Works**

Let's suppose that dealer Jones in Fitchburg, Mass., is the local G. E. appliance service center. He handles a fairly complete line of appliances and can make all of the repairs required in G. E. minimum standards for dealer service centers. A Mrs. Smith comes in to dealer Jones with a number of G. E. appliances which were broken when a moving van was damaged in an accident. The items include a refrigerator, range, cleaner, fan, clock, and radio.

Jones has on hand the most commonly called for repair parts on most of the appliances. But in the accident, several of Mrs. Smith's appliances suffered unusual damage. Through his distributor Jones orders from the regional G. E. appliance service center (in Boston) the parts he needs for repairs which he is able to make. The parts are shipped the same day if his order reaches the center before 4 p.m., and the parts arrive at the store the following morning. Overnight service is the aim of the regional centers within their coverage.

A few repairs on the range are of major character and they require heavy, expensive equipment. The dealer ships those jobs to the service center. Jones doesn't sell clocks, but he has on hand full information on the repair of Mrs. Smith's clock. He may either sublet the clock repair job to the nearest authorized G. E. clock repair shop, or he may tell Mrs. Smith where to take it, depending on circumstances.

Jones can handle Mrs. Smith's radio, as he happens to be a qualified G. E. radio service shop, besides being the local appliance service center. If this were not the case, he would sublet the radio repair job to another qualified G. E. shop.

Rebuilding of sealed refrigerator units requires factory equipment, and this job is too big even for the regional appliance service centers. This kind of job is handled by five G. E.-owned factory rebuilding centers in operation in Long Island City, N. Y., Cleveland, Schenectady, Kansas City and San Francisco.

Following the principle of "restored service" only for the duration, G. E. is asking its qualified local service centers not to sell parts unless the parts are necessary for the operation of an appliance. Every effort will be made to prevent a run on parts. No consumer will be encouraged to keep on hand spare parts, for only by using such parts judiciously can essential "restored service" be maintained.

**Dealer Helps**

Compact folders and a booklet intended for appliance users, giving common-sense suggestions for keeping appliances in good working order are distributed to dealers for use in conjunction with the service program. In preparing these leaflets (see illustration) G. E. enlisted the aid of home service editors of national magazines, advertising managers of several central stations and housewives themselves. This pre-tested literature is designed to help customers avoid making unnecessary calls on the service dealer and, on the other hand, to encourage service calls in place of amateur tinkering when such a call is advisable.

The policy is to have the customer bring the smaller appliances to the

(Continued on page 30)
Through the cooperation of test equipment manufacturers we are publishing a series of hitherto unavailable schematics of their instruments. The circuit diagrams will be published without technical comment in a series of "Portfolios" of which this is the first. Subscribers desiring publication of circuits for specific instruments should write to Editor, Radio Service Dealer, for issue priority.

Precision Apparatus Co. Vacuum Tube Multi-range Tester, (Series EV-10).

RCA Tube Tester (Stock No. 156-D portable; No. 156-E counter type). Below: General Electric Co. Unimeter, (Model UM-3).
STROMBERG CARLSON 10 AND 11

The Stromberg Carlson 10 and 11 use special interstage audio transformers to couple a screen grid detector to a pair of 45 grids. A hum balancing arrangement requiring a split secondary is used. Under present conditions a replacement transformer of that type may not be obtainable, but a substitute can be used if the hum bucking circuit or balancing arrangement is changed slightly. The centertap of the secondary is connected to B. and a 25 ohm wire-wound potentiometer is used for balancing. If the hum is very loud, additional capacitance can be added to the filter system. The value required can be determined by experiment on individual sets of this type. The original circuit is shown in Fig. 1 and the modification in Fig. 2.

Submitted by Willard Moody

CARD 2

SERIES CONNECTION OF ELECTROLYTICS

When connecting electrolytics in series, choose capacitors of the same voltage and capacitance rating and parallel the capacitors with an inter-connected resistance-voltage divider in order to insure equal distribution of voltage between the capacitors. The resistors should be of the fixed composition type with a resistance tolerance of not greater than 10 per cent. Make sure that the wattage rating of the resistors is high enough to provide an adequate safety factor against damage from overheating. A typical arrangement used in replacing an 8 mfd., 600-volt peak, wet electrolyte by two 10 plus 10 mfd., 450-volt units is shown in the diagram.

Courtesy, Solar Capacitor Sales Corp.

CARD 3

ZENITH 1081; 1082

Set is dead on manual broadcast, otherwise OK. Trouble is usually in fixed compensating condenser in automatic tuning assembly which may be grounded to set frame. The remedy is to remove the assembly cover and dress bare lead away from the frame. —From Zenith Service Hints

CARD 4

REPLACING WET ELECTROLYTICS AND HIGH SURGE DRY ELECTROLYTICS

Properly installed miniature size capacitors can replace wet and high surge voltage dry electrolytics in practically all receivers. To insure satisfactory operation, the circuit surge voltage must not exceed the peak voltage of the replacement capacitor (325 volts for 450 volts working). In many cases this means series connection of replacement capacitors.

To determine the circuit surge voltage, temporarily replace the faulty unit by a 1 or 2 mfd., 600 or 1000-volt paper capacitor. Then connect a 1000 ohms/volt or higher resistance voltmeter across the capacitor. Watch the meter pointer as you snap the set switch. The surge voltage is the voltage at which the pointer hesitates after its first swing before beginning a relatively slow decrease to operating voltage as the set warms up. This test should be made with the highest line voltage which may occur in the location where the set will be used.

If the surge voltage is too high for a single miniature unit, connect units of the proper capacitance and voltage rating in series to serve as the replacement. Dry electrolytics with a capacitance as low as two-thirds of the original capacitance will usually be found satisfactory when replacing wet electrolytics.

Courtesy, Solar Capacitor Sales Corp.

CARD 5

FORMULA FOR SOLDER

In replacing bypasses and filters in older models of Majestic and Grunow radios, I find that practically all of them were made of tin foil. By saving this tin foil and melting it down and then mixing it with clean soft lead in the proportion of 6 parts tin to 4 parts lead, I obtained excellent solder for radio work. I cast the solder into sheets 1/16-inch thick and cut it into narrow strips. It should be used with soldering paste. Care must be taken not to overheat or burn the solder while melting it.

Submitted by E. C. Enter

CARD 6

EMERSON FU427

To correct a bad howl when the volume control is turned down, replace the 40 mfd. 25-volt condenser which is mounted below the main filter. Intermittent operation may be caused by a defective main filter (20-20-150).

Submitted by Spears Radio Service.

CARD 7

AUTO RADIO SNAGS

If the noise of the motor is heard only when the cowl antenna is above the roof level of the auto, place an .00008 condenser between antenna and ground. If the set reception fades while in the car, but checks favorably on bench test—mere alignment will not help. Replace the 0Z4 tube and the fading usually will be cured.

Submitted by Leon Stein, Mount Vernon, N. Y.
electrical instruments, or meters, are older than the electron theory and come from a long chain of inventions. The inventor of the dial and pointer, so prominent on early sun-dials, is lost in antiquity. Springs and jewels are of more recent development. The Nuremberg Egg, a watch, used a mainspring and was made in about 1500 A.D. by Peter Hele, of Nuremburg. A patent was granted to three English watch makers in 1704 for "jewels to pivot holes of watches and clocks." The inventor, Nicholas Facis, was originally a native of Switzerland. The D'Arsonval, a moving coil permanent magnet type of instrument, had a succession of evolutionizing developments from 1850 to 1888, when Weston gave us the modern instrument which has seen little basic change since then.

To understand more fully the use of the instrument which is the foundation of nearly all of our modern "Multi-Testers" and D.C. instruments, we must first review some fundamentals.

**ELECTRIC AND MAGNETIC FIELDS**

It is common knowledge that the earth revolves around the sun because of the pull of gravity. This gravitation is a field of force, or sphere of influence, attracting the earth to the sun, even though no physical bonds connect them. You will remember that a simple two-plate capacitor, or condenser, has a difference of potential between the two plates when charged. This difference of potential manifests itself by a dielectric field of force, often called the "electro-static field," or "electric field." This field is visualized as dielectric lines radiating from the plates of the capacitor through the dielectric which contains the charge. In drawings, the number of lines indicate the field intensity. Arrowheads on the lines are used to indicate the direction of the field. This is the direction in which a small, positively charged body would be moved if placed within that field. This is shown in Figure 1.

Figure 2 illustrates the direction of the lines of force for three conditions. Part (a) shows the lines of force around both a positive and a negative charge; part (b) shows the lines of force between two adjacent but oppositely charged particles; part (c) shows the lines of force between two adjacent but similarly charged particles.

An impressed voltage always produces an electric field proportional to the voltage strength. What we then term voltage may be considered the manifestation of an electric field.

We are all familiar with the fact that a "magnet" can attract a piece of iron or steel through space. There must then be a field of force between the magnet and the iron or steel attracted to it. We call this field of force the "magnetic field of force," or more simply the "magnetic field." We have also seen that an impressed voltage always produces an electric field that is proportional to the impressed voltage. Now, a flow of current always produces a magnetic field, the strength of which, in air, is proportional to the strength of the current.

Fundamentally, what is termed voltage is there only because the electric field manifests itself as voltage, and perhaps what is called current is there only because the magnetic field causes a phenomenon that has been termed current. Strictly speaking, electric energy is not carried by voltages and currents; it is carried by the electric and magnetic fields in which the energy is stored.

We have learned that a moving electric current sets up a magnetic field. In Figure 3 are illustrated the magnetic lines of force around a wire which is perpendicular to the printed page and through which electrons are flowing from the rear of the page toward the front. When two wires are side by side such that electrons, or current, through one move in the opposite direction from the other, the resultant magnetic lines of force are as shown in Figure 4. Here the current is flowing from the back of the page through the wire labeled (—) and back to the rear of the paper through the wire labeled (+). Current flow is herein taken to be the same as electron flow, from negative to positive.

If we now take a wire carrying an electric current and form it into a helix, we will have what is termed a coil, or inductance. The lines of force will then be concentrated as shown in Figure 5 so that the coil becomes an electro-magnet with a north and a south pole. It is to be remembered at this point that like magnetic poles repel each other and unlike magnetic poles attract each other.

When a wire carrying current lies in a magnetic field, the wire experiences a force tending to push it out...
"A"-MAGNETIC LINES OF FORCE BETWEEN TWO POLE PIECES OF PERMANENT MAGNET. CONDUCTOR THROUGH WHICH NO CURRENT IS FLOWING IS IN GAP BETWEEN POLE PIECES.

"B"-DISTORTED FIELD CAUSED BY CURRENT FLOW IN THE WIRE. FIELD STRENGTHENS BELOW WIRE, WEAKENS ABOVE WIRE.

Figure 6.

of the field. In Figure 6(a), a wire perpendicular to the page lies in a magnetic field between the pole pieces of a permanent magnet. No current is flowing through the wire and the magnetic field is undisturbed. In Figure 6(b) electrons are flowing through the same conductor from the rear of the page. Then a magnetic field is set up about the wire as indicated and the resultant field within the areas bounded by the pole pieces of the permanent magnet will be distorted. On the bottom of the wire the fields of the magnet and the wire are in the same direction and thus add together. On the top side of the wire they are opposing each other and thus tend to weaken the field in that direction. The wire will thus tend to move upward in the direction indicated by the arrow.

If this wire, in coil form, were now pivoted so it could not move out of the field, a torque would be applied to it, tending to rotate it within the field. Figure 7 illustrates such an arrangement where the coil makes up a electro-magnet which may rotate no more than 180 degrees, for at that point unlike poles of the magnets would face each other.

The amount of motion imparted to the pivoted coil is proportional to the strength of the opposing fields or to the strength of the current flowing through the coil. We have here then a current-indicating device which may be made into the conventional D'Arsonval type D.C. meter, with the addition of jeweled bearings, pointer and dial, and spring tension to limit the angle of rotation. Figure 8 shows this arrangement.

The reader is aware that the wire making up the meter coil offers some resistance to the flow of current and consequently there is a voltage drop across the coil. A meter is so designed that for full scale deflection value of current the resistance of the meter is small compared to the circuit resistance so that insertion of the meter in the circuit does not appreciably alter circuit conditions.

To measure current flowing through a circuit, that current must flow through the meter. Consequently the meter to measure current is always placed in series with the other circuit elements. This is shown in Figure 9.

Now let us suppose that with a meter designed so that the current for full scale deflection is 1 ampere, (Continued on page 20)
Records and Record Makers
by L.C.S.

Young stars are coming in ... Martha Stewart, radio and pix singer ... David Street, tenor in radio's Joan Davis-Jack Haley "Village Store" program ... both, to Victor. Discaster Dinah Shore ... in London, import pin-up by request of the boys abroad. Army Service Forces Music Section has Perry Como recording his air program ... "For the Record" ... on "V" discs for overseas shipment. Lena Horne takes them over at Chicago's Chez Paree ... and many a tune is jazz arranged for her by Fletcher Henderson's brother Horace ... her arranger and music director. Blue's "Music America Loves Best" takes on more jazzy features ... Mel Henke pianos and Adele Girard harps for the public ... following the recent Duke Ellington and Cozy Cole discs. ... orchestra and chorus by Jay Blackton. Spike Jones spiked chimes with cowbells in his antique grandfather's clock ... not enough spirit to ordinary chimes ... now Spike is happy every hour on the hour.

Duke Ellington ... was thieved-out of five saxes, five clarinets and a trumpet while in Canada ... on last day manager A. Calley got a phoneful about the whereabouts of the wherewithals-and found them safely right outside the door. Vaughn Monroe and his band get a new chirp while on at the Million Dollar Pier in Atlantic City ... Marilyn Duke, replacing Del Parker. Spike Jones puts a spoke in his own wheel ... released by Bob Burns to program on his own ... with the City Slickers, of course. Tommy Dorsey's success album ... names he helped make Frank Sinatra, Jo Stafford, the Pied Pipers, Connie Haines, others ... in "Tommy Dorsey, Starmaker" (Victor). Dinah Shore writes her experiences with the armed forces ... for army hospital publications, by request. Bonds and Ties went over big for Sammy Kaye ... Sam's tie was auctioned off in front of Times Square's cash-registered Fifth Loan drive ... fetched a cool $1,000 ... for which Sammy offered the bid-
der choice of his 350 cravat collection. ... Kaye will also give away 500 auto- graphed batons to promote war bonds ... it's his famous 'So You Want to Lead A Band' theatre stunt.

Dinah Shore ... entertains service-men somewhere in Europe ... and returns in time to start her new NBC spot in October. New recorder Martha Stewart ... in first "Music America Loves Best" NBC show, with Sigmund Romberg ... Future shows will have top pop-discers Vaughn Monroe, Duke Ellington, Dinah Shore, Charlie Spivak, Lena Horne, Mel Henke and David Street ... this is a sho-sho show. Gene Krupa, the beat-all drummer, with band ... to pix for RKO. Paul Baron will air-debut Phil Moore's cross section

Records to Sell

RCA-Victor:

Vaughn Monroe and his Orchestra (20-1591) in "Hawaiian Sunset," written by Sammy Kaye and sung by baritone-leader Monroe. Coupling is a com-

Ginny Simms ... Sings

sketch of musical America today ... "Species Americana," Freddy Martin ... back in Cocoanut Grove, Los Angeles, with band.

Fred Waring is Roxying in New York ... Jerry Wald is at Paramount, same place ... Russ Morgan is in Berkeley. Cal. ... Glen Gray performs in Denver. Shep's new field piece is swing-tune he calls the "Copa-Boogie." ... That's copa-aign with the situation, eh?

Records to Sell

RCA-Victor:

Vaughn Monroe and his Orchestra (20-1591) in "Hawaiian Sunset," written by Sammy Kaye and sung by baritone-leader Monroe. Coupling is a com-
A FREE Buy-Exchange-Sell Service for Radio Men

(Jobbing distributing organization of products manufactured by SPRAGUE ELECTRIC COMPANY)

September, 1944


WANTED—Hider's Manuals V1 - VII. J. T. G. Appliance Repair, 613 N.E. 1st Avenue, Miami 30, Fla.

FOR SALE—Unused Bilby VFI crystal, $35.00; or with Pentium socket, $5.00; brush watch two crystal mike with shielded test lead and expensive $1 metal connector, $4; unused RCA #2678 in certain expansion arm, magnetic pickup and matching trans (used on expensive RCA automatic change-on—BE, F. J. Rosenblatt, P.O. Box 505, Hoboken, N. J.

WANTED—Recording head and turntable assembly, $15.00 or less. Donald Keener, Box 612, Ashtabula, N. C.

FOR SALE—Radio business complete stock including good assortment of tubes; volume controls, 5 filter manual, 1000 watt A.C. radio; 25 watt F.M. radio; crystal tubes; antenna; L. E. M. cabinet; $50.00. Address, Robert F. Chambers, Franklin Ave., Leyden, Ohio.


Gerald VanAusdal. 320 West Vine Street, needed 12K8. A/C Robert F. Chambers, Franklin Ave., Leyden, Ohio.

WANTED—Up-to-date tube tester and condenser analyzer. What have you? Electric Appliance Co., 111 East Main St., Lancaster, Ohio.

WANTED—Multi-meter 40-watt transformer. Thord. 717 1559 or T11 1747 or any modulation tubes, crystal or magnetic cutting head. Joseph A. Mania, 159 N. 151st St., Bloomfield, N. J.

WANTED—1938 Superkryder; must not have any damaged components. Also #17-38 SSR Super Clipper, 7 tube preselector model. M. T. Kelley, Church St., Grinnell, N. Y.

FOR SALE—RCA oscillograph, TMV 1418, Model F, 7 tubes. $150.00. E. J. Schall, 1311 W. 3rd St., Coralville, Iowa.

FOR SALE—Brand new Motorola FM sale-Stetchell-Carlson 581-C. $200.00. 1LN5, 1LH4 tubes; also 2% meter transformer with 0-100 ohm DC. This is Sprague's special wartime advertising service to help radio men get needed parts and equipment, or dispose of radio materials they do not need. Send your ad today. Write PLAINLY—hold it to 40 words or less. Due to the large number received, ads may be delayed a month or two, but will be published as rapidly as possible.

Sprague reserves the right to reject ads which do not fit in with the spirit of this service.

HARRY KALKER, Sales Manager.

(Jobbing distributing organization of products manufactured by SPRAGUE ELECTRIC COMPANY)

September, 1944

Records
(from page 22)

crbool contrast, "Take It, Jackson," a jitterbug number with the stomp on rhythm and instrumental riff. Artie Shaw and his Orchestra (20-1593) gives the maestro a clarinet-tootin' in "Don't Take Your Love From Me," plus a vocal by Lena Horne. "It Had To Be You," is a swinger, with brass and sax against a background of strings.

Reports of orders for several million discs have been placed for reinstated 118 Victor tunes. Don't overlook Johnny Hodges torrid Bluebird coupling of "Passion Flower" and "Going Out the Back Way." Johnny is a favored instrumentalist with Duke Ellington's orchestra, and his discs always do well. Another good seller, Dina Shore's "Together" and "I Learned a Lesson I'll Never Forget," another all-vocal. This chorus is unusual ... sings orchestral type arrangements, with voices imitating muted brass, organ, etc., one for the "live" self-service bin.

Columbia:
Ginny Simms (36731) sings a new coupling, "I'm Glad There Is You" and "Chinese Lullaby." Proof again why this handsome gel is going over big - a sure seller for disc-hungry dealers.

Decca:
Glen Gray (18615) and the Casa Loma Orchestra in "Don't Take Your Love From Me" and "Forget-Me-Not's In Your Eyes." Fox trots with vocal chorus by Eugenie Baird.

Tina Hill and his Orchestra (4447) in which Tiny vocalizes, "How Many Hearts Have You Broken?" and "Rose of Santa Rosa." Both are fox trots.

Dick Haymes and Helen Forrest (23349), the popular singing team, in "It Had To Be You" and "Together." The first is from RKO pix "Show Business"; the flip from Selznick pix "Since You Went Away." Victor Young and his Orchestra furnish backgrounds.

Classic:
The Barry Sisters offer four selections on two discs. 7103—"My Mama Told Me" and "Babylon." 7104—"Don't Keep Me Guessing" and "Kotareena." Both discs are popular re-recordings, and the Barrys give them a full, broad treatment.

The Three Suns (7105) give "I'm Always Making Believe," from 20th Century pix "Sweet and Lowdown." "You Always Hurt The One You Love" is with vocal refrain by Artie Dunn.

Josephine Houston (1009) with Classic Concert Orchestra in "The Lord's Prayer" and "Reverie." The first ties in with the singing of the "Prayer" following the President's D-Day prayer on the radio. The same singer does the recording.

Capitol:
Stan Kenton (166) and his Orchestra with Anita O'Day vocalizing a jive ditty, "Her Tears Flowed Like Wine." The coupling is a ballad, "How Many Hearts Have You Broken?" which sports a slick vocal by Gene Howard.

Benny Carter (165) presents two ballads, "I'm Lost" and "Just a Baby's Prayer At Twilight." Benny's alto sax glitters on both sides. The first is vocalized by Dick Gray, the over, by Savannah Churchill.

Continental:
Music Appreciation Records include classical selections on 10-inchers, at nominal prices. A series of special 10-inch albums includes "Treasures of Tchaikovsky" (A 300); "Brahms" (A301); "Schubert" (A302); "Dvorak" (A303) and "Beethoven" (A304). The selections have lasting interest for young and old, the prices are in the moderate bracket.

AFTER THE WAR - - - the name to look for in RADIO ANTENNAS

Today, BRACH produces only for Victory. But after the war, Brach will be ready with trained craftsmen and still more "know-how" to turn out superior antennas and other radio and electrical products for which dealers and public have been patiently waiting.

L. S. BRACH MFG. CORP.
World's Oldest and Largest Manufacturers of Radio Antennas and Accessories
55-65 DICKERSON STREET • NEWARK N. J.
The following is quoted from a letter marked "Somewhere in Libya" signed by an Officer in an AACS Group, USAAF:

"The writer just spent a year in Persia. Most of the time along the Persian Gulf where it really gets HOT! We operated one of your HT-4-B Transmitters near a place called Abadan. The transmitter performed very satisfactorily under the most unfavorable conditions. I doubt that your engineers ever dreamed that one of your rigs would be called upon to perform in a place where for 5 days and nights the temperature never dropped below 117 degrees and in fact it got up to 134 degrees during the daytime, that is "in the shade" temperature, the humidity was high and the air salty. Actually the transmitter got much hotter than that as it was installed in a brick building and no air conditioning, not even an exhaust fan. The HT-4-B was used on voice and gave very little trouble. One day the piece of bakelite under the phone/cw switch caught on fire but this was easily repaired. During the so called winter season, the temperature actually got as low as 36 degrees one day, we had a little trouble with mice crawling under the rig, which was set up on two 4x4 wooden sleepers. It seems the mice liked the heat and they would crawl up under the transmitter and get lodged in between the rectifier sockets and the frame when the operator switched on the transmitter the mice would fry, usually a fuse would blow but no other damage was done. We never did figure why the mice liked the Hallicrafters best. There were several other transmitters in the room but they always seemed to pick the HT-4-B; guess they were pretty smart mice!"

Just one of hundreds of real life experiences of Hallicrafters equipment. Out of this valuable experience will come your peace time short wave radio.

BUY A WAR BOND TODAY!
Figure 5.

we wish to measure currents up to 10 amperes. Our object then is to allow 1 ampere to flow through the meter when 10 amperes flow in the circuit. Obviously, since the meter must be in series with the circuit, we must by-pass, or detour, 9 amperes around the meter. That means that our meter will be made one branch of a parallel circuit as shown in Figure 10. If 9 amperes are to flow through the parallel resistor, or shunt, when 1 ampere flows through the meter, the shunt must have 1/9 the resistance of the meter resistance. For any shunt resistor then we may use the formula:

$$R_{sh} = \frac{R_m}{K-1}$$

where \(R_m\) is the resistance of the meter and \(K\) is the desired current range/original current range.

Figure 4.

VOLTAGE MEASUREMENT

From Ohm's Law we know that \(E = IR\). Thus if we know the resistance and measure the current flowing through that resistance we can compute the voltage, \(E\), shown in Figure 11. To measure D.C. voltages with a D.C. current meter we need only measure current through some known resistance connected across a source of potential. We must remember that the meter resistance has been added to that other load resistance. We can then use a current indicating meter together with a suitable series resistor, or multiplier, and calibrate the meter scale in terms of voltage for that value of series resistor.

Let us assume that a 0 to 1 milliampere meter is to be used to indicate at full scale deflection a potential difference of one volt across it and the series resistor. The meter resistance is 30 ohms. We can readily see that for one volt across some unknown resistor to cause one milliampere of current flow through that resistor, the latter must be 1000 ohms. Thus the series resistor must be the total resistance, \(R_t\), minus the meter resistance, \(R_m\), or 1000 — 30, or 970 ohms. We say then that the meter and series resistor look like 1000 ohms for a full-scale deflection of one volt. But, if we wish to measure 10 volts full scale, \(R_t\) must be 10,000 ohms. The meter and series resistor still offer 1000 ohms resistance per volt of calibrated full-scale deflection. This is then a 1000-ohm-per-volt voltmeter. Our required series resistance may be made equal to \(R_t\), since \(R_m\) is negligibly small. Thus for every desired value of full-scale deflection voltage we need only multiply the desired full-scale deflec-
HOW TO ATTRACT

PREFERRED TYPE

TUBE SALES

YOUR WAY

THAT's easy...just put up this sign now. Naturally, there won't be any Preferred Type Tubes to sell till after the war, but it's not too soon to let people know where they can come to get them when they are available.

This is the latest step in RCA's continuous program of merchandising to support RCA distributors, dealers and servicemen during the war. Pre-war, many up-to-the-minute RCA sales aids helped you sell and expand your markets...displays, indoor and outdoor signs, RCA clocks, and many others. After V-day, look for an even greater RCA merchandising service to direct sales your way.

Meanwhile, hard-hitting RCA advertisements in top magazines are doing the same job...building toward an even greater radio and electronics business for you after the war.

And this display, now available to you, helps set the stage for a profitable postwar boom in your sale of RCA Preferred Type tubes.

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

New, full-color 40-inch by 28-inch display easel (shown here in black and white) to help you maintain your identification with RCA, and to sell the Preferred Type Idea...which means greater profits for you in the future.
tion in volts by 1000 to get the value of the total series resistance.

For any desired full scale deflection voltage:

\[
R_s = R_m \times \frac{(V_{new} / V_{old}) - 1}{R_m}
\]

where \(R_s\) is the added series resistance necessary to increase to the new range. \(R_m\) is the number of ohms per volt required to limit fullscale current to that of the meter rating.

Thus if a 0 to 1/2 milliampere meter is used, \(R_s\) is equal, for formula (2), to 2000 ohms per volt. A 100 volt range would then require a multiplier as follows:

\[
R_s = 2000 \times \left(\frac{100}{1} - 1\right)
\]

or 198,000 ohms. This assumes that the meter had a built-in multiplier resistor, making it a fundamental 0 to 1 volt meter. If it did not have this resistor but was only a straight 0 to ½ milliampere meter with some low value of internal resistance, \(R_s\) would be:

\[
R_s = R_m \times V_{range}
\]

where \(R_m\) is the ohms per volt required for full scale deflection for one volt. Thus for the above meter minus the internal multiplier for the one volt scale, \(R_s\) for 100 volt scale would be 2000 \(\times\) 100 or 200,000 ohms.

The calibration of such a combination is straight forward since the voltage across a resistance is directly proportional to the current through the resistance. Thus full current through the meter gives the voltage for which the unit was designed for full-scale deflection. Half-scale reading represents a voltage of one-half that which would cause full scale deflection. Calibration is then simply a case of multiplying the current scale by the numerical value of the ratio between full scale current calibration and the full scale voltage causing that current. For example, a 0 to 1 milliampere meter has calibrations from 0 to 1. If used as a 100 volt meter, the figure 5 on the scale represents 50 volts.

(To be continued)
MARINE SPEAKER; approved by the U.S. Coast Guard, for all emergency loudspeaker systems on ships. Re-entrant type horn. Models up to 50 watts. May be used as both speaker and microphone.

RE-ENTRANT TRUMPET; available in 3 1/2', 4 1/2' and 6' sizes. Compact. Delivers highly concentrated sound with great efficiency over long distances.

RADIAL HORN SPEAKER; a 3 1/2' re-entrant type horn. Projects sound with even intensity over 360° area. Storm-proof. Made of RACON Acoustic Material to prevent resonant effects.

RE-ENTRANT TRUMPET; available in 3 1/2', 4 1/2' and 6' sizes. Compact. Delivers highly concentrated sound with great efficiency over long distances.

RADIAL CONE SPEAKER; projects sound with even intensity over 360° area. Cone speaker driven. Will blend with ceiling architecture. RACON Acoustic Material prevents resonant effects.

SEND FOR CATALOG

RACON, pioneer and world's largest manufacturer of loudspeakers, horns and driving units, is working at capacity filling diversified orders — speakers for Army, Navy, Maritime Commission and industrial use. Now we are planning ahead.

Practically all industrial firms are users, or potential users of some type public-address, paging or sound distribution system. Statistics prove that a properly planned sound system installation is a good investment which in time generally pays for itself.

RACONS have always enjoyed a steady, high sales volume. We believe they always will, for our products are the finest that money can buy, or engineering skill produce. Receiver units supplied with either metal or plastic diaphragms. RACON products generally cost less than competitive brands because a lower power-rated and lower-priced RACON will outperform higher power-rated units of other make. In other words, don't let catalog list-prices fool you. Basic costs and rated outputs are the prime factors worth considering. That's why leading sound-men prefer and specify RACONS, they are dependable—a safe bet for steady sales and satisfied users.

SEND FOR CATALOG

RACON ELECTRIC CO. 52 EAST 19th ST. NEW YORK, N. Y.
New Servicing Plan
(from page 15)

A sample of 4,500 typical American families were surveyed recently in various parts of the country by OCR to find out the repair status, age and quantity of about two dozen household appliances and items of equipment.

Radios—as was to be expected—stand out as the item most in need of repair. Although more than half of the appliances are five or more years old, the percentage found to be in working order ranges from 85 per cent for radios to 90 per cent for several items of heating equipment. About 8 per cent of radio-owning households have none in working order. All in all, though, about 25 per cent of the radios in households are in need of repairs and servicing, since the beginning of the year. With over 50 per cent of the domestic radios in current use five or more years old, the volume of orders for repairs and servicing has been greater than could be handled, what with curtailed manpower and shortages in the popular types of tubes and replacement parts. So only about 50 per cent of radio set owners were able to get needed repairs and service.

The case is a little different with certain appliances. Servicing and repair was obtained by 70 per cent of the families who wanted this work done for their electric sinks, small, powerful, slow-speed electric mixers, compact, 1/20th horsepower induction type, equipped from 25 to 30 volts AC, 60 cycles. Motor speed 240 RPM, with gear train driving 1/4" shaft at 24 RPM. 2 1/4"x1/2"x3" overall size, excluding shaft. M14699 . Special offer, $2.50

RCA Facsimile
Broadcast Receiver
RCA MODEL FAX-2A
Fully automatic pre-tuned high-fidelity radio receiver, locumizer printer amplifier, facsimile printing unit, and Telechron time switch clock.
This instrument has many uses in the laboratory. The printing unit utilizes carbon paper in contact with white paper as a recording medium. Complete with tubes and operating and service instructions, but less recording paper. 562349 $99.50

I.BC 20-Ohm, 25-Watt
Power Rheostat
All metal, die cast aluminum case. Heat uniformly distributed, slow speed motor, 1/4" shaft screw driver adjustable. M8187. Fits "d" diameter. $1.39


NOTE: All items subject to prior sale

FREE! The country's most valuable catalog of Radio and Electronic Components and Equipment. 104 pages packed with items and values of high interest to industry, government agencies, radio schools, etc. Only the 1944 volume of its kind. Copies are going fast. MAIL COUPON IMMEDIATELY.

LAFAYETTE RADIO CORP.
901 W. Jackson Blvd., Chicago 7, Ill.
Dept. K-9
Please rush my FREE copy of the Lafayette Radio Corporation Catalog No. 94.
NAME
ADDRESS
CITY
STATE
ZIP

Radio Service Dealer
MAKING HISTORY IN COMMUNICATIONS

Inspection before assembly, quality control . . . more than that . . . team work from material dispatcher, assembler, inspector, to the girl on the packing line . . . have made possible the fine achievement represented by the Army and Navy “E” Award presented to the men and women of the Universal Microphone Company.

In production of military microphones before Pearl Harbor, Universal had the necessary “know how” for immediate war production. The engineering experience and production efficiency of war production will be reflected in the electronic voice communication components offered by Universal to consumers in the future. Until then – BUY WAR BONDS.

UNIVERSAL MICROPHONE COMPANY
INGLEWOOD, CALIFORNIA

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

September, 1944
Trained Seal Stuff

Ex-inspectors from the San Francisco Signal Corps Inspection Zone operating in Los Angeles, have banded together to form a social group known as the "Trained Seals' Chowder & Marching Club." Their first annual picnic will be held sometime in October. Frolicsome titles: R. R. Finn is Chief Elbow Bender and Master of the Hounds; Sanford Bookee, Chief Historian and Bail Bondsman; Floyd Ford, Chief Keeper of the Muggs & Official Flusher. Dr. Ralph L. Power is permanent secretary-treasurer.
DEALERS WANT FRANCHISES NOW

Editor:

In your July issue in Letters to the Editor I observed one letter in particular titled “Post-War Dealer.” Since I read every issue of the magazine thoroughly I couldn’t miss that letter, and I have also been trying to plan my post-war career as a dealer. Ever since being discharged from the army and reopening my store, I have written to several manufacturers but have only received one reply and that one was very unenlightening.

I don’t want to wait until radios and appliances appear in everyone of my competitor’s windows as I know they will be far ahead of me, at this rate. So if you can get any data sent to me, I will be grateful.

I enjoy very much RADIO SERVICE DEALER, as I have for several years, but kind of lost out while in the army.

Henry A. Neis,
Fort Worth, Texas.

Manufacturers are just about getting their plans in shape for post-war. Jobber and dealer franchises, methods of distribution, new or additional lines, markups, models, etc. are being studied. In this issue we announce Emerson Radio’s P.D.Q. (Preference Delivery Quotas) Plan through which customers can make sure of early delivery of the radio of their choice by signing up with their dealers now. Among the many news items, Zenith’s general program for dealers will also be found in this issue, and in the August number, Philco’s preliminary plans were announced, based on exclusive interviews by our Managing Editor. By this fall a letter and more complete picture along these lines may be announced by the majority of radio and appliance manufacturers, as news and through trade advertising. RADIO SERVICE DEALER anticipates that it will carry its share of these advertising announcements, plus news of the latest developments (as the above, for example) in its editorial pages.

For the current situation in replacement parts and tubes, radio serviceman Neis may be interested in reading “Tubes and Parts,” on page 11 of this issue.

MODEL RADIO NUMBERS

Editor:

I would like to make a suggestion to you which I think can help the service dealer a great deal.

In the past few years it has been the practice of most radio receiver manufacturers to neglect to properly identify the model numbers on the back of radio chassis.

I have run across radios such as Zenith, Philco, Emerson, Admiral and others where it is impossible to find any model number, making it necessary to waste much time trying to locate service notes for them.

A note from you to all well known radio manufacturers, as the service dealer’s representative, may persuade them to do something about it.

Louis Wexler,
Philadelphia, Penna.

Licensing of auto ownership calls for certain mechanical and physical data which manufacturers supply on a metal plate, usually found under the hood. Non-licensing of radio ownership leaves the matter of identifying model types pretty much up to the manufacturer or assembler. When even the least costly radio is a welter of circuits and circuit variations, some method of keying the models for easy identification in service manuals or instruction sheets would certainly be a boon to consumers and servicemen alike.

RADIO SERVICE DEALER goes on record right here and now, urging all manufacturers of radios (whether national or private brands) to “fingerprint” every one of their models and their variants so that servicemen can always identify them. This will help the servicing, the sets will work better for longer and give the customers more enduring satisfaction. All of which adds up to a good hunk of good-will for the manufacturer. And how many dollars this side of a billion is that worth?
In Trade
(from page 8)

In Trade
(from page 8)

G.E. Irons This Fall.

M. B. Ross, sales manager of the company's traffic appliance divisions, announces that two models of electric irons will be manufactured by the General Electric Company in its Ontario, California plant under recent OPA and WPB rulings and directive orders.

Both models will be of the automatic type. The majority of the 421,000 irons, which was the quota granted G-E, will carry a retail price of $8.55, including tax. The other model will retail at $5.70, including tax. These prices are comparable to those of prewar models.

Mr. Ross said the new irons will be similar to the prewar irons manufactured by G-E with only minor modifications in the external finish.

It is expected that delivery of the irons will begin in September. General Electric's regular distributors will receive the first shipment based on iron sales of 1940, and dealers will be able to offer the irons for sale to the general public shortly afterward.

Price ceilings for electric irons have been announced by the War Production Board. About 81 per cent of the total 2,037,838 irons authorized to be produced by the industry this year for consumers will retail from $5.30 to $11.70, based on March, 1942, prices.

Change Your Tube Ceilings

Radio service dealers and distributors have put in effect the maximum ceiling prices governing the sale of radio tubes as established by the OPA effective May 20th.

The OPA has announced the following corrections in the original retail ceiling prices, effective June 26:

<table>
<thead>
<tr>
<th>Type</th>
<th>Announced</th>
<th>Effective 6/26</th>
</tr>
</thead>
<tbody>
<tr>
<td>01A</td>
<td>$.85</td>
<td>$.90</td>
</tr>
<tr>
<td>2A3</td>
<td>1.60</td>
<td>1.90</td>
</tr>
<tr>
<td>6L7</td>
<td>2.35</td>
<td>2.35</td>
</tr>
<tr>
<td>6SL7GT/G</td>
<td>1.55</td>
<td>1.60</td>
</tr>
<tr>
<td>12SL7GT/G</td>
<td>1.55</td>
<td>1.60</td>
</tr>
</tbody>
</table>

Dealers should make the above changes on the OPA ceiling price poster which was enclosed with the June issue of RADIO SERVICE DEALER.
Let these guys start it!

There's a day coming when the enemy will be licked, beaten, whipped to a fare-thee-well—every last vestige of fight knocked out of him.

And there's a day coming when every mother's son of us will want to stand up and yell, to cheer ourselves hoarse over the greatest victory in history.

But let's not start the cheering yet.

In fact, let's not start it at all—over here. Let's leave it to the fellows who are doing the job—the only fellows who will know when it's done—to begin the celebrating.

Our leaders have told us, over and over again, that the smashing of the Axis will be a slow job, a dangerous job, a bloody job.

And they've told us what our own common sense confirms: that, if we at home start throwing our hats in the air and easing up before the job's completely done, it will be slower, more dangerous, bloodier.

Right now, it's still up to us to buy War Bonds—and to keep on buying War Bonds until this war is completely won. That doesn't mean victory over the Nazis alone. It means bringing the Japs to their knees, too.

Let's keep bearing down till we get the news of final victory from the only place such news can come: the battle-line.

If we do that, we'll have the right to join the cheering when the time comes.

Keep backing 'em up with War Bonds

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

September, 1944
The major part of all radio set electrolytic replacements these wartime days can be handled with these nine selected voltage ratings and capacitances comprising the Aerovox Victory Line:

- TYPE PRSV DANDEES
- D.C.W.V. Capacity | D.C.W.V. Capacity
- 25 mfd. | 25 mfd.
- 50 mfd. | 10 mfd.
- 20 mfd. | 450 mfd.
- 150 mfd. | 150 mfd.
- 20-20 mfd. | 40 mfd.

Ask Our Jobber...

- Aerovox Corporation
- Agency: Austin A. Locks and Staff
- Brach Mfg. Co., L. S.
- Agency: United Advertising, Inc.
- Burstein-Applebee Co.
- Agency: Frank E. Walson Co.
- Cinaudograph Speakers, Inc.
- Agency: Michael S. Mayer
- Clarostat Mfg. Co.
- Agency: Austin A. Locks and Staff
- Agency: Shapero-Wilkes, Inc.
- Fada of New York
- Agency: Sternfeld-Godley, Inc.
- Galvin Mfg. Corp.
- Agency: Gorny-Co., Inc.
- General Cement Mfg. Co.
- Agency: Turner Advertising Agency
- General Electric Co.
- Agency: N. W. Ayer & Son, Inc.
- Hallicrafters Co., The
- Agency: Burton Bronner, Inc.
- Ken-Rad Tube & Lamp Corp.
- Agency: Allen, Heaton & McDonald, Inc.
- Lafayette Radio Corp.
- Agency: Shapero-Wilkes, Inc.
- Mallory & Co., Inc., P. R.
- Agency: Western Advertising Agency, Inc.
- McElroy Mfg. Corp.
- Agency: Shapero-Wilkes, Inc.
- Meck Industries, John
- Agency: The Jitkin-Kynett Co.
- Meissner Mfg. Co.
- Agency: Gardner Advertising Co.
- Murray Hill Books, Inc.
- Agency: The Harry P. Bridge Co.
- Racon Electric Co.
- Agency: Leon Allen, Advertising
- Radio Corporation of America
- Agency: Kenyon & Eckhardt, Inc.
- Raytheon Production Corp.
- Agency: Burton Bronner, Inc.
- Rider, John F.
- Agency: Lansford F. King Advertising
- Sprague Products Co.
- Agency: The Harry P. Bridge Co.
- Standard Transformer Co.
- Supreme Instruments Corp.
- Sylvania Electric Products, Inc.
- United States Treas. Dept.
- Agency: Ralph L. Power, Advy.
- Utah Radio Prods. Co.
- Agency: The Buchen Co.
- Vaco Products Corp.
- Agency: Duane Wamamaker
- Ward Products Corp.
- Agency: Burton Bronner, Inc.
what's that?

"Are Distributors Necessary?"

There are a few businessmen, a lot of typewriter executives and plenty of arm-chair strategists who say that the distributor is a dying duck because his is an uneconomic function. But the fact remains that the cost of distribution has always diminished in direct proportion to the reduced costs of manufacturing which result from skilled product development and volume sales. And remember this...the distributor is an important factor in both of these vital phases of a successful merchandising operation!

Here Is What Your Motorola Distributor Will Do For You

1. He will introduce the Post War Motorola F-M Radios and Automatic Phonograph Radios by exhibiting the complete line in his showrooms.

2. He will carry a complete stock in all price brackets so you can order and get delivery from day to day. He will carry parts for replacement and servicing.

3. He will help train your Servicemen...teach them about F-M, Television (when it is available), and how to service automatic phonographs.

4. He will help educate your Salespeople...give them facts about the radios they sell. He will reduce the loss of sales which result from poor demonstration.

5. He will provide you with sales-stimulating ideas and advertising promotions. He will strengthen your entire radio sales department.

6. He is your responsible, ready-able-and-willing trouble shooter...a man with an organization you can reach with a five-cent telephone call.

the Motorola Distributor Organization is Ready

GALVIN MFG. CORPORATION • CHICAGO 51

Motorola Radio

F-M RADIO • PHONOGRAPHS • RADAR • TELEVISION • FM POLICE RADIO • MILITARY RADIO COMMUNICATIONS
In a busy industrial city like Fort Wayne, Indiana, it is necessary that any interruption in electric service be remedied immediately. INDIANA SERVICE CORPORATION which supplies electric light and power to Fort Wayne's war plants, has found that two-way radio between the dispatcher's office and service, patrol and repair trucks assures the quickest and most reliable means of communication in any emergency. To assure even greater reliability, this electronic communication system is equipped with RAYTHEON high fidelity tubes.

That "Plus-Extra" quality that proved RAYTHEON the best tube in the past, will be enhanced with all the knowledge that is being gained from manufacturing advanced electronic equipment for the war effort. This wartime experience will doubly guarantee that you will be able to offer your customers the best engineered and precision-made electronic tubes for all applications. In the meantime, RAYTHEON will continue to supply you with all the MR tubes that WPB allows, for you to pass on to those who need them most.

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

RAyTHEON
High Fidelity
RADIO AND ELECTRONIC TUBES
DEVOTED TO RESEARCH AND MANUFACTURE OF TUBES FOR THE NEW ERA OF ELECTRONICS