

RADIO SERVICE NEWS

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RCA TUBE DEPARTMENT, HARRISON, NEW JERSEY

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ORTH REVIEWS GROWTH OF RADIO SERVICE INDUSTRY ON NBC'S 25TH ANNIVERSARY

The 25th anniversary of the National Broadcasting Company, being celebrated this year by the nation's first radio network, is also a milestone in the growth of the radio and television service industry, it was pointed out recently by Richard T. Orth, Vice President in Charge of the RCA Tube Department.

When NBC inaugurated network radio operation on November 15, 1926, there were fewer than five million home receivers in the country. Today, there are more than 70 million radio receivers and over 12 million television receivers in home operation, according to Mr. Orth. This growth in distribution has given rise to a tremendous and still growing radio-television service industry.

"Network broadcasting created the mass demand for receivers, and in its wake, also brought radio servicing into its own as a going industry," Mr. Orth stated.

"The success of radio broadcasting at the same time created whole new supporting industries in such



Richard T. Orth

fields as service, distribution, and the manufacture of replacement parts," Mr. Orth declared. "The early history of the service industry is repeating itself today with television. There were only 6,000 TV receivers in operation five years ago. Today, there are more than 12 million sets in use. Here again, an advance in broadcasting, leading to widespread receiver distribution, has created a new service field that is bringing unprecedented activity and prosperity to the service industry."

IT'S BACK! PRODUCTION OF POPULAR WP-25A TV ISOTAP RESUMED

The RCA Tube Department has resumed production of the WP-25A TV Isotap—a high/low-voltage isolation transformer with a high/low-voltage autotransformer winding.

Essentially, the Isotap consists of a 500 volt-ampere autotransformer winding (primary) with a 275 volt-ampere isolated secondary winding. Power is supplied to the tapped primary winding through a rotary switch, thereby providing a line-voltage range of 105-130 volts, in 5-volt steps.

Three standard outlets are connected to the autotransformer winding for high-, medium-, and low-voltage output. Similarly, three standard outlets are connected to a tapped secondary winding for high-, medium-, and low-voltage output. With the selector switch set to 130 volts, these secondary output voltages are 105, 115, and 130 volts, respectively, at the rated secondary load of 275 volt-amperes.

This source of variable voltage is invaluable for detecting intermittents and faulty components. It is also useful for checking the operation of TV receivers at high,

medium, and low line voltage. The isolation-transformer feature provides a source of line voltage having both terminals isolated from ground, thereby eliminating the shock hazard which can occur while checking transformerless receivers. Use of this isolated output will also prevent damage which can result from crossing the plugs of transformerless receivers and test equipment.

Every modern, well-equipped TV service bench should be provided with at least one RCA TV Isotap. See the Isotap at your RCA Distributor's today!



RCA LABORATORIES DEDICATED AS "DAVID SARNOFF RESEARCH CENTER"

General Sarnoff Completes 45 Years in Radio

Challenges RCA Scientists to Make Three Inventions

Brig. General David Sarnoff, Chairman of the Board of Radio Corporation of America, speaking at a recent ceremony in Princeton, N. J., commemorating his 45th anniversary in the field of radio, challenged RCA research scientists to deliver three important inventions before he reaches his 50th anniversary in 1956.

The occasion of the triple challenge was the dedication of RCA's Princeton Laboratories as the "David Sarnoff Research Center," in appreciation of General Sarnoff's "faith in science, penetrating vision, constructive planning, and enduring achievements in the fields of radio, television, and electronics."



General Sarnoff asked RCA scientists to invent an electronic amplifier of light for television, a tape recorder for TV picture

(Cont'd on Pg. 2, Col. 3)

Gen. David Sarnoff

BATTERY DEALERS URGED TO CAPITALIZE ON POPULARITY OF PORTABLE RADIO

Pointing out that portables currently account for about 20 per cent of radio unit sales, L. S. Thees, General Sales Manager of the RCA Tube Department, recently stated that the portable-radio market represents for battery dealers a major source of sales and profits.

Sales figures indicate, according to Mr. Thees, that despite the sales fluctuations of table radios and console instruments, the portable radio has had, since 1940, its own healthy and consistent sales market. More than nine million battery-operated portable radios have been sold in this country since the end of the war, and portable-radio sales are still rising.

"The portable-radio market has never been fully exploited as a source of battery sales, primarily because too many battery dealers

do not fully appreciate the scope of the portable field and the possibilities for merchandising batteries among set owners. The portable-radio business is big business—one that represents plus sales for the battery dealer who uses aggressive merchandising to capitalize on the market for replacement batteries," Mr. Thees pointed out.

To aid dealers in their merchandising efforts, the RCA Tube Department designs its radio-battery advertising and sales-promotion material to focus attention on the radio dealer as the best source of batteries for portable radios. "By integrating promotion material with good merchandising, dealers can build a profitable portable battery business," Mr. Thees declared.

There are many unique RCA (Continued on Page 2, Column 4)

SMPTA PRESENTS DAVID SARNOFF AWARD TO SCHADE



Peter Mole (left), president of the Society of Motion Picture and Television Engineers, presents the first David Sarnoff Gold Medal Award to Otto H. Schade, nationally known radio and television engineer of the RCA Tube Department. Mr. Schade was honored for his recent development of a system of universal ratings with which the quality of motion-picture film, lenses, and television tubes can be measured in objective mathematical terms.

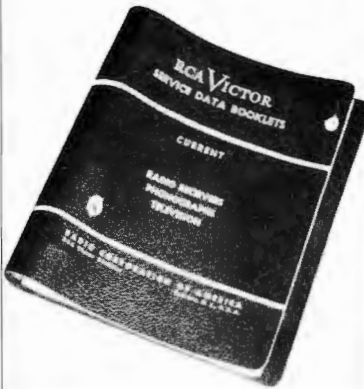
BINDERS FOR RCA VICTOR SERVICE DATA BOOKLETS OFFERED AS BONUS

RCA tube distributors are offering dealers and servicemen a three-ring leatherette binder at no extra charge with a \$10 purchase of RCA Victor service data.

The binders are intended for the filing of individual RCA Victor Service Data booklets. However, the purchase price of RCA Victor Service Data books (bound volumes) will also be credited toward a bonus binder.

RCA Victor Service Data in bound volumes provide the serviceman with technical and servicing information on all RCA Victor radios, phonographs, and television receivers produced from 1923 through 1950. Also available are

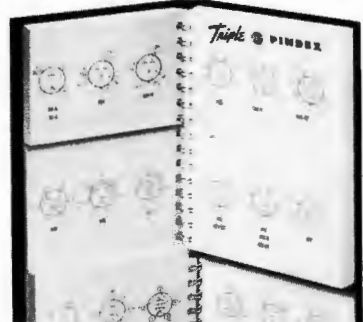
individual booklets on RCA Victor's "Million Proof" television receivers (early 1950 and 1951), and on RCA Victor's 1950 radios and phonographs.



NEW, UP-TO-DATE EDITION OF FAMOUS RCA TRIPLE PINDEX NOW AVAILABLE

A new edition of RCA's famous TRIPLE PINDEX has just come off the press. This completely-revised edition contains socket-connection diagrams for more than 660 receiving tubes and kinescopes.

All of the exclusive features of the original Pindex edition have been retained. The TRIPLE PINDEX is



divided into three identical sections which are bound on a common spiral so that reference can be made to three different socket-connection diagrams simultaneously. This arrangement minimizes leafing back and forth, from one page to another, to use several diagrams.

The TRIPLE PINDEX also contains a "Cross-Index Reference Supplement" which lists various tube types which are of occasional interest to the serviceman. Opposite each such tube type is listed the tube type which has the identical socket-connection diagram, and which may be found in each section of the TRIPLE PINDEX.

You can obtain your copy of the new TRIPLE PINDEX (Form No. 2F366R2) from your RCA Distributor or from RCA, Commercial Engineering, Harrison, N. J., for 75 cents per copy.

GEN. SARNOFF'S CHALLENGE

(Continued from Page 1)

signals, and an electronic air-conditioner for the home.

General Sarnoff named the first invention "Magnalux." "A true photo-amplifier that could produce bigger and brighter pictures in fine detail would greatly advance television in the home."

He called the second invention, a television picture recorder, a "Videograph." The Videograph would be a new instrument that could reproduce television programs from tape at any time, in the home or elsewhere, in much the same way as the present phonograph reproduces the music you want when you want it.

"Electronair" is the name he gave to the third invention—an electronic air-conditioner for the home that would operate without tubes, or possibly through the action of electrons in solids, and without moving parts.

"Naturally, I look to the scientists and engineers of RCA to be first in solving these problems. But it is in the American spirit of competition under the private enterprise system that I call attention, publicly, to the need for these inventions. Whether it be the lone inventor in the attic, or the scientists in competing industrial laboratories who will produce these inventions, the results will spell new opportunities for service and progress for all," General Sarnoff stated.

POPULARITY OF PORTABLES

(Continued from Page 1)

battery promotional items available from local RCA Distributors which will prove invaluable to the dealer in his merchandising campaign. By utilizing this window-display and point-of-sale promotion material, and by supporting his promotional activities with a vigorous advertising campaign, the dealer can establish himself as the RCA radio battery headquarters in his sales area.

Among the promotional material on batteries now available to radio dealers are a giant, illuminated battery display unit which flashes RCA battery identification; an RCA battery Fact-Finder containing interchangeability data on eight leading battery brands, battery complement for more than 500 portable radios produced by 32 leading manufacturers, RCA battery prices and technical data; dummy carton display material, and a mechanical pencil with a rotatable sleeve which enables you to select, from a chart on the barrel, the stock numbers of the ten fastest moving, interchangeable types of four leading battery brands.

"Dealers who also establish their stores as battery headquarters," Mr. Thees declared, "will not only supplement their portable-radio sales and service business, but also encourage set owners to seek their replacement batteries in the radio trade and not stray to non-electronic outlets."

KINESCOPE CHARACTERISTICS, REPLACEMENT DATA, AND CONVERSION INFORMATION IN "RCA KINESCOPES"

RCA KINESCOPES is the most comprehensive reference on kinescope characteristics, replacement data, and conversion information available to the TV serviceman. This booklet contains a handy double-page chart listing the complete characteristics of all RCA kinescopes as well as at-a-glance answers to such questions as: Round or rectangular? Metal or glass? Clear, Filterglass, or frosted Filterglass faceplate? External conductive coating? Electrostatic or Magnetic Focusing? Ion-trap magnet? etc.

Dealers and servicemen will find the RCA Kinescope replacement Directory chart to be an invaluable time saver. To facilitate the comparison of kinescope types, each main column heading in this chart has a pair of subheadings, "Col. 1 Type" (type to be replaced), and "RCA Type." Another feature of this chart is the comparison of envelope dimensions; for convenience, the differences in these dimensions are tabulated. For example, for a conversion from a 12LP4-A to a 16LP4-A, the envelope diameter, overall length, and neck length of the 16LP4-A are given as $+3\frac{1}{16}$, $+3\frac{1}{2}$ inches, larger, and $-\frac{7}{8}$ inch, smaller than the corresponding dimensions of the 12LP4-A.

Servicemen are urged to refer to the "Picture-Tube Conversion Chart" in this new booklet before attempting conversions. This 11-page chart will save hours of toil. All possible RCA type numbers are

listed opposite each original type, and pertinent data are tabulated to enable the serviceman to compare and consider all the necessary mechanical modifications and circuit changes necessary for each conversion.

RCA KINESCOPES also contains three pages of notes on picture-tube conversions—must reading for every TV serviceman. Of special interest is the section entitled, "Line-up and Adjustment of Components." It includes a very helpful procedure on installing and adjusting deflecting yokes, centering devices, focus coils, focus magnets, and ion-trap magnets.

This publication is available from RCA Tube Distributors or from RCA, Commercial Engineering, Harrison, N. J., at a charge of 25 cents per copy.



Antenna Matching Unit. The alignment procedure for this unit as given in the Service Data calls for a signal generator with an output in the order of 1.0 volt. In order to permit the use of generators with less output, the following procedure is given:

(a) Disconnect the lead from the FM trap L58 to the channel-selector switch S5.

(b) With a short jumper, connect the output of the matching unit (through a 1,000- μf capacitor) to the grid of the third picture-if amplifier tube, pin 1 of V108.

(c) Replace the cover on the matching unit before making adjustments.

(d) Remove the first picture-if amplifier tube, V-106.

(e) Connect the positive terminal of a bias box* to the chassis, and the potentiometer arm to the junction of R143 and R144. Set the potentiometer to produce approximately -6.0 volts of bias at the test point TP101.

(f) Connect an oscilloscope to the video test point TP102 and set the oscilloscope gain at maximum.

(g) Connect a WR-39_ calibrator to the antenna input terminals. Modulate 30 per cent with an audio signal.

(h) Tune the calibrator to 45.75 Mc, and adjust the output to give an indication on the oscilloscope. Adjust L59, in the antenna-match-

RADIO·PHONE·TV Tips

ALIGNMENT OF 17T153 AND 21T176 SERIES TV RECEIVERS WITH WR-59_ SWEEP GENERATORS & WR-39_ CALIBRATORS

ing unit, for minimum audio indication on the oscilloscope.

(i) Tune the calibrator to 41.25 Mc, and adjust L60 for minimum audio indication on the oscilloscope.

(j) Remove the jumper from the output of the matching unit.

(k) Connect a 300-ohm, 1/2-watt composition resistor from L58 to ground, keeping the leads as short as possible.

(l) Connect an oscilloscope, through a crystal-type probe such

as the WG-291 Demodulator Probe, from L58 to ground. The oscilloscope should have a sensitivity of 0.03 volt per inch or better. Set the oscilloscope gain at maximum.

(m) Connect a WR-59_ sweep generator to the antenna input terminals of the matching unit.

(n) Connect the WR-39_ calibrator to the matching-unit antenna terminals through a 5- μf capacitor.

(o) Set the sweep generator to sweep from 45 to 54 Mc. With RCA

Channel Number	Rcvr. RF Osc. Freq. (Mc)	Calibrator Freq. (Mc)			
		Fund.	2nd Harmonic	3rd Harmonic	4th Harmonic
2	101	101	.....	.....	.....
3	107	107	.....	.....	.....
4	113	...	56.50	.....	.....
5	123	...	61.50	.....	.....
6	129	...	64.50	.....	.....
7	221	221	.....	.....	.....
8	227	227	.....	.....	.....
9	233	233	.....	.....	.....
10	239	239	.....	.....	.....
11	245	...	.....	81.66	61.25
12	251	...	.....	83.66	62.75
13	257	...	.....	85.66	64.25

† Courtesy RCA Service Co., Inc.

type WR-59A sweep generators, this may be accomplished by retuning channel 1 to cover this range. With WR-59B sweep generators, this may be accomplished by retuning channel 2 to cover the range. The procedure for making these adjustments is described in the "Maintenance" section of the instruction booklet for the instrument. The core should not be turned too far clockwise, otherwise it may become lost beyond the core retaining spring.

(p) Adjust L61 and L62 to obtain the response shown in Fig. 11 in the receiver service data. L61 is most effective in locating the position of the shoulder of the curve at 52 Mc, and L62 should be adjusted to give maximum amplitude at 53 Mc, and higher, consistent with the specified shape of the response curve. The adjustments in the matching unit interact to some extent. Repeat the above procedure until no further adjustments are necessary.

(q) Remove the 300-ohm resistor and crystal-probe connections. Restore the connection between L58 and S5; replace V106.

Ratio-Detector Alignment. When employing RCA type WR-39B or WR-39C calibrators for ratio-detector alignment, make certain that the internal audio modulator is operating. To obtain this modulation, turn the volume control to the "MOD ON" position. In some WR-39B and all WR-39C calibrators, it is also necessary to insert an open-circuited plug into

(Continued on Page 7, Column 3)

*See Fig. 4, pg. 5 of Jan.-March, 1951, issue of RADIO SERVICE NEWS.

TV ANTENNA INSTALLATION TIPS

PART 4 Chimney Bracket



Assembly of the chimney bracket is a ground operation!



Make sure that the strap is level around the chimney.

Selection of the proper antenna mount is determined by the physical setup at each individual location. Needless inconvenience may be avoided, and much valuable time saved, by planning the assembly procedure. Assemble the chimney

bracket beforehand: Unroll the chimney strap, and slip three corner pieces onto the strap. If necessary, splice additional strap.

Carry the bracket and ground wire to the roof. Include an extra piece of wire to be used to support

the chimney bracket while the strap and corner pieces are put in place.

Loop the extra piece of wire over the chimney to hold the bracket temporarily. Make sure that the strap is level around the chimney and that the corner pieces fit snugly

at all points. (If the chimney is of brick construction, each of the three corner pieces must overlap two bricks.) Slip the end of the strap through the eye bolt, secure with the buckle, and tighten the strap.

ATTRACTIVE SALES AIDS AND USEFUL SERVICE DATA FOR THE SERVICE DEALER

For Every Market—Selling Tools to Multiply Your Business

Are the broken-down radio and television sets in your community beating a profitable path to your repair bench, or is your service work just a headache instead of a goldmine? The difference may be smart promotion.

You can be your own advertising manager and you can double your take right in your own store. Alert promotion isn't high-priced genius . . . it's local horse-sense. You're in business for yourself; that alone takes initiative. Now look around and see what you can do to make your business grow. See what you can do to beat the higher cost of living.

"Well," some will say, "How much will it cost me?" That's something to get straight from the beginning. It won't cost you a cent. Not a red cent. Every penny properly invested in local advertising and promotion for your service shop will come back to you time and again in greater sales volume and increased profits.

But a sudden splurge won't work wonders. Rome wasn't built in a day. Advertising is a slow and steady procedure which will mean solid growth for your organization.

Advertising at the local level will reach all of your customers at the same time, will call on prospects you are not currently selling, will alert your shop to sales possibilities you develop through this promotion, will make occasional buyers regular customers, save you time and help, and brighten your sales picture in a wide diversity of ways.

Basic Principles

In planning a promotional campaign for your store, you must keep certain basic principles in mind. For best results you should attract your prospect's attention with an interesting approach, arouse his interest to the point of action, create a positive desire for your service, and suggest a course of action for fulfilling that desire.

But before you start talking often and regularly to the public, you'd better take a look around your own shop. Remember, you must set the stage for this new business. Your public will insist on a clean, neat, efficient looking service shop. You should be ready.

Is your store spick and span? Maybe you had better put a regular housecleaning down as your first step towards a forceful sales program. Make a checklist of things to be cleaned regularly and make sure it is followed. Look at your outside store sign. Is it a salesman or a tombstone? Possibly your sign needs a new design, a new coat of paint, or some lighting for night-time passers-by.

Then, when your shop is in order, you can start to organize a plan for

a hard-hitting community radio-service promotion campaign. Arrange a varied and flexible program of planned advertising, which utilizes every possible means at your command, to increase your business.

Contact your RCA Distributor salesman and tell him about your program. Ask him to outline the dramatic advertising and sales promotional aids that your various suppliers make available to dealers. RCA, for example, has a complete assortment of display material which is calculated to brighten up your sales picture from the outset.

If you are out to add new customers, meet new business, create more repeat sales, your main objective in this individualized approach should be, above all else, to establish your store as radio and television headquarters for your community. By impressing your professional proficiency firmly in every potential customer's mind, you are ready to attract a greater share of the radio and television service business in your community.

Use Those Windows!

Look to your windows and outfit this useful stage with a regular and varied show to dramatize your professional techniques to possible repair customers. Promotion-minded manufacturers such as RCA will gladly supply you with a variety of well-constructed lithograph displays which may be alternated regularly to fit your current theme. RCA's "Community Service" display is a perfect case in point. It does a forceful job of selling by spotlighting the expert service you offer the community.

Use your upper window space to hang a strategic sign. You'll pull in potential service customers with a sign such as the RCA "Fire Glow" Fluorescent "Service" sign. Be sure to give compelling representation to the various products and services that you sell. An eye-catching RCA battery giant illuminated display and the smart masonite RCA Portable Radio Sales and Service sign will add punch to your bid for the portable radio sales and service trade.

Silent Salesmen

Shelf strips, wall signs, floorstands, and product merchandisers such as the handy RCA styli dispenser add a business-like touch to a neat array of clean merchandise. Use them to attract important add-on business from customers in your store. Merchandise openly and attractively displayed, with plenty of point-of-purchase display reminders, sells itself. These silent but effective salesmen will sell an extra portable radio battery, or a big new rectangular kinescope if you give them the opportunity.

Direct-Mail Advertising

One of the most flexible proving grounds for any advertising program is in the use of direct-mail. A regular, diversified and attractive series of mailings to an accurate list of prospects will produce marked results for your radio service business.

The first problem in direct-mail advertising is the preparation of a good mailing list for your locality. Check a current telephone book or city directory for your market. And what about the people who come right into your store with service requests? Do you dismiss them with a worn ticket and a promise for "next Thursday," or do you greet them cheerfully while jotting down complete name and address on a neat, efficient RCA repair tag which is obtainable from your RCA Distributor salesman?

New Prospects

Work up a customer-and-prospect list and use it regularly for mailings. Remember, the casualty rate on regular customers in any business is high. People move away, die, or change their buying habits. You must add a steady stream of new prospects to your service clientele just to stay even with the game. An increase over the past will require some planned activity on your part.

Post cards, straight sales letters, manufacturers' catalog sheets, and self-mailers all make excellent grist for your mailing list. Your personal local touch plus general consumer interest in electronic developments will assure your mail campaign excellent readership. A sustained program will fix the name of your shop in the customer's mind when he needs radio repairs.

Your suppliers could never match the power and depth of impression you can deliver in the local market with alert direct mail. Consult a local print shop to discover the variety of attractive mailing forms that your campaign could take. The outlay will be reasonable when measured by productiveness. RCA has some colorful and inexpensive direct-mail cards for your use. With such selling headlines as "We'll Fix It in a Hurry" and "Service Is Our Business," these cards act to establish your shop as radio and television service headquarters.

Telephone Classified Ads

All year round, old and new prospects look to the yellow pages of their local phone books for the local services they need. Is your message greeting them in the "Radio Service" section? This is another opportunity to tell your story. Tell it briefly, and tell it often. Blotters, pencils, calendars, and the like should be considered as salesmen for your store.





Newspaper Advertising Pays Dividends

Names make news in your community. Advertisements make news too. A regular small space campaign for your store will pay big dividends in increased traffic. Display space in weeklies, bi-weeklies, and dailies, used consistently, will round up many more customers for your greater profits drive.

Advertise Regularly

Put your name and your message before your local newspaper public at least once a week. Do it with small three- or four-inch ads, but do it weekly. Write your own copy, ask for help from the newspaper salesman, utilize manufacturers' newspaper mats, or use material from your supplier's folders, but tell your story of dependable, honest service.

Classified advertisements will also promote your service. Readership is always heavy, cost usually low. With a straight address or telephone number listing, you can profitably advertise your service.

Modest, occasional use of spot announcements on your local radio station will work well for you, particularly in smaller communities.

Good Public Relations

Make sure your service shop meets the public eye in a favorable light. Send your newspaper stories about new products and services, outstanding employee news, and building modernization. Diligent activity in local charitable and community efforts will mark your business as a leading service unit in your community, and will mark you as a leading local proprietor. The people you meet in local public service will often turn out to be excellent business prospects.

A supply of inexpensive, small giveaway items will serve as radio repair reminders at local affairs. They will carry your message right to the prospect. Fairs, club meetings, parades, etc., are excellent opportunities for trinket giveaways with your imprint.

National Advertising For You

When you tie in with the national advertising campaigns of your suppliers, you are taking advantage of the large national investments in customer goodwill and confidence built up through years of active promotion and outstanding performance. When you hang up a promotional piece such as the RCA Trade-mark Plaque which has proven so popular with dealers all over the country, you mark your shop as an outlet for goods produced by RCA, a name known everywhere for quality products.

Service Aids

Consistent advertising will spread the good news about a good product or service fast and far. It will do the same thing *in reverse* about an inferior product or service. Your promotion program will be an aid

but not a cure. Make sure your service is tops, then tell everyone all about it. Constant reference materials are issued by many manufacturers to keep your radio service up-to-date with the newest developments in the field.

RCA engineers produce a complete assortment of manuals, booklets, and brochures for the serviceman. When local independent television servicemen reported difficulties in diagnosing video maladies, John R. Meagher, RCA's TV Specialist, organized his famous PICT-O-GUIDES which proved to be such a time-saver. Servicemen familiar with the various pages of this accurate RCA repair guide found competent and rapid television servicing possible. They won new customer respect and loyalty.

Such booklets as the 300-page RCA RECEIVING TUBE MANUAL (RC-16), and the RCA booklet showing characteristics for more than 450 RCA receiving tubes (Form No. 1275-E), with complete socket connection diagrams, are arranged for quick and easy reference. Extremely popular in this field is the TRIPLE INDEX, an RCA booklet which enables convenient reference to the socket-connection diagrams of any three receiving tube types at the same time.

Most of these manufacturer publications are obtainable from your local distributor or directly from the concern in question. For RCA pamphlets, see your distributor or write RCA, Commercial Engineering, Harrison, New Jersey, for the latest technical literature available. Keep on your RCA Distributor's mailing list for the latest developments in electronics and electronics promotion.

Complete price lists are available to all dealers. Suggested retail prices are often valuable guides to the accurate pricing of diversified replacement merchandise. Don't take chances on endangering your profit margin. Charge a fair price and show a fair profit.

Get Started Today!

It's well and good to read about starting a sales promotion campaign for your shop, but there's no time like the present to get started. Follow this procedure:

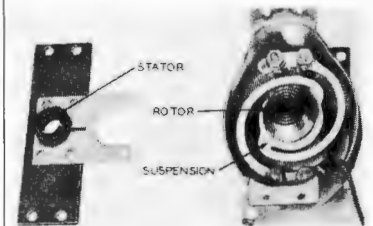
1. Clean up your store inside and out.
2. Check on RCA displays.
3. Straighten out your inventory, price it, and display it.
4. Organize a direct-mail list, and use it.
5. Start a small, but steady newspaper advertising plan.
6. Check your public relations.
7. Remember, every new customer is a potential steady customer. Your whole campaign should be aimed at finding and keeping profitable repeat customers. When your advertising pulls them in, make your service keep customers with you.

NEW RUGGED VIBRATOR FOR WR-59 SWEEP GENERATORS PROVIDES 20% WIDER SWEEP

A new ruggedly designed vibrator, offering greatly increased operating life and a sweep width of at least 12 megacycles, is now being used in the WR-59-series TV Sweep Generators. This new vibrator provides a sweep width approximately 20 per cent wider than that obtained in earlier models. Development of the new vibrator resulted from wide usage of WR-59-series instruments in factory production-line service where they were operated as much as 16 hours daily.

The frame of the new unit is of formed steel, and the tubular portion of the vibrating element (corresponding to the vibrating voice-coil assembly in a speaker) is made of cement-coated paper, wrapped around twice to provide additional durability not found in the butt-joint type of construction. This method of construction makes the tubular portion less susceptible to distortion due to heat and humidity. Alnico 5 is used as the magnetic material.

The redesigned suspension system for the vibrating element, shown in the photograph, is flat and made of aluminum-alloy sheet 1/32 inch thick. The entire unit can withstand repeated shock caused by a sudden application of maximum driving voltage.



A reduction in the amount of "rotor" capacitance to ground provides a greater sweep-capacitance change and, therefore, an increased sweep width. Precision construction of the new vibrator requires the use of gauges to position the vibrating element in the air-gap and to align the moving rotor within the stator section. The magnetic air-gap is completely enclosed to keep the precision elements free of dust.

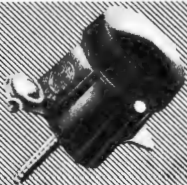
The ability of the new vibrator to take heavy punishment was demonstrated recently by tests made under severe operating conditions. Vibrating elements were driven with a saw-tooth voltage to full amplitude, continuously for 1,000 hours without any noticeable deterioration. The same test will usually show deterioration in a conventional speaker within 24 hours.

The new vibrator (Stock No. 59756) is mechanically and electrically interchangeable with the older model and can be installed in existing WR-59 series equipment with little difficulty.

The suggested user price of the new vibrator is \$40, approximately half the price of the older vibrator and only slightly more than the cost of repairing older units.



215X1 INDOOR-OUTDOOR LIGHTNING ARRESTER FOR TV INSTALLATIONS



The 215X1 lightning arrester was designed and patterned after RCA's time-tested indoor lightning arrester, used in nearly a million homes. Designed to fit quickly and easily into TV and FM installations, this arrester is listed by the Underwriters Laboratories for both indoor and outdoor mounting.

Housed in durable plastic, this lightning arrester is designed for 300-ohm transmission lines, such as the RCA "Bright Picture" line.

A wood screw is attached to this arrester in a manner which permits easy mounting without the use of a screwdriver. This arrester may be attached to the antenna installation without cutting or splicing the transmission line. The transmission line is simply placed in a slot at the top of the arrester, and a plastic cap is screwed down firmly, causing four prongs in the device to pierce the insulation and contact the wires. The 215X1 arrester is provided with a screw terminal for connection of a ground wire.

Suggested list price of the 215X1 lightning arrester is \$1.10.

Sales Aids Available

To help dealers promote sales of the 215X1, a merchandising carton and window display sign are being offered.

The carton, which holds ten lightning arresters, is easily converted into a counter merchandiser by

folding the cover. This carton is printed in RCA's familiar red, black, and white carton colors, and it is being supplied as a standard package.

The display, for window or counter use, is designed to attract the attention of television set owners to this arrester by means of a simulated flash of lightning striking a typical TV antenna installation.

Measuring 15 inches high by 12 inches wide, the display (Form number 3F643) is silk-screened in two colors, on sturdy cardboard, and contains a light-flashing unit.



The importance of a 215X1 lightning arrester to a television installation is emphasized by this RCA window and counter display which portrays a flashing, simulated stroke of lightning on a typical TV installation.



The carton, which holds ten lightning arresters, is easily converted into a counter merchandiser by folding the cover. This carton is printed in RCA's familiar red, black, and white carton colors.

DEALER SALES OF INDUSTRIAL BATTERIES SPURRED BY NEW CIVIL DEFENSE FILM



Small-plant, industrial-battery business received an added spur recently when RCA batteries were featured exclusively in a new Civil Defense film, entitled "Target USA," which is now being shown at thousands of industrial plants throughout the country. The picture is a dramatic guide for businessmen planning Civil Defense measures in preparation for an atomic attack.

Among the numerous suggestions made in the picture for the protection of plant and personnel is the maintenance of an adequate supply

of dry batteries to supply emergency power for lighting and communications. Close-up shots reveal replacement stocks of dependable RCA batteries. This emphatic story should result in increased industrial demand for RCA batteries.

Every local radio and TV service dealer should be aware of the RCA battery sales potential in small local plants. There are many industrial types in the RCA battery line, and these can represent extra battery volume and profits to the battery dealer.

REVISED "TV COMPONENTS" NOW AVAILABLE TO SERVICEMEN

Several months ago, the RCA Tube Department brought out a book called "TV Components" for distributor's use. Shortly thereafter, many requests were received from our distributors who wanted additional copies of this book for their dealers. Only a brief glance at the information-packed pages of this useful book was needed, and the demand was terrific!

In response to these numerous requests, TV COMPONENTS (CTV-1011A) is now available to dealers and servicemen from RCA Distributors and through RCA, Com-

mmercial Engineering, Harrison, N. J., at 25 cents per copy.

TV COMPONENTS has been revised and brought up-to-date to include recently introduced RCA television components; it now contains data on more than 60 components.

Compiled for quick reference, this book presents, for each component listed, such vital information as electrical ratings and characteristics, terminal-connection diagrams, outline drawings, typical circuits, and recommended installation procedures.

INVENTORY CONTROL GUIDE FEATURED IN NEW RCA BATTERY PRICE SCHEDULE

New sales assistance has been offered recently to radio dealers and servicemen about to exploit the full potentialities of the portable-radio battery market. This sales aid is a new battery sales-volume guide included in the latest dealer price schedule for RCA radio batteries.

The new price schedule features an "Inventory Control Guide" column which indicates the types of high, medium, and low sales volume. Dealers about to expand into the profitable radio-battery field will find this column to be a useful gauge for evaluating battery movement and profit opportunities.

This latest price schedule is revised in form only. Prices on the new list remain the same as those effective on October 19, 1950.

Copies of the new RCA radio battery price schedule (Form No. 3F306R9) are obtainable from RCA Distributors.

BY POPULAR REQUEST!

In response to numerous requests, the RCA Tube Department has made it possible for dealers and servicemen to purchase its two new television booklets, RCA KINESCOPES and TELEVISION SERVICING. These publications heretofore had been available only by purchasing RCA kinescopes during RCA's "Treasure Chest" promotion campaign.*

Because both booklets are regarded as important additions to the service dealer's technical library, they are being made available at a nominal charge to cover production and handling. Both are available from RCA Tube Distributors or from RCA, Commercial Engineering, Harrison, N. J. RCA KINESCOPES is listed at 25 cents; TELEVISION SERVICING at 35 cents.

*See Sept.-Oct., 1951 issue of RADIO SERVICE NEWS.

DATA ON RECENTLY ADDED RCA KINESCOPIES

Type No.	Envelope	Anode Voltage (kv)	Picture Size (inches)	Approx. Deflection Angle* (degrees)	Notes
ALL-GLASS TYPES¹					
Magnetic Focus & Magnetic Deflection					
10FP4-A	Round	12	9 3/8 x 7	50	Metal-backed screen. No ion-trap magnet required.
12KP4-A	Round	12	10 1/4 x 7 5/8	54	Metal-backed screen. No ion-trap magnet required.
14CP4 ²	Rectangular	14	11 3/8 x 8 1/2	65	Requires single-field ion-trap magnet.
16KP4	Rectangular	Similar to 16RP4 except for neck length of 3/4 inch on the 16RP4	Similar to 16RP4 except for neck length of 3/4 inch on the 16RP4	52	Requires double-field ion-trap magnet.
16LP4-A	Round	14	14 1/2 x 10 3/8	52	Requires double-field ion-trap magnet.
16RP4	Rectangular	16	13 1/2 x 10 1/8	65	Requires single-field ion-trap magnet.
16TP4	Rectangular	14	Similar to 16RP4 except for neck length of 6 7/8 inches as compared to 7 1/2 inches for the 16RP4.	70	Requires double-field ion-trap magnet.
16WP4-A	Round	16	14 1/2 x 10 3/8	70	Requires double-field ion-trap magnet.
17BP4-A	Rectangular	16	14 3/8 x 11 1/8	65	Requires single-field ion-trap magnet.
20CP4	Rectangular	18	17 1/4 x 13 1/4	65	Requires single-field ion-trap magnet. No external conductive envelope coating.

Electrostatic Focus & Magnetic Deflection

17HP4	Rectangular	16	14 3/8 x 11 1/8	65	Low-voltage focus. Requires single-field ion-trap magnet.
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METAL-SHELL TYPES³

Magnetic Focus & Magnetic Deflection

21AP4	Rectangular	18	18 3/8 x 13 1/8	66	Requires single-field ion-trap magnet.
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Electrostatic Focus & Magnetic Deflection

17GP4	Rectangular	16	14 3/8 x 11	66	High-voltage focus. Requires single-field ion-trap magnet.
17TP4	Rectangular	16	14 3/8 x 11	66	Low-voltage focus. Requires single-field ion-trap magnet.

*For rectangular picture tubes, horizontal angle is shown; corresponding diagonal deflection angle is 70°.

¹With Filterglass face and external conductive envelope coating unless otherwise noted.

²Similar to 14EP4 except for neck length of 7 1/2 inches as compared to 7 3/8 inches for the 14EP4.

³With frosted Filterglass face.

IT'S HERE! A POCKETFUL OF DATA—1952 EDITION OF RCA'S POCKET REFERENCE BOOK

The 1952 edition of the RCA POCKET REFERENCE BOOK, which has been issued annually for the benefit of dealers, servicemen, and industrial users during the past quarter-century, is available now from RCA Distributors.

Completely revised and expanded to include information on RCA products introduced during the current year, the new pocket reference

book contains complete product listings of RCA tubes, components, test equipment, batteries, and miniature lamps.

This handy book provides characteristics, and socket connections for more than 450 RCA receiving tubes, including kinescopes. Also included are technical data on 75 RCA dry batteries, together with a battery replacement guide listing the RCA battery complement for more than 300 portable radios of 47 manufacturers.

A section on radio and television test equipment supplies the serviceman with detailed descriptions of essential test instruments and outlines their uses in servicing and troubleshooting.

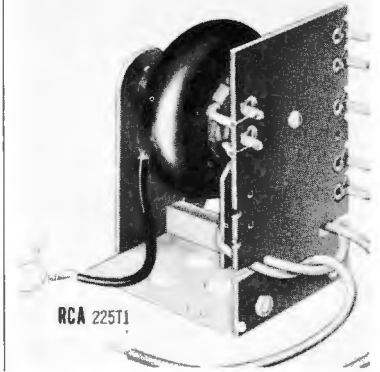
In addition, the reference book contains basic data on fundamentals of television; some helpful hints on television trouble-shooting (compiled by John Meagher, the RCA Tube Department's television service specialist); a components directory for RCA kinescopes, and a description of RCA's technical publications.



225T1 HORIZONTAL-DEFLECTION-OUTPUT AND HIGH-VOLTAGE TRANSFORMER HAS FERRITE CORE

The new RCA 225T1 TV horizontal-output and high-voltage transformer can be used with all of the larger round or rectangular picture tubes having a horizontal-deflection angle of about 66° and operating at a zero-load anode voltage of 16 kilovolts.

The 225T1, utilizing a ferrite core for superior performance, is designed for use with a single high-voltage rectifier tube such as the 1B3-GT. The single horizontal-deflection amplifier tube may be either a 6BQ6-GT or a 6AU5-GT. When the 6BQ6-GT is used, a "B" supply of 280 volts is needed; when a 6AU5-GT is employed, a "B" supply of 300 volts is required.



HOW TO GET YOUR COPY OF RADIO SERVICE NEWS

Many inquiries are received about where and how RCA Service News can be obtained, regularly. Here's the answer.

Radio Service News is published bi-monthly by the RCA Tube Department in the interest of radio servicemen and dealers everywhere. It is distributed to the trade through RCA Distributors, who

supply it to their customers either by mail, or over the counter. Ask your RCA Distributor to put you on his regular mailing list, or if he passes it out in the store, to save you a copy.

If you are now receiving a copy from your local RCA Distributor, don't forget to notify him when you change your address.

RADIO-PHONO TV TIPS

(Continued from Page 3)

the "MOD IN" jack, J6, to obtain internal audio modulation.*

Picture IF Transformer Adjustments. When sweep aligning T105 and T106, care must be taken not to short out the grid bias with the sweep output cable. Make certain to connect a 1,000- μ mf ceramic capacitor between the sweep output cable and the grid of V106.

It has been found desirable to align T1 and T104 to the response shown below rather than as shown in Fig. 16 in the receiver Service Data.

RF Oscillator Alignment. Because 40-Mc picture-if amplifiers employed in this series of television receivers operate at 45.75 Mc, the rf oscillator operates at frequencies not covered by the fundamental frequency range of the WR-39 series calibrators when the receiver is tuned to channels 4, 5, 6, 11, 12, and 13. When employing these instruments to adjust the receiver oscillator, tune the calibrator to one-half the receiver oscillator frequency on channels 4, 5, and 6. WR-39A and WR-39B calibrators should be tuned to one-half the oscillator frequency on channels 11, 12, and 13. WR-39C calibrators should be tuned to one-third the oscillator frequency on channels 11, 12, and 13. The receiver oscillator should then be adjusted to beat with the second harmonic of the calibrator on channels 4, 5, and 6, and to the third or fourth harmonic of the calibrator on channels 11, 12, and 13. The procedure to be employed will be the same as that given in the Service Data for the subject model receivers.

*"Notes on the Wide-Band Modulator in the WR-39B Television Calibrator," RADIO SERVICE NEWS, April-May, 1951, pg. 2.

CYLINDRICAL FACEPLATE ON NEW 17-IN. KINESCOPE REDUCES REFLECTIONS

The new RCA 17QP4 all-glass, rectangular picture tube features a Filterglass faceplate having a cylindrical outer surface and a toric inner surface.

A cylindrical outer surface is employed to reduce reflections of bright objects in the vertical plane.

The toric inner surface of the faceplate affords a practical compromise between a cylindrical inner surface and a spherical inner surface generally desired for yoke design and for the required bulb strength with minimum weight.

A magnetic-focus type, the 17QP4 has an external, conductive bulb coating; an ion-trap gun requiring a single-field magnet; a diagonal-deflection angle of 70°, a horizontal-deflection angle of 65°, and a maximum ultra-voltage rating of 16,000 volts.



POSTMASTER: If undeliverable for any reason, notify sender, stating reason, on Form 3547, postage for which is guaranteed.

From

TO:

RADIO SERVICE NEWS

RCA Radio Service News is published by the RCA Tube Department in the interest of radio servicemen and dealers everywhere. It is distributed free of charge to members of the radio-service fraternity through the courtesy of RCA and its tube, battery, test equipment and parts distributors.



Announcing

The new RCA WV-87A *Master* VoltOhmyst*

Measures... (Full-scale ranges)

\$112.50 Suggested User Price

DC VOLTAGE: 0 to 1.5, 5, 15, 50, 150, 500, 1500 volts

PEAK-TO-PEAK VOLTAGE: 0 to 4, 14, 42, 140, 420, 1400, 4200 volts

RMS VOLTAGE: 0 to 1.5, 5, 15, 50, 150, 500, 1500 volts

RESISTANCE: 0 to 1000 megohms in seven overlapping ranges

DC CURRENT: 0 to 0.5, 1.5, 5, 15, 50, 150, 500 milliamperes; 0 to 1.5, 15 amperes

Sold Complete—with the following Probes and Cables

- Direct Probe and Cable
- DC Probe
- Ohms Cable and Probe
- + Current Cable (Red)
- - Current Cable (Black)
- Ground (Case) Cable

Accessory Probes Available on Separate Order

- ✓ WG-264 Crystal-Diode Probe for measuring ac voltages at frequencies up to 250 Mc.
- ✓ WG-289 High-Voltage Probe, with WG-206 Multiplier Resistor, for increasing dc-voltage range to 50,000 volts and input resistance to 1100 megohms.

FEATURING an 8½" meter, the new WV-87A Master VoltOhmyst is really the master of every testing application. Its peak-to-peak scales are particularly useful for television, radar, and other types of pulse work.

The WV-87A measures dc voltages accurately in high-impedance circuits, even with ac present. It also reads rms values of sine waves and the peak-to-peak values of complex waves or recurrent pulses, even in the presence of dc.

Like all RCA VoltOhmysts, the WV-87A features ±1% multiplier and shunt resistors, a ±2% meter movement, high-input resistance, zero-center scale adjustment for discriminator alignment, dc polarity-reversing switch, and a sturdy metal case for good rf shielding.

On direct-current measurements, extremely low-

meter resistance gives an average voltage drop of only 0.3 volt for full-scale readings on all ranges. Nine overlapping ranges provide dc readings from 10 microamperes to 15 amperes.

An outstanding feature is its usefulness as a television signal tracer... made possible by its high ac input resistance, wide frequency range, and direct reading of peak-to-peak voltages.

The RCA WV-87A Master VoltOhmyst has the accuracy and stability for laboratory work. Its large, easy-to-read meter also makes it especially desirable as a permanently mounted instrument in the factory and repair shop.

For complete information on the WV-87A, see your RCA Test Equipment Distributor or write RCA, Commercial Engineering, Section AX67, Harrison, New Jersey.

*Reg. U. S. Pat. Off.



RADIO CORPORATION of AMERICA

TEST EQUIPMENT

HARRISON, N. J.