



RADIO SERVICE NEWS

PUBLISHED IN THE INTEREST OF RADIO SERVICE SALES ENGINEERS

OCTOBER 30, 1934

CAMDEN, NEW JERSEY

Vol. I, No. 5

Phonograph Modernization Offers Big Profits

Remarkable Pencil Given Free For Labels From Ten RCA Antenna Kits

RCA Service Engineers' Pencil Translates Color Code of Resistors Into Plain Figures

EASY TO WIN

All the bewildering calculations usually involved in interpreting the standard R. M. A. Color Code for resistor values are over for service engineers who sell as few as ten RCA World-Wide Antenna Systems during the next three months.

Under the terms of an offer just announced by the RCA Parts Division, a remarkable new automatic pencil, which incorporates a special device that tells at a glance the number of ohms indicated by any resistor marking, is given free to any dealer or service man who sells ten RCA World-Wide Antenna Systems before February 1, 1935. All that is required is that the service engineer or dealer send to RCA Parts Division, Camden, New Jersey, 20 labels from RCA World-Wide Antenna Cartons. Labels from RCA Dealer Demonstration Antenna Kits (the special antenna for stores) are counted as equal to four labels from the regular RCA World-Wide Antenna for home use.

Antenna Sales Up

Present indications are that the majority of all radio dealers and service engineers will soon be sporting the RCA Service Engineer's Pencil, since the RCA World-Wide Antenna is selling like hot cakes these days. Advertising support given dealers who handle the Antenna has been a factor contributing to the popularity of RCA Antenna System, but the intrinsic merits of the product itself have been the chief cause of the sales records established by this aid to better radio reception.

Is High Grade Pencil

Even without the resistor color code feature, the RCA Service Engineer's pencil would be well worth striving for. It is the finest product of one of the largest automatic pencil manufacturers. The barrel is of black composition material, richly polished. The tip, clip and the bands are gold-plated. Turning the knob propels or repels the lead. Removing the knob discloses an eraser and a magazine of leads.

But the outstanding feature of the pencil, from the service engineer's standpoint, is the resistor color code bands. Never before has the service engineer been able so quickly and con-

SAVE THE LABELS FROM RCA WORLD-WIDE ANTENNA KITS

SENDS FACSIMILE MESSAGES



Charles J. Young, RCA Victor engineer, inspects the product of his facsimile communication system

PHILADELPHIA, PA.—A new radio facsimile system which reproduces entire messages, maps and pictures directly on ordinary paper at the rate of a full letter-sized sheet every eight minutes, was described by Charles J. Young, research engineer of the RCA Victor Company, to members of the Institute of Radio Engineers, who met recently in Houston Hall of the Moore School of Electrical Engineering.

While Mr. Young emphasized that it is premature to attempt to evaluate all of the practical uses to which the new development might be put, he suggested that such a simplified system could be

NOTED NAMES ON PROGRAM OF I. R. S. M. MEET

Famous Speakers Make October 19th "Big Night" of Convention

Friday, October 19th, is hailed as "The Big Night" of the Regional Convention of the Institute of Radio Service Men, to be held at the Pennsylvania Hotel, New York City, on October 19th, 20th and 21st, according to publicity sent out on the meeting.

"The Big Night" takes its name from the prominence of the speakers scheduled for this first night of the meeting and from the widespread interest in the subjects of their talks. The headliners for the evening include E. T. Cunningham, President, T. F. Joyce, Advertising Manager, and W. F. Diehl, Test Instrument Engineer, all of RCA Victor

(Continued on page 6, col. 1)

SPECIAL RCA KITS USED TO PLAY OLD PHONOGRAPHS THRU RADIOS

SERVICE ENGINEERS DISCOVER NEW SOURCE OF REVENUE

Without benefit of ballyhoo, radio service engineers have discovered a new source of revenue and developed it until it has grown to be an important business even before the general radio trade knew anything about it. It is called "phonograph modernization."

The radio service profession is taking it up in a big way because the profits are large and by the very nature of the work there is not likely to be any destructive competition. Radio service engineers are the only branch of the industry in a good position to sell "phonograph modernization" and, likewise, are the only ones who can do the work. Every job is more or less a "custom job," but on the other hand any good service engineer can easily handle the work.

Kits Simplify Jobs

The demand for the various phonograph parts needed to bring the old talking machines up to date has grown to such proportions that the RCA Parts Division has recognized it and created Phonograph Modernization Kits that eliminate any uncertainty as to matching of parts.

A radio service engineer can now select the Kit that has a pickup of the proper impedance, etc., and be sure that all the parts are properly matched and that the price he quotes is correct.

Free Booklet Explains Work

As a further help to servicemen who are keeping their shops humming by this new activity, the RCA Parts Division has published a booklet, *Modernizing Phonographs—the 1935 Opportunity for Service Engineers*. This booklet explains away all technical problems of phonograph modernization and catalogs the Kits and individual parts available for this work. It is sent free on request to the RCA Parts Division, Camden, New Jersey, and all service engineers are urged to write for it at once.

Parts included in RCA Phonograph (Continued on page 4, col. 3)

Third Series of RCA Service Meetings Starts October 25th

A third series of meetings for service engineers will be conducted by the RCA Service Division, beginning about October 25th. These meetings will be held in all sections of the United States, groups of factory engineers leaving Radio Headquarters on or about the above date to conduct meetings simultaneously in the larger centers of population.

All Service Men Invited

Dates have not yet been definitely determined for the third series of meetings. All service engineers and dealers are invited to attend and are urged to consult the nearest RCA Victor distributor for information as to date and place of meeting.

Each group will be manned by spe- (Continued on page 5, col. 3)

OUR STOCK IN TRADE—WHAT IS IT?

An Editorial by E. M. Hartley, Manager, RCA Parts Division

Our stock in trade—what is it? What have we to sell the public? Is it tubes? Is it antenna systems? Is it transformers? Resistors? Overhaul jobs?

No! Emphatically no! Few of us run parts stores.

We are not selling tubes or transformers or resistors any more than the physician is selling the packet of pills he leaves on the bedside table.

That physician was called because the family had confidence in him, not because they wanted to buy his pills. That physician had "sold" himself. And he did not do so by offering cut rates or "free" treatments or cheap medicines.

So, too, the radio service profession must sell itself. It must create confidence in itself. And it cannot do so by attempting to make exorbitant profits on tubes and parts, and offering its main stock in trade, professional ability and integrity, at cut prices.

Tubes, parts, and accessories are side lines of radio service. The best policy is to sell the very best merchandise at honest prices, and to sell service, too, at honest prices. In many cases today service is being sold at dishonest prices, prices that cheat the radio service engineer of his just compensation.

Note how in their booth, see page 2, the Philadelphia Radio Service Men's Association sold themselves, not the merchandise they handle. By assuring the public that they handled only the finest in parts and tubes (parts and tubes are a small part of the proper cost of radio service, anyway) they sold their chief stock in trade, THEIR PROFESSIONAL ABILITY AND INTEGRITY.



E. M. Hartley

POSTCARDS AT PENNY EACH ARE BARGAIN

New Postcards Stamped and Imprinted, Sell Antenna and Phonograph Jobs

To make it possible for radio service engineers to use expertly prepared direct mail material at a minimum cost, RCA Parts Division has prepared four postcards that are designed to stimulate the service business. They are offered, government stamped and with the dealer's or service engineer's imprint, for the cost of the postage alone, or \$1 per 100.

Cigar stores seldom use direct mail methods for contacting their customers. They see them in person so frequently that the direct mail contact is not needed.

Service Business Needs Advertising

So too with gasoline filling stations. They see their customers frequently. But when we examine the methods of the busy auto repair shop, we find that in many cases they make effective use of direct mail to maintain contact with old customers during the periods when their cars are running satisfactorily, and to establish contact with potential new customers.

The radio service engineer is in the same position as the auto repair shop. Radio service is needed infrequently. The customer has plenty of time to forget where he got service last time,—or to be attracted to some other shop by its advertising. Therefore the need for

Uses Stickers On All Parts

M. H. Sessions, of Brownwood, Texas, offers the profitable suggestion of putting identification stickers not only on his tubes, but also on all new parts he installs in sets.

Stickers Protect Dealer

Several apparent advantages spring from this practice. The name of his store is brought before the customer's eye as soon as he looks inside his radio. This means that Mr. Sessions will be thought of first when repair work is necessary. Another tangible benefit lies in the service engineer being able to check at once for parts which he knows to be in good order. It also protects the service engineer should other parts of the receiver later become defective.

Stickers of Several Sizes

Accompanying his letter, Mr. Sessions encloses samples of his labels, each carrying the wording, "This part installed by M. H. Sessions." For resistors he advocates a sticker about one inch square; for voltage controls, etc., one about 1 by 1 1/4 inches; and for condensers, etc., one about 1 by 2 inch. The larger labels have the motto printed in small type near the bottom, leaving room at the top for the date of installation and remarks.

advertising and especially for the intimate contact that direct mail gives.

Greatest Advertising Bargain

The government-stamped postcard is without a doubt the great bargain in direct mail advertising. For one cent, including both postage and paper stock, anyone can send a message that is necessarily short enough to encourage the recipient to read it and long enough to tell the story if the message is properly written.

SAYS OUTPUT METER IS BIG AID IN SELLING

Dealer Finds Glow Lamp Type Output Indicator Makes Big Impression on Customers

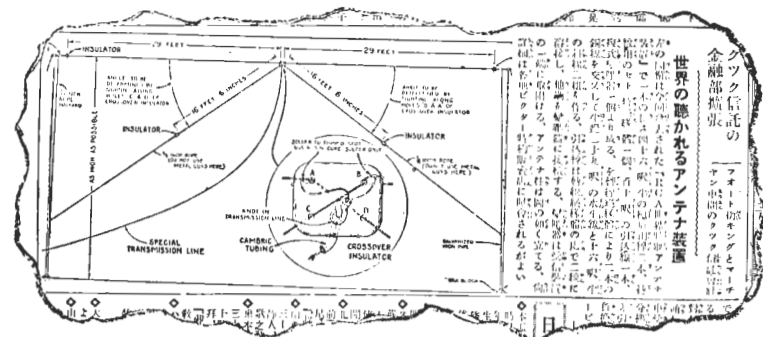
Even if it cost many times \$4.00, the new RCA Output Indicator would be worth the cost for its effect on customers, in the opinion of T. G. Donnelly, radio service engineer of Collingswood, N. J.

The RCA Output Indicator, Type TMV-121-A, uses a neon lamp in place of the usual meter. Thus in aligning a receiver, correct alignment is indicated by the intensity of the glow in the neon lamp rather than by a meter reading. Since even a layman can see the variations in the lamp and quickly understand the meaning of it, customers are impressed far more than by the same operation performed with an old style output indicator.

Ear Alignment Unreliable

"Several times since getting this new output indicator I have had occasion to align receivers in the customers' homes," explained Donnelly. "You should see them perk up and show interest and become duly impressed when I explain this instrument to them. They watch the light and when you finish they know you have done the job right. I wasn't getting half the value out of my oscillator before I got the output indicator. It proves to me that you can't depend on the ear for an accurate job. I think it is one of the best \$4.00 investments I ever made."

Not a Laundry Ticket



It may look like a laundry ticket, but actually it is an advertisement of the RCA World-Wide Antenna, clipped from a Japanese newspaper published in Honolulu, Hawaii. (Editor's Note: If the ad is upside-down, turn the paper around to read the ad, if you think that will help.)

SENDS FACSIMILE MESSAGES

(Continued from page 1, column 2)

used to flash messages in their entirety, from city to city, exactly as written by the sender, to supplant the present method of sending such messages, letter by letter, in the comparatively laborious Morse code.

He pointed out that the new facsimile system should prove useful in police and crime detection work. Fingerprints, identifying photographs and other useful information could be exchanged by police departments to aid in the apprehension of criminals.

Mr. Young also described a series of successful experiments conducted between the shore and ships at sea, in which complete weather maps were prepared by observers and sent to the vessels at frequent intervals to aid navigation.

No Photo-Developing Required

The recorder system developed by Mr. Young in the RCA Victor laboratories dispenses with the cumbersome processing, or photo-developing re-

quired by other facsimile systems, by utilizing ordinary carbon paper to print directly on ordinary white paper. Continuously feeding rolls of both the carbon and the paper are led past a metal cylinder, on which a single spiral of wire projects slightly above the surface.

Complete Letter in Eight Minutes

Fluctuations in intensity of the incoming signals press the paper and carbon together against this spiral to make marks corresponding to the light and shade of the original at the transmitter. Since the receiver and the transmitter are synchronized, an exact reproduction results.

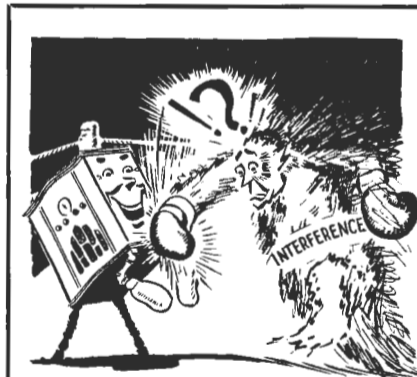
The facsimile recorder described by Mr. Young traverses a standard-width, letter-size page, measuring 8 1/2 by 11 inches, at the rate of 1.2 inches per minute. Thus, a full-sized page filled with single-spaced typing is completed in eight minutes, or at the rate of 100 words per minute.

Government Stamped Postcards, Imprinted, \$1 per 100

The one-cent stamped postcard is probably the world's greatest advertising bargain. Now you can get these business producers printed, stamped, imprinted with your name, and delivered to you—and later to your customer—for the cost of the postage alone. And the jobs they

bring in—antenna installations and phonograph modernization jobs—are real profit-makers.

Order by number. Price \$1 per 100, imprinted. At your RCA Parts Distributor; or direct from RCA Parts Division, Camden, New Jersey, if order is accompanied by remittance.



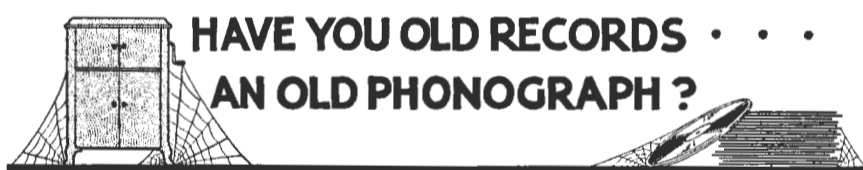
Your Radio Can Take It

It takes all the noise and interference and passes them on to you unless it is equipped with a scientific antenna system. For short-wave reception especially, you must have an efficient antenna. We specialize in antenna installations and recommend the noise-reducing RCA World-Wide Antenna System... a remarkable "double-doublet" system that reduces noise and brings in stations you never got before. Let us make a *Certified Installation*... Phone us today.

YOUR IMPRINT HERE

Street Address Phone Number
City and State or Slogan here

EM7



HAVE YOU OLD RECORDS . . . AN OLD PHONOGRAPH ?

When you can't get what you want on the radio, why not listen to your old favorites on your phonograph—played through your radio?

It costs very little to install an electric motor and pickup in your old phonograph and connect it to your radio . . . Then you can have the music you want when you want it, without even bothering to wind a spring. Phone us, we'll be glad to tell you more about it.

YOUR IMPRINT HERE

Street Address Phone Number
City and State or Slogan here

EM9



You Never Realize

how good your all-wave radio set can be until you install a special short-wave antenna system. Let us make a *Certified Installation* of the noise-reducing RCA World-Wide Antenna System. You'll be surprised at the new stations you can get . . . without noise and interference.

YOUR IMPRINT HERE

Street Address Phone Number
City and State or Slogan here

EM8



CARUSO, RUDY VALLÉE or a SYMPHONY whenever you want them

That old phonograph of yours—for a few dollars we can connect it to your radio so that you can hear your favorite artists through your radio whenever you wish. No springs to wind, and you get the same modern tone quality that you get on radio reception . . . or with an RCA Victor Record Player you can play records through your radio without ever leaving your easy chair . . . And it's inexpensive . . . Phone us today . . . Let us tell you more about it.

YOUR IMPRINT HERE

Street Address Phone Number
City and State or Slogan here

EM10

THREE CLASSES OF PHONOGRAPH JOBS DESCRIBED

Every Radio Owner is Potential Prospect for Phonograph Job or Record Player

Prospects for phonograph modernization fall into one of three general groups, states W. L. Jones, RCA Parts representative in New York, where many old phonographs are being dusted off, modernized, and returned to duty. First there are those who own a radio receiver only. Second, those who own an old fashioned phonograph and, third, those who own both radio and phonograph. And in each of these three groups there are literally thousands of families awaiting the call of the Service Engineer.

Radio Owners Buy Record Players

With customers who own a radio only, the service engineer's problem is a very simple one. It is only necessary to show him that by attaching a record player and using his present amplifier and speaker he can secure results from records that are in every way comparable to the results he secures over the air.

The quickest, easiest and most satisfactory installation for the customer owning a radio only is the use of one of the turntable and pickup assemblies. RCA Victor Model R-93 is a good example of this type of construction. About the shape and size of a cigar humidor, 5" x 11" x 8", in a handsome walnut case, it may be placed on an end table or other convenient location, enabling the operator to play records at a distance from the receiver to which it is attached. Being electrically driven it does away with the necessity of winding. This unit is known as the RCA Record Player and sells for \$16.50 list, slightly higher west of the Rockies.

Even Radio-less Homes Prospects

A surprising number of old phonographs will be found in American homes. Frequently they have been relegated to the attic or store room. When purchased they were doubtless representative of the finest reproducing equipment that could be obtained, but their day of entertainment has long since passed.

In many homes the unused phono-

NEW USE FOR RCA OUTPUT INDICATOR

Pittsburgh Man Finds Instrument Very Helpful in Selling Tubes in Homes

F. W. Wentker of Pittsburgh, reports that service engineers of that city have found the RCA Output Indicator, Stock No. 4317, to be an excellent device to use to sell tubes.

In his letter Mr. Wentker states that the indicator is first connected in the manner indicated by the instructions. Starting at one end of the circuit, a new tube is then inserted in each socket in turn. As a worn-out tube is replaced by a new one, the sudden increase in brilliancy of the light in the indicator is a convincing demonstration to the customer that the tube needs renewal.

Service engineers have long sought a tube tester which would be light in weight, accurate, and low in price. Mr. Wentker suggests that the RCA Output Indicator will meet this requirement and make it unnecessary to carry an expensive, bulky tube tester.

graph still maintains a place of honor in the living room or parlor, because of the beauty of its cabinet work or perhaps for sentimental reasons. In any event the instrument is still in the home and at little expense can be brought right up-to-date. By pointing out the advances in electric record reproduction, and the small expense involved, it is sometimes possible to sell at the same time a modernization job and a radio set to be used as the phonograph amplifier.

Phonograph Connected to Radio

In countless homes will be found both an old fashioned phonograph and satisfactory radio. Service engineers everywhere are capitalizing the possibilities of this profitable field. No great amount of salesmanship is required to show the advantages of having both instruments in operation, especially when it is made clear to the customer that his records will play through his radio with all the fidelity and definition that characterize the broadcasts that his radio receives.

Phonograph Modernization Pays Well

(Continued from page 1, col. 5)

Modernization Kits are standard units that have made the name "Victor" known throughout the world for recorded music. Each Kit contains a pickup arm, pickup, volume control and, where necessary, a transformer.

Kits Insure Matched Parts

By ordering parts in Kits, the service engineer is sure to get scientifically matched parts as well as a lower price. Motors and turntables, and starting levers are not included in Kits, since they may or may not be required for a particular job.

In announcing the new Phonograph Modernization Kits, G. P. Allen, Sales Manager of the RCA Parts Division, commented on the fact that the increased business in phonograph parts has resulted from the ingenuity of radio service engineers coupled with the demand of the public for "what they want when they want it" in music to supplement their radio entertainment. The public demanded it, and service engineers gave it to them, being quick to see the possibility of meeting the demand for recorded music at small expense by inexpensive changes in old phonographs that were good in their day but which have been outmoded by the advances in record making and reproduction.

Demand for Parts Grows

"Everyone knows that the RCA Victor Company was 'Phonograph Headquarters' even before it became 'Radio Headquarters,'" said Allen. "We have always had a steady demand for phonograph parts, because you know no RCA Victor instrument ever becomes an orphan. We can always furnish repair parts. But during the last few months the demand for pickups, motors, two-speed turntables, and other electric phonograph parts has grown tremendously. At the same time we have been receiving an ever increasing number of inquiries as to what pickup impedance should be used to feed the audio system of a certain radio set, etc."

"A little investigation disclosed that hundreds of service engineers had discovered a profitable new field and were proceeding to cash in on it. Our Phonograph Modernization Kits are the result. Parts may still be ordered individually, but by using the kits the

Radio Rambles



BEFORE FRANCES LANGFORD, NBC CONTRALTO STAR, HAD HER TONSILS REMOVED SHE WAS A SOPRANO!

BRADLEY KINCAID KENTUCKY MOUNTAIN MINSTREL IS AFRAID THE HOME FOLKS WILL FIND OUT HE'S PLAYING GOLF!

LOWELL THOMAS LIVED IN THE CRATER OF A VOLCANO FOR TWELVE YEARS

service engineer can be sure of obtaining parts that are coordinated as perfectly as those used in RCA Victor instruments."

Post Card Solicitation Pays

Many phonograph modernization jobs are obtained when a repair job is done on the customer's radio, but service engineers have discovered that the work is worth going after on its own account and that postcard campaigns or phone solicitation brings profitable results when properly used.

FREE POLISH ON CABINETS HELPS SALES

New York Service Engineer and Furniture Polisher Cooperate For Mutual Benefit

Robert C. Barton, 1041 University Avenue, New York City, has found a new "tie-in" for his business which has resulted in many extra sales. By a cooperative arrangement, he has a furniture polisher come into his store and brighten up the radios he repairs, without cost to himself or the customer.

This idea came from the accidental marring of a console as he was repairing it. After calling in a polisher to remove the scar, he found that all the other furniture in the store was outshone by the polished unit and appeared dingy in comparison. Working on the theory that "a brightly polished cabinet makes a repaired set sound better," he has had the other consoles shined up and it has resulted in many more sales for him.

Extra Service Pleases Customer

When the repaired set was delivered the owner was delighted with the "extra" service rendered by Mr. Barton. She also noticed that the newly polished cabinet made the rest of her furniture appear dull. The result was that the furniture-repair man received the job of refinishing all the pieces in her home.

Mr. Barton writes: "Since then we have been mutually beneficial, as he gives a 'lick' to all my jobs, and in this way he picks up quite a few extra pennies in doing other work for my customers. On the other hand, he has been able to throw some work my way. How do you like that for a 'tie-in'? And a lot of those fellows are out of work."

Plan is Mutually Beneficial

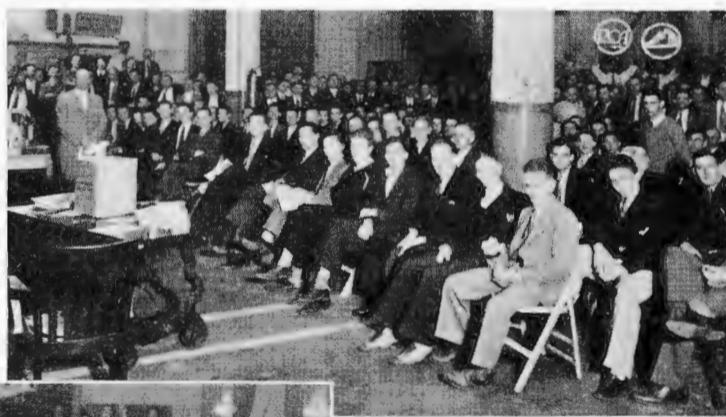
Not only is Mr. Barton giving work to the polisher, but reciprocally, this man has brought him business by bringing in friends who are in the market for new or repaired radios.

This novel method for making old radios look new, and new radios look even better, has been very effective in Mr. Barton's case. Such a cooperative arrangement might be feasible and profitable for many other radio service engineers and dealers.

First Series RCA Service Meetings Highly Successful



The Philadelphia meeting, held in the Architects Club Building, sponsored by the Philadelphia Service Men's Association.



The Cleveland meeting, it is obvious, was a "huge" success.



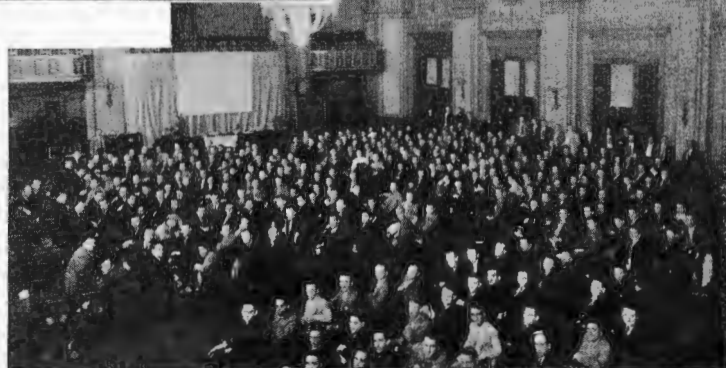
(Left) Boston service engineers turned out in good numbers to learn more about A.V.C. and the "Magic Brain."

Over 600 service engineers crowded into the Grand Ball Room of the Hotel Pennsylvania, New York, for this meeting.

This large hall in the Detroit Leland Hotel was crowded for the first Detroit meeting.



During August and September, more than 9,000 radio service engineers attended RCA Service Meetings in 129 cities and towns. The discussions were confined strictly to service topics, with "The Theory and Practice of AVC," and the "Magic Brain" getting the lion's share of attention



from the speakers. The third series of the 1934-35 RCA Victor Service Meetings is now under way and the fourth series is soon to come. Service Engineers can learn the dates and places of meetings by consulting their RCA Victor distributors. All engineers and dealers are welcome.

SERVICE TIPS

Win a handsome pigskin wallet. Until further notice, these popular wallets will be given to all whose tips on any phase of radio service are published in this column. Send your favorite idea to RCA RADIO SERVICE NEWS, Camden, N. J.

Service Tips are our readers' ideas, not ours. While RCA RADIO SERVICE NEWS believes they are worth while, we can not be responsible in any way for results obtained.

Lightning Arrestors for World-Wide Antenna

When installing the RCA World-Wide Antenna, make sure you use a lightning arrestor of low internal capacity. Some arrestors have excessive capacity between terminals and affect the normal operation of the antenna system by by-passing some of the signal.

General Electric H-31

In the General Electric Model H-31 I have had a great lot of trouble in a decrease of volume, sometimes no sound at all and at times sounding like someone talking in a barrel.

This can be usually traced to a defective input-output push-pull transformer. The usual set analyzer will not show up the open in the primary of the input transformer on account of the 40,000-ohm resistor shunted across the primary.

R. A. Bromley,
Louisia, Ky.

Vibrator Trouble

When the vibrator of an auto set fails to vibrate and the fuse is O. K., look for a broken lead inside the vibrator case. The constant vibration often causes the wires to break from the vibrator unit. This trouble has been found in several Philco, Crosley, and Motorola sets.

Frank R. Edmonds,
Edmonds Studio,
Dublin, Texas.

Majestic 90

Recently I had a Majestic 90 to service. The complaint was that from 760 to 550 kilocycles, noise was so bad that the set could not be played. Upon examination of the condenser plates, we could find nothing wrong until we used a very high powered magnifying glass. With the aid of the glass we found small (very fine) slivers of condenser plates that were not sheared off clearly when in production.

James L. Smith,
Mahwah Radio Service,
Mahwah, New Jersey.

Radiola 18

Oscillation in R. F. hard to control with R. F. compensating condenser, especially with new RCA-26's. Remove 30,000-ohm resistor in series with B+ and primary of first A. F. transformer and replace with a 50,000-ohm unit. This lowers detector plate voltage slightly but makes for greater ease in adjusting compensating condenser, especially at low volume. I also noted a marked improvement in sensitivity, greater volume and rounder tone, without so much "fringe" noise or whistle on distant stations, due, as I analyzed it, to feed back from detector circuit.

Paul V. Zeyn,
Zeyn's Radio Shop,
West Milton, Pa.

Majestic Model 50

Here is a service kink that took me hours to find and hope it may be useful to other service men.

Turned Majestic Model 50 on but could not get a sound out of it.

Voltages all checked O. K. and everything looked O. K.

The set did this two or three times a day and sometimes not for a week.

Remedy: Cut out and replace small uncased .15 mfd. by-pass condenser that goes to 2680-ohm resistor on voltage divider. Recommend high-voltage condenser be used.

Louis Kreisel,
555 Larimer Ave.,
Turtle Creek, Pa.

Majestic Model 70

Here is a good way to get rid of the hum in the Model 70. Replace the 27 tube with a 56, and shield the 56.

J. E. Jones,
40 Park Ave.,
Rochester, N. Y.

Radiola 60 or Philco 77

Volume below normal accompanied by an excessive hum which modulated the output. The tubes, filter and input voltage and current were normal, but the D. C. voltages were low. The trouble was found in the power transformer; one half of the high voltage secondaries was open. A new transformer was substituted in each case.

The addition of technical data to "RCA Service News" makes a good paper better. Keep up the good work.

Henry E. Samuelson,
Norman's Repair Service,
2235 East 75th Street,
Chicago, Illinois.

[Editor's Note—The above is true of all receivers.]

Apex and Gloritones—1930-31

When these sets whistle while tuning plus motor-boating and a sustained oscillation in many cases, check all rotor contacts.

Remove the rotor spring contacts, one in each gang section.

Clean with fine sandpaper.

Clean all grime and oil from the surface of the rotor against which the spring presses, using pipe cleaner.

L. W. Abbott,
Radio Service & Eng. Co.,
1004 Sycamore Street,
Niles, Michigan.

[Editor's Note—Another tip that should apply equally well to all sets.]

RCA Victor R-7 and R-9

RCA Victor R-7 and R-9. Poor volume, bad tuning and poor tone in these sets can usually be traced to 14,300-ohm, 2-watt screen voltage resistor and 8,000-ohm, 1-watt bleeder resistors having lost their resistance and becoming as low as 2,000 ohms. Replace 14,300-ohm resistor with 14,000 to 15,000 ohm 2-watt unit and 8,000-ohm bleeder with 1-watt unit. Remove wiper springs from tuning condensers and clean with sandpaper and replace and oil with 3-in-1 or other fine grade lubricant. It may be necessary to align trimmers after cleaning wipers.

J. Block,
197 Nostrand Avenue,
Brooklyn, N. Y.

Replacing Spray-Shield Tubes

Here is a service tip I believe worth while to the average RCA tube dealer who services Majestic receivers using spray-shielded tubes. Sell the customer RCA tubes of the same number and put one of those close-fitting shields (called Goat shields) around the tube. I have been doing this for some time and find that I can get a few cents more and the customer is more than satisfied because he can use RCA standard tubes instead of the harder-to-get spray-shielded tubes. The net cost of shields is only nine cents. Sell 'em RCA.

L. T. Hyer,
759 N. Lincoln Street,
Sabina, Ohio.

Majestic 90

A Majestic 90 was found to be completely dead with no A. C. voltage at the power transformer primary. Checking with an ohmmeter showed an open "ballast coil" or line voltage regulator.

Many cases of this type of service failure are remedied by replacement with a new unit, without opening it up for a further check-up. Inspection of several of these ballasts showed the wire to be open almost directly at the top connecting lug, and were repaired quite easily.

In one case after a repair was effected, the ohmmeter indicated a high resistance value, which was found to be due to oxidation between the top connecting plate and the long screw running through the insulating tubing and connecting one end of the resistance winding to the base prong. Remove the screw and polish up the contact surfaces with a piece of emery cloth.

George W. Jehle,
891 South 16th Street,
Newark, N. J.

Third Series of RCA Service Meetings Starts October 25th

(Continued from page 1, col. 4)

Specialists in their respective lines. Following close upon the heels of the major meetings in the larger centers, the meetings for service engineers will be extended to the smaller towns, some 120 field engineers of the RCA Service Division conducting them.

Combinations Featured

The meetings will be of vital interest to every service man who wants to add to his income and store of knowledge. The practical discussion will concentrate on the service problems encountered with radio-phonograph combinations and automatic record changers. The theory and practice of electrical pickups will be discussed and illustrated on the screen. This section of the evening's program should be useful to those service engineers who go after phonograph modernization business as well as those who install and service the newer combination instruments.

Terra-wave police transmitters and the ultra-short-wave equipment will be discussed and practical demonstrations made as to its use and adaptability. It will be shown wherein this type of equipment may be installed at a minimum of expense with relatively low subsequent upkeep. Actual demonstrations of station-house transmitters and receivers and squad-car receivers will be made.

Recent Meetings Highly Successful

The first and second series of service meetings held by RCA Parts and Service Division Engineers established new

Battery Operation Makes RCA Oscillator Popular

Instrument Requires No External Power Supply, Uses Low Drain Tubes and Is Light in Weight

The fact that the RCA Test Oscillator, Type TMV-97-B, is battery operated is making it more and more popular with service engineers of the Pittsburgh region, according to J. E. Heney, RCA Parts Division District Manager in that city.

"A-C, D-C, or battery-operated sets, they are all the same to this oscillator," said Heney. "And frequently this is important, because frequently D-C or battery-operated sets may be located where no alternating current is available. In such cases A-C operated oscillators are of no use in the customer's home and even for simple repairs and alignments it is necessary to take the set to the shop."

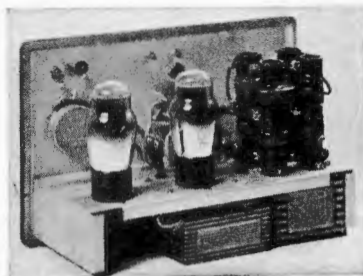
Many Features at Low Price

The RCA Test Oscillator, Type TMV-97-B, created a sensation when it was announced some months ago because of its many features, which might be summed up in the statement that this oscillator meets all requirements of

high records for attendance. Like the coming series of meetings, they were confined strictly to service topics rather than sales topics. All the carefully prepared talks were illustrated by lantern slides or films.

So successful has this type of meeting been that plans are under consideration to extend the schedule of meetings to cover most of the coming year. All Radio Service Engineers and Dealers are cordially invited.

service work, even on the most modern sets, and sells for the extremely low price of \$29.50. At this price accuracy within three per cent is guaranteed. For those wishing positive assurance of extreme accuracy, individually calibrated oscillators, accurate within one



Oscillator Chassis, Showing Batteries

half of one per cent, may be had for \$5.00 additional.

Low Drain Tubes Used

The TMV-97-B Oscillator is powered by a 22.5 and a 4.5 dry battery. Battery type tubes, which draw but 60 milliamperes, are used, giving long battery life. The battery operation feature eliminates all external leads which might require filtering or cause leakage. Thus full portability is combined with wide range (90 KC to 25,000 KC) and light weight, only five pounds with batteries.

The dial, however, is probably its best known feature, since it was the first moderately priced oscillator to have a dial reading directly in kilocycles.

TEAR ON THIS LINE

THE CATHODE RAY OSCILLOGRAPH AS A SERVICE INSTRUMENT

By W. F. Diehl, RCA Victor Laboratory



W. F. Diehl

The high-vacuum Cathode Ray Tube, now appearing on the market, because of its low cost, rugged construction, long life, high sensitivity and non-critical adjustments, should offer many possibilities in connection with high-quality servicing of radio sets and other communication devices.

While the cathode ray tube will not replace those essential service tools, such as the test oscillator, the output meter, etc., it is logical to believe that when this modern tube is incorporated in an instrument termed the "Cathode Ray Oscillograph," it will permit the wide-awake service engineer to analyze a receiver more thoroughly and to locate and rectify those troubles which may arise from maladjustment of the multiplicity of circuits now used in high-quality radio receivers to afford superior performance.

The X-Ray of Radio Service

Multi-tube circuits, noise suppression, dual a.v.c., tone compensation, band-pass i. f. stages and new switching arrangements require more accurate trouble-shooting equipment. The complete Cathode Ray Oscillograph, therefore, gives to the service man an instrument comparable in application to the X-ray, now indispensable in the medical and dental field. No doubt, as time goes on, the service engineer will find many new uses for the Cathode Ray Oscillograph so that eventually it may become his most useful tool.

A Complete Cathode Ray Oscillograph

Figures 1 and 2 are views of a complete Cathode Ray Oscillograph using the standard 3-inch tube. This instrument was made up in

the RCA Victor Laboratory in order to determine the applications of such a device to service work. The instrument is very compact, being 10½ inches high, 6 inches wide, 16 inches long, and weighing less than 25 lbs. Even this laboratory instrument is portable.

The major controls are mounted on a front panel with input terminals and auxiliary controls mounted on the side. A single-stage amplifier with uniform frequency characteristics from 20 cycles to 75 kilocycles is incorporated to increase sensitivity in the vertical direction. A similar amplifier is also incorporated to increase sensitivity in the horizontal direction. A switching arrangement is provided so that the amplifiers may readily be thrown in or out of the circuit.

Wide Frequency Range

The timing axis has a frequency range of from 20 cycles to 15,000 cycles, and is controlled from the front panel as indicated by the knobs marked "Range and Frequency." The amplifier feeding the horizontal axis may also be used to amplify the timing axis oscillator. Suitable gain controls are provided so that the height and width of the image may be varied. Provision is made for internal synchronization, external synchronization and both vertical and horizontal



Figure 1—Experimental Cathode Ray Oscillograph

RCA RADIO SERVICE NEWS CUT-OUT SERVICE

TEAR ON THIS LINE

I. R. S. M. MEETING

(Continued from page 1, col. 2)

Company, as well as Dr. A. N. Goldsmith, consulting engineer. Paul McGee, known to thousands of radio service engineers from his work as President of the I. R. S. M., will preside at the meeting. All radio service engineers, radio engineers and dealers are invited.

Cunningham and Goldsmith

Mr. Cunningham's subject will be the "Importance of Service Engineers to the Radio Industry." Out of a wealth of practical experience extending over a period of twenty years, he has had ample opportunity to make observations that will prove interesting and helpful to every radio service engineer who has the good fortune to be present.

Dr. A. N. Goldsmith, world-famous consulting engineer, has chosen as his subject, "Contributions of the Service Industry to the Progress of Radio."

Diehl on Cathode Rays

Thomas F. Joyce, Advertising and Sales Promotion Manager of the RCA Victor Company, will talk on the "Business Side of Radio Service." As one of the ablest advertising and sales-promotion men in the country, knowing the business from all angles, Mr. Joyce will undoubtedly be able to present constructive ideas on a very interesting subject.



E. T. Cunningham



T. F. Joyce

Short-Wave



Clyde A. Crabtree, 1429 East 14th Street, Oklahoma City, is a veteran radio service engineer, with twelve years' experience. He operates a short-wave station in connection with his repair shop, thus obtaining invaluable advertising among laymen as a radio authority. Auto radio service is his specialty, for which he provides drive-in service.

W. F. Diehl, of the RCA Victor Engineering Laboratory, will discuss a subject of vital interest to every radio service engineer—"The Cathode-Ray Tube—Its Development and Practical Application."

Paul McGee to Preside

Remember the date, October 19th; the time, 8 P. M.; the place, Pennsylvania Hotel, New York; the occasion, The Regional Convention of Radio Service Men. Paul McGee, the President of the organization, will preside.

WANTED

Old RCA Radiola Service Notes

Would you like to win a free copy of any of the Bound Volumes of RCA Victor Service Notes (see description in next column)? A few lucky fellows who have kept their old RCA Radiola Service Notes booklets containing circuit diagrams can trade them in for any of the new Bound Volumes they choose.

For the preparation of the new Bound Volumes, service notes containing circuit diagrams are needed on the following RCA Radiolas. These sets were all manufactured about 1922 and 1923:

Model ER-753—Crystal receiver.

Model AR-1375 — Crystal receiver.

Model DA—Detector and two-stage amplifier.

Model RA — Regenerative receiver.

Model RC — Combination RA and DA.

Model RF—Detector and one audio stage.

Model RE—Aeriola Junior.

Model RF—Aeriola Senior.

Model RG—RCA Aeriola Grand.

Only two Service Notes are needed for each of the above models. For the first two copies received on any model, the RCA Parts Division will give each of the senders one of the Bound Volumes. Send your old Service Notes on the above models to J. P. Allen, RCA Parts Division, Camden, New Jersey. Hurry, because only the first two booklets received on any model will win a Bound Volume of Service Notes.

ALL RCA VICTOR SERVICE NOTES NOW AVAILABLE IN FIVE BOUND VOLUMES

All Service Notes and Diagrams on RCA Radiola, Victor, and RCA Victor Models Now Offered in Book Form at \$1.00 per Book

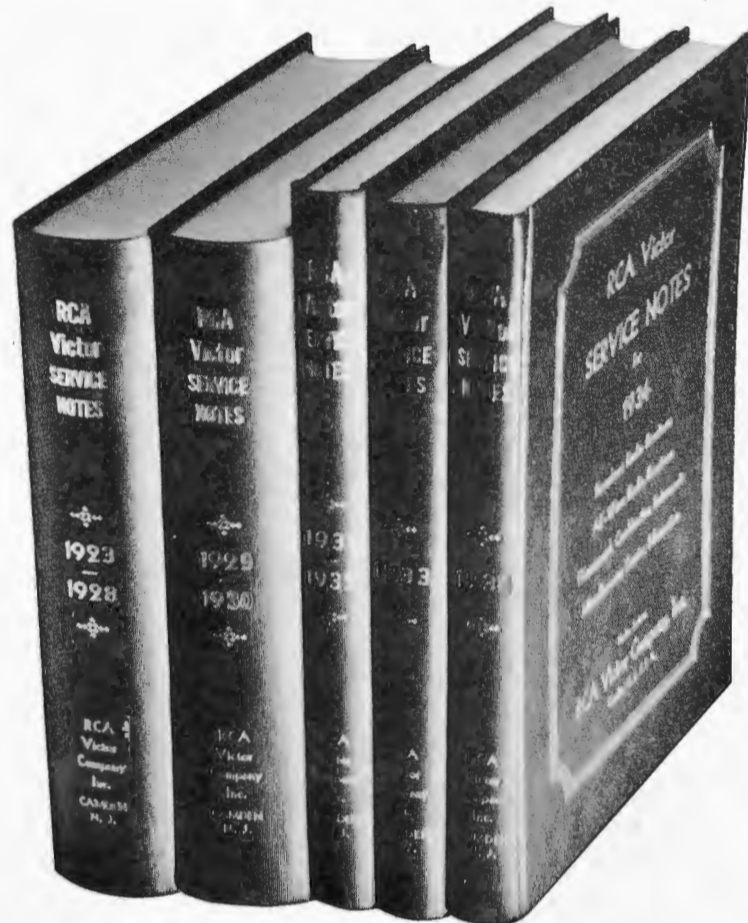
So immediate was the acceptance of the bound volumes of RCA Victor Service Notes for 1931-32 and 1933, so strong was the demand, that three additional bound volumes of service notes will be ready shortly for distribution.

Like the first two volumes, the new books are sold at one dollar each by RCA Parts Distributors. For \$5.00 any radio service engineer can now have a complete library, comprising five uni-

volumes already in their possession have proved their worth as time-savers repeatedly. Hence the demand for the additional volumes.

Diagrams Lie Flat

When the Service Engineer wants technical information on any RCA Victor model, he turns to the index of his bound volume; a moment later dia-



formly bound volumes, of technical data on all RCA Victor radio receivers, past and present.

Books Cover 1923 to 1934

The 1923-28 Volume contains service notes for all RCA Radiola models issued during those years, all Victor Talking Machine Company models which contained radio units, and all RCA Victor models. The 1929-30 volumes include service notes on all models manufactured by either the Victor Division or the RCA Radiola Division in those years. All RCA Victor models for the current year are covered in the 1934 volume. Due to the smaller size of the early service notes, the 1923-28 and 1929-30 books are slightly less in height than the other volumes.

Service men have asked that these additional books be supplied. The two

grams, parts lists and prices and service notes are lying flat on the table before him.

There is no profit made by RCA in the sale of these books, but there is great satisfaction in supplying them for the convenience of Dealers and Service Engineers.

Other Data Included

In addition to the above, each volume will contain other valuable information such as impedance, inductance and capacity charts, antenna charts for short-wave receivers, reception charts for time and season of short-wave bands and complete data on all types of RCA Radio Tubes.

A limited edition is being published. To make sure of copies for yourself, we suggest that you place your order now.

TEAR ON DOTTED LINE

CATHODE RAY OSCILLOGRAPH (Continued)

beam shift, so as to obtain a standing image with proper framing.

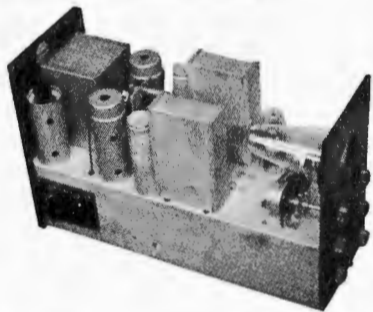
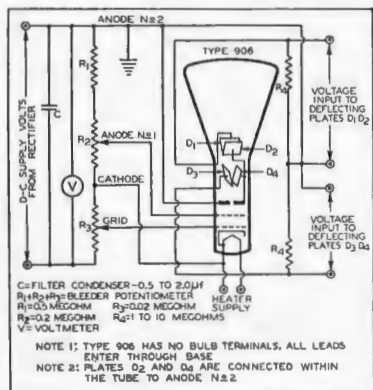


Figure 2—Interior of Laboratory Type Cathode Ray Instrument

Applications

- All A-C voltages from a 1/4 of a volt to 1000 volts can be seen and measured. Since the input impedance to the device is extremely high, readings are considerably more accurate than those obtained with a meter and there is no danger of burn-out. The complete power source of radio receivers or other equipments can, therefore, be completely analyzed and trouble in filter circuits, chokes, condensers, voltage dividers, etc., located rapidly.
- Frequency and magnitude of hum can be viewed and measured.
- The audio frequency circuits can be analyzed for harmonic content and linearity.



Typical Cathode Ray Tube Circuit Using RCA-906 Tube

- Complete i. f. system, both individual stages and overall, may be lined up so as to give the proper band width, thereby avoiding side band cut-off with loss of fidelity. This phase of servicing has been neglected, due to the excessive cost of oscillographs in the past.
- Complete circuits may be analyzed and various wave forms studied, with the result that the cause of trouble in various networks may be located more rapidly and accurately. The wave form of service test oscillators can be analyzed and the oscillator adjusted rapidly when required.

The analysis of circuit performance is very rapid and accurate, as indicated in Figure 3. Here on the screen of the

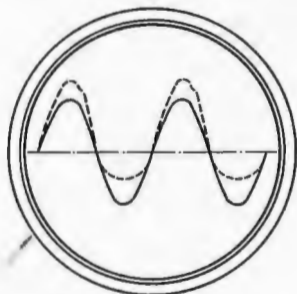


Figure 3—Undistorted and Distorted Curves

cathode-ray tube we see two complete cycles of an audio frequency sine wave (heavy solid curve) which is undistorted. The dotted lines indicate the image we would see if distortion were present in the audio circuits. It is to be noted that the lower half of the dotted curve wave is flattened out, indicating severe distortion. By means of the various controls it is possible to amplify the image horizontally and vertically so as to have the entire area of the screen occupied by a single cycle or fraction of a cycle.

Applications of a Cathode Ray Oscillograph to general service work are too numerous to mention. Many new applications will be found when and if the service man takes up the use of the Cathode Ray Tube to solve his problems

RCA RADIO SERVICE NEWS CUT-OUT SERVICE

TEAR ON DOTTED LINE

RECORD PLAYER IS GOOD ITEM FOR SERVICE TRADE

Small, Low-Priced Unit is Used for Demonstrating in Homes

Compact, rich in appearance, adding dignity and refinement to any room, the new RCA Victor Record Player is sweeping into national popularity, making immediate profits for dealers and service engineers and paving the way for future record sales.

The RCA Victor Record Players, in spite of their low price—only \$16.50 list, east of the Rockies—are equipped with genuine RCA Victor pickups especially designed to combine compactness with efficiency. The pickup includes as its major new feature a viscolloid damper on the armature which effectively prevents unwanted

pickup and tone-arm resonance, otherwise a source of distorted tone. The inertia tone arm to which the pickup is attached is carefully balanced to insure proper tracking of the record grooves without undue wear and vibration.



RCA Victor Record Player

For the service engineer who is cashing in on the opportunities offered by Phonograph modernization, the RCA Victor Record Player is his best demonstration unit as well as a fast selling merchandising item.

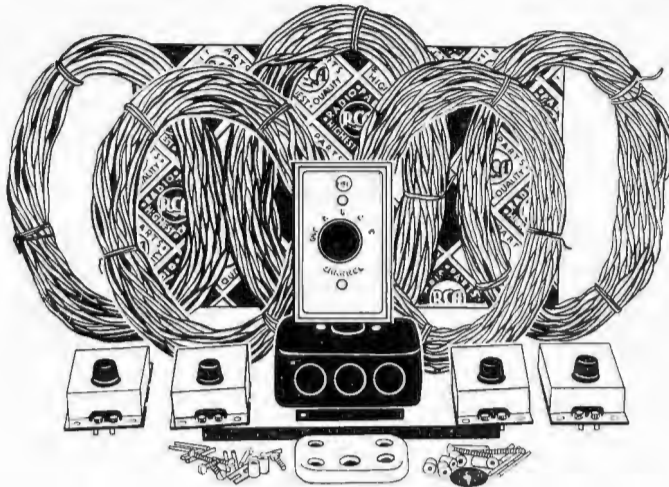
SEE YOUR RCA PARTS DISTRIBUTOR

For These Fast-Selling Service Items and RCA Test Instruments and Tools as well as Genuine Factory-Tested RCA Parts

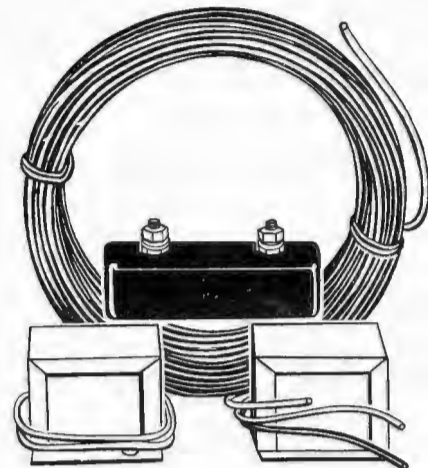
THE FAMOUS RCA ANTENNA SYSTEMS



RCA World-Wide Antenna System. Provides, primarily, an efficient means of collecting the shorter-wave signals on a special "double doublet." Excellent for stimulating sales of short-wave and all-wave receivers—and for keeping the customer satisfied after they are installed. Stock No. 9500. List price, \$6.00.



Store Demonstration Antenna System. Possesses all the advantages of the World-Wide Antenna System, and also includes a four-way switch, mounted on the wall, for rapid changes of antenna from one receiver to another, accommodating up to four receivers. Stock No. 9504. Price, \$9.85 net to the dealer or service engineer.



RCA Standard Shielded Antenna System. For installations where the utmost in efficiency throughout the broadcast and police bands only is desired. Stock No. 7718 Antenna Kit has both an antenna transformer and a receiver coupling transformer. List price, \$5.00. Stock No. 7717 contains no receiver coupling transformer. List price, \$3.50.

AUTO RADIO ACCESSORIES

The sale of a set is not complete unless the customer is satisfied. Noisy reception makes a dissatisfied customer . . . a customer who more than likely will go elsewhere the second time for his merchandise and his service. When you sell a set, sell the makings of a satisfactory installation along with it . . . sell an RCA World-Wide or Shielded Antenna System. The RCA Auto Radio Lock and Instrument Panel Control Unit are two other items that make for permanently satisfied customers.

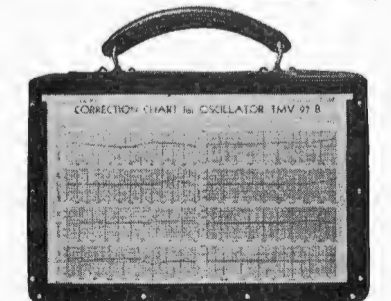


RCA Auto Radio Lock. Foils the auto-radio thief. Similar in principle to a spare-tire lock, fitting over the bolt holding the receiver to the bulkhead of car. Good on all radios in any make of car. List price, \$1.35. Stock No. 4575.



Instrument Panel Control Unit. Often preferred for steering column control. Designed for RCA Victor Models M-107 and M-123, on Ford and Chrysler-made cars. May be adapted to other cars. Chromium finish. Suggested net price to dealers, \$1.50. Stock No. 4476.

REMARKABLY ACCURATE TEST OSCILLATOR FOR ONLY \$34.50



RCA Oscillator. Type TMV-97-B. An excellent oscillator at a low price. Features include an extremely wide frequency range (90-25,000 K. C.), a direct-reading dial marked in kilocycles and a direct-reading range switch. Light, compact and reliable. \$29.50 net to service sales engineers.

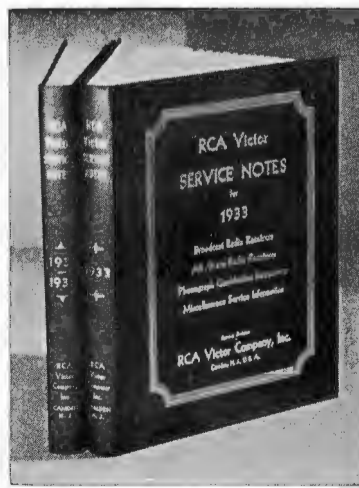
Individual Calibration Chart. The Individually Calibrated RCA Oscillator may be obtained for only \$5.00 additional, giving a remarkably accurate test oscillator for only \$34.50.



RCA Output Indicator. Type TMV-121-A. Consists of a Neon lamp, a transformer and a potentiometer, all mounted in a bakelite case. Has no delicate parts. Ideal for "peaking" receivers. Stock No. 4317. Price, \$4.00 net.

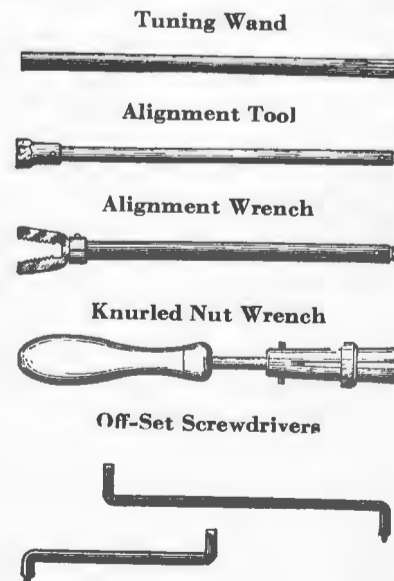
THE PROFESSIONAL TOUCH

You can make your work easier, give your customers the best and at the same time impress clients with your professional equipment and workmanship, by owning the items shown here. Bound Volumes of RCA Service Notes eliminate guesswork. RCA Test Equipment and Special Tools will assist you in building a local reputation that in turn will increase your profits.



RCA Victor Service Notes. Five bound volumes, 1923-28, 1929-30, 1931-32, 1933, and 1934 (only two shown above). Each volume contains all the Service Notes printed for the receivers manufactured during the year, or years, indicated. Net price per volume, \$1.00.

PRECISION TOOLS FOR USE WITH THE TEST OSCILLATOR



Tuning Wand, Stock No. 6679, net price \$1.10. Alignment Tool, Stock No. 4160, net price 60c. Alignment Wrench, Stock No. 7065, net price 50c. Knurled Nut Wrench, Stock No. 10982, net price \$1.20. Off-set Screwdrivers, Stock Nos. 3064 (short) and 2930, net price each, 50c; Oscillator Adapter, Stock No. 4316, net price 45c.

Telling the World

Foreign Reception
NOISY?
ALL-WAVE SETS
Need this Special
ANTENNA

Now you can get the fascinating short-wave programs from more foreign stations as free from noise as domestic programs. RCA engineers, leaders in long distance radio communication, have perfected an all-wave antenna system that gives much greater signal pick-up than an ordinary antenna. Specially designed to free short-wave reception from interference from autos, motors, and other man-made static. Insures greater volume with less noise. Improves standard broadcast reception. Price \$7.00. Ask your dealer or service engineer today to make a *Certified Installation*.



Above is shown one of the RCA World-Wide Antenna advertisements that appear regularly, week in, week out, in *Radio Guide*, the publication that goes to over 350,000 radio listeners. Since the above ad was run, the price of the antenna has been reduced to \$6.00.

PENCIL GIVEN FOR ANTENNA KIT LABELS

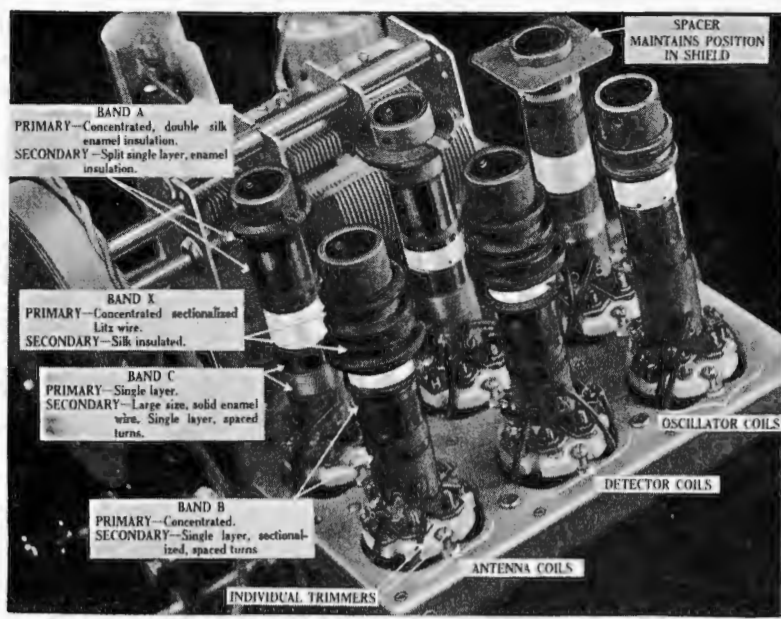
(Continued from page 1, col. 1)

veniently to interpret the color code. By simply arranging the three colored bands to correspond with the colors shown on the resistor, he can instantly read the indicated value of the resistor in plain figures. The RCA Service Engineer's Pencil is a service engineer's pencil—a pencil that any service engineer will be proud to own not only because of the beauty and usefulness of the pencil, but because it will mark him as a radio service sales engineer, a radio technician who has helped himself and his customers by selling at least ten of the famous RCA World-Wide Antenna installations.

Exclusive with RCA
"We are not in the pencil business," said E. M. Hartley, RCA Parts Division Manager, in commenting on the pencil offer. "The RCA Service Engineer's Pencil is exclusive with us and is not for sale. Few service engineers would care to pay that much for a pencil. Our special pencil was specially designed to meet a real need, and we want as many members of the profession as possible to own one."

Ten Antenna Sales Win Pencil
"There are two labels on each RCA World-Wide Antenna System Kit, and one label on each RCA Dealer Demonstration Antenna Kit. Therefore, to make the dealer unit count as much as two home units, we have specified that each label from the dealer unit shall count as much as four labels from the regular home kit. Thus a pencil could be won for two labels from the dealer demonstration kit, plus 12 from the regular kit. All any service engineer has to do is send in the required number of labels to the RCA Parts Division, Camden, New Jersey, plainly marked with his name, and he will receive promptly one of these desirable gifts."

Magic Brain, But R. F. Unit to You



Above is shown the marvelous device that is rapidly becoming famous with the public as the RCA Victor "Magic Brain." To radio service engineers, however, who recognize superior design and precision manufacture, it is the R. F. Unit—but what an R. F. Unit!

Tentative Dates RCA Service Meetings

	3rd Series	4th Series		3rd Series	4th Series
Albany	Oct. 22		Detroit	Oct. 31	Nov. 28
Newark	Oct. 26		Des Moines	Oct. 31	Dec. 28
New York	Oct. 19		Toledo	Nov. 2	Nov. 30
Philadelphia	Oct. 30	Nov. 27	Grand Rapids	Nov. 5	Dec. 3
Richmond	Oct. 22	Nov. 26	St. Louis	Nov. 7	Dec. 7
Washington	Oct. 24	Nov. 28	Kansas City	Nov. 5	Dec. 5
Baltimore	Oct. 26	Nov. 30	Lincoln or Omaha	Nov. 2	Dec. 3
Cincinnati	Oct. 22	Nov. 19	Peoria	Nov. 9	Dec. 10
Indianapolis	Oct. 24	Nov. 21	Minneapolis	Nov. 12	Dec. 12
Columbus	Oct. 26	Nov. 23	Milwaukee	Nov. 14	Dec. 14
Cleveland	Oct. 29	Nov. 26	Chicago	Nov. 26	Dec. 17

Consult RCA Victor Distributors for exact date and place of meeting

SILENT SALES-MANSHIP SELLS REMODEL JOBS

Southern Dealer Sells Phonograph Modernization Jobs by Using Record Player for Final "Test"

A New Orleans service engineer has developed a clever method of getting phonograph modernization business. He simply lets the customer sell himself!

The idea behind it is not protected by patents or copyrights, and any service engineer may use it as freely and as profitably as the man who first worked it out.

Carries Record Player

The secret of his plan is that whenever he enters a customer's home he carries with him an RCA Record Player—it weighs only 8½ lbs.—and a few good records. When he installs a receiver on which he has worked, whether the work was done in the home or in the shop, his last step, after making the usual antenna and ground connections, is to connect the RCA Record Player to the audio system of the receiver. Usually this is done by means of tube wafers.

Without saying anything to the customer he proceeds to place a record on the turntable and starts the instrument playing. Possibly the customer has been watching the whole process, but if not, his attention is attracted by the new form of entertainment he is now getting from his radio—entertainment that is free of all static and station announcements.

Customer's Interest Aroused

In response to the customer's inquiries, the service engineer explains that he is simply playing one of the new type records through the radio as a final check on the repair job. This convinces the customer of the thoroughness with which the repair work was done, but also it has an even more profitable result. The service engineer mentions, quite casually, that at a very small cost he can arrange it so that the customer can have recorded music whenever he wishes. Almost invariably the customer shows some interest.

The enterprising service engineer then proceeds to explain the possibilities either of the RCA Record Player or of a modernization job on the old phonograph the customer may own. He explains the great difference that recent advances in the science of recording have made and stresses the fact that the customer is losing half of the enjoyment of his radio receiver if he cannot supplement his radio entertainment with recorded music. Almost every family has a stack of records of which they are very fond. The service engineer capitalizes on this by explaining that by the electrical pick-up method of reproduction they will sound even better than they did in the old days.

No High-Pressure Methods

In this entire method of presentation no high-pressure salesmanship is involved. The service engineer has been playing the part of the sales engineer, but with such a nicety of purpose and refinement of procedure that the customer sells himself in a surprising number of cases.

THE CITY WITHIN A CITY—"RADIO HEADQUARTERS"



Across the river from Philadelphia, in the shadow of the great Delaware River Suspension Bridge, stands "Radio Headquarters," one of America's great research and manufacturing establishments.

Not all of the buildings shown above are part of the RCA Victor plant—but most of them are, and not all the buildings of the RCA Victor plant appear in the above view.

At the river's edge, at the left of the picture, can be seen the huge coal pockets that supply the private power plant, which has enough capacity to handle a city of some size. In the center can be seen the large conduits of the elaborate dust-removing system. At right center appears the eight-story office building that houses the RCA Victor Company administrative offices.

Attend the
RCA VICTOR SERVICE MEETING
nearest you

Ask your
RCA Victor Distributor
for Date and Place