

PHILCO SERVICEMAN

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RADIO • MANUFACTURERS • SERVICE • NEWS



MARCH, 1936

EDITORIAL

Successful Dealers Maintain R. M. S. Service Departments

TO BE thoroughly and permanently successful in any business involving a product which requires installation and service, the dealer *must* include in his plans the establishment of a capable service department.

The Radio Dealer Must Have a Service Department Because—

1. With radios now largely a higher-unit sale, the customer is entitled to and expects complete service and will not be satisfied with any halfway or makeshift plan.

2. Most receivers are now of the all-wave type, which means they require more careful installation and the service of a skilled mechanic when they get out of adjustment.

3. Modern all-wave receivers require the use of a special aerial for satisfactory performance. The old days, when the buyer could take a set home under his arm and hook it to the radiator as an aerial, are past.

4. This type receiver, to be completely and permanently sold, requires that the new owner be carefully instructed in tuning, etc., by a competent serviceman, preferably the same man who will respond if further assistance or service is needed later.

The Service Department Is Profitably Supported by—

1. The sale of replacement tubes.
2. The sale of service parts and accessories.

3. The sale of tubes, parts, service and new aerials on sets sold in previous seasons.

4. The sale of service on other make sets, emergency service calls, etc. . . . and **THE RESULTS** will be:

1. MORE PROFIT from service business.

2. MORE RADIO SET SALES, because of—

- (a) Better satisfied customers.
- (b) Contacts with set owners who have had trouble and are, therefore, logical prospects for a new set.

The answer to this need is the R. M. S. Service Department, which is automatically eligible to receive service data direct from the factory and service aid and instruction in distributor service schools. The dealer who has not yet established a competent service department will do well to give these facts careful consideration and then talk the matter over thoroughly with his distributor's representative.

New Aerial Equipment Easily Solves Store Demonstration Problem

FOREIGN RECEPTION A REALITY

IN Newport News, Virginia, Philip Levy & Co., PHILCO dealers, have installed a complete PHILCO All-Wave Aerial system for store demonstration. Mr. J. J. Thompson, their manager, writes the following letter to the Tidewater Electric Corporation in Norfolk, PHILCO distributors:

"Ever since we went into the business of selling radio, our efforts to make store demonstrations have met with no success whatever, due to deafening interference on all except local stations. When short wave became the vogue our case was even more hopeless, because all we could do was to talk to our customers about the thrill of foreign reception; to show them was out of the question. We have spent much in time and money in an effort to correct this without success until your recent installation of a PHILCO All-Wave Antenna in our new store. Now we can show our customers stations, an abundance of them, all over the standard broadcast band and, on the short waves, clear recep-

tion from North and South America, Europe and Asia.

"We are deeply grateful for your recommendation of this antenna and for your co-operation in its installation and look forward to an even more successful season because we can demonstrate right here in our store the kind of reception the manufacturer advertises."

Wherever all-wave receivers are sold, dealers find invariably that they can increase their sales when they are in a position to give a good store demonstration, both on the broadcast and short-wave bands. Many customers, when they first start talking to a salesman about a new radio, say that they are not particularly interested in short-wave reception. Just as soon as they hear a foreign station clearly, for perhaps the first time, they immediately become enthusiastic about the all-wave receivers. Those dealers who are in a position to demonstrate good short-wave reception, as well as standard broadcast, are in a superior position to sell more radios.

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PHILCO IN THE FAR EAST



PHILCO Headquarters



Service Department

RADIO SUPPLY STORES, LTD. CALCUTTA, INDIA

Beat Frequency Oscillator Kit Known as 055

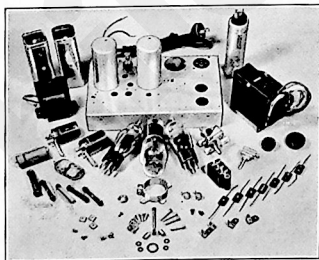
IN THE January issue of the PHILCO SERVICEMAN we announced that the beat-frequency oscillator parts were available for construction of the oscillator which was originally described in the July issue of the PHILCO SERVICEMAN. Unfortunately, the PHILCO factory experienced some delay in constructing the sub-base for this kit, and it was necessary to delay the shipment to PHILCO distributors.

The kit is now available and is being stocked by all distributors. As you will note from the illustration, all parts to build this handy speaker test equipment are supplied in the kit. All of the necessary eyeletting work on sockets and output connections has been done



055 Assembled in 088 Case

in the PHILCO factory. You will also notice that the shield cans for the coils have been spun in place on the sub-base. It thus becomes a comparatively simple matter for the serviceman to mount the necessary parts on the chassis and proceed to wire the circuit in accordance with the instruction sheet furnished in the kit.



Parts for the 055 Kit
(Panel Not Shown)

The PHILCO beat-frequency oscillator kit is known as the Model 055. Your distributor can quote you the very moderate net price.

Practical Repair Hints Listed by Factory

SERVICEMEN are always interested in learning more about troubles which have been found in radio sets, and we are listing below a number of such items which we feel sure will be of real value to every radio serviceman.

In the PHILCO factory Service Department in Philadelphia some of the most difficult service jobs are handled. These jobs are in practically every case ones on which outside servicemen have failed. In most cases the troubles do not sound unusual, but the unusual part is in locating these particular troubles. The factory method of troubleshooting is to use a signal generator for isolating the difficulty to a certain section, such as the audio, the second

detector, the I.F., the R.F., etc. After the trouble is isolated it then becomes a comparatively simple matter to check through with the continuity meter for actual location of the defective part. The tabulation below is a brief report on a few of the service jobs which the factory Service Department has been recently called upon to repair. The remarks under the column "Cause or Correction" are not the only ones possible, but are merely the findings in these particular cases. We know they will be of interest to you, and no doubt at some time in the future you may be able to use most of these solutions in some of your own service jobs:

Service Facts on Various PHILCO Receivers:

Condition	Model	Cause or Correction
No signal at low-frequency end of upper short-wave band.	16, Code 121, 122, 123	Replace intermittent open No. 20 fixed mica low-frequency condenser or No. 26 coupling condenser
Motor-boating		Due to open condenser in filter block No. 62 (condenser E, 1 mfd.)
No reception from 11 to 15 megacycles		Screw holding stator-lug connection loose or corroded, causing resistance contact, particularly on oscillator gang condenser
I.F. drift	45CSX	Replace all I.F. coils with new-type coils, high-melting-point wax
Intermittent oscillation	54	Replace No. 7 by-pass condenser, which intermittently opens
Weak volume; hum modulation on signal		Replace high-resistance volume control No. 25
Weak volume; distortion, low voltages		Replace defective electrolytic filter condenser No. 41
Oscillation		Separate plate and grid leads of I.F. transformer
Oscillation	60 and 66	Dress lead of first I.F. transformer, placing back of shield at I.F. compensating condenser
Oscillator will not function from 550 to 1000 K.C. Breaks into oscillation at 1000 K.C.		Condenser No. 14 develops high-resistance open at foil contact
Intermittent oscillation	89	Lower value of cathode resistor to 8000 ohms
Intermittent hum	116	6A3 and 77 tubes shorting intermittently
Noisy; intermittent		Volume-control rotary contact loose
Tuning mechanism slipping	118	Pin supporting bottom pulley becoming loose. Tension spring should be as loose as is possible

R. M. S. Central Headquarters Maintains High Standards of Requirements for Membership

IN LENDING their name as sponsors for Radio Manufacturers Service, PHILCO realized that it was setting up a high standard for every part and policy of the plan and every action of its members to live up to. PHILCO radios have for years been the leader in the field, and naturally any service organization sponsored by PHILCO could not do other than maintain the same high quality standards of material and service rendered.

Many service organizations have no requirements for membership other than the desire to join and perhaps a dollar or so annual "dues." R. M. S. has never imposed dues or charges of any kind, and the service information and sales suggestions contained in the monthly mailings are furnished absolutely free to members. However, it stands to reason that to be qualified to get these privileges the member or prospect must be worthy in every way. Consequently R. M. S. headquarters—both the local one, where the application is filled out, and the central headquarters in Philadelphia—uses every possible care in determining if the applicant possesses the equipment, experience and ability required and expected of all members. Applications which do not indicate sufficient equipment, including a standard signal generator, which do not have the signature of approval by the distributor's service manager or which do not carry the unqualified agreement to guarantee service work for ninety days, are promptly rejected until such time as the situation is corrected.

In this way a very high standard of membership has been maintained in spite of the tremendous size (15,000) of the membership list. Complaints about service work done by members have been practically unknown.

During the past year, as a result of the combined efforts of the PHILCO factory, through Boake Carter's broadcasts, the advertisements by PHILCO distributors and the business aggressive-

ness of many members in all sections, the public is rapidly becoming R. M. S.-conscious, and the R. M. S. emblem is becoming a recognized symbol which guarantees the radio owner the best possible service.

The fact that members appreciate the efforts of R. M. S. in raising the standards of the business, providing them means of getting more business and doing better work, is indicated by many letters received at central headquarters, both from new and old members. Undoubtedly R. M. S. has taken its rightful place in the radio picture, and to keep it there, with the increasing speed of its growth, membership requirements will continue to be checked rigidly and thoroughly by headquarters.

Friction Tape Used to Clean Speaker Air Gap

ORDINARY friction tape can be used to advantage in cleaning dirt and iron filings out of the air gap in a speaker.

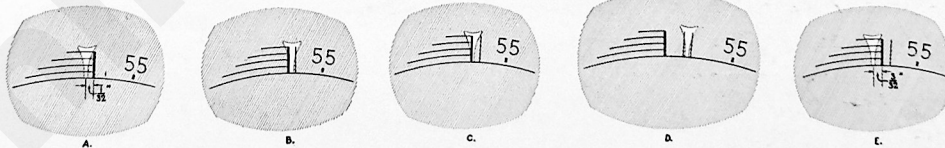
Before the replacement cone is installed and after the old cone has been removed, the speaker should be connected to the radio set and the set turned on so as to magnetize the speaker field. The end of a piece of friction tape can then be inserted in the air gap and worked around inside the gap several times to remove the small particles. Magnetizing the field in this manner causes the iron filings to stand out at right angles from the pole piece, and the adhesive qualities of the tape are sufficient to overcome the magnetic pull, and thus all foreign matter can be removed on the tape. This method is used in the PHILCO factory and will be a big time saver to all servicemen on every speaker-cone replacement job.

Modern Servicing Requires Modern Equipment

IN ANOTHER article of this issue of the PHILCO SERVICEMAN we point out the fact that the Service Repair Department in the PHILCO factory employs a signal generator and continuity tester for locating all types of service troubles. The PHILCO Model 099 All-Wave Signal Generator and Circuit Tester is built into the test benches in each case.

Modern servicing methods require complete test equipment, which is universal in its application to all types of radio receivers. Experience has shown that the PHILCO Model 099 is without question the most desirable type of complete test equipment that the serviceman can employ, and it is the only equipment anywhere near its price range that will enable the serviceman to do all types of service jobs on home radio and automobile receivers. As described in the February issue of the PHILCO SERVICEMAN, it makes possible accurate and complete tube testing in the customer's home. It is also a complete all-wave signal generator, which permits trouble-shooting by feeding a constant signal into the circuit in question. It is a continuity meter of a high type, since it has several ohmmeter ranges. It is also a multiple voltmeter, having a number of AC and DC ranges when it is desired to measure voltages in any circuit. It is an output meter which is accurate and dependable at all times.

Servicemen who are using the PHILCO Model 099 are finding that they can turn out more service work in a shorter space of time and they can do better work by having more accurate test equipment. The obvious result is a tremendous saving as well as an increased income from service business.



In the October issue of the PHILCO SERVICEMAN (page 5) an article was published showing the correct dial settings of the 1936 600 Series PHILCOS. Since that time some changes have been made in the index-line calibrations. The chart and table shown herewith will supersede the previous one shown in the PHILCO SERVICEMAN for October.

In several instances a single model may appear under two or more illustrations. This is to facilitate the correct setting of dials having a single index line, as well as those having double lines. The part number and frequency calibrations of both type dials for a given model will be the same. The procedure for setting the scale will be the same as that outlined in the October issue of the PHILCO SERVICEMAN.

A	B	C	D	E
Single-Index Scales 1/32" to Left	Double-Index Scale Between Indices	Double-Index Scales on 1/32" Line	Triple-Index Scales	Single-Index 3/32" to Left of Index
610	643	610	116	642
611	645	624		
625	651	635		
635	655	680		
	665	611		
		623		

Questions and Answers

1. Q. What is the cause of failure to obtain a peak in the adjustment of the antenna-compensating condenser?

A. This condition occurs when the wires leading from the antenna coil are dressed too near the chassis. Increased capacity is introduced, with the result that minimum capacity setting in the antenna-compensating condenser is still insufficient to obtain the desired peak in the adjustment. It can be corrected by moving the wires away from the chassis and from other wires.

2. Q. What is the cause of motor-ing or fluttering in a Model 91 receiver?

A. One case which was found was caused by a weak spider in the speaker cone. By replacing the cone, the trouble was completely corrected.

3. Q. Are more R. M. S. "Service Lessons" to be published?

A. The lessons were temporarily discontinued last year after the central headquarters R. M. S. mailings were started. However, additional lessons (on Service Bulletin-size sheets) are in course of preparation, and it is planned to include them (free) in the headquarters mailings to R. M. S. members in the near future.

4. Q. Is there an R. M. S. membership lapel pin or button available?

A. Yes. This is an attractive blue-and-gold pin duplicating the diamond-shaped portion of the standard R. M. S. emblem and carrying the words "Radio Manufacturers Service." The part number is 45-2006, and net price to members is 75 cents. Order from your distributor.

Winter's Blizzards Make Aerial Customers

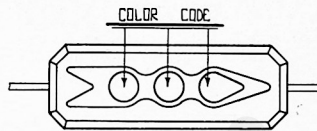
THE extremely severe winter which has swept the country will soon be at an end, and while everyone will no doubt be glad to see mild weather again, the storms and winds of the past few months may prove to have been a "blessing in disguise" to radio dealers and servicemen.

Not only has the severe winter forced people to stay indoors more, and thus aroused more interest in radio programs and the keeping of their radio in good working order, but the high winds, snow, ice and sleet have undoubtedly damaged many aerial instal-

New Moulded Resistors Explained

A NEW-TYPE molded resistor is being used to replace the flexible wire-wound resistors formerly used. The molded resistor is similar to the small mica condenser used in current models and has the advantage of being moisture and "short" proof.

The resistance wire is wound on a special heat-resisting strip with the respective wire ends attached to eyelets in each end of the strip. The connecting leads are also clamped under these eyelets. The strip is then placed in a mold and a special bakelite composition applied.



These resistors, which carry standard R. M. A. color code, come in the following sizes:

- 100 ohm, 1 watt, Part No. 33-1219, brown-black-black.
- 200 ohm, 1 watt, Part No. 33-1210, red-black-black.
- 300 ohm, 1 watt, Part No. 33-1214, orange-black-black.
- 400 ohm, 1 watt, Part No. 33-1211, yellow-black-black.
- 450 ohm, 1 watt, Part No. 33-1218, yellow-green-black.
- 500 ohm, 1 watt, Part No. 33-1213, green-black-black.
- 600 ohm, 1 watt, Part No. 33-1212, blue-black-black.

lations and thus provided work and profits for the wide-awake dealer or serviceman.

Probably in your neighborhood there are dozens of aerials needing complete rebuilding. Here is an opportunity to give these customers better reception than they ever had by installing a new PHILCO All-Wave Aerial (or Three-Purpose Aerial if the set is a standard broadcast receiver only). The new PHILCO aerial mast with several types of mounting bases available, should prove a great convenience for servicemen in making aerial installations.

An excellent mailing card recommending an aerial overhaul is now available (Form No. PR-384; price, \$1.95 for 250, \$2.60 for 500). A sample of this card can be seen at your local R. M. S. headquarters.

New Aerial Equipment Easily Solves Store Demonstration Problem

(Continued from Page 1)

PHILCO has answered the dealers' demands for an efficient store demonstration by providing the PHILCO All-Wave Aerial and the multiple-aerial switch. Thousands of dealers have already installed this equipment in their stores and are finding that it is one of the best investments in store equipment they have ever made.

The all-wave aerial affords excellent reception on both broadcast and short-wave bands. It is not practical to connect more than one radio set to this aerial, however, since the overall efficiency is greatly reduced when such connections are made. By means of the PHILCO multiple-aerial switch, described in the October issue of the PHILCO SERVICEMAN, it is possible to throw the aerial lead-in connection automatically from one set to another. Thus, the advantages of the all-wave aerial for store demonstration are made available for every demonstrator model on the floor. The switch simply plugs into the AC outlet and connects to the transmission lead-in of the PHILCO All-Wave Aerial system. As soon as a given radio set is turned on, the switch automatically connects the lead-in to this receiver. By providing one switch for each demonstrator outlet, it is thus possible to throw the all-wave aerial connection on to any desired set simply by turning on the power to that receiver.

When you can show your customer in your store how the PHILCO all-wave receiver performs and can arouse his enthusiasm immediately, you stand an excellent chance of getting the set placed in the customer's home for demonstration. If you do not have the PHILCO All-Wave Aerial and the multiple-aerial switches installed at the present time, be sure to consult your PHILCO distributor immediately on such an installation, so that you can cash in on more radio sales.

DEVLIN-DREW COMPANY

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