

# PHILCO SERVICEMAN

Circulation Over 30,000 Copies Monthly

RADIO • MANUFACTURERS • SERVICE • NEWS

JULY, 1935



## PHILCO SERVICE BULLETINS NOW MAILED DIRECT

### Getting Them Back Into Service EDITORIAL

**S**URVEYS have been made by a number of different organizations in an effort to find out how many of the radios in homes today are in need of attention by a radio serviceman.

The different answers obtained by these surveys have varied from 18 to 30 per cent. We believe that 20 per cent is fairly close to the number of radios requiring service.

Twenty per cent of the 18,000,000 radios in use means that there are approximately 3,600,000 radios waiting to be repaired by some serviceman.

This means two things to the radio service industry. In the first place it means that there are possibilities in the radio service business in every territory of building up a large, profitable business. The second point that this brings out is the importance of using definite plans and taking definite steps to tell the public that you can give them dependable, guaranteed radio service at reasonable prices.

We believe that most radio servicemen appreciate the possibilities in the business, otherwise they would not be in it.

However, we do not think that nearly enough servicemen have a day-after-day, week-after-week and month-after-month advertising and promotion program to reach the radio owners in their territory, so that the 20 per cent group whose radios need service know exactly where and how to reach this particular serviceman.

Any plan which can be used to get some of this 20 per cent group back into the group of radio listeners once more is going to benefit not only the radio service industry, but the whole radio business.

PHILCO, through Radio Manufacturers Service, has a plan for getting these radios back into operation. The tie-up with Western Union, which enables a radio owner to get guaranteed radio service, is a step in the right direction.

The campaign is just starting, but many radio owners have already taken advantage of the service and many servicemen have received these calls, have done the work and have been paid the money. In many cases these radios would have remained for a long period of time without being serviced if it had not been for the R. M. S.-Western Union plan. With the co-operation of everyone, this tie-up will undoubtedly put many radios back into service and thereby create many new jobs for radio servicemen.

### Headphone Kit a Real Profit Maker

**Y**OU will recall the insert sheet on the new PHILCO Headphone and Adaptor Kit which accompanied the June issue of the PHILCO SERVICEMAN and also a duplicate of this sheet, which was mailed from the factory in the June R. M. S. mailing. Certainly, this item is a natural for the serviceman and the dealer.

The PHILCO Headphone and Adaptor Kit is an item which can be sold to thousands of owners of radio sets, and particularly owners of all-wave receivers. One of the big advantages is the ease of installation. The PHILCO Headphone Kit was put out by PHILCO because every week, at the PHILCO factory, hundreds of letters are received from radio-set owners, inquiring how headphones can be attached to their radios. If there are so many people who want headphones badly enough to take the trouble to write for information, then there must be plenty more people who would willingly buy the kit if they were told that it is available at such a low price. The list price of the complete kit is \$7.50, and this is subject to your regular parts discount from the distributor. The installation is so simple that no additional charge

### R.M.S. MEMBERS RECEIVE FACTORY MAILINGS OF NEW INFORMATION

**B**EGINNING with the June mailing of R. M. S. material, new PHILCO service bulletins are being mailed direct from the factory to individual R. M. S. members. In this way, every member will be certain of receiving his bulletins as they are issued. Readers of the PHILCO SERVICEMAN who are not members of Radio Manufacturers Service do not receive mailings. Immediate arrangements should be made by those desiring the service bulletins to join Radio Manufacturers Service now.

need be made for this work. As a matter of fact, the customer can install the kit himself if he desires. It is simply a matter of removing one tube, inserting the adaptor plug, and then inserting the tube in the receptacle of the socket.

The DX fan, the invalid, the hard-of-hearing and the late listener are all prospects for the new Headphone and Adaptor Kit. See your PHILCO distributor now and get your sample kit, so that you can start making some immediate sales.



Parts Department, Listenwaller and Gough, PHILCO Distributors, Los Angeles, Cal.

## Locating Intermittents Now Easy With Home-Made Tester

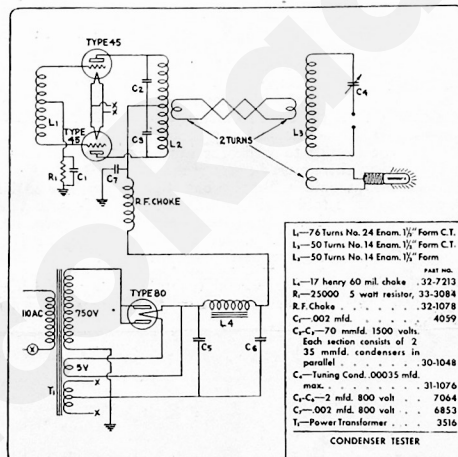
EVERY radio serviceman will be glad to learn about the device which is described below for quickly locating intermittent opens in a radio circuit. A problem which has caused the serviceman more grief than anything else is intermittents. Every man who has had occasion to work on sets of this type can well appreciate the difficulties involved in locating such intermittent connections in a reasonable length of time. Usually, it is necessary to let the radio set "cook" for several days, and even then the serviceman may be rather doubtful as to whether or not he has located the particular difficulty.

In the service shop at the PHILCO factory, a tester is used for locating such intermittent operation of condensers. Since most of the causes of intermittents are in fixed condensers, this device will solve practically all of the intermittent problems. The tester is simply an oscillating circuit employing two type 45 tubes in push-pull. The circuit is so arranged that it will oscillate at approximately 4000 K.C. and will deliver between 7 and 10 watts R.F. power. This is a relatively heavy R.F. current and is sufficient to break down a fixed condenser which has poor contacts of the type that produce intermittent operation. When the condenser under test is connected across the terminals of the tester, the heavy R.F. current which passes through the condenser is sufficient to start an arc at the weak joint in the contact between the condenser terminal or wire and the plates of the condenser itself. In some cases, this breakdown will occur immediately, and in others it may be necessary to leave the suspected

condenser on test for as much as 4 or 5 minutes. If there is such a weak connection, however, it is certain that the heavy R.F. signal will produce the desired permanent open, and thus the faulty condenser can be eliminated.

The circuit is so arranged that the tuning condenser of the tester is placed in series with the suspected condenser. A pilot light is connected in the circuit to indicate resonance. The variable condenser is calibrated by placing several known capacities across the test terminals. It is possible, in this way, to have an accurately calibrated capacity meter, as well as to have the oscillator circuit for locating intermittents.

The circuit diagram, as illustrated on this page, gives the complete circuit arrangement and indicates the various PHILCO part numbers which can be used in constructing the tester. This tester was first suggested by William Hinkle, service manager, E. C. McKelvey Radio Company, PHILCO distributors in Salina, Kansas.



Wiring Diagram of Intermittent Tester

## Another R. M. S. Mailing in July

OVER 12,000 members of Radio Manufacturers Service received their June mailing of R. M. S. material from the PHILCO factory a few weeks ago. This consisted of new service bulletins on the new PHILCO Models 610, 620 and 630, and descriptive sheets on the new Model 088 All-Wave Signal Generator and the new PHILCO Headphone and Adaptor Kit.

PHILCO feels that the continued cooperation with R. M. S. members cannot help but win the finest possible business relations between the two. The July R. M. S. mailing will be one of the finest which has yet been issued and will certainly be of untold benefit to every R. M. S. member.

## A NEW AERIAL WITH EACH NEW PHILCO All-Wave Antenna Now Part of New PHILCO Models

SERVICEMEN and dealers will be glad to hear this big news: All new PHILCO all-wave models are equipped with a built-in set transformer for the PHILCO All-Wave Antenna System, and the new 1936 all-wave PHILCOs are being shipped from the factory with an all-wave aerial. This means that there will be more business than ever for the serviceman, because he is the one who will install these aeri-als.

The PHILCO all-wave aerial, with which servicemen and dealers are already familiar, has not been changed in any way except that the new kit does not take the set transformer. Every new PHILCO receiver is being sent out with this kit, and every PHILCO All-Wave Radio sale is now going to have a high-grade aerial installation.

The built-in set transformer is connected to the wave-change switch of the receiver, and in this way it is possible to have the antenna operating at its highest efficiency at all times regardless of the frequency to which the receiver is tuned. Two terminals are brought out in back of the chassis and are clearly indicated "Red" and "Black." These terminals are for the purpose of connecting the red and black wires of the transmission line directly to the built-in set transformer. The standard antenna and ground terminals are placed on the chassis, should it be desired to use the set without the all-wave antenna system.

When it is desired to use the PHILCO All-Wave Aerial with another make of radio or with a PHILCO not having the built-in set transformer, the standard set transformer, Part No. 42-1095, should be employed. This unit is obtainable from your PHILCO distributor at \$1.75, subject to your regular parts discount. In other words, when using the PHILCO All-Wave Antenna System with the new PHILCO receivers, the kit can be employed just as it is shipped from the factory. When used with other makes of radio sets not having the built-in set transformer, the additional set transformer is required. The list price of the kit, when the set transformer is furnished additional, is \$6.75.

There will be approximately 1,000,000 additional aeri-als installed this year on new PHILCO receivers. This is plus business for the serviceman, because there still remains the regular business of aeri-als for other makes of receivers and for PHILCO all-wave receivers of last year. Over 1,000,000 aeri-als are to be installed by the servicemen. This tremendous amount of business is just another thing that PHILCO is doing for the service industry. By having a high-quality PHILCO all-wave aerial installation for each new PHILCO receiver, the customer benefits through superior performance of his radio, and the serviceman benefits by getting this increased installation business. Be sure that you get lined up with your PHILCO dealer at once for this increased aerial work.

## Data on New 1936 Philcos AMERICAN and FOREIGN MODELS

Model	Tubes Used	Frequency Ranges	Spencer Used	Watts Power Consumption	Intermediate Frequency	Model	Tubes Used	Frequency Ranges	Speaker Used	Watts Power Consumption	Intermediate Frequency
610	1-6A7, 1-78, 1-75, 1-42, 1-80	530 -1720 K.C. 2.3 - 2.5 M.C. 5.7 -18.0 M.C.	610B-P27 610F-S14	54	460	116	2-77, 1-76, 3-78, 1-37, 1-42, 1-5Z3*, 2-6A3** (*80 in 116B; **42 in 116B)	150 - 390 K.C. 540 -1500 K.C. 1.5 - 4.1 M.C. 4.1 -10.0 M.C. 9.7 -22.5 M.C.	116B-H13 116X-U9	116B-100 116X-135	460
620	1-6A7, 2-78, 1-75, 1-42, 1-80	540 -1750 K.C. 1.75 - 5.8 M.C. 5.75-18.0 M.C.	S-14	60	460	680	4-78, 2-76, 3-85, 1-6F7, 1-6B7 1-5Z3, 2-6A3, 1-80	150 - 400 K.C. 530 -1720 K.C. 2.3 - 7.2 M.C. 7.2 -22.0 M.C.	U9	150	460
630	1-6A7, 2-78, 1-75 1-42, 1-80	540 -1750 K.C. 1.75 - 5.8 M.C. 5.75-18.0 M.C.	630B-K32 630X-H22	65	460	623 (Battery)	1-1C6, 2-30, 1-34, 1-32, 1-19 (623A—dry battery set—uses 1 Type 6 also)	530 -1720 K.C. 2.3 - 2.5 M.C. 5.7 -18.0 M.C.	KR7		460
640	1-6A7, 2-78, 1-85, 2-42, 1-80	145 - 390 K.C. 540 -1720 K.C. 2.2 - 2.6 M.C. 5.8 -18.0 M.C.	640B-K31 640X-H21	85	460	643 (Battery)	1-1C6, 2-34, 2-30, 1-32, 1-19 (643A—dry battery set—uses 1-1C7 also)	150 -390 K.C. 530 -1750 K.C. 1.75 - 5.8 M.C. 5.8 -18.0 M.C.	KR7		460
650	1-6A7, 2-78, 1-75, 3-42, 1-80	145 - 390 K.C. 540 -1720 K.C. 2.2 - 2.6 M.C. 5.8 -18.0 M.C.	650B-K17 650X-H13 650H	95	460	641 (D.C.)	1-6A7, 2-78, 1-76, 1-85, 2-43	530 -1720 K.C. 2.3 - 2.5 M.C. 5.8 - 18 M.C.	641B-K13 641X-H10	50	460
660	1-77, 3-78, 1-37, 1-75, 3-42, 1-80	145 - 390 K.C. 540 -1750 K.C. 1.75 - 5.8 M.C. 5.8 -18.0 M.C.	H13	100	460	611 (A.C.-D.C.)	1-6A7, 1-78, 1-43, 1-25Z5, 1-75	530 -1720 K.C. 2.3 - 2.5 M.C. 5.7 -18.0 M.C.	S15	50	460

### STANDARD AMERICAN MODELS

89	2-44, 1-77, 1-75, 1-42, 1-80	540 -1500 K.C. 1.5 - 3.2 M.C.	K21	60	260	54 (A.C.-D.C.)	1-6A7, 1-78, 1-75, 1-43, 1-25Z5	540 -1500 K.C. 1.5 - 3.2 M.C.	B	50	460
60	1-6A7, 1-78, 1-75, 1-42, 1-80	540 -1500 K.C. 1.5 - 4.0 M.C.	S7	60	460	38 (Battery)	1-1A6, 2-32, 1-30, 1-19 (Model 38A — dry battery—uses Type 1A1 also)	540 -1500 K.C. 1.5 - 2.5 M.C.	KR7		460
59	2-77, 1-42, 1-80	540 -1720 K.C.	B2	50	460	32	2-39/44, 1-77, 1-75, 1-42, 1-84	540 -1500 K.C. 1.5 - 3.2 M.C.	K26	50	260
84	2-77, 1-42, 1-80	540 -1720 K.C.	SB	43	460	(32-volt)					

## R. I. A. A. Increases Program Activities

As R. M. S. members have probably learned from their conversations with customers, parents everywhere are deeply concerned with the special problems in child training arising out of the use of the radio by children. The Radio Institute of the Audible Arts, through its two latest publications, presents R. M. S. servicemen with an opportunity to offer their customers aid in the solution of these problems.

The Institute has prepared an addition to its program bulletin service, consisting of a survey of current children's programs and an outline of certain standards of quality by which programs in this field can be judged. The survey was prepared for the Institute by the Radio Committee of the Child Study Association of America, composed of a number of prominent women, all recognized authorities in the field of child training.

This listing of network programs for children is typical of the service being rendered the radio public—and R. M. S. servicemen—by PHILCO'S Radio Institute. It has been compiled as an aid to parents, and young people themselves, in the selection of suitable programs for various age levels and varying interests.

R. M. S. members should explain to their customers that the current listing is intended only as a preliminary guide to typical children's programs. It will be revised and brought up to date in the fall.

The selection of radio programs for children is discussed in greater detail in

a study of "Radio and Children," prepared for the Institute by Mrs. Sidonie Matsner Gruenberg, Director of the Child Study Association, and published concurrently with the survey.

Both of these publications offer

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### EXCERPTS FROM BOAKE CARTER'S TALKS

Here is another R. M. S. broadcast by PHILCO'S master salesman.



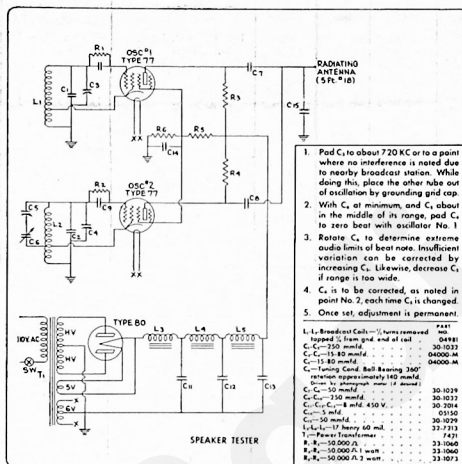
May 2nd.

A question, that answer to which might come any day, and a problem which PHILCO all-wave set owners can follow with ease if they have become news-wise by listening to the foreign capitals of the world—and their sets can be put into the very pink of condition, as it were, for the long summer months, by asking any PHILCO dealer to send around a Radio Manufacturers Service man. These are men, chosen specially by PHILCO for their honesty, efficiency and good work. They've all had PHILCO training. It means they really know how to get the best out of any kind of a set—the best to which every radio owner's entitled. These R. M. S. men are really hot stuff when it comes to keeping a radio up to snuff. Getting one of them just to give your set the once-over on general principles is a good thing in the springtime.

# AN AUDIO OSCILLATOR FOR SPEAKER TESTING

IF YOU have a service test bench in your shop, it will not be complete until you have an audio oscillator or beat frequency oscillator arrangement for testing speakers, similar to that employed in radio factories. The beat frequency oscillator is simply an arrangement which will afford a variable audio note from the lower limit of audibility up to the highest. By impressing such a signal through the audio portion of the receiver and reproducing this signal in the loud speaker, it is possible to obtain a clear idea immediately as to just how the speaker will perform on every frequency within the audio range. An improperly centered cone, or a cone that is defective in any way, will show up immediately in this type of test. There will be a rattle or distortion at some particular frequency, and it will then be known that the speaker is in some way at fault.

The tester can be made readily by the serviceman, and the cost of the materials will be relatively small. The circuit diagram on this page illustrates the proper circuit arrangement and lists the various PHILCO parts which can be used in the construction.



Wiring Diagram of Speaker Tester

## R. M. S. - Western Union Plan Widely Advertised

THE greatest plan which has ever been developed for getting more business for the serviceman is the R. M. S. - Western Union tie-up announced in the June issue of the PHILCO SERVICEMAN. Every R. M. S. member who has read this issue says that, without question, it is the finest service promotional plan he has ever experienced. It is interesting to note that, in addition to Western Union, the same plan is now in operation with Canadian National Telegraph and Cable throughout Canada. Since Boake Carter now covers both the United States and Canada, it will be possible for R. M. S. members in both countries to obtain the many extra service calls which result from this fine plan developed by PHILCO.

During the month of June, 11,000 enlarged Western Union telegrams were distributed throughout the country. Ten thousand of these went to dealers

and servicemen who had display facilities. This enlarged Western Union sign was a direct tie-up with Boake Carter on the R. M. S. - Western Union promotion. In addition to the 10,000 signs that are being displayed by dealers and servicemen throughout the country, 1,000 are being used in the various local Western Union offices as window displays.

The tremendous amount of advertising of the R. M. S. - Western Union plan, as given by Boake Carter, effective June 15, will get more service business for R. M. S. members than ever before. The instruction sheet of every new PHILCO receiver now being shipped from the factory carries the complete story of the Western Union - R. M. S. tie-up. PHILCO's national advertising is further advancing the plan, which will result in more profitable service calls for every R. M. S. member.

## R. I. A. A. INCREASES PROGRAM ACTIVITIES

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R. M. S. members an opportunity to bring new, helpful and much-needed guidance to their prospective customers. They complete the picture of radio's offerings begun in the Institute's program bulletins, listing recommended programs in the fields of music, education and entertainment.

R. M. S. Servicemen should continue to call service prospects' attention to these services of the Institute, as well as to the purposes and program of the Institute as outlined in the little leaflet that servicemen have been leaving with service prospects.

Such efforts can result in greater use of the radio this summer by more people than ever before. And that, of course, is what PHILCO, The Radio Institute of the Audible Arts and R. M. S. servicemen all desire.

Get these program bulletins from your PHILCO distributor and use them in your mailings to prospective service customers.

## Questions and Answers

1. Q. Is the PHILCO Headphone Kit equipped to prevent high voltage D.C. from getting into the phones?

A. Yes. The phones connect in the grid circuit, and thus all high voltage is avoided.

2. Q. What type of tube and batteries are employed with the new PHILCO All-Wave Signal Generator, Model 088?

A. The 1C6 tube is used as an electron-coupled oscillator. Two small-size 22½-volt "B" batteries furnish "B" voltages, and two flashlight cells supply the "A" voltage.

3. Q. Does the Model 088 operate on fundamental frequencies at all times, or does it employ harmonics of some of the ranges?

A. All five bands of the 088 are fundamental oscillator frequencies, thus affording five separate oscillator circuits. When one range is thrown into the circuit, all other circuits are disconnected.

4. Q. If a serviceman already has the PHILCO Circuit Tester, Model 025, can he purchase the Model 088 Signal Generator and the wooden carrying case in order to make a Model 099?

A. Yes. The carrying case of the Model 099 has been designed to take the standard 088 and 025 units without any alterations of any kind. The carrying case of the 099 is known as PHILCO Part No. 10194.

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