

PHILCO SERVICEMAN

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RADIO · MANUFACTURERS · SERVICE · NEWS



APRIL, 1937

EDITORIAL

Blowing Your Own Horn

MODESTY is a virtue, but if carried too far in business it can be a detriment to progress. One trouble with many good radio servicemen today is that they are entirely too modest about their own abilities.

If you depend entirely on customer recommendations for building up your business, you will make slow headway, no matter how good you are. You must "blow your own horn" often and loud—if you want to build a name for yourself and let everyone within your territory know *who* you are, *where* you are and *how good* you are.

We have heard of several cases, when a service call was referred to an R. M. S. member, and the member mentioned his address, the customer expressed surprise at learning there was a good radio serviceman so near!

Most big businesses were built from small ones by continued sales promotions, advertising and publicity work—with a good product as a foundation. PHILCO is an outstanding example of this principle. And PHILCO has given the sponsorship and backing of its name, plus the benefit of PHILCO experience in advertising, to help the serviceman make a success of his business.

You know about the R. M. S. advertising helps—but are you using them—continually—to do a real job for you? One lot of postcards or handbills sent out will get you some service jobs. But to really make yourself known—so your neighbors will immediately think of you when they need a radio service job done—you must remind them often and regularly that you are "on the job" and that you can do a good job of fixing their radio.

But that isn't all. You can "blow your own horn" in many other ways

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Philco Phone Sales and Installation a Startling New Business

INSTALLING the PHILCO Phone has recently become a fast and furious occupation for hundreds of PHILCO dealers and servicemen. PHILCO'S new intercommunicating system has taken the country by storm. Those who have to do with the sales and installation of this marvelous new device are finding that the demand is far greater than they ever anticipated.

This loudspeaker phone system has been designed by PHILCO for use in offices, homes, schools, hotels, etc. It is a highly efficient talk-back system giving quality reproduction of all voice frequencies; it is low in price and it is a PHILCO.

Simplicity of Installation

One of the biggest advantages of the PHILCO Phone is its simplicity of construction, installation and operation. It does not require a radio technician or a licensed electrician to install the system. The installation instructions which accompany the PHILCO Phone can be easily followed by anyone—and the operation is simplicity in itself.

Easy Operation Important

The person at the master control unit simply pushes the control switch to the "Talk" position, speaks in the general direction of the loudspeaker in the unit, releases the switch, and the person at the remote station can immediately answer from any part of the room in which the remote speaker is located. From one to four remote stations can be employed. Communication between the master unit and any one of the remote stations can be carried on simply by tuning the selector switch to the desired station. Communication can also be

carried on with all stations at one time for paging or for general announcements.

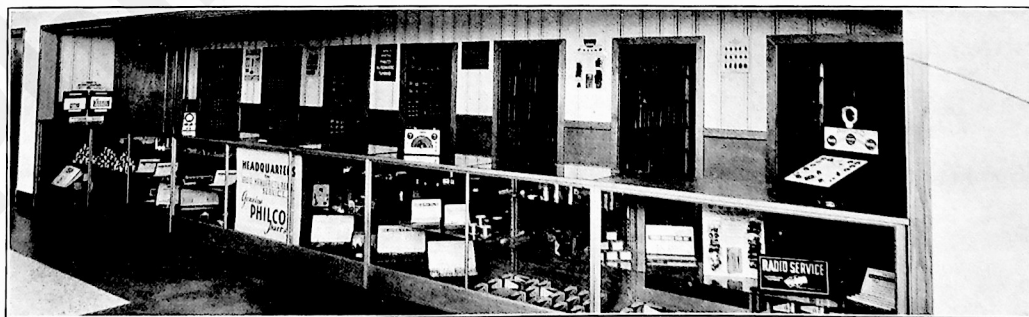
Trouble-Free Installation

In order to make trouble-free, quality installation, it is recommended that PHILCO transmission wire be used in all installations for connection between the master control unit and the remote speaker stations. This wire is strong and is of consistently good quality. The standard black transmission wire will be found most desirable for the majority of installations. It is weather-proof and waterproof, and for this reason it is particularly desirable for use outside, in damp inside locations and for all general type of installations. The ivory-colored transmission wire is identical electrically with the black and is recommended for installations in which the wire must pass along light-colored woodwork or walls.

Extension Cable

When more than one remote phone station is used, the PHILCO Phone eight-foot extension cable should be employed. This is a cable equipped with spade terminals at one end which connect onto the terminals at the back of the PHILCO Phone control unit. The other end of the cable is equipped with a terminal strip similar to the one on the back of the control unit. It can be securely fastened to the baseboard or the under side of a desk. In this way the various pairs of wires coming from the different remote phone stations are all brought to one terminal strip out of sight. Thus, instead of having several transmission lines running up to the back of the mas-

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Parts Department, Crumpacker Distributina Company, PHILCO Distributors in Houston, Tex.

Additional Midget Type Electrolytic Condensers Added to Philco Line

SINCE publication of the March PHILCO SERVICEMAN, several additions have been made to the new line of PHILCO midget-type electrolytic condensers.

One of these is a common anode twin 8-mfd. 450-volt rectangular cardboard case condenser. This condenser is identical in appearance and construction to

Part No. 30-2206. The new condenser, however, instead of having a common cathode like the Part No. 30-2206, has a common anode (two — and one +). Other additions are in the midget-type wet electrolytics in standard tubular metal containers. The complete listing of all PHILCO midget electrolytics is the following:

DRY TYPES

Part No.	Capacity Mfd.	Working Voltage	Description	Dimensions	List Price
30-2222	8	250	Tubular Cardboard	$\frac{7}{8}$ " diam. x $2\frac{3}{4}$ " long	
30-2221	8	250	Rectangular Cardboard	$\frac{1}{16}$ " x $\frac{1}{16}$ " x $2\frac{3}{4}$ " long	
30-2205	8	450	Tubular Cardboard	$\frac{1}{16}$ " diam. x $2\frac{3}{4}$ " long	
30-2206	Twin 8*	450	Rectangular Cardboard	$3\frac{7}{8}$ " x $1\frac{1}{16}$ " x $1\frac{1}{8}$ "	
30-2220	8	450	Rectangular Cardboard	$1\frac{1}{16}$ " x $1\frac{1}{16}$ " x $2\frac{3}{4}$ "	
.....	Twin 8**	450	Rectangular Cardboard	$3\frac{7}{8}$ " x $1\frac{1}{16}$ " x $1\frac{1}{8}$ "	

WET TYPES

30-2194	16	400	Tubular Metal	4" (Body) x $1\frac{3}{8}$ " diam.
30-2200	18	475	Tubular Metal	$3\frac{1}{16}$ " (B'y) x $1\frac{1}{8}$ " diam.
30-2210	12	475	Tubular Metal	$3\frac{1}{16}$ " (B'y) x $1\frac{1}{8}$ " diam.
30-2211	8	475	Tubular Metal	$3\frac{1}{16}$ " (B'y) x $1\frac{1}{8}$ " diam.
30-2212	16	350	Tubular Metal	$3\frac{1}{16}$ " (B'y) x $1\frac{1}{8}$ " diam.
30-2219	25	475	Tubular Metal	$4\frac{1}{16}$ " (B'y) x $1\frac{1}{2}$ " diam.

* Common cathode. ** Common anode.

Helping to Fix the Hard Ones

HERE are some additional service hints from the PHILCO Service Department in Philadelphia. Be sure to save them for future reference.

Model

- 36-116 *Reception weak on short-wave bands, O.K. on broadcast.*
Check for open secondary winding oscillator coil No. 8, Part No. 32-1735, Bulletin 222.
- 37-660 *Hum.*
This condition can be traced to the I.F. unit and can be eliminated by redressing the filament wiring leads from the 6K5G first audio tube to the 6J5G second detector tube as far as possible away from the 6K5G control grid lead.
Distortion.
Check bias resistor No. 75, Bulletin 257, Part No. 33-3278. This is a tapped wire-wound resistor, 132 and 15 ohms respectively. The 15-ohm section has been found to increase in value as much as 10 ohms. Replacing the complete resistor effectively eliminates this trouble.
- 37-670 *No reception on fourth band, 7.35 to 11.6 megacycles.*
Check for shorted padding condenser No. 27, Bulletin 260, Part No. 31-6108.
Intermittent reception on third band, 4.7 to 7.4 megacycles.
Check oscillator coil No. 24 for open primary (connection No. 2 to switch wafer terminal

G-2). Oscillator coil part No. 32-2184.

Broad tuning or no reception on bands 3, 4 and 5.

Check for intermittent open mica condenser No. 30, 3000 mmfd., Part No. 30-1028, in the detector-oscillator stage.

Distortion (Intermittent).
Check for shorted tube, type 6J5G (second detector A.V.C., first audio, phase inverter or P.P. driver circuits). The tube causing the trouble can be easily detected by standing the chassis on one end. This will place the tubes in a horizontal position, and the one that is intermittently shorting can be found by tapping them individually.

645

Audio Hum.

Reverse the green and yellow leads to the audio input transformer, Fig. 52, Service Bulletin 234.

General

Intermittent noise on all "37" models.

Check for loose ground terminal screw at strap connector. These are terminals 3 and 4, which are linked together by this strap connector to ground when the PHILCO High-Efficiency Aerial is attached to the terminal panel at the rear of the chassis.

Automatic tuning mechanism slipping.

With station properly indexed, receiver is found to be operat-

Five Cones Service 152 Philco Models

FIVE inexpensive speaker cones will fit 152 PHILCO models. Replacing an old speaker cone on a service job will often improve the tone of a radio set more than the replacement of a complete set of tubes. Such replacement of lifeless speaker cones will not only increase the serviceman's profits, but will make the entire service job more valuable to the customer.

Great strides have been made in the past two years in the design of speakers. New construction and new materials have made it possible to produce greatly superior new replacement cones for old models. Here are the five part numbers which you should have available at all times for every one of your older-model service jobs. It costs the customer very little extra to get the best possible tone his radio is capable of producing, and it is just so much extra profit for you.

DESCRIPTION

Part No.	List Price	DESCRIPTION
02625	for PHILCO floor models: 14, 15, 18, 19, 29, 44, 47, 49, 71, 91, 97, 118, 144, 630, 635, 640, 641, 645, 650, 655, 660, 665, 37-38, 37-623, 37-640, 37-650, 37-660, 37-670. for PHILCO baby grand models: 16.
36-3159	for PHILCO floor models: 15, 19, 32, 34, 38, 39, 43, 71, 89, 91, 623, 642, 643. for PHILCO baby grand models: 14, 16, 17, 18, 19, 32, 34, 38, 39, 43, 44, 49, 71, 89, 91, 97, 118, 144, 623, 630, 635, 640, 641, 642, 643, 645, 650, 655, 37-623, 37-670. for PHILCO auto radios: 6, 7, 8, 9, 10, 12, 800, 802, 808, 818, 819, and 19 custom models.
36-3170	for PHILCO floor models: *40, *41, *42, *65, *76, *87, 90, *95, *77, *96, 111, 112.
02996	for PHILCO floor models: *20, *21, *46, *86, *70, *470, *490. for PHILCO baby grands: *21, *20, *46, *70, *86, *90, *470, *490.
02861	for PHILCO auto radios: *3, for PHILCO baby grands: 28, 29, 45, 48, 50, 51, 52, 80, 81, 610, 611. for PHILCO auto radios: 5, 11 and 7 custom models.

* These models were originally equipped with cones having solid centers. Replacing these cones with the improved spiral spider type listed will effect a tremendous improvement in tone.

ing at a frequency other than the one dialed.

In practically all cases of frequency shifting with models equipped for automatic tuning, it has been found to be due to loose set screws at the flexible coupling connecting the condenser drive shaft with the automatic mechanism. The earlier releases of these units had slotted-head set screws and could be tightened with a screw driver. However, the later or improved type has the Allen-head set screws, and a special wrench, Part No. 45-2424, list price 20 cents, would be required in order to tighten these screws securely.

Philco Phone Sales and Installation a Startling New Business

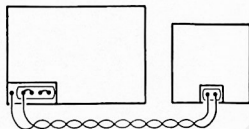
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ter unit, there is but one neat-looking cable.

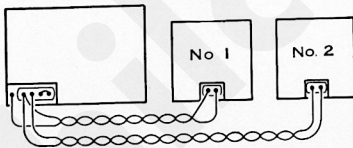
Since there is no high voltage in the PHILCO Phone wiring between stations, it is unnecessary to run this wiring in conduit. The PHILCO Phone is approved by the Underwriters Laboratories, Inc.

The following is a complete listing of the accessories for use with the PHILCO Phone:

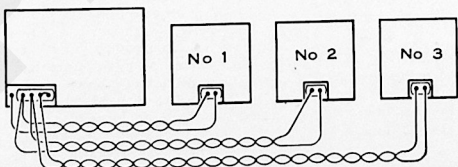
Description	Part No.
Remote phones (additional)	Model 902
Black Transmission Wire (100-ft. roll)	L-1551
Black Transmission Wire (500-ft. roll)	L-2603
Black Transmission Wire (1000-ft. roll)	L-2612
Ivory Transmission Wire (100-ft. roll)	L-1591
Ivory Transmission Wire (500-ft. roll)	L-2627
Extension Cable (8 ft.)	45-2443



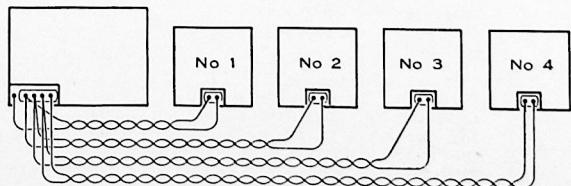
Connections Using One Remote Phone.



Connections for Two Remote Phones.



Connections for Three Remote Phones.



Connections for Four Remote Phones.

Plus Sales from Good Store Demonstrations

THE two outstanding factors which contribute most to the impression made upon a new customer buying a radio set are appearance and performance. From the standpoint of appearance, PHILCO dealers have everything to be desired in the PHILCO line of receivers. They also have everything to be desired from the standpoint of performance, but many dealers do not take advantage of this fact.

When a set is demonstrated in the store and it is possible to play only two or three local stations because of local reception conditions, the customer cannot be particularly impressed. On the other hand, if a dealer is able to demonstrate station after station *right in the store* and then turn the wave-change switch to the short-wave position and demonstrate several foreign stations, there is every reason in the world for the customer to be thoroughly impressed with the new PHILCO.

The only way that such a demonstration can be made possible is to have the set operating in perfect condition and to have it connected to the PHILCO All-Wave Aerial, which was built primarily for the new PHILCO receiver. Of course, the easy way and the path of least resistance is to have a haphazard aerial installation of some kind. Such an ar-

range ment can only give inefficient operation and bring in a tremendous amount of noise, both of which are most discouraging to a new prospect.

Thousands of dealers all over the country have learned this year the importance of correct demonstration in the store. They have found that if they can give the prospect a demonstration in the store almost identical in performance to that which would be obtained in the home, their percentage of sales closed is higher than ever. The extra profit which is obtained from just one extra sale is sufficient in most cases to pay for a complete installation of a quality aerial system in the store.

The PHILCO Multiple - Aerial Switches make it possible to use one aerial on the roof and to connect this aerial automatically to any desired demonstrator on the floor. In fact, the system can be employed for other makes of radios besides PHILCO if desired.

Your distributor is in a position to give you an estimate on the cost of an installation of this kind in your own store. You will be surprised when you learn how little money is involved for equipment which will enable you for perhaps the first time to give a satisfactory quality demonstration of foreign reception in your own store.

Philco Volume Control Quality Proves Outstanding

DURING the current season there has been less trouble on PHILCO volume controls than at any time in the past. Volume controls in new sets coming through from the factory, as well as replacement controls for the older sets, have given wonderful performance this year.

Last year radio manufacturers experienced a rather-unusual amount of volume-control trouble. When figures were determined by percentages, the proportions were comparatively low, but, nevertheless, the apparent amount of

trouble, at least for PHILCO quality, seemed high.

PHILCO engineers worked day and night on the volume-control problem, and the results of their efforts have been a volume control which is as nearly correct as any volume control ever built. The principle of making contact between the resistance element and the rotor arm was changed. Certain of the materials were changed. The manner in which the later-type controls have held up is in itself sufficient indication that PHILCO has again been able to produce the finest-quality parts.

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Blowing Your Own Horn

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that are inexpensive and can give you a world of valuable publicity and help build good will—that golden asset—for your business.

Get in on all local activities where a crowd will be present. Arrange to be on hand with a sound installation or loan a radio for church fairs, socials, school plays and dances, American Legion or firemen's celebrations and the many other such events constantly taking place in every live community. Have a good sign up at these affairs and put a supply of your imprinted circulars, leaflets or cards in a conspicuous place.

If you hear of a number of complaints about interference in a certain locality, investigate them. If you can locate and correct the trouble (and often it can be done at very little time and expense), it will be a big "boost" for you locally.

Make friends with the editor of your local newspaper. He can do you a world of good by publicizing your radio activities in the community. And this free publicity can be obtained much more easily if you will run regular display ads, "classified" ads or "readers" in his paper.

Blow your own horn. R. M. S. is behind you.

Limited Special

FOR a short time only, PHILCO distributors are offering a de luxe-type car-top aerial at the same price as the standard PHILCO Car-Top Aerial. The available quantity of this special aerial is limited, and there will be no more when these are gone. See your PHILCO distributor at once while he still has a stock. Ask for Part No. 45-2292.

QUESTIONS and ANSWERS

1. Q. How can a broadcast signal or a strong interference signal, picked up on the lines of a PHILCO Phone installation, be eliminated?

A. In some locations adjacent to a powerful broadcasting station a small amount of signal is occasionally picked up on the PHILCO Phone line. This can usually be eliminated by connecting a .1 mfd. condenser across the power line at the PHILCO Phone or from one side of the power line to the PHILCO Phone chassis. In extreme cases it may be necessary to by-pass the line with a twin filter condenser such as PHILCO Part No. 45-2220. In other cases it may be necessary to connect a 200-mmf. mica condenser from the grid of the first 6K7G tube to the chassis.

2. Q. What is the cause of an apparent 60-cycle A.C. hum in the Model 84? This condition diminishes when the type 77 detector tube is removed.

A. This condition is probably caused by a loose or oxidized connection at the ground lug rivet for the filament supply at the type 42 output tube socket. In the earlier models the white-with-black tracer lead from the I.F. coil is extended to the cathode of the 42 tube, which in turn is tied to one side of the filament and thence to ground through a lug riveted through the socket to the chassis. The quickest and most effective remedy is to place an additional ground at this connection.

3. Q. What is the cause for R.F. oscillations at various frequencies with some of the 37 models? This condition is apparent when the chassis is placed on the bench for test and disappears entirely when the receiver is placed in the cabinet.

A. The trouble as described will be found only in those models that are equipped with shadowmeters and is due to the close proximity of the meter and its wiring leads to the R.F. unit. It can be effectively eliminated simply by

grounding the shadowmeter housing to the chassis. With some models it will be found that the yellow lead to the shadowmeter pilot lamp bracket is common to ground. A short jumper connected from this point to the meter housing will eliminate the trouble.

4. Q. What can be done to the Models 14 and 91 to eliminate noisy operation of the volume controls? After replacing these controls with new ones that were known to be good, this noisy condition, although slight, still persisted.

A. In those models where the signal is controlled at the input of the detector-amplifier or first audio tubes, replacing the volume control should remedy this condition. However, if the difficulty continues after replacement is made, it is probably due to noise pickup in the preceding stages and can in most cases be eliminated by connecting a .05-mfd. condenser, Part No. 3615-SU, in series with the source of signal input to the control. A resistor having the same value as the control is then connected from the input side of the condenser to the chassis ground.

5. Q. How can the PHILCO Phone be operated from a 220-volt power line?

A. The PHILCO Phone is designed for operation on 110-volt A.C. or D.C. For 220-volt operation, the resistor Part No. 33-3015 (list price \$2.75) should be employed.

6. Q. What is the cause of a burn-out in the hum potentiometer of certain of the 1937 PHILCO models?

A. This burn-out usually occurs when there is a ground in one side of the filament line. When changing the pilot light, if the bracket is accidentally touched against the chassis, a short will result, which may burn out the hum potentiometer if the contact arm is near one end of the potentiometer.

Avoiding Use of Ground as an Aerial

USING the ground as an aerial has resulted in many cases of a partial or complete burn-out of a radio set. PHILCO distributors have from time to time received from dealers burned antenna coils which show clearly that the antenna terminal of the radio was connected to a ground for an aerial. Such a ground might be a radiator or a water pipe.

The antenna circuit in the chassis is protected from the 110 volts of the power line by a small condenser. If for any reason this condenser should become

shorted, either accidentally during the servicing of the chassis or for any other reason, the antenna section of the chassis will go up in smoke very quickly. In addition to the danger which results from using the ground as an aerial in this way, there is also considerable noise which is not obtained when a good aerial is employed. This is particularly true in the case of a second- or third-floor installation where there would be considerable noise pickup in the ground system between the level of the radio set and the actual earth itself. It is recommended in every case that an aerial be employed for radio reception. When the ground is used as an aerial, the customer's radio is being subjected to unnecessary dangers.

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