

# PHILCO SERVICEMAN

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RADIO • MANUFACTURERS • SERVICE • NEWS



MARCH, 1935

## Editorial

### Life Tests to Prove Quality

RADIO servicemen are in business to make money. Part of their income is derived from selling their experience in the form of checking and adjusting radios, and the rest is from the sale of replacement parts, tubes and aerials. There is a large group of servicemen who give much thought to the training and experience end of it, so that their customers are well repaid for any money expended. However, along with their care in this respect, they are oftentimes negligent in the selection of the parts used for their replacement purposes.

A serviceman with a thorough radio training and with years of experience should not risk ruining his reputation by the use of doubtful quality parts.

It is impossible for an individual serviceman to make complete enough life tests to give him any definite information on parts quality. A paper condenser, an electrolytic condenser, a resistor or any other part requires many cycles on life test before it can be stated whether it is satisfactory for use in a radio set or not. Too often a serviceman buys replacement parts because of their size or shape rather than the quality built into them.

A large number of engineers in the PHILCO factory devote all their time to the testing of replacement parts. They have elaborate facilities for making life tests and measurements on parts of every description.

Every radio serviceman should give this question a lot of thought. If poor-quality parts are satisfactory for use in quality radios, why do not the leading radio manufacturers use them and save about half their material cost?

Checking the quality of radio parts can only be done by means of elaborate life tests. A PHILCO resistor and a poor-quality resistor might both have the same tolerance and have the same resistance value when new, but after six months the PHILCO resistor will still be the same as when new, while the off-quality resistor will have changed. Only a life test would show this.

Another example is condensers. A PHILCO condenser and a poor-quality condenser might both have the same capacity when new, but after repeated use in a radio set the off-quality condenser will fail in three to six months, while the PHILCO condenser will have practically an unlimited life.

Another good example is twisted pair transmission lead-in, as used in PHILCO aerial kits. Other makes of transmission line might have the same size wire and carry the same electrical current, but after exposure to the weather for six months

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## Aerial Location a Most Important Factor

IF YOU have experienced noise on the new PHILCO All-Wave Antenna System, it is because you have installed the flat portion of the antenna within the noise field.

In the noise-reduction feature, this antenna system operates on a principle similar to that of the PHILCO Three-Purpose Antenna. You know, from experience, that when you were able to get the flat portion of the antenna out of the field of noise the system was entirely without noise pick-up even though the lead-in passed through an intensive noise field.

### Flat Top in Noise Field

Whenever an aerial installation is being made, the serviceman must remember that there will be noise pick-up on the flat portion of the antenna if there is noise in this field. The aerial wire proper will not eliminate the noise regardless of the lead-in installation any more than it will eliminate the pick-up of any broadcast signal. Invariably when PHILCO distributors have been called upon by dealers and servicemen to offer suggestions on installations which apparently did not eliminate noise, it was found that the noise condition could be greatly improved by increasing the height of the antenna and by changing the direction and the location so as to get the flat portion away from the noise field.

If the installation is being made in a noisy neighborhood and the noise-eliminating antenna does not reduce the interference sufficiently, do not blame the antenna system. The trouble is due to the fact that the noise is picked up directly in the antenna itself, and in this case you should secure the co-operation of the local electric light and power company to assist in locating the source of interference and having it corrected.

### Aerial Connection Short

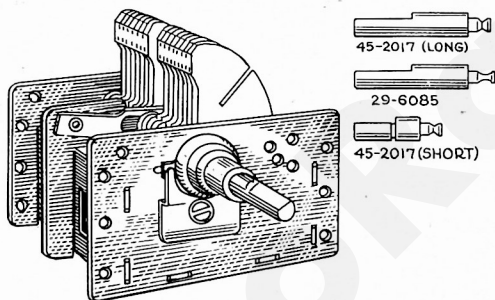
Another important fact to remember at all times is to keep the wire which runs from the set transformer to the aerial terminal of the radio just as short as possible. The transformer should be mounted on back of the radio set in all cases and not on the base-board. If possible, the length of the wire between the set transformer and the aerial terminal of the receiver should be less than one foot. If this point is not carefully observed, there will be considerable noise picked up in this portion of the antenna, and the beneficial effects of the noise-eliminating lead-in system will be greatly offset.

### Fastest-Selling Aerial

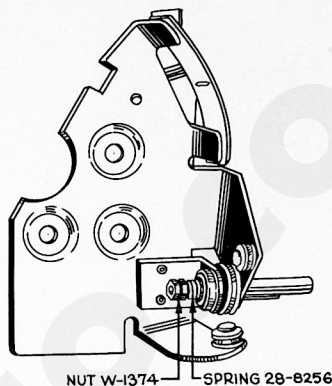
The PHILCO All-Wave Antenna System is the most successful and the fastest-selling system of any which has ever been placed on the market. The PHILCO factory, for the past two months, has been far behind in shipments, because of inability to keep up with the tremendous demand which has developed for this new aerial system. The aerial has gone over big everywhere, and every serviceman can sell and install the system with the assurance of satisfactory results for his customer.

## Adjusting Dial Drive in Philco Models

**I**N THE PHILCO Models 38, 60 and 66 some cases of dial-drive slipping have been caused by worn grooves in the drive shaft. The groove in which the ball bearings operate was worn round in some cases after a considerable period of operation instead of retaining the original "V" shape. This condition was rather difficult to discover, because most servicemen thought that the trouble was in the ball race rather than in the groove of the drive shaft. Replacement of the ball race, however, did not correct the difficulty. Replacement of the drive shaft corrected the difficulty immediately. There are several different shafts which can be identified by the illustration below. All of these are priced at list.



Models 60, 66 and 38 Drive.



Models 45 and 29 Drive.

In the Models 45, 29 and 28 there is a small coil spring at the rear end of the drive shaft. Dial-drive slipping in these models can be corrected by tightening the two hex nuts at the end of this spring. These nuts regulate the spring tension, which in turn affords proper operation of the reduction-drive assembly. In some remote cases it may be necessary to replace this spring when it has been compressed beyond its limit of elasticity. This spring is known as Part No. 28-8256 and lists at 70 cents per hundred.



### BOAKE CARTER'S R. M. S. BROADCASTS

In welcoming the addition, January 15th, of six cities on the Columbia broadcasting chain during his broadcasts, this is what Boake Carter said about Radio Manufacturers Service:

"And I can suggest no better beginning for the six new members of the family than recommending to you the servicemen of Radio Manufacturers Service. They stretch from one end of the country to the other; they are PHILCO-trained servicemen, capable, honest and earnest. Every PHILCO-approved serviceman has the right testing equipment. They don't fuss and fume and return a radio worse than it was before. They are, on the contrary, men you can trust—and any PHILCO dealer in your town can put you on the track of one of these men. And you'll get the best you ever got out of your set when he's done."



### EDITORIAL

#### Life Tests to Prove Quality

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the off-quality transmission line will have absorbed moisture and unbalanced the complete aerial system.

We could go through the complete list of parts with similar comparisons, but they are self-evident.

This year PHILCO has made it possible for every serviceman to use the highest quality parts without sacrificing any of his profits. The new PHILCO Parts Catalog, using list prices, can be used by the serviceman to show to the customer.

Back up your training and experience with the highest-quality parts.

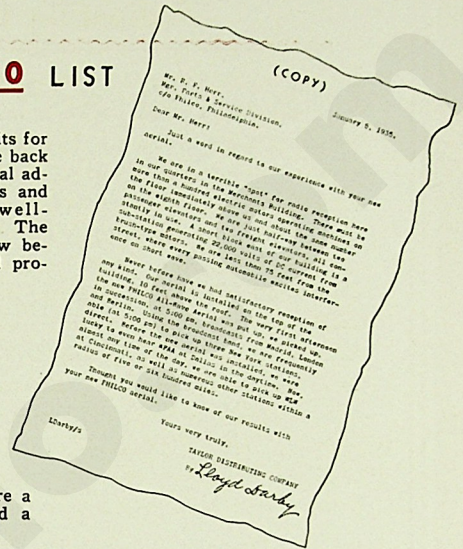
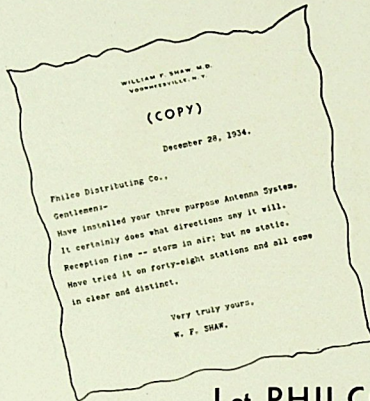
# PHILCO AERIAL KITS

REG. U.S. PAT. OFF.

## A COMPLETE LINE

for Every Need.. \$1<sup>60</sup> to \$7<sup>50</sup> LIST

PHILCO now provides the Serviceman with a complete line of aerial kits for every purpose and any type of receiver. The Three-Purpose Aerial (see back of this sheet) through national advertising — radio, newspapers and magazine — has become well-known to the radio public. The new All-Wave Aerial is now being given elaborate national promotion and our factory is working night and day to meet the flood of orders. The Short-Wave Aerial and Standard Aerial are both proven products worthy of the PHILCO name. This sheet gives only a brief description of these four popular aerials. Install a PHILCO aerial whenever possible—insure a satisfied customer, and a good profit for yourself.



Let PHILCO AERIAL KITS be Money Makers . . . for YOU

## New PHILCO All-Wave AERIAL

Latest Development—Already Famous!

THE IDEAL AERIAL TO SELL SHORT-WAVE OWNERS—

Because It . . .



- ✓ **REDUCES NOISE**  
(On ALL Wave-bands)
- ✓ **INSTALLS MOST EASILY**  
(All joints factory-soldered)
- ✓ **GIVES BEST RESULTS**  
(Pleases your customer)

READ THE TESTIMONIAL ABOVE

The FIRST aerial to reduce noise on both standard and short-wave stations—the FIRST aerial to come to you ready soldered at the factory—AND the aerial that gives maximum results on all wave bands—is taking the country by storm. Nationally announced and advertised by radio, magazines and newspapers, this aerial can be sold to

your customer with minimum effort—and the ease of installation and nice margin of profit make it an extremely attractive proposition to handle.

Furnished COMPLETE . . . with transformers, aerial and transmission line, insulators, lightning arrestor, and all needed accessories . . . with full instructions.

LIST PRICE \$7<sup>50</sup> Your Usual Discount

Three Time-Tested, Popular

# PHILCO AERIAL KITS

REG. U. S. PAT. OFF.

## PHILCO 3-Purpose AERIAL

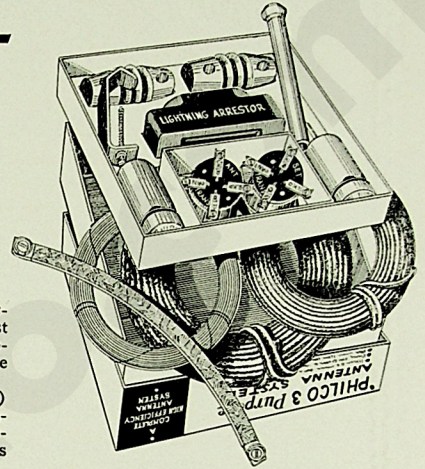
(FOR STANDARD BROADCAST SETS)

### 3 Famous Features!

- ★ REDUCES NOISE  
(Man-made Static)
- ★ INCREASES DISTANCE
- ★ ACCOMMODATES EXTRA SETS

The Three-Purpose Aerial, as its name implies, accomplishes the three desirable results listed above. Thousands of these aerials have been sold in the past year, and many testimonials have been received . . . a typical one being reproduced on the reverse side. National advertising of all kinds has made the "radio public" thoroughly familiar with the merits of the "3-Purpose."

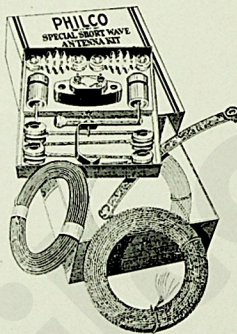
This is the ideal aerial to install for a standard broadcast (including police) receiver. With it you may be assured of a satisfied customer as to performance; while the list price of \$6.00 plus the installation charge provides a substantial profit for you. All necessary parts, including transformers, etc., as shown in the cut, are supplied with full instructions and illustrations.



Transmission Line, per 100' \$3.00  
Black, L-1551—White, L-1591

Extra Set Transformer, 75c  
(Part No. 32-1004)

**3-PURPOSE AERIAL** Complete, \$6  
List Price.



## PHILCO Short-Wave AERIAL

(HIGH CONDUCTIVITY—HIGH-TEST INSULATION)

The Philco Special Short-Wave Aerial was designed to provide the owner of a Short-Wave set with an aerial which he could depend on for highest efficiency in reception of stations on all frequencies.

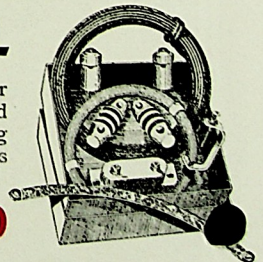
High conductivity of the aerial wire and lead-in, and thorough insulation, are features. All parts used are of the highest grade, carefully selected and tested. Properly installed in accordance with instructions, you can depend on it to satisfy the most exacting short-wave owner. PARTICULARLY RECOMMENDED IN SUBURBAN OR COUNTRY LOCATIONS.

**SHORT-WAVE AERIAL**, Complete, List Price . . . \$4

## PHILCO Standard AERIAL

A complete highly satisfactory aerial for general installation where the customer does not care to invest in one of the higher priced special type aerials described above. Many thousands of these Philco standard aerials are in use and performing satisfactorily all over the country. All parts are of excellent quality and the kit is complete with all necessary contents and full instructions.

**PHILCO STANDARD AERIAL**, Complete, List Price . . . \$1.60



*Your Distributor Can Supply You*

## R. M. S. Holds Winter School Session in New England

A SERIES of Radio Manufacturers Service schools has recently been conducted throughout New England. PHILCO factory engineers discussed two of the most interesting subjects to radio servicemen—"Adjustment of Compensating Condensers" and "Increasing the Serviceman's Income." The schools were well attended at all points, and the servicemen present all received many new ideas which have enabled them to do a better service job.

The first school of this series was conducted in Bridgeport, Connecticut, on February 4th. This was followed by schools at Waterbury and New Haven on February 5th and 6th; Providence, Rhode Island, on February 7th and 8th; Boston, Massachusetts, on February 9th; Manchester, New Hampshire, February 11th; Springfield, Massachusetts, February 13th, and Hartford, Connecticut, February 14th.

## Philco Wave Traps for I. F. and R. F. Interference

PHILCO has a complete line of wave traps for use in eliminating interference from commercial code stations and powerful nearby broadcast stations. The traps, which appear in the list at the right and which are marked for use on a certain PHILCO model, are intended to eliminate I. F. interference such as that produced by 460 K. C. commercial code stations or interference between two broadcast stations whose frequencies differ by the amount of the I. F. of the receiver. The traps, whose frequencies are within the broadcast band, are intended for use where the receiving set is in the immediate neighborhood of an extremely powerful station. In many cases exceptionally broad tuning of this station and cross-modulation occur unless a wave trap is employed.

In the August, 1934, issue of the PHILCO SERVICEMAN a complete article was published dealing with the subject of I. F. interference elimination. Complete details for reducing this type of interference was given. Also in R. M. S. lesson No. 6 several paragraphs were devoted to the subject of eliminating interference of this kind.

PHILCO MODEL NO.	FREQUENCY K.C.	PART NO.	LIST PRICE
16 (Codes 121, 122, 123)	460	38-5911	\$0.55
16 (Codes 125, 126, 127)	460	38-6049	.65
28	460	38-6050	.50
29, 45	460	38-5995	.50
34, 34A	460	38-5911	Same as 16 (Codes 121, 122, 123)
39, 39A	460	38-5994	.50
44	460	38-5911	Same as 16 (Codes 121, 122, 123)
60—Run 7	460	38-6073	.50
66	460	38-5994	Same as 39
118	260	38-5740	.45
144	460	38-5487	.55
201	260	38-6248	.55
45	460	38-5839	.55
16*	460	38-5570	.40
	260	Z977	.55
	7150	38-6619	.75
	560	Z637	.50
	600	Z646	.50
	610	Z658	.50
	700	Z628	.50
	710	Z933	.50
	720	Z683	.50
	760	Z943	.50
	860	Z932	.50
	1010	Z660	.50
	1020	Z790	.50
	1060	Z764	.50
	1240	Z682	.50



New Parts Department  
A. K. Sutton, Inc., PHILCO Distributors in Charlotte, N. C.

\*This is a trap to be mounted on the outside of chassis for use in addition to trap now in chassis. Wave traps for additional broadcast frequencies can be supplied on special order.

RADIO MANUFACTURERS SERVICE  
Lesson Number Seven

**INSTRUCTIONS**  
FOR ADJUSTING  
COMPENSATING CONDENSERS  
in  
1934-35  
PHILCO RADIO RECEIVERS



Prepared by  
Philco Service Department  
Especially for Members of  
**Radio Manufacturers Service**

## R. M. S. Lesson No. 7 Now Ready

A NEW Radio Manufacturers Service lesson on the subject of "Adjusting Compensating Condensers in PHILCO Receivers" is now available for distribution to all R. M. S. members. This lesson is similar to R. M. S. lesson No. 1 on the subject of "Adjusting Compensating Condensers," but covers the various PHILCO models which have been added to the line since the publication of lesson No. 1.

The new lesson is completely illustrated and shows, in every case, the exact location of the various compensating condensers to be adjusted.

Be sure to get your copy from your PHILCO distributor now while the supply lasts.

### New Cabinet Refinishing Instructions

An extremely valuable instruction sheet has just been issued by PHILCO for use in connection with the PHILCO Cabinet-Retouching Kit. Copies of this sheet can be obtained by any serviceman simply by contacting your PHILCO distributor's Service Department.

The average radio serviceman is well equipped to make any necessary repairs on a radio chassis, but if the cabinet should become damaged or scratched, the serviceman is at a loss to know what to do. This cabinet-retouching instruction sheet has complete information on the use of various types of cabinet-refinishing materials, such as those contained in the PHILCO Retouching Kit.

## Questions and Answers

1. Q. Does excess wax from the Model 57 power transformer and from the Model 60 field coil indicate that these parts are defective?

A. No. A small quantity of these sets went through production with insufficient drainage of the impregnating compound at the time the parts were built. As soon as the transformer or the field coil became heated through normal operation, this excess wax would leak out. The fact that the excess drained during operation does not mean that the parts are defective in any way.

2. Q. What is the cause of tuning changes on the short-wave receivers when the hand is brought near the station selector knob?

A. This is a capacity condition which is caused, in most cases, by the use of a small aerial and no ground wire. If a larger aerial and a ground are employed, the condition will be overcome entirely.

3. Q. What is the cause of sudden frequency shifts in the Model 17?

A. This condition, which is characterized by a sudden change in tuning from one station to another, for no apparent reason, can be traced to some defect in the oscillator circuit. In the majority of cases it will be found that the tuning condenser assembly must be replaced. Loose rivets, which hold the bakelite insulating panels on the side of the

tuning condenser sections, are usually the cause. These rivets are used for contact purposes, and the intermittent condition is produced by faulty contacts at this point.

4. Q. Is it possible to obtain a replacement meter for the Models 048 and 025 testers and have an exchange allowance on the old meter?

A. Yes. PHILCO will exchange the damaged meter through the PHILCO distributor at a net price of \$5 to the serviceman. Any meter which has become damaged or burned out can thus be replaced at relatively small cost.

5. Q. What is the cause of intermittent operation of the early Models 70 and 90?

A. In the majority of cases it will be found that this condition is caused by an intermittent open in the .01 mfd. audio coupling condenser. Examination of the small wires which make contact between the internal parts of the condenser and the terminals on the bakelite housing will usually show that this wire is solid. The condenser should be replaced with the later type having the stranded wire instead of the solid wire.

In addition to this fault, it will sometimes be found that the bakelite terminal strips on the side of the tuning condenser are loose. Tightening the screws which hold these strips will correct the condition entirely.

**JAS. S. REMICK CO., INC.**

909 Twelfth Street

Sacramento, Cal.

CLIFFORD S. BOWMAN, Service Manager