PHILCO SERVICEMAN

• SERVICE • NEWS • FOR • PHILCO • DEALERS •

APRIL, 1933

MODEL 048

Philco All Purpose Set Tester

Model 048

A NEW PHILCO development. Complete radio testing equipment in a compact form. One unit provides all tests and adjustment frequencies for any service job.

An accurately calibrated variable frequency signal generator combined with *22 different meter ranges.* The meter is the highest type jewel movement, D. C. instrument provided with a self-contained rectifier and carefully calibrated to the 22 different ranges. All control switches of indicator type.

New model radio sets, new tubes or new circuits will not make this instrument obsolete.

Dealer Price

$40.50

Complete with Carrying Case

List Price $67.50

Entirely self-contained. All test prods and clips are included—also tube and batteries. Universal use on A. C., D. C., Automobile and Battery sets.

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Place Your Order Immediately With Your Philco Distributor's Service Department

SPECIFICATIONS

Signal Generator

Shielded signal generator covering all frequency ranges from 105 to 2000 kilocycles. Direct - reading dial, calibrated in kilocycles. Shielded lead for connection to all types of radio sets. Batteries self-contained—for testing A. C., D. C., battery and automobile radio receivers.

Output Meter

Rectifier type output meter. Five output meter ranges available — 0-10 v., 0-20 v., 0-100 v., 0-200 v. and 0-1000 v. Universal output adaptors with 36-inch leads provided for making connections to all types of output tubes. Self-contained battery.

A. C. Voltmeter

Accurate A. C. voltage readings are obtained through the use of different scales for low and high range readings. Calibrated 0-10 v., 0-20 v., 0-100 v., 0-200 v., and 0-1000 v.

D. C. Voltmeter

Precision readings available in following D. C. ranges of voltage: 0-10 v., 0-20 v., 0-100 v., 0-200 v. and 0-1000 v. D. C. instrument scale is black, while A. C. scales are red for quick identification.

D. C. Milliameter

Three milliameter ranges 0-.5 MA, 0-1. MA and 0-100 MA—accuracy ± 2%.

Ohmeter

Three range ohmeter — 0-1500 ohms, 0-150.000 ohms and 0-1.5 Megohms. Accurate readings as low as 2 ohms.

Tube Tester

Provides portable, accurate performance test of radio tubes, using signal generator and output voltage measurement.

Capacity Meter

Capacity meter ranges—.01 mfd. to 2 mfd., using 60-cycle source of power, with external resistor and potentiometer.

Getting the Most Out of the Philco Three Purpose Antenna System

WHEN making an installation of the Philco Three Purpose Antenna System, the serviceman must bear in mind the fact that he is giving his customer not merely an outside antenna but that he is giving him the finest possible radio performance.

The sale and installation of the system is a paying business in itself for dealers and servicemen, but the continued success of such a business with a minimum of sales effort depends upon getting people to talk about their installations.

On every job that you install correctly and carefully you can positively guarantee quality radio performance. After the installation is made, people will be so enthusiastic about the results obtained from their radio they will tell all their friends about it, and your new installations will come easily. It will pay you, therefore, to make every installation correctly according to Philco's recommendations, for it is only in this way that the Philco Three Purpose Antenna System can do what it is supposed to do.

The following are a few simple facts about the new system which everyone who is connected with the sale or installations should know.

Explaining Three Purpose

1. The primary function of the Philco Three Purpose Antenna System is the reduction of man-made static in radio receivers. This is accomplished through the use of the antenna transformer to step down the incoming radio signal, the transmission line to carry the signal through the strongest interference area, and the set transformer to again step up the signal just before it is delivered to the radio set.

2. The next and equally important fact about the system is the increased efficiency of reception, making possible more stations, greater distance and far superior performance with less background noise on all stations.

3. The third function of the Philco system is the efficient interference-free performance of more than one radio on a single antenna. The low impedance transmission line and its comparative isolation of one set from another through the transformers make such operation possible. In many cases sales will be made by getting your customer's next-door neighbor to share the cost of the installation, both connecting to the same lead-in transmission line through separate set transformers.

Some Installation Helps

1. It is essential that a good ground connection be made as high above the level of the radio set as possible. This does not mean that the antenna transformer should be mounted on the aerial mast and a ground wire run down the side of the house into the earth. It does mean that a ground connection should be made to a vent pipe or overflow pipe on the roof, or to the water or radiator system on an upper floor of the house or building. The effectiveness of the system with its resultant reduction of noise and increased efficiency of reception is dependent upon getting a good connection to a *grounded mass* at a point as near the aerial as possible.

2. The proper location of the antenna is one of the most important factors in the reduction of noise. Be sure the antenna and the lead-in from the antenna to the antenna transformer are as far away from the source of noise as possible. Man-made static does not radiate far from the source, although it is often picked up and carried along considerable distances by power lines. In many cases it will be possible to locate the antenna at a remote point from any interference, and run a long lead-in transmission line (a big advantage of the Philco System) from the antenna to the radio set.

3. The position of the antenna with respect to the house or building or to various wire lines is important. It is more desirable to run the antenna from one end of the building out to a tree, a pole or to another building than it is to run it from one end of a roof to another. Greater signal pick-up will result in the first case, and there will be usually less noise. If it is necessary to run the aerial on the roof, bear in mind the fact that most attics have electric wiring which carries man-made static, and that it is desirable to have the aerial wire as far away from this wiring as possible by getting it as high above the roof as possible. Greater signal pick-up and less noise pick-up will result. If the aerial must be located near power, trolley or telephone lines, be sure that it is at right angles to such lines whenever feasible.

4. Never use another ground connection at the radio set. Experience, both practical and theoretical, has shown that best results are obtained by using only one ground connection, that being at the antenna transformer.

5. Public service companies are always willing to co-operate in the reduction of noise. Do not hesitate to call upon your local electric light, telephone or street car company if you feel that it will be possible for them to improve radio reception in any neighborhood by correcting faulty equipment.

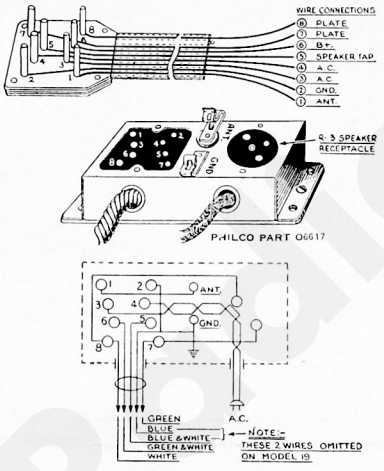
Installing the Philco Lazy X

THE Philco Lazy X Model offer many possibilities for custom-built installation, and as a result we have received many requests for further details concerning the installation. We are outlining below for the benefit of all dealers and servicemen information on the problems most frequently encountered.

Flat Cable Extension

It is often desirable to extend the length of the flat cable which connects the control cabinet with the speaker cabinet. An extension cable is available for this purpose in lengths of 25 feet. The extension cable can be obtained assembled with the plug on one end. This assembly is known as Philco Part No. 06993, and sells at a list price of $6.50.

When using this assembly, the wires should be unsoldered from the plug at the end of the LZX cable and spliced to the ends of the corresponding wires at the end of the extension cable. The flat cable only without the plug is known as Philco Part No. L-1528, and lists at $6.00 for a 25-foot length.



LZX CABLE AND PLUG CONNECTIONS

Extension Losses Eliminated

It is recommended that the total length of flat cable for any installation should be under 50 feet. There are certain losses introduced because of the close proximity of the aerial and ground wires in the cable. Up to 25 feet, the standard length supplied with the LZX Models—this loss is not noticeable, but beyond this length the loss increases, and should be compensated for by increasing the length and height of the outside antenna or by the installation of the Philco Three Purpose Antenna System. Complete instructions for the Lazy X connections are included with each Three Purpose Kit, and are also given below.

Another consideration when using more than the standard 25-foot length of cable is the excessive pickup of man-made static originating in various electric appliances and wiring within the house. Here again the use of the Philco Three Purpose Antenna System is recommended for cables in excess of 25 feet in length.

Connecting the Philco Three Purpose Antenna System to the Lazy X Models

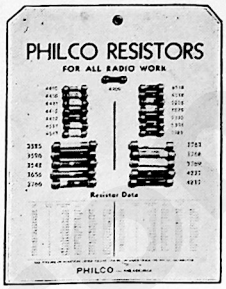
There are two methods of connecting the Philco Three Purpose Antenna System to the LZX Models, both of which will give equally satisfactory performance. In the first method the transmission line from the Antenna Transformer is run direct to the radio cabinet on which the set transformer is mounted. Referring to the cable and plug illustration below, it will be noted that the ground and aerial wires through the flat cable are separated by a cord about the size of a wire. Lay the LZX cabinet on its side so that chassis is in upright position on the floor. Looking from rear of chassis, first two wires from left of flat cable are antenna and ground connections, respectively. Slit the cable with a sharp knife so that enough of the "ANT" and "GND" lead is exposed to reach Set Transformer. Cut first wire from left in cable and connect end coming from chassis to "ANT" terminal of "Set" Transformer. Second wire from left must not be cut, but should be bared and short lead spliced from bared section to "GND" terminal of set Transformer. This connection should be soldered and taped. Connect red wire in transmission line to "RED" terminal on "ANT" transformer and black wire to "BLK" terminal. The set Transformer should then be mounted in position in receiver cabinet.

In the second method, the transmission line from the antenna transformer runs to the speaker cabinet, and two of the wires through the flat cable are employed as a continuation of transmission line up to the radio cabinet, at which point the set transformer is mounted. In order to get a properly matched line through the flat cable and not lose all the advantage of the system up to this point, it is necessary to employ a different wire through the cable as the antenna. At present the antenna wire is separated from the ground wire by a tracer cord. When making the change the antenna wire should be adjacent to the ground wire through the cable. It is simply a case of interchanging the wires on the two sides of the cable to agree with the cable and plug drawings shown above, where wires 1 and 2 become antenna and ground and wires 7 and 8 become plate connections. The antenna wire is cut a few inches from the chassis for insertion of the set transformer just the same as in the first case described above.

Philco Announces Reduction in Resistor Prices

PHILCO has recently announced a reduction in the price of resistors. All 1-watt and ½-watt metal end and carbon type resistors are now priced at 20c list instead of 25c. This brings your net cost down to 12c. The Philco resistor kit, part 6566A, containing 25 of the most commonly used resistors, is now priced at $3.00 net to the dealer and serviceman instead of $3.75.

For your convenience, Philco is now packing all resistors in small compact boxes of six resistors. Many servicemen prefer to buy several boxes of the most commonly used resistors, while others prefer the complete kit of 25 different resistors. In addition to the kit and the standard packages of six, all resistors are still available individually at the new low price of 12c.



PHILCO RESISTOR KIT
New Low Net Price $3.00.

Model 53 Circuit Changes

A NUMBER of changes were made in the wiring of the early production of Model 53-C which made a big improvement in the sensitivity of this receiver. The first sets were highly satisfactory as universal receivers, but shortly after they were placed on the market, a number of improvements were made in the type 77 tube. Philco decided to take advantage of all these improvements in order to produce the best universal receiver without any increase in cost. In order to use the new tube, it was necessary to make some changes in the radio circuit. The combination of the new tube and the new circuit gives far superior performance to the first type receivers.

After the tube change was made a red dot was placed on the new tubes for identification, since they are not interchangeable in the detector oscillator socket. The red dot has since been eliminated, and all type 77 tubes are now of the new construction. A limited supply of the first type 77 tubes is available from Philco for replacement purposes. For convenience in identification, these are now known as type 77-X. The early production of 53-C in which these tubes should be used as replacements in the detector oscillator socket can be identified by the "run number" rubber stamped on the back of the chassis. The sets are all below run number "3."

The following are the changes which were made in the wiring:

1. A .001 Mfd. condenser, part 7762-C, was mounted in the upper left-hand corner of the chassis, and connected in series with the brown aerial wire.

2. The oscillator coil (8), Fig. 8, Service Bulletin No. 149, part 32-1001, was changed to a new coil, part 32-1023.

3. The .0014 Mfd. condenser (6), part 7007, was changed to a .00041 Mfd. condenser, part 5120.

4. The 8000 Ohm Resistor (7), part 5838, was changed to a 5000 ohm resistor, part 6096.

PROFIT INSURANCE

Before Delivery

1. **Check chassis.**
   - **a. Tubes and tube shields.**
   - **b. Pilot lamp.**
   - **c. Performance.**
2. **Inspect and polish cabinet.**

Installation

1. **Insist on good aerial and ground.**
2. **Loosen chassis hold down bolts.**
3. **Adjust shadow tuning.**
4. **Check performance.**
5. **Instruct owner by demonstrating correct tuning, automatic volume control and general operation.**

PHILCO RADIO & TELEVISION CORPORATION

218 Fremont Street San Francisco, Cal.

I. I. FARWELL, Service Manager

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