

# PHILCO SERVICEMAN



RADIO • MANUFACTURERS • SERVICE • NEWS

OCTOBER, 1939

## EDITORIAL

### Preparation Now

A NUMBER of large radio stations in the country are now featuring spot advertising broadcasts on air-conditioning training. One of the large schools in the East is sponsoring this advertising, and the advertiser is appealing to men in all walks of life.

#### R. M. S. Members Logical Students

It would seem that the logical man to be an air-conditioning serviceman is the one who is now engaged in radio service work. R. M. S. members know service, and they know how to go about doing service work in the home. If it is profitable for a man who has never done service work before to learn air conditioning so that he can do air-conditioning and refrigeration service work, then it must be extremely desirable from a profit standpoint for the R. M. S. member to know this type of servicing.

#### Increased Service Profits

R. M. S. headquarters has sponsored and recommended air-conditioning and refrigeration training for servicemen for some time. There is no question but that air conditioning is going to be one of the biggest lines of activity in the future, and the men who prepare themselves for such activity now are the ones who are going to make the most money when this new, big industry really starts to expand. PHILCO distributors have complete information on a fine home-study course in refrigeration and air conditioning. It is our suggestion that those radio servicemen who want to go into this type of service work next year start preparing themselves now for greatly increased profits.

## ACCESSORY DISPLAY BRINGS INCREASED FLOOR TRAFFIC



I NCREASED floor traffic in the radio and refrigeration dealer's store invariably means more sales. PHILCO has prepared for dealers a valuable display which will bring this floor traffic and which will also bring many plus sales.

The new, colorful PHILCO Accessory Display illustrated above will do a quantity selling job with the variety of low-priced items that sell on sight. Practically every customer has immediate need for at least one of the articles featured in the display.

Although it was designed primarily for use on the counter, the display, when placed in a store window, will bring many customers into the dealer's store. Conversation with these customers regarding their radio, phonograph or refrigerator for which accessories are being purchased can easily lead to obtaining valuable new radio and refrigeration prospects.

Your PHILCO distributor has these displays in stock and can tell you how to obtain one without cost to you.

## Accurate Service Tests Made with New Condenser Tester

EXTREMELY accurate measurement of condenser capacities can be made by using the audio amplifier in a radio set in connection with the new PHILCO Model 010 Condenser Tester.

#### Accurate Low Capacities

When checking capacities below .01 mfd., it is usually desirable to have a more accurate test than is necessary on higher capacity values. The Model 010 relies upon the bridge-balancing method to produce a balance point, which position is read directly in microfarads on the calibrated scale. With the lower capacities (below .01 mfd.), instead of connecting the output of the 010 to headphones, connection is made to the first audio grid and chassis of a radio set. Thus the 60-cycle note which provides the test signal is amplified and heard more distinctly; a highly accurate setting of the balance point can be obtained.

#### Capacity Bridge

The Model 010 Condenser Tester has fast become a most popular item of test equipment with servicemen. The device is extremely simple in operation. A 60-cycle signal from the light socket affords a capacity bridge arrangement for balancing an unknown capacity against a known. A variable resistor connected through a range switch and additional standard capacities makes possible a quick, convenient and accurate test of all paper and mica condenser values from 20 mmf. to 32 mfd. An AC meter connected to the output terminals, headphones or an audio amplifier and speaker are used as an output indicator, depending upon the size of the condenser being measured. The accurate, direct-reading scale makes the Model 010 the quickest and most convenient method of checking condenser values.

#### Low Price

Hundreds of servicemen have added this valuable instrument to their test equipment because they have found it to be a great time saver, and it is low in price, only \$6.30 net.

## NEW LUBRICANT ELIMINATES SWITCH CONTACT NOISE

PHILCO engineers have made exhaustive studies of switch contacts and methods of treating contacts to prevent them from becoming noisy. They have found recently that a noisy switch condition can be overcome permanently and the switch made satisfactory by the use of a special lubricant. This lubricant has been developed especially for contact surfaces and should be applied to the wearing surfaces of the switch contacts.

The lubricant can be applied conveniently with a tooth pick or a piece of bare wire. It is not necessary to clean the contact surfaces before adding the lubricant. The lubricant can be used successfully on new switches to prevent noise from developing or on old switches which have become blackened and are noisy. The lubricant should also be applied to the push bars at the front and back bearing plates to prevent electrical noise from developing at this source.

This lubricant is now available in convenient half-ounce tubes from your PHILCO distributor. The part number is 45-2781, list price 15 cents.

## Questions and Answers

1. Q. What is the correction for oscillation at the low-frequency end of the broadcast band in Models 40-130, 40-135 and 40-170CS?

A. Changing the second I.F. transformer No. 21 in Service Bulletin No. 327 will correct this condition. The new part number transformer is No. 32-3382 and the old number is No. 32-3281.

2. Q. What is the cause of oscillation in the portable battery Model 40-81?

This is caused by feedback in the grid circuit of the 1A7 tube. The wire from the loop to the 1A7 grid and the wire from this grid to the wiring panel, as well as the wire from the tuning condenser antenna circuit lug to the wiring panel, should all be kept as far away from the 1A7 tube as possible. Redressing the wires in this manner should correct any cases of oscillation.

3. Q. What is the cause of "birdies" and "squeals" when some of the new PHILCOS are tuned to various stations?

The I.F. of most of the new sets is 455 KC. as compared with 470 KC. in the 1939 models. In some sections of the country stations may be separated by a frequency difference equal to the I.F. This would cause "squeals" when tuning some stations, and the condition can be corrected by repadding the I.F. and oscillator circuits to a slightly different frequency from 455 KC. In most locations where this trouble occurs, 460 KC. is usually sufficient.

## Philco Test Instruments Standard of Service Industry

RADIO test equipment, unlike radio sets, remains somewhat standard in design and appearance from year to year. In no other line is this fact brought out more clearly than in PHILCO'S quality line of radio service test instruments.

The PHILCO Model 077 Signal Generator continues to be the standard of the service industry. Thousands of these instruments are in use all over the world, and PHILCO is continuing to sell this model as the standard high-quality signal generator preferred by servicemen everywhere. Many servicemen, because of slow business conditions have been forced to get along with their out-of-date signal generator, are buying the 077 now that business everywhere is so much better. New men just coming into the service picture are buying PHILCO 077 upon the advice of the older men who know real quality and value in test instruments.

### Dynamic Testing

The old subject of live testing or dynamic testing as it is sometimes called is the basis on which all PHILCO test equipment has been built for years. Certainly there is no more logical way to test a radio than under actual operating conditions. There is no way of isolating trouble to a given section of the set that is any quicker and any more scientific than the method which employs a signal generator and circuit tester. After the usual preliminaries of tube testing have been accomplished,

the signal generator plays the important role in locating the trouble. Starting with the audio and working back, stage by stage, to the antenna, a signal of the proper frequency is fed into each input circuit and the strength of the speaker output is noted. When the faulty stage is reached, there is no gain or performance indicated. The voltmeter and circuit tester next come into play in checking the various elements of the particular faulty circuit to locate the actual part or connection which is causing the trouble.

### Essential for Service

So important and essential are the signal generator and circuit tester in modern service work, that their ownership is one of the first requisites for membership in Radio Manufacturers Service. Members of R. M. S. must be qualified and equipped to do good service work, and such work obviously cannot be accomplished without adequate test equipment.

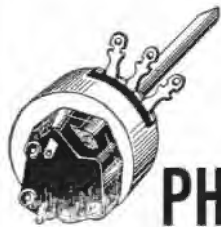
### Basic Design

The PHILCO Model 077 Signal Generator and PHILCO'S several type circuit testers, such as the Model 026, are basic in design and are quality-built throughout. They change but little from year to year because radio circuit design is basic. These high-quality test instruments, built under the supervision of PHILCO'S engineers, can be purchased with utmost confidence in their continued usefulness through the years.



Parts Department, Roskin Distributors, Inc., PHILCO Distributor in Hartford, Conn.

**ENGINEERED  
QUALITY**



**PHILCO**

**General Replacement  
VOLUME CONTROLS**

A complete line of volume controls for use on any make of radio. Philco's engineered quality—the same high standard of Philco radio sets—assures lasting, trouble-free performance. With switches and without—ready to install—no accessories or gadgets needed to make them fit.

Reduce your stock by standardizing on

**PHILCO  
General Replacement  
VOLUME CONTROLS**

See your new Philco Parts Catalogue for complete listing and description.

**Model 013 Vibrator Tester Announced**

A NEW PHILCO test instrument known as Model 013 Vibrator Tester has just been announced. This instrument is one of the most effective and one of the quickest to use of any vibrator tester that we have ever seen. It tests all kinds of vibrators of various manufacturers—both synchronous and non-synchronous types. The test operation is simplicity in itself.

The vibrator is placed in the proper socket in accordance with the instruction chart and the power switch is turned on. If the pilot lights flicker with equal brilliancy, the vibrator is "OK." If one light is on and the other off, this is a positive indication that the vibrator is stuck or shorted. Two lights appear when testing non-synchronous vibrators, and four lights appear when the synchronous types are being checked. Vibrators in perfect operating condition will light the test lamps with full brilliancy, equal intensity and equal amount of flicker. When the lamps are dimly illuminated or of unequal intensity or when one lamp lights steadily without flicker and the other lamp does not light, the trouble indicated is in the vibrator which should be replaced.

The instruction sheet accompanying the tester lists all makes and models of auto radio receivers, indicates the proper test socket in which to check the vibrator and also shows the equivalent



*Model 013 Vibrator Tester*

PHILCO vibrator part number in case a PHILCO replacement is desired.

The Model 013 Vibrator Tester is an instrument which will be desired by every dealer and serviceman selling auto radio or doing auto radio service work. The net dealer price is only \$7.95. Be sure to see the new 013 tester at your PHILCO Distributor's Parts Department.

**Test Relay Big Time Saver on Refrigerator Service**

A GREAT time saver on PHILCO Conservador Refrigerator service calls is provided in the test relay illustrated below. The test relay affords one of the best and quickest ways of locating various troubles in the electrical circuit. The use of the relay also eliminates the



*Showing Test Relay Connected*

possibility of blaming a sealed unit for trouble which may be caused by the overload relay in the refrigerator.

This desirable test unit, Part 5299-2, sells at a list price of \$7.50 subject to regular refrigerator parts discount. It is obtainable now from your Conservador distributor.

**Refrigerator Touch-Up Kit for Dealers and Servicemen**

AN ITEM for refrigeration service is the new PHILCO Refrigerator Touch-Up Kit which has just been announced.

This kit contains the necessary quantities of Du Lux lacquer for both inside and outside touch-up work. It also contains the necessary coloring, shades, thinner, etc. Convenient four-ounce cans are furnished so that the quantities are sufficient to take care of the ordinary amount of touch-up work for a considerable period of time. This new kit is known as PHILCO part number 8040-2 and sells at a list price of \$3.00.

## Parts Specials Meet with Big Response

**D**URING the month of July, thousands of R. M. S. members purchased one of the finest speakers for extra-speaker work at a net price of only 65 cents, which amounted to 10 cents on the dollar list. During August and September thousands more R. M. S. members purchased a PHILCO power transformer for 36 cents net—again 10 cents on the dollar list. These R. M. S. specials have met with the biggest response from R. M. S. members because the men realized what a wonderful opportunity PHILCO is giving them to pick up this material at such ridiculously low prices.

It is the plan to continue having as many specials of this kind as possible from time to time. PHILCO is working at all times for the benefit of R. M. S. members, and when there is an opportunity to pass along a saving of this kind, you can be sure that R. M. S. men will receive first consideration.

## Make Your Work Easier

USE  
**PHILCO**



## "LITTLE MIKE" ELECTROLYTIC CONDENSERS

Smallest and most dependable midget electrolytics. Time saver, space saver, money saver.

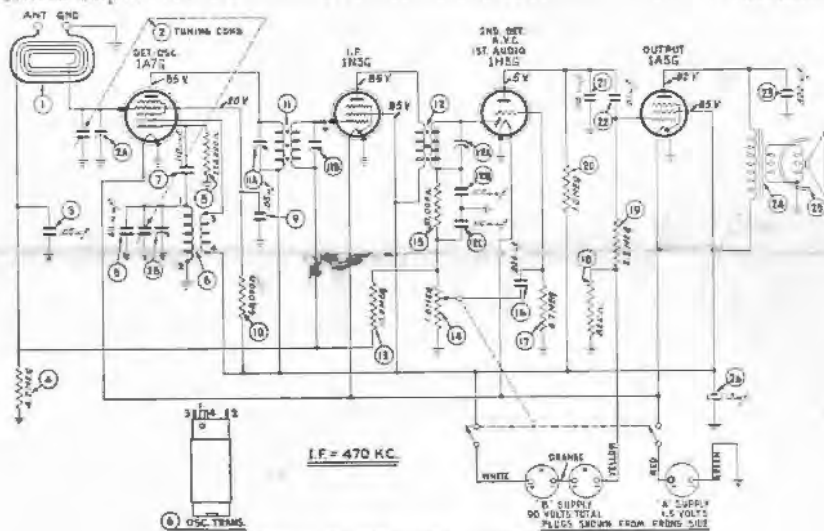
## Sensationally Low Price

## REPLACEMENT PARTS—MODEL 40-74

Sch. No.	Description	Part No.
1	Loop Assembly	40-6421
2	Tuning Condenser	31-2403
3	Tubular Condenser (.05 mfd.)	30-4519
4	Resistor (4.7 meg., 1/2 watt)	33-547339
5	Mica Condenser (40 mmfd.)	30-1095
6	Oscillator Transformer	32-3274
7	Mica Condenser (110 mmfd.)	30-1031
8	Resistor (220,000 ohms, 1/2 watt)	33-422339
9	Tubular Condenser (.05 mfd.)	30-4444
10	Resistor (68,000 ohms, 1/2 watt)	33-368339
11	First I. F. Transformer Assembly	32-3103
12	Second I. F. Transformer Assembly	32-3176
12-C	Mica Condenser (110 mmfd.)	30-1031
13	Resistor (10.0 meg., 1/2 watt)	33-610339
14	Volume Control (1.0 meg.)	33-5310
15	Resistor (51,000 ohms, 1/2 watt)	33-351339
16	Tubular Condenser (.004 mfd.)	30-4578
17	Resistor (4.7 meg., 1/2 watt)	33-547339
18	Resistor (820 ohms, 1/2 watt)	33-182339
19	Resistor (2.2 meg., 1/2 watt)	33-522339
20	Resistor (1.0 meg., 1/2 watt)	33-510339
21	Mica Condenser (110 mmfd.)	30-1031
22	Tubular Condenser (.01 mfd.)	30-4572
23	Mica Condenser (500 mmfd.)	30-1114
24	Output Transformer	32-8093
25	Cone and Voice Coil Assembly (Speaker Part No. 36-1482-3)	35-4121
26	Electrolytic Condenser (3 mfd.)	30-2359

### MISCELLANEOUS PARTS

Cabinet (Model 40-74T)	10399A
Cabinet (Model 40-74T-C.L.S.)	10399B
Dial	27-5542
Drive Cord Assembly	31-2318
Drive Shaft and Bracket	31-2324
Flag Cam and Hub Assembly	38-9861
Knobs (Volume and Tuning)	27-4862
Pointer	27-4845
Speaker	36-1482
Speaker Grille	56-1255
Spring (Drive Cord)	28-8954
Sockets (Six-prong)	27-6086
Sockets (Seven-prong)	27-6087
Shield Tube	56-1260
Shield Base	56-1259
Shield Cap	56-1261



SCHMATIC DIAGRAM MODEL 40-74  
Wiring Diagram, PHILCO Model 40-74

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