

# PHILCO SERVICEMAN



RADIO · MANUFACTURERS · SERVICE · NEWS

JUNE, 1940

## Model 41-85 Sets New High Standard in Portable Performance

### EDITORIAL

#### Business With Minimum Effort

SECURING new business just by sitting back and waiting for it to walk in is a happy dream of every dealer and every serviceman, but unfortunately new business is not so obliging. The R.M.S. member does have an opportunity in this respect, however, which is probably not enjoyed by anyone else in the service business.

#### Recommended to Owners

For years PHILCO has printed in the customers' instruction sheet of PHILCO radios the R.M.S. emblem with the statement, "Look for this emblem in your neighborhood." We quote in full the paragraph which goes out in the instruction sheet with every PHILCO:

"SERVICE . . . For the convenience of all radio owners, PHILCO has developed a plan for prompt, efficient radio service in every locality. This plan is known as 'Radio Manufacturers Service.' There is a member in your neighborhood—his shop or store can be identified by the emblem shown here. To make sure of guaranteed work, genuine PHILCO tubes and parts, and standard prices—call a member of 'Radio Manufacturers Service'."

#### Greatest Number of Sets

Every year since 1930, PHILCO has been the leader in the home set radio business and has consistently built more sets which sold for more dollars than any other company in the radio industry. There are over 14,000,000 PHILCO radios.

#### How to Cash In

Now, it is mighty good business judgment for the service-

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### Features A.C.-D.C.-Battery Operation

THE greatest of all portables—the new Model 41-85—has recently been announced by PHILCO. This is a powerful five-tube set, A.C.-D.C. dry battery type, having standard broadcast and short wave reception.

The new set is entirely portable when equipped with batteries, and will provide excellent reception—both standard and short wave with its built-in PHILCO aerial system. It has a tuning range on broadcast from 540 to 1600 K.C. and on short wave from 6 M.C. to 15.5 M.C. A selector knob—the middle one of three controls—changes from broadcast to short wave reception.

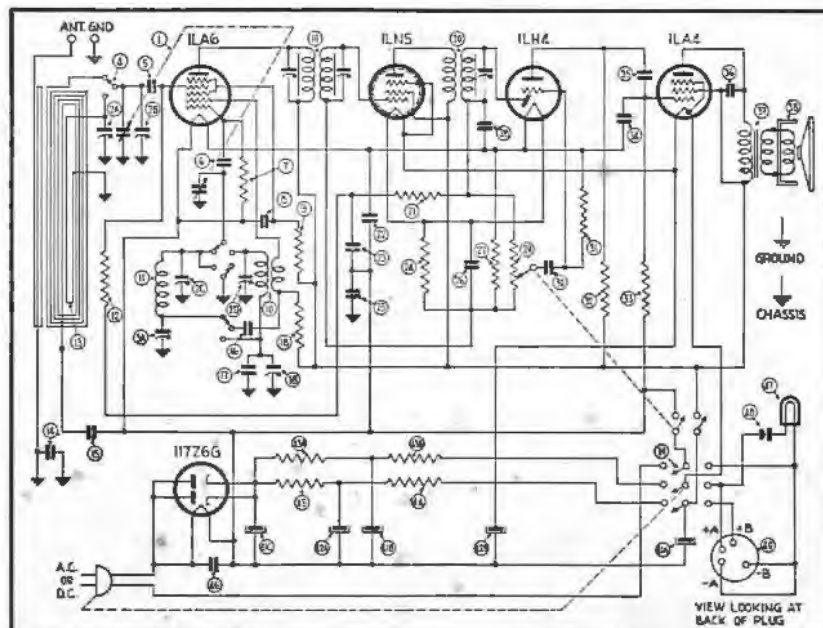
When the radio is being used in locations where power lines are available—either 110 volts A.C. or 110 D.C.—the set can be operated without the use of batteries. The cabinet back is removed from its spring clip holders and the power line cord is pulled from



PHILCO Portable Model 41-85.

the slots in the chassis. This automatically disconnects the batteries. The power cord is then brought out the back of the cabinet, and is inserted in the slot at the right of the cabinet back. The other end of the plug is inserted in the power receptacle, and the radio is ready to operate from the power line.

The cabinet is covered in a durable ostrich grain leatherette.



Wiring Diagram, PHILCO Model 41-85.

## Filters and Automatic Starting Timers Big Profit Items

EVERY air conditioner sale of last year is a prospect for the new PHILCO Automatic Starting Timer this year. Every air conditioner sold last year should have a new filter installed this year at the beginning of the season. In both cases this work is a job for the serviceman and one which will bring in additional profit both on labor and merchandise sold.

### Pre-Cooling Room

The success of air conditioning in the home or office can be determined largely by the customer's first reaction upon entering a previously cooled room. The only way that an air conditioner can be made to function properly without running at all times is to have an automatic starting arrangement so that the power can be turned on two or three hours before the room is to be occupied. In this way the conditioner can operate a sufficient length of time to permit partial or complete cooling of the room by the time the owner is ready to occupy the space.

The Automatic Starting Timer is a substantial sales item and is well worth the little effort on the part of the salesman and serviceman to sell such an installation to the customer. The list price is \$16.50, subject to regular air conditioning parts discount to the dealer.

### Frequent Renewal

The necessity for a new filter in the air conditioner is obvious upon examination of almost any old filter which has been in use for any length of time. The tremendous amount of dust and dirt which accumulates in the filter proves readily to the customer the desirability of filtering in an air conditioner and the great importance of renewing the filters at regular intervals. Since the cost of the filter is comparatively small, it is not a major item of decision for the customer to say that he wishes the serviceman to go ahead and put in a filter unit. Every air conditioner that is now out and has been in use should have the filter renewed. It should be made a definite understanding with the customer that the renewal of these filters is a part of the maintenance and operating cost of the air conditioner. In this way there will be no question as to any possible charges.

The all important factor in selling these two accessory items is the tremendous possibility which is afforded the serviceman for selling additional air conditioners. Almost every person who has had one air conditioner during the past year would like to have at least one more for another room of his office or of his home. Customers who have been completely satisfied with the performance in the past are those who are most anxious to purchase additional equipment. The sale of Automatic Starting Timers and Replacement Filters is one of the most profitable activities for the dealer and air conditioner serviceman at this time of the year.

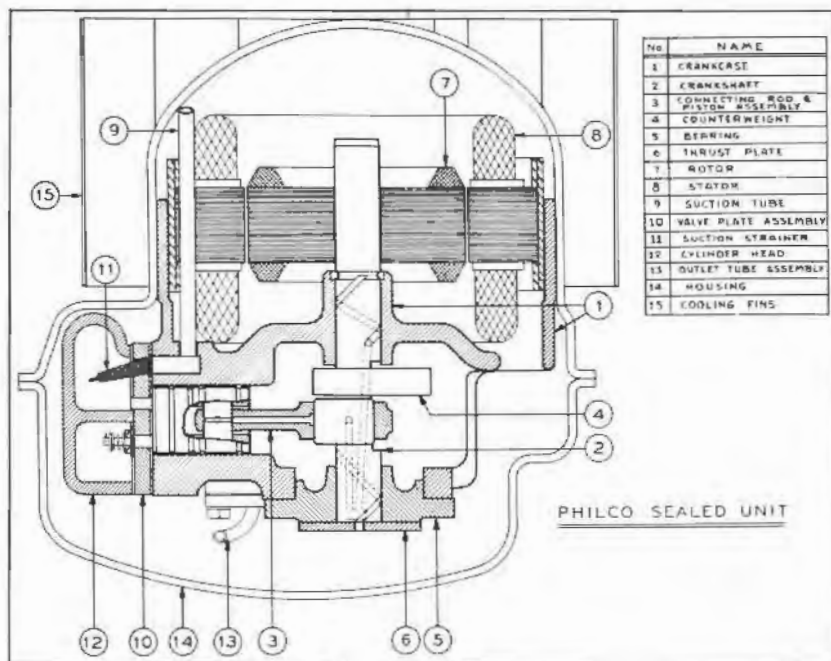
## 1940 Sealed Unit Is Engineering Masterpiece

PHILCO engineering, through its many firsts and the continued success of the PHILCO line, has deservedly earned the respect of all the industry. The high quality of PHILCO merchandise has earned the loyal support of all PHILCO dealers. In the "Sealed Units", used in the new 1940 PHILCO refrigerators, PHILCO engineering firsts are again apparent, and quality materials and workmanship are also fully evident.

For example, during the process of manufacturing, thirty-nine diamond boring spindles are used to bore all of the holes in the compressor, more than are used in manufacturing any other refrigerator compressor. The holes are not only finish diamond bored, they are rough diamond bored first—just to ensure a precision made compressor. With this method of diamond boring, precision limits can be held within tolerances of .00015". An example of the exacting requirements set by the PHILCO engi-

neers and held in production is the tolerance set up for the two diamond bored holes in the connecting rod. These two holes must be within .001" in parallel and twist in 4 inches—a very exacting and very close limit.

In assembling the compressor, all parts are selected fitted. They are then carefully washed and are passed into a large sealed room in which the circulated air is filtered and air conditioned. The air in the room is kept under constant pressure of about three pounds above the normal atmospheric pressure so that as doors are opened, no dust or dirt from outside can enter the room. After the parts are selected fitted they are put in wire baskets and kept together. Upon entering the sealed room, they are again flushed and washed and from there they begin their journey down the conveyor to be assembled by skilled operators who have been especially trained for each operation.



# MIKE FARAD TAKES THE STAND

Interview by Direct Method Reveals Helpful Service Facts

FOR the past year or two an investigation has been going on to reveal basic facts of radio test procedure. Many radio servicemen have been led to believe that radio is becoming too complicated to be handled by the application of fundamental theory.

Radio Manufacturers Service (which has sold radio service to the public for eight years) has frequently been asked to referee such discussions. In past years, this has resulted in the debunking of many fancy-named, hothouse-grown testing methods. Some have been proved useless; others have had the false whiskers removed so that they could be identified by their proper names.

As an aid in the present case, we reprint testimony taken from the record of the present investigation. MIKE FARAD is being interviewed by the Direct Method. An alternating current of questions and answers follows:

D. M. What are radio sets made of?

Mike. Nothing but vacuum tubes, coils, condensers, resistors, loud speakers, cabinets, transformers, wire and solder.

D. M. You mean 1928 and 1940 sets are the same?

Mike. Basically, yes.

D. M. Is there any reason why 1940 sets should be tested differently than, say, 1935 sets?

Mike. No. Some tube types are different, efficiency is higher, new functions have been added, but an oscillator is still an oscillator.

D. M. Amazing! Tell me, is a 1940 superheterodyne very different from one built in 1925?

Mike. No. There are fewer tuning controls and the intermediate frequencies differ, but that's all.

D. M. Are all AVC systems similar?

Mike. Practically identical. All they contain is load circuits, filtering and distribution networks.

D. M. Aren't inverse feedback circuits awfully complicated?



Mike. Yes, to anyone who doesn't understand Ohm's Laws!

D. M. I suppose you're going to say the same thing about phase inversion.

Mike. Absolutely!

D. M. You can't kid me—here's one I know the answer to: R.F. coils are getting harder to handle every year.

Mike. What? PHILCO's 1937-660 used 12 R.F. coils, some with as many as six connections. And the 40-200 is a hotter set: Where have you been?

D. M. Don't get fresh, I've been looking at a new type tester.

Mike. What is that?

D. M. It's a variable oscillator, A.C.-D.C. voltmeter—

Mike. Oh, that! You mean a signal chaser. PHILCO had the first one, the 048 in 1932. Every so often since then they've built a new one to meet new demands. The 027 pushbutton circuit tester and vacuum tube voltmeter rang the bell so hard you can still hear it.

D. M. (To himself: Hmm, I never thought of that.) (Clears his throat). What test equipment do the PHILCO Research Lab men use?

Mike. Signal generator, A.C.-D.C. voltmeter, vacuum tube voltmeter.

Mike. PHILCO's line of service test equipment was designed by PHILCO lab men from their own needs and experience. No other company gives servicemen the benefit of so much engineering and research experience in their test equipment.

D. M. You mean not even—?

Mike. No, not even anybody!

D. M. I bet PHILCO's instruments are expensive.

Mike. Not at all. PHILCO's twelve years of experience manufacturing radio instruments of quality keep precision test equipment prices down.

D. M. And you really think that I can troubleshoot with just two instruments—an 077 oscillator and an 027 VTVM and circuit tester?

Mike. If you can't you'd better sign up for the R.M.S. N.R.I. course!

D. M. What is that?

Mike. That is the latest development in the R.M.S. program to make the right kind of training available for servicemen at low cost. National Radio Institute is a recognized authority, and in collaboration with R.M.S., the course is really hot.

D. M. I bet I have to go through all that stuff about magnets again if I take the course.

Mike. You do *not*. This course has been prepared for men who are *in the radio business*—not for beginners.

D. M. Sounds good. Where can I find out more about it?

Mike. From your PHILCO distributor's service manager.

D. M. Would he mind seeing me today?

Mike. Every PHILCO distributor's service manager is *always* willing and eager to help every serviceman in his territory.

Court recessed!

## EDITORIAL

(Continued from Page 1)

man member of Radio Manufacturers Service to cash in by hanging one of the R.M.S. signs in front of his place of business so as to make it easy for the PHILCO owners in the community to locate the recommended R.M.S. man. PHILCO has spent thousands of dollars building up this vast service organization and in helping its members to get new service work. All you have to do is make a little effort to identify yourself as a member and you will start receiving the benefits in the form of more work.

Get one of the R.M.S. metal signs from your PHILCO distributor today while you are thinking about it. Talk to your distributor's service manager about some R.M.S. letterheads and some of the various service advertising and sales promotional material that is available only to bona-fide members. Be sure that every home in your community is informed that *you* are the local R.M.S. representative—the man on whom PHILCO has put its stamp of approval for quality guaranteed radio service work.





### Questions & Answers

1. Q. What is the cause of ice forming on the evaporator of an air conditioner?

A. This condition is usually caused by a clogged filter which should be replaced. Any condition which causes an obstruction in the air flow over the evaporator will produce low evaporator temperatures with resulting freezing of condensate water. Operating the air conditioner in a room with low temperature will also produce the same condition. A defective expansion valve can allow too much flow of refrigerant and likewise produce excessively low temperatures.

2. Q. In the PHILCO-York Model 91 Air Conditioner, what is the cause of excessive vibration of the entire chassis assembly, particularly the condenser?

A. With all the shipping bolts and blocks removed this condition is caused by too great pressure on the compressor mounting bolt at the right facing the front of the unit. There are two nuts on this bolt—one on top and one on the underside of the compressor mounting plate. These should both be loosened until the excessive vibration noise disappears.

3. Q. In the case of a PHILCO-York Model 61 Air Conditioner installation what is the cause of water getting into the room during a severe driving rain-storm?

A. This is caused by the window cradle sloping into the room instead of out. There should be a definite outward slope of  $\frac{1}{8}$ " per foot. On complaints of this kind, it is also advisable to install a 16" length of felt,  $\frac{1}{16}$ " thick and  $\frac{1}{2}$ " wide, along the top of each side panel, starting at the back edge of the panel. This will bring the felt to a point on the unit which is inside the room and will prevent rain from driving in between the side panel and the lid. Before putting on the lid, the trough should also be filled level with caulking compound for a space of two inches, one inch on each side of the window line.

### Radio Manufacturers Service Accomplishments

SUCH an ambitious undertaking has never been attempted by any other organization or individual. Here are some of the things R.M.S. has actually accomplished for the service industry.

1. Established standard labor charges.
2. Assured guaranteed service.
3. Established the almost universal use of genuine replacement parts.
4. Insisted upon the use of quality test equipment.
5. Carried out a nation-wide program of broadcast and magazine advertising.
6. Promotional and advertising material made available to members at low cost.
7. Provides free a standard identification emblem and membership certificate of Radio Manufacturers Service for all members.
8. Carries on sales building promotional campaigns.
9. Provides complete technical bulletins at regular intervals.
10. Furnishes monthly PHILCO Serviceman publication through distributors.
11. Provides home study radio training at reduced costs.
12. Provides air conditioning and refrigeration training at reduced costs.
13. Makes available to members through PHILCO distributors complete technical consultation service.
14. Each member on preference list for parts bargain sales opportunities.
15. Recommends Radio Manufacturers Service members to millions of PHILCO radio set owners through the medium of the customers' operating instruction sheets.

Identify Your Business with R.M.S. for Greater Profits

### Testing High Voltage Tubes

WE LIST the various new type high voltage tubes and the proper settings of the PHILCO Model 033 tester for checking these tubes with the PHILCO High Voltage Adapter Part No. 45-2800 described in the May issue of the PHILCO Serviceman.

Tube Type	Left Control Setting	Push-Button			Tip Jack	Push-Button Right Control Setting		
		1	2	3		4	5	6
45Z5G	11	X			Red			1
50C6G	11	X			Red			2
50L6G	11	X			Red			2
50Y6G	11	X			Red			3
50Y6G	11				Red		X	3
50Z7G	11	X			Red			3
50Z7G	11				Red		X	3
70A7G	11	X	X		Green			3X
70A7G	11				Green			3X
70L7G	11	X	X		Green			3X
70L7G	11				Green			3X
117L7G	11	X	X		Black			3X
117L7G	11				Black			3X
117Z6G	11				Black		X	2
117Z6G	11	X			Black			2

X To check the tube for shorts, depress push-buttons in order 3-4-5-6-12.

### Service Managers Win Cash Prizes

NINE PHILCO distributors' Service Managers will have more money in their pockets this month as a result of winning cash prize awards from PHILCO.

Contests were held to select in each sales division the best parts advertising mailing following up the sensational R.M.S. mailing from headquarters on surplus PHILCO radio parts and the new PHILCO ice cube trays. The following are winners:

- H. R. Donelson, Radio Specialty Co., Milwaukee, Wis.
- E. F. O'Donnell, J. H. Burke Co., Boston, Mass.
- Glenn Barr, Listenwaiter & Gough, Inc., Los Angeles, Calif.
- Ross Baxter, Broome Distributing Co., Syracuse and Binghamton, N. Y.
- Bob Walters, Bennett Radio Co., Columbus, Ohio.
- Claude Foote, Williams, Inc., Peoria, Ill.
- J. F. Sanders, Brown Distributing Co., Atlanta, Ga.
- Ray Nugent, PHILCO Distributors, Inc., Detroit, Mich.



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