

PHILCO SERVICEMAN

Copyright 1938 By Philco Radio & Television Corporation



RADIO • MANUFACTURERS • SERVICE • NEWS

MARCH, 1938



EDITORIAL

"When the Going Gets Tough"

SUPPOSE we were in a position to analyze the business history of those servicemen who have found the going tough and have given up their service business. What would we find as the contributing factors which made it necessary to be "Gone With the Wind"?

Intelligent Effort

On every occasion when we have heard about such unfortunate happenings, we have made it a point to make various inquiries in order to determine the underlying causes of such business failure. Lack of business was naturally the answer in all cases, but the reasons for the lack of business were almost the same in every instance. *The man had not made an intelligent effort to get the business.* We say *intelligent* rather than *honest* because in many cases the effort had been misdirected.

Getting New Business

The radio serviceman, if he intends to make more than just a mere existence, must necessarily become more of a promoter and a business man in order to bring in more profit. He must take every advantage of sales possibilities to supplement his income from strictly service repair work; he must be constantly trying to get new service customers to take the place of those who have moved out of the neighborhood or for other reasons have given their service work elsewhere.

Listing the Prospects

Just sit down and make a list of those of your customers who should have new tubes in their sets, who need a new aerial, who are logical prospects for an extension speaker installation, talk-back sound system or public address equipment—and then go after them and sell them! Advertise the fact that you are a qualified serviceman, equipped to do the highest-grade radio repair work and that you guarantee your work to be satisfactory. Use some of the advertising and sales helps that Radio Manufacturers Service has made available to you. See your PHILCO distributor about the low cost of these items, which hundreds of members are using every day to help them build up a thriving business.

Make up your mind now that you are going to apply to your service business those same principles that any successful business must follow: Advertise, promote, sell and profit.

RADIO KNOWLEDGE KEY TO SUCCESSFUL SERVICE FUTURE

R. M. S. Soon to Announce
Mammoth Educational
Program

THE serviceman who intends to stay in the service business and progress with the industry is today giving serious consideration to his technical knowledge and education.

The complicated circuits of modern receivers make it more necessary than ever that the serviceman have a complete understanding of the basic theories of radio, so as to understand these modern developments. With television not too far away in the future, the technical knowledge of the serviceman becomes an even more important factor. Basically, the theory of radio transmission and reception applies to television as well as to broadcasting. Unless the serviceman has a thorough grounding and a modern conception of his radio theory, he can never expect to get very far as the more complicated radio and television circuits come along.

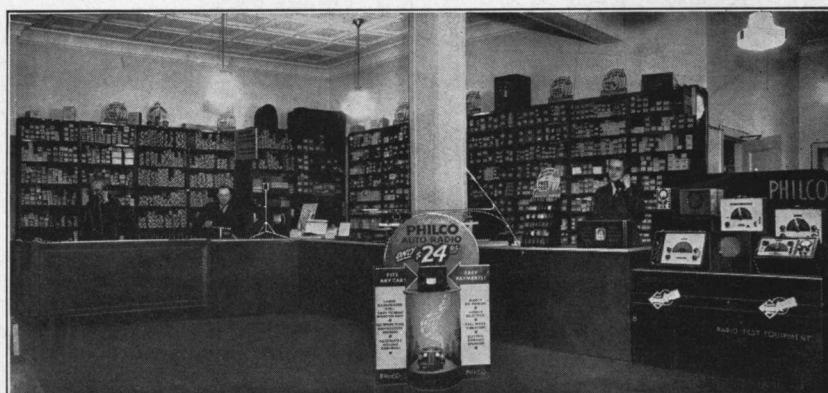
In the future radio manufacturers are going to be forced, for their own protection, to favor those servicemen who have a thorough knowledge of radio theory, backed up by a practical knowledge of applying this theory to modern circuits. The man who is lacking in such knowledge is going to be left behind.

In the PHILCO SERVICEMAN last month we pointed out the fact that there were two general classes of servicemen who needed radio training. One of these is the men who had their theory training a number of years ago and who have become rusty. New circuit developments come along, and these men have difficulty understanding, because they are not sufficiently certain of their basic radio principles to be able to apply them to the modern developments. The result is that such men are not able to do a first-class service job nor to do the job quickly and profitably, because they must operate somewhat on a hit-and-miss principle. Certainly, these men are in need of going back to radio school.

The second class of men who need radio training are the practical servicemen who have never received much theory. Such servicemen are more at a loss when it comes to understanding radio circuits and service problems than the men who have become a bit hazy in their theory. Both classes must realize the importance of study if they are going to survive.

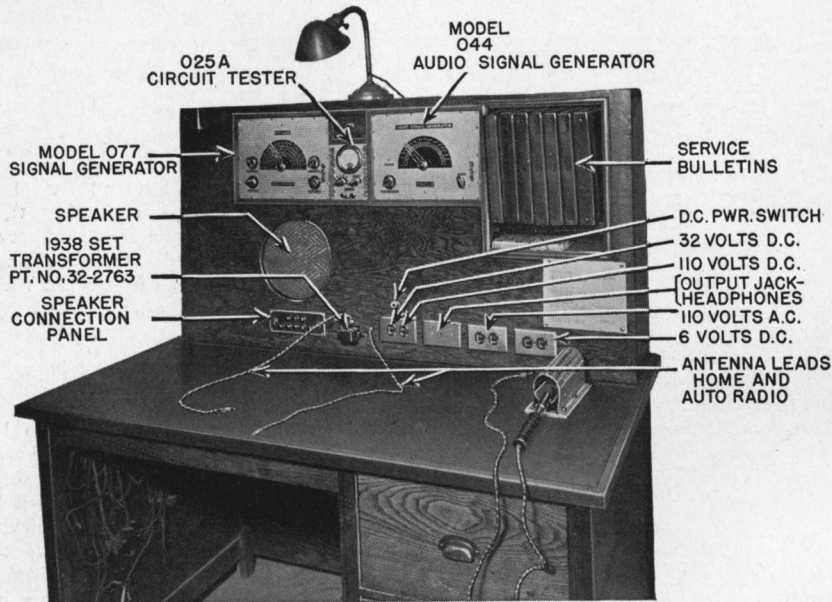
PHILCO leadership in the radio industry is due largely to long-time planning and to looking ahead a few years. When Radio Manufacturers Service was first organized in 1932, the radio service industry was in a bad state. Fifty-cent service calls and gyp practices of various kinds were the order of the day. PHILCO realized that the only way this situation could be

(Continued on Page 3)



Parts Department, Columbia Wholesalers, PHILCO Distributors in Washington, D. C.

PHILCO TEST EQUIPMENT IDEAL FOR BENCH WORK



SPECIAL OFFER MAKES POSSESSION EASY

SERVICEMEN and dealers who are considering the construction of shop benches and testing equipment will want to study carefully the illustration on this page showing how PHILCO equipment is adapted for this purpose.

The three essential PHILCO instruments shown mounted in the test panel, from left to right, are the Model 077 Signal Generator, Model 025 Circuit Tester and Model 044 Audio Signal Generator. It is possible with this equipment to make any kind of service test and to do any kind of service repair or adjustment work. All of the instruments are basic in their design and operation, so that they will serve for radio tests of all kinds for a long period to come.

The great majority of test equipment applications require portability of the instruments. This means that they must be designed in such a way that they will hold their precise calibrations under the most severe punishment. PHILCO test equipment has been designed with this thought in mind. Disinterested and competitive radio engineers have marveled at the rugged construction of PHILCO test equipment and its ability to hold accurate calibration.

When we place such carefully built test instruments into a test bench where all "banging around" of the equipment is eliminated, we really have the ultimate in precision and permanence of calibration. Equipment, when so used, rarely needs attention, and its constant accuracy is a source of pride to the owner.

All types of PHILCO test equipment are now available to dealers and servicemen with the purchase of PHILCO

tubes. These various "deals" on the different-type PHILCO instruments are the hottest ever. It will pay every person who has any need for test equipment to see his PHILCO distributor now for the details.

Remember, the spring months have always, year after year, been biggest for replacement-tube sales. Now is your opportunity to get your tube requirements at particularly attractive discounts and obtain PHILCO test equipment without extra cost.

MARCH SPECIAL!

Volume Control Offer

THE new PHILCO volume-control offer, announced with this issue of the PHILCO SERVICEMAN, is one of the finest deals which has ever been given.

The selection of twelve controls in this assortment was made after a careful study of PHILCO inventory movement records. In every case the controls are the twelve fastest-moving and most-popular types. The serviceman will normally use this assortment of controls within a very short time. With the special offer he now receives the famous No. 33-H Yankee Handyman Spiral Ratchet Screw Driver. This is one of the handiest tools for all types of radio and mechanical work and is something which every serviceman can use to advantage.

Be sure to see your PHILCO distributor and get your Yankee Screw Driver while the supply lasts.

Philco Engineers Develop Compensating Padders for Frequency Drift

COMPENSATING condensers, as used in connection with PHILCO All-Wave Receivers, are designed to offer low capacity losses, stability under extreme conditions of climatic and mechanical abuse, ease and accuracy of adjustment and the absence of microphonic response due to violent vibrations.

PHILCO engineers have incorporated the use of a specially developed "air padder" in those models where the action of the oscillator circuit is most critical. This type of padder, because of mechanical limitations, employs a large area of comparatively thick dielectric (air gap), consequently the motion of one electrode with respect to the other a few thousandths of an inch produces a change in capacity that is barely perceptible. However, with prolonged receiver operation, certain temperature and humidity increases have the effect of changing the overall capacity of the circuit, resulting in a condition where oscillator "drift" is the source of complaint. Correction can be made only through the use of a compensator designed to respond thermally to these variations.

Thermal Compensator

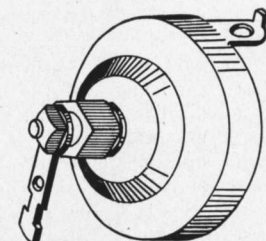
The new PHILCO Thermal Compensator, when properly installed, eliminates the possibility of drifting in that it automatically compensates for capacity variations in the circuit caused by concentrated heat at the underside of the chassis, radiating from transformers, resistors, tubes, etc.

Three types of thermal compensators are available, equipped with individual mounting arrangements for universal installation. The housing, which functions as the stationary electrode, is provided with a mounting or ground lug, while the compensating or thermostatic electrode, which is made of bi-metal, has an external connection lug that is completely insulated from its associate through isolantite spacers.

Heat Changes Capacity

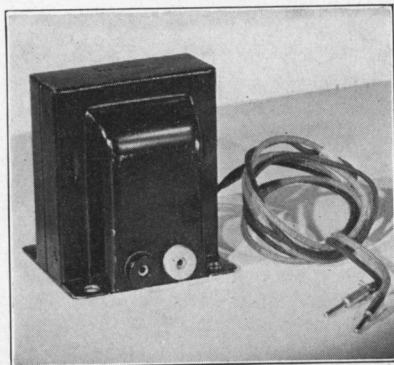
Installation is accomplished by connecting the thermal compensator in parallel with the adjustable compensator located in the oscillator circuit for controlling frequency calibrations at the high-frequency end of the broadcast band. When changing over a circuit it is necessary to employ an ad-

(Continued on Page 4)



PHILCO Thermal Padder.

Output Meter Filter Simplifies Alignment in Noise Areas



STRONG external noises or broadcast signals which interfere with the output meter signal when aligning sets no longer need be a source of inconvenience for the serviceman. A new 400-cycle output filter developed for use in the PHILCO laboratories by PHILCO engineers is now available for aligning work.

Screenroom Eliminator

This new filter might be termed a "screenroom eliminator" because it does just that. The unit is connected between the plate or plates of the output tubes and the output meter by means of socket pin clips. Its action is such as to block all signals going into the output meter except 400 cycles, which is the modulation frequency of the PHILCO Signal Generator Model 077 and also that of most other service oscillators.

Almost every serviceman has had the trying experience of attempting to align a receiver with a signal generator and output meter and finding it impossible to do so because of strong interference signals, which caused the output meter needle to jump over the scale.

Filters All Noise Signal

The filter is extremely simple in its action. The audio component of the interference signals which are heard in the speaker and which are reflected as constantly intermittent movement of the output-meter needle do not occur at any particular audio frequency. They are a mixture of a number of frequencies which reproduce as unpleasant noise. The new unit is an audio filter tuned fairly sharply to 400 cycles, the modulating frequency of the signal generator. When the interfering signal comes through, the filter will not pass anything but 400 cycles, so that the signal generator note is the

Dealer Membership in R. M. S. a Profitable Association at No Cost

DEALER membership in Radio Manufacturers Service is important and is something which has been overlooked by many dealers. R. M. S. membership is open to any PHILCO radio dealer who himself can qualify or who has a serviceman in his employ who can qualify.

There are many big advantages to the dealer when he associates himself as a member of this big R. M. S. organization:

1. New sales opportunities for both radio and accessories are presented through the many added service contacts.
2. Extra service work can make the dealer's entire service department not only self-supporting, but can place it on a profitable basis.
3. The dealer is assured of receiving regularly and free the mailings direct from R. M. S. Headquarters in Philadelphia, containing the latest PHILCO service bulletins and parts and accessory sales information.
4. There are no dues or costs of any kind in connection with R. M. S. membership.

only thing shown on the output meter. Perfect alignment of a set can thus be made in the strongest interference location.

Eliminates Station Interference

We have spoken about the interference as strong noise signals, but this interference can be from broadcasting stations as well, and the filter action will still be the same. In some locations it may be extremely difficult to align a set at 1400 K.C. because of the presence of signals from a strong local broadcasting station at or near that frequency. Other locations may experience the same trouble from 600 K.C. stations. In all instances the new PHILCO filter unit will permit perfect alignment of the set under the most trying conditions.

The output meter filter is known as Part No. 45-2654 and sells at a list price of \$4.85, subject to your regular parts discount.

Radio Knowledge Key to Successful Service Future

(Continued from Page 1)

cleared up was to throw its weight behind an organized movement of the better-class servicemen who wanted to do quality work and to receive a fair compensation for this work. R. M. S. was organized with the thought of helping the serviceman do a better job, to get more business and to make more profit. Many benefits have since been

5. Various types of sales and advertising helps, such as signs, handbills, stationery, etc., are available at extremely low prices to R. M. S. members—and to R. M. S. members only.

6. The dealer's prestige is raised by his membership in this international organization devoted to quality service. Millions of PHILCO radio owners have been told directly in the instruction sheet to look for the R. M. S. insignia when in need of radio service. These people are all sales prospects.

7. Every member benefits through the constant efforts of R. M. S. to raise the status of the radio service industry. Service being such an inseparable part of the modern sales picture, it pays every dealer to be in a position to offer the best possible service facilities to his customers.

PHILCO dealers who are not members of Radio Manufacturers Service should consult the PHILCO distributor's service department for details on membership requirements and ask for the application form. Remember, there is nothing to lose, for there are no costs involved, but there is much to be gained in added profits.

afforded the R. M. S. serviceman member—supplying free technical and sales information every month, direct advertising in the instruction sheets to millions of PHILCO owners, national and local advertising, supplying various advertising helps at low cost, organizing various service campaigns to make the public radio conscious. All of these things collectively have helped raise the status of the service industry to the benefit of every individual in that industry.

Servicemen have found that R. M. S. has enabled them to do a better service job and to merchandise their services in such a way that they can make more money not only through servicing PHILCO sets, but through servicing all makes.

It has been the policy of Radio Manufacturers Service, since the organization started, to make it possible for the individual serviceman to improve his status, both from a technical and a merchandising standpoint. PHILCO will continue this policy of doing more than its share to help the service industry.

R. M. S. is going to make it possible for every serviceman to prepare himself now for a better future. Very shortly there will be a momentous announcement from Radio Manufacturers Service Headquarters that every serviceman in the country will want to hear. Frankly, the matter of basic radio knowledge is becoming such an important factor in the industry that PHILCO, with its customary leadership, is going out ahead again. Look for this great announcement around the first of April. There will be a most important decision for you to make at that time.

ANOTHER BIG SPECIAL for PHILCO SERVICEMEN!

... FOR THIRTY DAYS ONLY



**A Genuine "Yankee"
SPIRAL RATCHET
SCREWDRIVER**

This famous Yankee "Handyman" screwdriver is one of the most convenient and useful tools ever devised for radio and electrical work,—or any kind of mechanical or carpentry work in home, office or shop.

High grade tool steel bit included; other types of bit for other uses available everywhere.



A standard equipment item for every radio service shop and every radio dealer's service department . . . saves time and effort on all service jobs.

*With each purchase of
~FASTEST MOVING~*

PHILCO VOLUME CONTROLS

Selected Package

The volume controls selected for this package are those which Philco Parts inventory records have shown to be by far the most popular numbers . . . you would buy them singly over a short period of time, in the ordinary course of your work!

In getting this kit you prepare yourself for quicker, better customer service . . . and you get the splendid Yankee screwdriver FREE! You can't lose!



**12 CONTROLS
SERVICE
60
MOST POPULAR
PHILCO MODELS**



**Kit
Part No.
45-1368**

**(LIST PRICE
\$17.50)**

MAIL ATTACHED POSTCARD FOR QUICK ACTION!

DEALERS . . . SERVICEMEN!

A REAL OPPORTUNITY
THRU A NEW PLAN

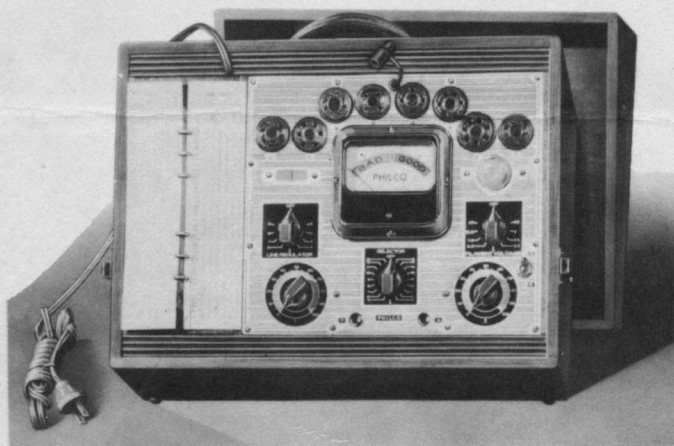
Genuine
PHILCO
Universal
TUBE TESTER
Model 066

GIVEN! . . .
with purchase of



PHILCO
High Efficiency
TUBES

The famous Philco Model 066 Universal Tube Tester—developed and approved by Philco engineers—precision built to insure accurate tests of any type tube used in any radio . . . is now for the first time, available to servicemen without the expenditure of a cent for this fine instrument!



By using Philco famous High-Efficiency Tubes—the easiest tubes in the world to sell—in all your service work, you can soon obtain this fine Tube Tester—or any other of the famous Philco Quality Test Units shown on this page. Your distributor will gladly tell you the exact arrangement for obtaining each piece of equipment. Get in touch with him . . . learn how to equip yourself to render the very finest service on any type of radio!

PHILCO MODEL 066 TUBE TESTER

OTHER PHILCO TEST-UNITS AVAILABLE ON THIS PLAN:



CALL, WRITE or SEE your DISTRIBUTOR . . .

for Full Details

Questions and Answers

1. Q. On Models 38-34 and 38-39, what is the cause of distortion accompanied by intermittent failure of operation at the low-frequency end of the broadcast band?

A. This condition will occur if the pilot light burns out. When the pilot light is open, the filament current in the tubes is decreased. This reduction causes inefficient operation of the tubes. It is important in every case to make sure that the pilot light is operating.

2. Q. What differences are there in Models 38-17 over the Model 38-15?

A. The chassis used in the Model 38-17, code 121, types T and F cabinets, is similar to that used in the Model 38-15, code 121. The same speaker, type S-19, used in the Model 38-15, code 124, is used in the 38-17F. A new speaker, type BO-6, Part No. 36-1398, is used in the type T cabinet. The cone assembly in this speaker is Part No. 36-3981. With the exception of this one speaker change, all parts shown in Service Bulletin No. 291 for the Model 38-15, code 121, are used in the Model 38-17, code 121.

3. Q. Is it possible to obtain the PHILCO Brushing Lacquer and Spraying Lacquer for cabinet finishes in one-gallon quantities?

A. Yes. The part number of the Brushing Lacquer is 80233, and the part number of the Spraying Lacquer is 80176.

4. Q. What can be done in Models 37-675 and 37-116 to correct improper magnetic tuning action?

A. This condition is usually traceable to frequency drift in the magnetic tuning circuit. When replacing the magnetic tuning transformer, Part No. 32-2217 should be replaced with No. 32-2361. A new transformer padder is designed to prevent this frequency drift.

5. Q. In the Models 38-35 and 38-40, is it possible to reduce the amount of battery current consumption?

A. Yes. The entire tube complement can be changed so as to afford a considerable reduction in current consumption. There will be a certain loss in performance efficiency when the change is made. The following list shows the old and the suggested tube line-ups:

Model 38-35		Model 38-40	
Original	New	Original	New
6A8G	6D8G	6A8G	6D8G
6K7G	6S7G	6K7G	6S7G
6Q7G	6T7G	6J5G	6L5G
6K6G	6G6G	6K5G	6T7G
6X5G	6ZY5G	6K6G	6G6G
		6X5G	6ZY5G

Volume Control Replacement Listings Investigated

Genuine Replacement Only Assurance of Set Performance

A RECENT investigation of catalogue listings of non-genuine PHILCO volume controls produced some extremely interesting results. These non-genuine replacement controls of various makes are listed in many of the large parts jobbers' catalogues. Under each listing of controls is given the various PHILCO model numbers for which the controls are used.

The study showed that fully half of the listings were incorrect, indicating a certain type control as being common for one or more models. Actually the genuine PHILCO controls had entirely different electrical or physical characteristics for the models in question.

Philco Model Numbers

In the PHILCO model-numbering system a certain radio will retain the same model number, but major constructional changes are indicated by different run numbers. In the case of the PHILCO Model 89, for example, the same set has been carried through the line for several years; each year's set being indicated either by a run number or by the prefix "37" or "38" before the model number. The volume control in this model has been changed on various occasions as the circuit was changed. In some of the catalogue listings of non-genuine replacements the same control is indicated for all models!

Engineering Design

Since the volume control is about the only part on the ordinary radio set which is subject to mechanical wear, it follows that there must necessarily be replacements on occasions. The mechanical and electrical design of PHILCO volume controls is done in the same laboratories and by the same group of engineers who design the other components of PHILCO radio. This design work is going on constantly, year in and year out. New materials and new construction are built and tested, always with the idea of attaining the best for PHILCO. These PHILCO volume controls are placed on forced-life test, where they are operated for the equivalent of years of normal service. Salt spray, humidity and heat tests are also a part of the routine.

Keeping Sets Sold

PHILCO engineers simply cannot afford to place inferior volume controls in PHILCO sets. Any saving in manufacturing cost which might be effected by using a cheaper construction of any kind would eventually reflect in extremely high costs to PHILCO in terms of customer dissatisfaction and warranty replacement expense. Such items as correct overall resistance, rate of taper, position of resistance taps and quiet, positive mechanical contact and operation are the factors which determine customer satisfaction in volume controls. PHILCO's primary interest is in selling PHILCO radios and in keeping those radios in proper operating condition.

Philco Engineers Develop Compensating Padders for Frequency Drift

(Continued from Page 2)

justable padder with less maximum capacity than the original. The capacity of the thermal padder (see below), plus that of the adjustable, should equal the original adjustable padder capacity. Effective action is realized when the thermostatic plate of compensator faces a potential source of heat, such as the power transformer, resistor or any adjacent part where heat is likely to be radiated.

When installation is completed it is necessary that the R.F. portion of the receiver be realigned and adjusted for peak sensitivity at the several frequencies on the broadcast band.

No Measurable Frequency Drift

Laboratory tests indicate that the thermal compensator condensers, when mounted in an oscillator circuit and subjected to a temperature of 100° F., hours of intensive vibration and exposure to 98 per cent relative humidity at 100° F., show no perceptible frequency drift in the oscillator circuit.

Philco Thermal Compensators

Part No.	Mmfd.	Mmfd.
1. 31-6227	7.0	7.7—lug mounting
2. 31-6232	"	7.4 "
3. 31-6253	"	7.4 "

ROSKIN DISTRIBUTORS, Inc.

1113 Commonwealth Ave.

Boston, Mass.