

# PHILCO SERVICEMAN

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RADIO • MANUFACTURERS • SERVICE • NEWS



JANUARY, 1937

## EDITORIAL

### The Industry's Outstanding New Development

UNDOUBTEDLY the greatest advance in recent years in the radio industry is PHILCO Automatic Tuning. It not only improves the performance, because of the accurate tuning obtained, but it also results in the owner getting more use from his radio because of the great convenience.

#### Thousands of Users

PHILCO Automatic Tuning Radios are now in the hands of thousands of users and have been in constant use for many months. The purchasers of radios, at least those priced from \$100 and up, will from now on buy an ever-increasing percentage of Automatic Tuning models. Radio dealers and radio servicemen who wish to keep up to date and to thoroughly understand the product they are selling should devote time to the study of Automatic Tuning radios.

In this issue of the PHILCO SERVICEMAN is explained in detail the few simple precautions that must be exercised in setting up an Automatic Tuning radio before putting it into service. The alert dealer will learn this and have everyone in his organization learn it.

#### Automatic Tuning Bulletin

In the January mailing which has gone to all members of Radio Manufacturers Service is a four-page technical bulletin explaining in detail the mechanical design and the functions of the different parts in PHILCO Automatic Tuning dials. Every serviceman should certainly obtain this and thoroughly understand it.

It is essential for dealers and their salesmen to understand the improvements in the radio art so that they can intelligently sell the product.

It is also essential for all servicemen to constantly study in order to keep up to date on technical improvements as they are introduced.

PHILCO Automatic Tuning gives the intelligent dealer and serviceman the opportunity to pull away from their competitors just as it has enabled PHILCO nationally to lead by a wide margin in the sale of high-priced radios.

## PHILCO AUTOMATIC TUNING

### Correct Installation Is Important

PHILCO Automatic Tuning is recognized today as the greatest achievement of the radio industry. PHILCO has made automatic tuning successful. Reasonable care on the part of the PHILCO dealer who makes the installation of Automatic Tuning models guarantees customer satisfaction. It is the dealer's responsibility to thoroughly check every set he installs in the home and to set the call-letters of stations most frequently used by the customer in the automatic tuning mechanism.

#### Designed for Favorite Stations

PHILCO Automatic Tuning makes it possible to dial your favorite stations. In most communities this means six, eight or ten most powerful stations that are received. In choosing stations that are placed in the automatic tuning dial a dealer exercises full control over the performance the customer will obtain from PHILCO Automatic Tuning. PHILCO says in its advertising, "Tune your favorite station automatically." It

is designed to work primarily on powerful stations. This means that weak or exceedingly distant stations are not intended to be used in PHILCO Automatic Tuning. As an example, a customer living in Philadelphia would want a variety of the Philadelphia stations, possibly two or more New York stations, a Newark station, and that is all. Through a misunderstanding, some of the dealers have attempted to put stations 3000 miles away on the automatic tuning dial, which it was not designed to tune. Therefore, the selection of stations made by the dealer is of great importance to the customer who is going to use the mechanism.

Practically all families use about six stations about 90 per cent of the time. The other 10 per cent is divided among a number of more distant weaker stations. This means that you want to pick out the six or seven stations that are most popular in your community and insert their call-letters on the PHILCO Automatic Tuning dial.

(Continued on Page 2)



Setting Stations for Automatic Tuning a Simple and Easy Job.

# PHILCO AUTOMATIC TUNING

(Continued from Page 1)

## Suggestions for Setting-Up

Setting the mechanism for each station is far simpler in PHILCO Automatic Tuning than in any similar device. It is important that you observe several precautions when setting stations. We have outlined a procedure for you to follow:

**First**—Remove the cover plate from the control-handle assembly. This will expose the control screws for all nineteen station windows.

**Second**—Make a list of the stations you are going to insert in the automatic tuning mechanism.

**Third**—Tune in the first of these stations with magnetic tuning turned out and with the fidelity-selectivity control in the selective position. The control screw which is the nearest to the bottom will be the one to use for the particular station selected. Using a screw driver, press this control screw in and rotate the dial mechanism until the control screw locks in the automatic tuning gate. With the control screw locked, the receiver may be tuned by turning the control screw. Tune in the station you are setting by turning the control screw until the station is tuned in as accurately as possible. This adjustment is extremely important. It is good practice to tune beyond the station slightly and then return until you are exactly on the carrier of the station desired. This is not difficult to determine because the receiver is in the selective position. When you have the station tuned to resonance the control screw may be locked in its position by withdrawing the screw driver.

**Fourth**—At night there are powerful stations on most of the broadcast band channels. In your community you are familiar with the field strength of stations adjacent to the one you have selected, and it may be advisable for you to use this knowledge in setting the stations you have selected.

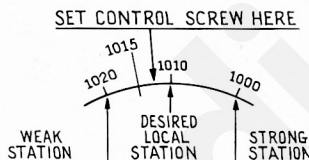
## Improving Results Caused by Fading

PHILCO Magnetic Tuning has been made strong enough to work throughout the broadcast band, and a condition may exist which will require some careful work by you. If the station you have selected fades at night, there is a possibility that its signal level will go down to such a point that a more powerful station in the next channel will be tuned in by Magnetic Tuning System.

To overcome this possibility where a very powerful station is located in the next channel, PHILCO recommends that you set the control screw for the desired station off-resonance on the side away from the powerful adjacent channel station. As an illustration, if the station you want to set on the dial is tuned in at 101 and there is a powerful station at 100, while the station of 102 is not so strong, it would be advisable to set your 101 station at 101.3. Then if your station at 101 should fade, the powerful station at 100 would be farther away in frequency, and the Magnetic Tuning cir-

cuit would cling to an even weaker fading signal from the desired station.

Normally there is very little play in the automatic tuning mechanism. PHILCO has held a very high standard in the construction of the automatic tuning parts. The play that may exist is so slight that in ninety-nine installations out of 100 no special care need be taken when adjusting the control screws for the station your customer will want to use, but in some communities broadcasting conditions require extra care on the part of the dealer. In these communities it may be advisable for you to observe the precautions referred to above, particularly if the fading is a common difficulty. In communities where this is common the mechanism lends itself to further adjustment at the time of installation.



## Taking Up Mechanism Play

Let us assume that there might be some play in the mechanism amounting to about 5 K.C. on the broadcast band. That is, with the control screw in the locked position, it might be possible to rock the control lever back and forth and observe the shift of the glowing arrow on the broadcast band of about 5 K.C. This is so slight that in practically all communities magnetic tuning readily reaches out and corrects the mistuning of that amount. But if you are in a territory where your favorite stations are adjacent to stations of just about the same amount of field strength, it would be advisable to set the station in the center of this play.

In other words, let us assume that on the 101 channel station referred to above there is 5 K.C. play in the control screw for that station. Realizing that you have this amount of play and wanting to set the dial for the 101 station, it would be very simple to set the control screw so that the play is equally divided on both sides of 101. To do this, simply lock the control screw in the gate and by turning the control screw  $2\frac{1}{2}$  K.C. beyond the station your slack of 5 K.C. will be distributed back across the station and for  $2\frac{1}{2}$  K.C. on the other side of it. In this manner you have reduced the play in the mechanism by one-half, and accuracy is thus obtained that makes automatic tuning desirable even in very difficult circumstances.

## Using Selectivity Control

Another factor of great importance is the effect of selectivity on the tuning of radio receivers. In most communities customers are able to tune in their stations automatically, with no thought or

## Correct Ballast Tubes Essential for New Dry "A" Battery Receivers

WHEN employing the dry "A" battery with the new '37 model PHILCO battery receivers, the use of the correct ballast tube is extremely important. The efficiency of the radio and the life of the tubes are dependent upon the correct "A" voltage supplied through the ballast tube. Caution must be observed, otherwise the "A" battery voltage may be too high, resulting in short tube and battery life.

The following are the type numbers, part numbers, rated filament current and PHILCO receiver models in which the ballast tubes are used:

Ballast Tube Type No.	Rated Filament Current	Receiver Model No.
1F1	34-2154 720 mil.	37-38, 37-623
1X1	34-2155 780 mil.	37-643
1Y1	34-2156 540 mil.	37-33

It should be noted that the current drain of Models 37-38, 37-623 and 37-643 includes 120 milliamperes for the pilot light; the Model 37-33 uses a 60-M.A. pilot light with screw base.

concern about the setting of the selectivity control, but in some outlying districts nighttime conditions do not permit the use of all the fidelity that is available in High-Fidelity PHILCOS. If reception at night in your community requires extra selectivity, the use of this control must be understood by your customers. The reason for this is obvious. Magnetic tuning is designed so that with the receiver in the selective position it requires a signal 1400 times as strong before the receiver will hop to that stronger signal. However, if the receiver is in the extended "high-fidelity" position, the signal in an adjacent channel need only be seven times as strong for the station to hop in. There is a direct relationship between the setting of the selectivity control and broadcasting conditions.

This needs to be explained to your customers. The fidelity selectivity control makes it possible to adjust the receiver to fit any broadcast conditions. This applies whether automatic tuning is used or not. We recommend that you instruct your customers to tune the receiver with the selectivity control in whatever position is necessary in your territory.

## Difference in Day and Night Reception

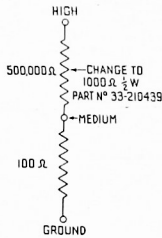
In the daytime the control may be in any setting, but at night it may be advisable for you to recommend tuning the receiver with the fidelity selectivity control in the selective position.

Automatic tuning is here to stay. By careful installation, by choosing the most desirable stations in your community and by explaining the use of the fidelity selectivity control, you will find your customers get more enjoyment and better performance from their PHILCOS than they can from any competitive or early model.

## Circuit Changes Made in 088 Signal Generator

A WIRING change has been made in the Model 088 to improve control of the signal output. The later-type signal generators Model 088 have three terminals on the panel for the output.

One terminal is "ground," the middle terminal is marked "medium" and the top terminal is "high." The medium terminal is used in those cases where a weak output signal is desired.



If still better

attenuation is wanted, this can be obtained by replacing the 500,000-ohm resistor, which is connected from high to medium, with a 1000-ohm resistor, PHILCO part No. 33-210439. The resistor wiring arrangement across the output terminals is shown in the diagram.

## Christmas Radio Sales Bring January Aerial Business

DURING the months of January and February there will be a tremendous amount of aerial installation work available for the serviceman.

Thousands of radio sets, particularly the smaller ones, have been given as Christmas presents. In many cases the new owner of the radio was not given a PHILCO All-Wave Aerial with the receiver, and as a result he is operating the set from his old, inefficient aerial. After the first two or three weeks of January, most of these people will have recovered sufficiently from their Christmas expenditures to be able to afford the price of a good all-wave aerial installation. Radio owners are more aerial-conscious today than they have ever been, and here is the opportunity for the radio serviceman to cash in on this business.

Dealers who maintain an adequate service department will want to follow up the customers who have purchased sets without aerials during the month of December. Here is a marvelous opportunity which should not be overlooked.

## Servicemen Must Observe Appearance for Professional Standing

THE serviceman's personal appearance identifies the quality of his work, in the minds of most customers.

The serviceman who calls upon a customer in the capacity of a professional man is much more welcome than the serviceman who calls in the capacity of a laborer. Neatly pressed clothes, a daily shave and a good-looking tool kit are essentials which raise the status of the serviceman in the eyes of the customer.



Consistent With the Serviceman's Neat Personal Appearance Is the Neat Tool Bag, Part No. 10225, Obtainable from PHILCO Distributors.

## Philco Announces Vibrator Price Reduction

IN line with PHILCO'S policy to give the public best possible quality at the lowest possible price, effective January 1st a new greatly reduced list price will be used on all PHILCO auto radio vibrators. The price applies to the three PHILCO vibrators, as follows:

Part Number	Old List Price	New List Price
41-3186	\$4.25	\$3.00
41-3170	4.25	3.00
38-5036	4.25	3.00

These new list prices are subject to your regular parts discount. With nearly 3,000,000 auto radios in use, the market for PHILCO vibrators is tremendous, and we want PHILCO dealers and servicemen to get all of this business.

## Finds Out-of-Town Service Profitable

A SERVICEMAN operating in a small town thirty miles outside of a large midwest city has found a profitable way to increase his service business.

He contacted all of the large department stores and large radio dealers in the city, with a view to taking care of their service and installation work in his community. It is naturally expensive for the large dealer to send a serviceman thirty or forty miles to a neighboring town to make a service call or an installation. Many people prefer to buy in the city from the larger stores, and, of course, the store usually takes the same responsibility of service and installation as if the set were purchased and delivered in the city. The serviceman in the small town charges the department store the same amount as they would pay for similar work done in the city, and in this way the serviceman makes more money and the store saves money on time and traveling expense.



## Here Is Another of Boake Carter's Broadcasts



... And do not forget to see that you get hold of an R. M. S. PHILCO-trained serviceman, if you haven't done so already, first thing tomorrow, to make good and sure your radio is in perfect working order to get tomorrow night's returns. For every radio station will be reporting far into the night, and every citizen has an interest at stake. And these

R. M. S. men, 20,000 of them all over the country, can be reached through any PHILCO dealer. They are trained under PHILCO'S exacting repair and maintenance standards; They are experienced, courteous men; they know their job and their prices for the work they do are standard and reasonable. That's why I suggest one of these men give your set the once-over before tomorrow night.

## Questions and Answers

1. Q. How is it possible to eliminate "birdies" and cross-modulation when a new '37 model set is operating very near two or more powerful broadcasting stations?

A. If the broadcast frequencies of these two stations differ by the amount of the I.F. in the radio set, the I.F. should be changed to some other value, as explained in the Question and Answer Column of the November PHILCO SERVICEMAN. If the condition is caused simply by the presence of tremendous power from the stations, it would then be necessary to install the special PHILCO loading coil, part No. 32-2417, across the transmission line terminals on the back of the chassis. This coil sells at a list price of 30 cents and is obtainable from your PHILCO distributor.

2. Q. What PHILCO output transformer can be used as a universal output for replacement installation in various types of midget sets?

A. PHILCO transformer, part No. 32-7019, is recommended for this purpose. The list price is 85 cents, subject to regular parts discount.

3. Q. Have there been any additional anvils and punches added to the PHILCO Eyeletting Tool Kit to take care of additional-sized eyelets and rivets?

A. Yes. There have been several additions made in this kit. In the new kit the anvil is removable from the cast-iron base. There are several sizes of anvils, and there are corresponding sizes of punches to take care of practically every type of rivetting and eyeletting job that will be encountered in a radio set. The following is a complete list of the part numbers and descriptions of these new items:

Part No.		See
45-2389	1/8" Point	Your
45-2390	1/8" Punch	Dis-
45-2391	1/4" Point	tributor
45-2392	1/4" Punch	for
45-2393	5/16" Point	Prices
45-2394	5/16" Punch	
45-2395	3/8" Point	
45-2396	3/8" Punch	
45-2397	1/2" Point	
45-2398	5/32" Point	
45-2093	Anvil	
45-2094	Punch	

## Power Companies and Manufacturers Meet on Radio Interference Problems

A GREAT amount of interest in the problem of radio interference is being shown by the various electrical manufacturing and utility groups. Radio has become such a firmly entrenched part of modern American life that any reception problems in connection with radio must be thoroughly investigated.

A joint co-ordination meeting was held on December 8th in New York, being attended by representatives from the Edison Electric Institute, the National Electrical Manufacturers' Association and the Radio Manufacturers' Association. Reports were given at the meeting on the activities of the different groups and sub-committees in making tests of various kinds during the past few months. Such subjects as installation of radio frequency chokes in high-tension transmission lines and porcelain insulator improvement to reduce corona effect and leakage were presented by the power company group. Discussions of the activities of the R. M. A. group included receiver tests with respect to shielding, interference elimination equipment of PHILCO and general discussions of improvements for noise elimination.

Practically all of the electric power companies are more than willing to co-

operate in this work of radio noise elimination. They realize that the amount of electricity consumed today for radio receivers is a very large portion of their total output. If receiving conditions are poor due to man-made static, people will not use their radio sets and the power company loses business as a result. Radio manufacturers also appreciate the importance of the problem. In the case of PHILCO a complete interference elimination manual has been made available through the PHILCO distributor for use by the serviceman and the dealer. Also complete interference elimination filters are available at extremely low prices.

We have stated in the past and we again repeat that interference elimination work can be made a highly specialized and profitable business for the serviceman. The various public utilities companies are more than willing to cooperate today, so that the problem in connection with this work is lessened over that of a few years ago. We would suggest that every radio serviceman make it a point to familiarize himself with the simple fundamentals of radio noise elimination, so that he will be in a position at all times to take advantage of this additional service business.

## R. M. S. RUBBER STAMP BRINGS SERVICEMAN NEW SERVICE JOBS

R. M. S. Headquarters  
Philadelphia, Pa.



MAHLON S. GARIS  
KENHORST, R. D. I.  
READING, PA.  
PHONE: 3-8651

6-20-36

GENTLEMEN:

We received the rubber stamp last week. We stamped 1000 R. M. S. circulars and put out about 500 of them, and it looks very much as if every circular is going to bring in a service job.

Thanks for getting the stamp through for us. We are getting plenty of work since we joined R. M. S. and sure do appreciate what you people are doing for servicemen throughout the country.

Yours truly,

MAHLON S. GARIS.

DEVLIN-DREW COMPANY

718 "F" Street

Fresno, California