

SETTING AND OPERATING ELECTRIC PUSH BUTTON TUNING

Models 39-25, 39-30, 39-31, 39-35, 39-40, 39-45

These detailed instructions have been prepared to make sure the correct procedure is followed in setting the stations on the Philco Electric Push-Button Tuning models. The work requires the use of a Philco Model 077 Station Setter and a part No. 45-2610 Insulated Screw Driver.

(A) Select eight of the most popular stations received in the locality and remove their call letters from the call letter sheets supplied. Place the call letters in the windows above the buttons, making sure that each respective button covers the frequency of the station for which it is to be used. The frequency range of the circuits are as follows:—

Circuits	Frequency Range
1 and 2	540 to 1030 kilocycles
3 and 4	670 to 1160 kilocycles
5 and 6	900 to 1470 kilocycles
7 and 8	1170 to 1600 kilocycles

These numbers are stamped on the unit as seen from the rear. Looking at the front of the cabinet the numbers read from left to right.

(B) Connect the aerial and ground to the "ANT" and "GND" terminals of the receiver.

(C) Turn the receiver Tuning Range Selector to position two ("Manual Tuning") and tune the receiver to the station to be set on the first button.

(D) Plug the output leads of the Station Setter into the "High" and "Gnd" jacks, and turn the output controls to maximum. Turn the modulation control to "Modulation Off." Connect the output lead of the Station Setter to the "ANT" and "GND" terminals of the receiver and tune to the frequency of the station being received. As the indicator is slowly tuned

through the frequency of the station there will be two points at which a high pitched swish will be heard, one above and one below the frequency of the station. When the indicator is on the frequency of the station, minimum high pitched swish will be heard.

(E) Set the modulation control of the Station Setter for "Modulation On." The modulated signal of the Station Setter will then be heard through the receiver.

(F) Turn the receiver Tuning Range Selector to position one (Automatic Tuning) and push in the first button. Using the Part No. 45-2610 Insulated Screw Driver, turn the number 1 "OSC" screw until the modulated signal of the Station Setter is tuned in to maximum volume. Then adjust the number 1 "ANT" screw for maximum signal.

(G) Remove the output lead of the Philco Station Setter from the "ANT" terminal of the receiver and turn its indicator off the frequency of the station. The program of the desired station will then be heard on the receiver.

(H) With the volume of the receiver low, slowly turn the number 1 "OSC" back and forth until maximum output is received. Repeat the same procedure for the number 1 "ANT" screw.

After setting up the first station, the same procedure given under (C) to (H) is used for the other stations.

While the above procedure is satisfactory in setting up push buttons for stations, a very accurate adjustment can be obtained with a vacuum tube voltmeter. The instructions for using a vacuum tube voltmeter will be found below under "Using Vacuum Tube Voltmeter for Aligning Compensators and Adjusting Push Buttons of Receivers".

USING VACUUM TUBE VOLTMETER FOR ALIGNING COMPENSATORS AND ADJUSTING PUSH BUTTONS OF RECEIVERS

Precision adjustment of the compensating condensers and push buttons on automatic tuning models is obtained by the use of a vacuum tube voltmeter in the A.V.C. circuit. To set up stations or adjust compensator for best reception, a signal generator such as Philco Model 077 and vacuum tube voltmeter such as Philco Model 028 or 027 should be used. With this equipment proceed as follows:

1. Attach the negative (—) terminal of the vacuum tube voltmeter through a 2 megohm resistor to any point in the circuit where the A.V.C. voltage can be obtained, such as the grid of the I.F. tube, R.F. tube, or diode circuit of the A.V.C. tube. Connect the positive (+) terminal to the ground connection or chassis of the receiver. In AC-DC sets the positive (+) terminal of the vacuum tube voltmeter should be connected to (B—) of the receiver.

For aligning receivers with loktal type tubes, an aligning adaptor, Philco Part No. 45-2767 may be used with the vacuum tube voltmeter. To use the adaptor, remove the second detector tube from its socket and insert the aligning adaptor in the socket then replace the tube in the adaptor. Connect the negative (—) terminal of the vacuum tube voltmeter to the light colored wire which protrudes from the side of the adaptor. Attach the positive (+) terminal of the vacuum tube voltmeter to the black wire of the adaptor.

2. With the vacuum tube voltmeter connected to the receiver, the signal generator is connected to the antenna and ground terminals of the receiver.

3. Manually tune in the first station to be set up on push button. After doing this, set the indicator of the signal generator to the frequency of the station to be received. As the indicator approaches the frequency of the station, a whistle will be heard; leave the indicator at this point. Press in the push button being set up. With a padding stick, turn the push button oscillator screw until the broadcast station identified by the signal generator is heard. At this point, turn the indicator of the signal generator away from the frequency of the station. Re-adjust the push button oscillator and antenna padders for maximum deflection on the vacuum tube voltmeter. When this point is obtained, the push button is adjusted for maximum signal strength. After setting up the first station, the same procedure as outlined above is used for the remaining stations.

4. When aligning the R.F. and I.F. compensating condensers of the receiver, the procedure as outlined in paragraphs 1, 2, and 3 is followed with the exception that the push buttons are not depressed. The signal generator and receiver dials are set to the frequency desired or specified in the aligning procedures given for the various radios in this manual. The R.F. and I.F. padders of the set can then be adjusted for maximum signal strength, with the vacuum tube voltmeter connected to the A.V.C. circuit.