

# PHILCO . . Models 39-330 and 39-331—Code 121



## SERVICE BULLETIN No. 304 for members of RADIO MANUFACTURERS SERVICE A PHILCO Service Plan

### SPECIFICATIONS

**TYPE OF CIRCUIT:** A. C. operated; superheterodyne circuit with two tuning ranges, covering standard broadcast (540 K. C. to 1720 K. C.) and short-wave (4.9 M. C. to 18.0 M. C.) frequencies; Automatic Volume Control; and pentode output.

The receiver is designed to operate from a "Philco Safety Aerial," Part No. 40-6370. This aerial system should be used to obtain maximum performance from the receiver.

**POWER SUPPLY:** Voltage, 115 volts. Frequency, 25-60 cycles. Power consumption 45 watts.

**INTERMEDIATE FREQUENCY:** 460 K. C.

**TUNING RANGES:** 540 K. C. to 1720 K. C.; 4.9 M. C. to 18.0 M. C.

**TUBES USED:** 1-6A8EG, 1st detector and oscillator; 1-78E, I. F.; 1-37, 2nd detector, Automatic Volume Control; 1-75, first audio; 1-41E, output; and 1-84, Rectifier.

**TUNING MECHANISM:** Pulley and cable drive for Manual tuning. Electric Push-Button for Automatic tuning on Model 39-330 only.

**CABINETS:** Types: "T" for table model set.  
"XF" for floor model set.

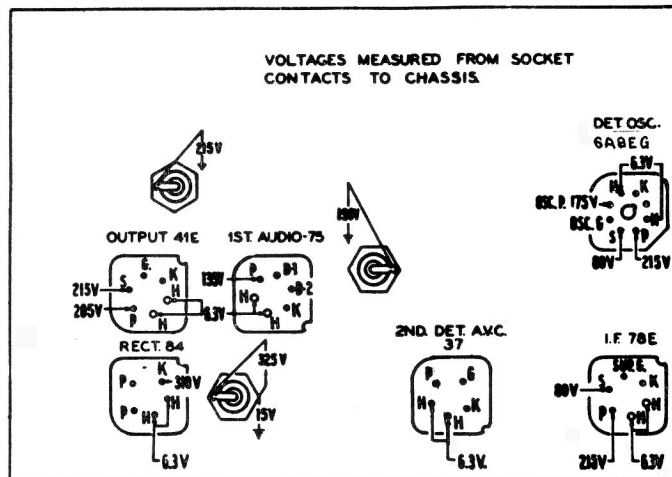


Fig. 1. Socket Voltages—Underside of Chassis

The voltages indicated by arrows were measured with a Philco 026 Circuit Tester which contains an accurate voltmeter. Volume control at minimum, range switch in broadcast position, line voltage 115 A. C.

### Adjusting Push-Button Tuning to Stations

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 177 Signal Generator and a Part No. 27-7059 Insulated Screw Driver.

(A) Select six 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        | 900 to 1470 kilocycles  |
| 6        | 1170 to 1600 kilocycles |

These numbers are labelled 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 Signal Generator 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 Signal Generator 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 Signal Generator for "Modulation On." The modulated signal of the Signal Generator 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. 27-7059 Insulated Screw Driver, turn the number 1 "OSC" screw until the modulated signal of the Signal Generator is tuned in to maximum volume. Then adjust the number 1 "ANT" screw for maximum signal.

(G) Remove the output lead of the Philco Signal Generator 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" screw 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.

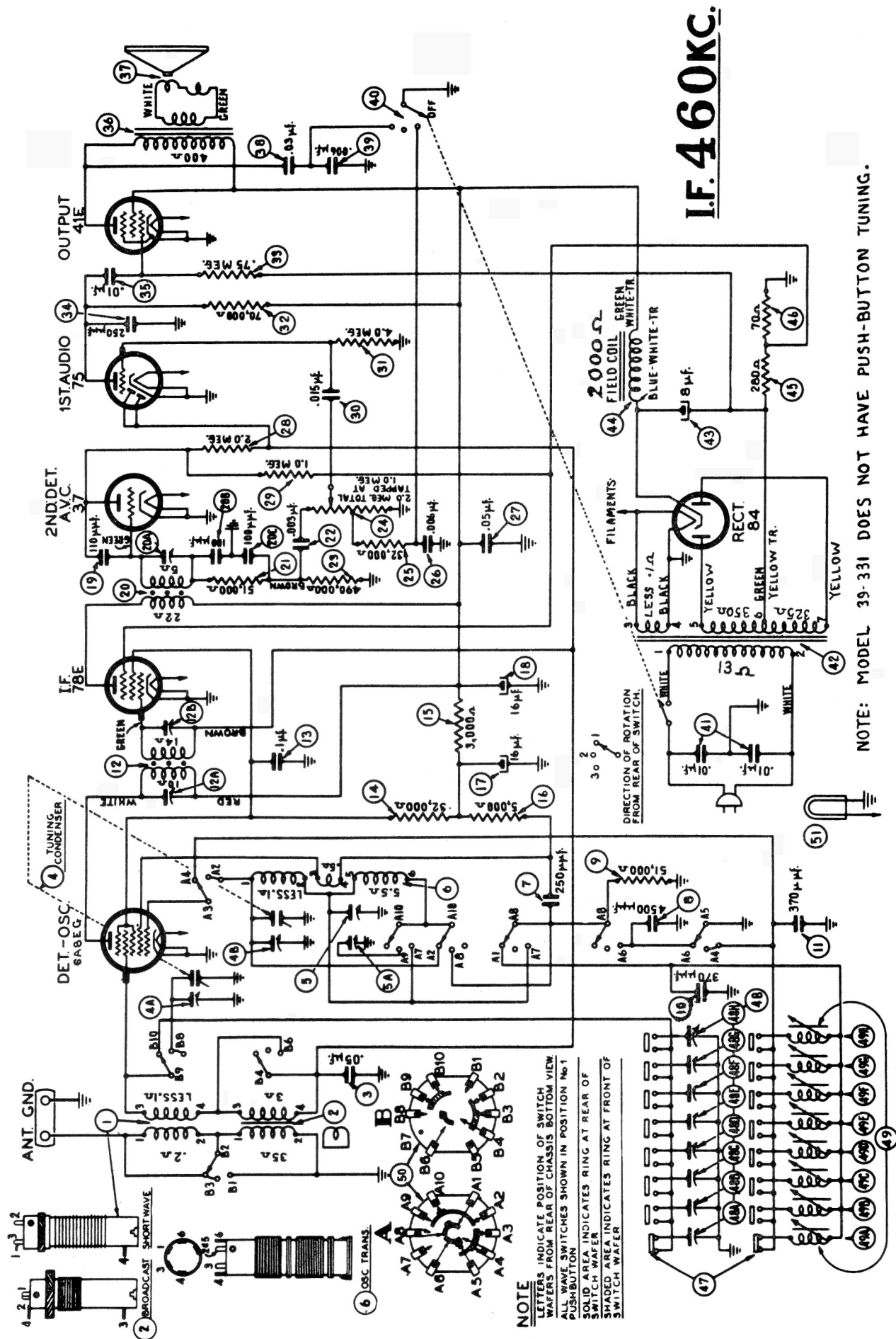


Fig. 2. Schematic Diagram—Models 39-330; 39-331, Code 121

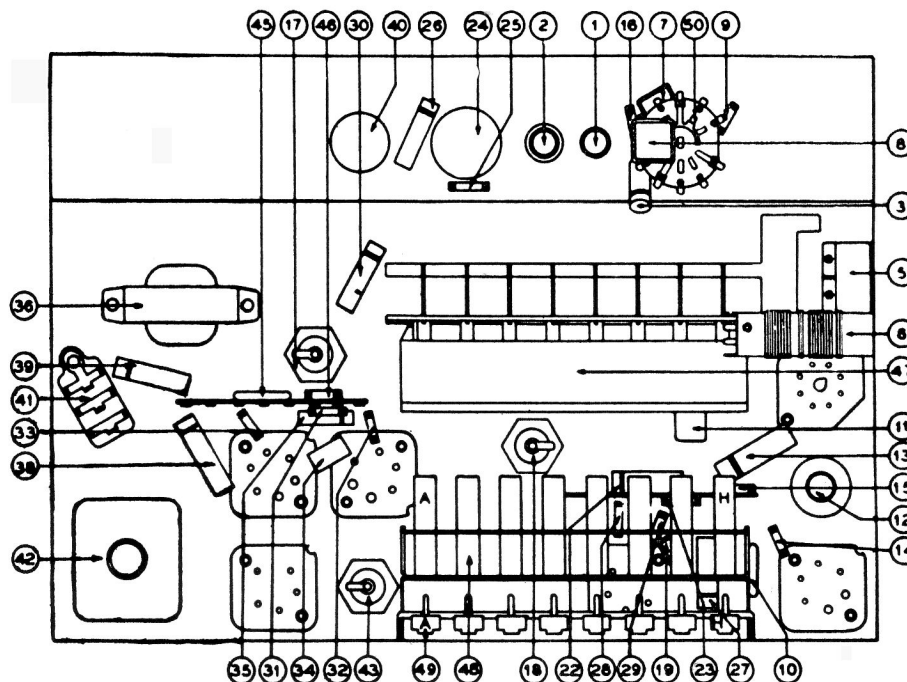


Fig. 3. Parts Locations—Underside of Chassis

## Replacement Parts

| Schem. No. | Description  | Part No.  | Schem. No. | Description                                      | Part No.  |
|------------|--|-----------|------------|--|-----------|
| 1          | Antenna Transformer (Short-Wave)                       | 32-3027   | 47         | Push-Button Switch (39-330 only)                 | 42-1472   |
| 2          | Antenna Transformer (Broadcast)                        | 32-3026   | 48         | Padder Strip Ass'y. (39-330 only)                | 31-6267   |
| 3          | Condenser (.05 Mfd.)                                   | 30-4519   | 48A        | Compensator No. 1 540-1030 KC (39-330 only)      | 31-6274   |
| 4          | Tuning Condenser Assembly                              | 31-2267   | 48B        | Compensator No. 2 540-1030 KC (39-330 only)      | 31-6274   |
| 5          | Dual Padder Unit                                       | 31-6255   | 48C        | Compensator No. 3 670-1160 KC (39-330 only)      | 31-6276   |
| 6          | Oscillator Transformer                                 | 32-3028   | 48D        | Compensator No. 4 670-1160 KC (39-330 only)      | 31-6276   |
| 7          | Condenser (250 Mmfd.)                                  | 30-1032   | 48E        | Compensator No. 5 900-1470 KC (39-330 only)      | 31-6278   |
| 8          | Condenser (4500 Mmfd.)                                 | 30-1109   | 48F        | Compensator No. 6 1170-1600 KC (39-330 only)     | 31-6280   |
| 9          | Resistor (51,000 Ohms 1/2 Watt)                        | 33-351344 | 49         | Push-Button Coil Ass'y (39-330 only)             | 32-3098   |
| 10         | Condenser (370 Mmfd. Silver Plated Mica) (39-330 only) | 30-1110   | 49A        | Oscillator Coil No. 1 540-1030 KC (39-330 only)  | 32-3042   |
| 11         | Condenser (370 mmfd. silver plated mica) (39-330 only) | 30-1110   | 49B        | Oscillator Coil No. 2 540-1030 KC (39-330 only)  | 32-3042   |
| 12         | First I. F. Transformer Ass'y                          | 32-3018   | 49C        | Oscillator Coil No. 3 670-1160 KC (39-330 only)  | 32-3042   |
| 13         | Condenser (.1 mfd.)                                    | 30-4455   | 49D        | Oscillator Coil No. 4 670-1160 KC (39-330 only)  | 32-3042   |
| 14         | Resistor (32,000 Ohms, 1/2 watt)                       | 33-332344 | 49E        | Oscillator Coil No. 5 900-1470 KC (39-330 only)  | 32-3041   |
| 15         | Resistor (3,000 ohms, 1/2 watt)                        | 33-230344 | 49F        | Oscillator Coil No. 6 1170-1600 KC (39-330 only) | 32-3041   |
| 16         | Resistor (5,000 ohms, 1/2 watt)                        | 33-250344 | 50         | Wave Switch 39-330                               | 42-1445   |
| 17         | Electrolytic Condenser (16 mfd. 250 V.)                | 30-2331   |            | 39-331   | 42-1475   |
| 18         | Electrolytic Condenser (16 mfd. 250 V.)                | 30-2331   | 51         | Pilot Lamp                                       | 34-2210   |
| 19         | Condenser (110 mmfd. Mica)                             | 30-1031   |            | Bezel Ass'y 39-330                               | 56-1165   |
| 20         | Second I. F. Transformer Ass'y.                        | 32-3030   |            | 39-331   | 56-1166   |
| 21         | Resistor (51,000 Ohms, 1/2 watt)                       | 33-351344 |            | Bezel Gasket                                     | 27-9175   |
| 22         | Condenser (.003 mfd.)                                  | 30-4469   |            | Bezel Screw                                      | W-1834    |
| 23         | Resistor (490,000 ohms, 1/2 watt)                      | 33-449344 |            | Speaker Cable                                    | 41-3456   |
| 24         | Volume Control   | 33-5275   |            | Power Cable                                      | L-2839    |
| 25         | Resistor (32,000 Ohms, 1/2 watt)                       | 33-332344 |            | Dial Scale                                       | 27-5403   |
| 26         | Condenser (.006 mfd.)                                  | 30-4467   |            | Dial Spring                                      | 28-8908   |
| 27         | Condenser (.05 mfd.)                                   | 30-4518   |            | Dial Pointer                                     | 28-5941   |
| 28         | Resistor (2.0 meg. 1/2 watt)                           | 33-520344 |            | Dial Drive Cord Ass'y                            | 31-2269   |
| 29         | Resistor (1.0 meg. 1/2 watt)                           | 33-510344 |            | Dial Drive Cord Spring                           | 28-8913   |
| 30         | Condenser (.015 Mfd.)                                  | 30-4515   |            | Dial Drive Drum                                  | 31-2281   |
| 31         | Resistor (4.0 meg. 1/2 watt)                           | 33-540344 |            | Dial Tuning Shaft Ass'y                          | 31-2260   |
| 32         | Resistor (70,000 ohms, 1/2 watt)                       | 33-370344 |            | Knob   | 27-4332   |
| 33         | Resistor (750,000 ohms, 1/2 watt)                      | 33-475344 |            | Mounting Rubber (chassis)                        | 27-4571   |
| 34         | Condenser (250 mmfd.)                                  | 30-1032   |            | Mounting Rubber (Chassis corner)                 | 27-4564   |
| 35         | Condenser (.01 mfd.)                                   | 30-4572   |            | Mounting Screw (chassis)                         | W-1345    |
| 36         | Output Transformer                                     | 32-7978   |            | Pilot Lamp Socket Ass'y                          | 38-9607   |
| 37         | †Cone & Voice Ass'y                                    |           |            | Push-Button (39-330 only)                        | 27-4759   |
|            | for Speaker Part number 36-1439-3                      | 36-4091   |            | †Speaker (T Cabinet) 39-330                      | 36-1439-2 |
|            | for Speaker Part number 36-1439-2                      | 36-4087   |            | 39-331 / optional                                | 36-1439-3 |
|            | for Speaker Part number 36-1437                        |           |            | Speaker (XF Cabinet) 39-330 & 39-331             | 36-1437   |
| 38         | Condenser (.03 mfd.)                                   | 30-4449   |            | Socket (5 prong)                                 | 27-6035   |
| 39         | Condenser (.006 mfd.)                                  | 30-4112   |            | Socket (6 prong)                                 | 27-6036   |
| 40         | Tone Control & on-off Switch                           | 42-1444   |            | Socket (7 prong Octal)                           | 27-6099   |
| 41         | Condenser (.01-.01 mfd.)                               | 3903 DG   |            | Tab Sheet (39-330 only)                          | 27-5432   |
| 42         | Power Transformer                                      |           |            |  |           |
|            | 115 volts 60 cycle                                     | 32-7976   |            |  |           |
|            | 115 volts 25 cycle                                     | 32-8014   |            |  |           |
| 43         | Electrolytic Condenser (8 mfd. 400 V.)                 | 30-2330   |            |  |           |
| 44         | Field Coil for Speaker part number 36-1439             | *         |            |  |           |
|            | Field Coil for Speaker part number 36-1437             | *         |            |  |           |
| 45         | Resistor (280 ohms 1 watt)                             | 38-128431 |            |  |           |
| 46         | Resistor (70 ohms 1/2 watt)                            | 33-070344 |            |  |           |

†Model T. Cabinet uses two optional speakers. The part numbers of the speakers are the same with the exception of a dash number (-2 or -3) following the part number. When ordering a Cone and Voice Coil Assembly, the part number as indicated must be specified.

\*Parts not supplied. Replace Speaker.

## Alignment of Compensators

### EQUIPMENT REQUIRED:

(1) Signal Generator; Philco Model 177 Signal Generator which has a fundamental frequency range from 115 to 32,500 K. C. is the correct instrument for this purpose.

(2) Output meter, Philco Model 026 Circuit Tester, incorporates a sensitive output meter and is recommended.

(3) Philco Fibre Handle Screw Driver, Part No. 27-7059, and Fibre Wrench, Part No. 7696.

**OUTPUT METER:** The Philco 026 Output Meter is connected to the plate and cathode terminals of the type 41E tube. After connecting the Output Meter, adjust compensators in the order as given below.

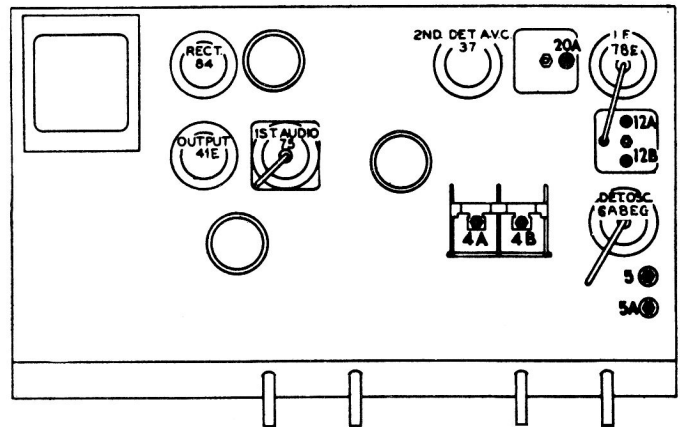


Fig. 4. Locations of Compensators—Top of Chassis

| Operations | Signal Generator               |                        |              | Receiver     |                   |                              | Special Instructions |
|------------|--------------------------------|------------------------|--------------|--------------|-------------------|------------------------------|----------------------|
|            | Output Connections To Receiver | Dummy Antenna (Note A) | Dial Setting | Dial Setting | Control Settings  | Adjust Compensators In Order |                      |
| 1          | 6A8EG Grid                     | .1 mf.                 | 460 K. C.    | 580 K. C.    | Vol. Cont. (max.) | (20A) (12B) (12A)            |                      |
| 2          | Ant. Ter.                      | 100 mmf.               | 18.0 M. C.   | 18.0 M. C.   | Vol. Cont. Max.   | (4B)                         | See Note B           |
| 3          | Ant. Ter.                      | 100 mmf.               | 1550 K. C.   | 1550 K. C.   | Vol. Cont. Max.   | (5) (4A)                     |                      |
| 4          | Ant. Ter.                      | 100 mmf.               | 580 K. C.    | 580 K. C.    | Vol. Cont. Max.   | (5A)                         |                      |
| 5          | Ant. Ter.                      | 100 mmf.               | 1550 K. C.   | 1550 K. C.   | Vol. Cont. Max.   | (5)                          |                      |

**NOTE A**—The “Dummy Antenna” consists of a condenser connected in series with the signal generator output lead (high side). Use the capacity as specified in each step of the above procedure.

**NOTE B—DIAL CALIBRATION:** In order to adjust the receiver correctly the dial pointer must be aligned to track properly with the tuning condenser. To adjust the dial proceed as follows: With the tuning condenser closed, set the dial pointer on the extreme left index line at the low frequency end of the scale.

**PHILCO RADIOS will give original Quality Performance only when  
Genuine Philco Replacement Parts are used**

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