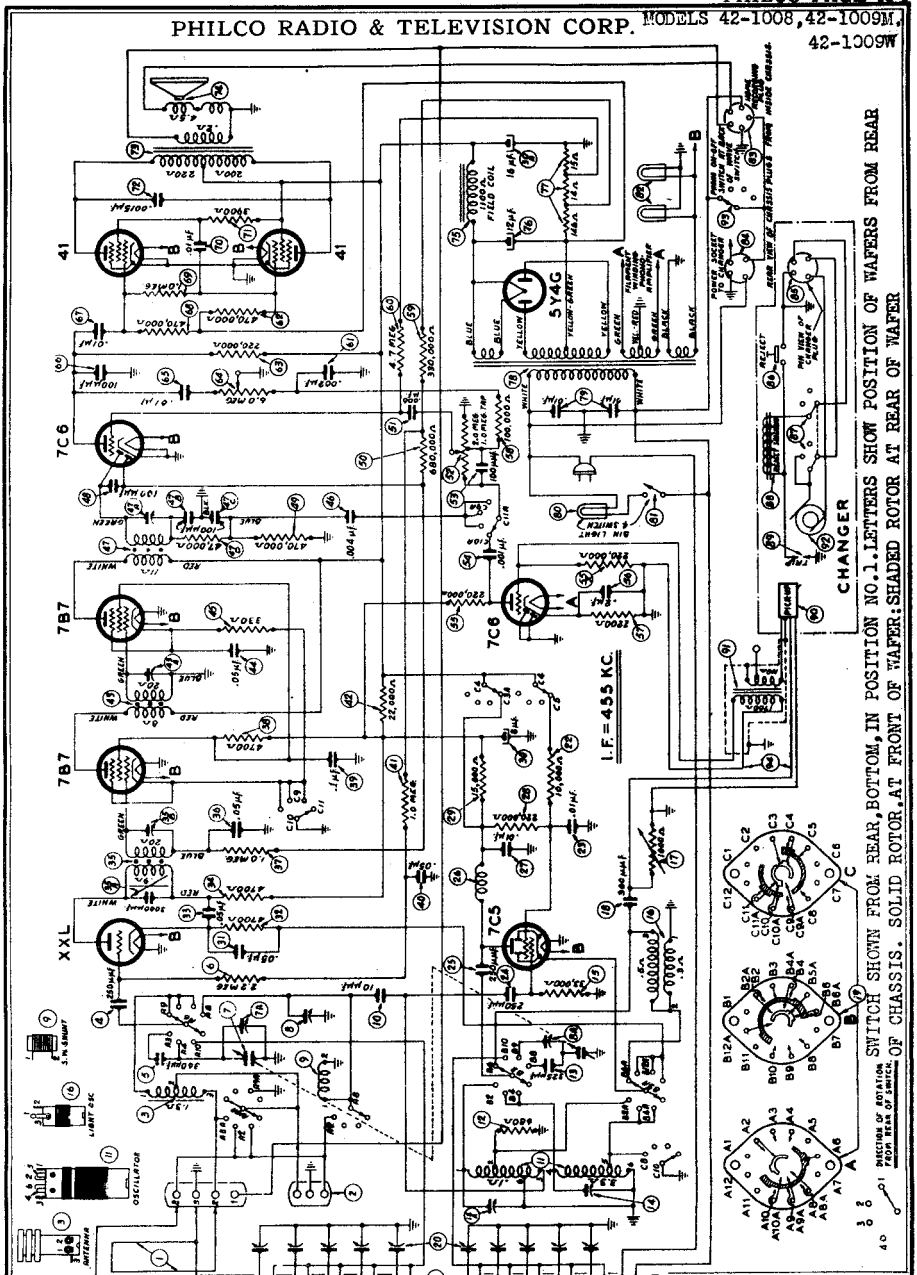
# Philco Radio & Television Corp.

| | | | |
|---|---|---|---|
| | **Model:** 42-1008 | **Chassis:** | **Year:** Pre March 1942 |
| | **Power:** | **Circuit:** | **IF:** |
| | **Tubes:** | | |
| | **Bands:** | | |

| Resources |
|---|
| Riders 13 (XIII) PHILCO 13-9 |
| Riders 13 (XIII) PHILCO 13-10 |
| Riders 13 (XIII) PHILCO 13-11 |
| Riders 13 (XIII) PHILCO 13-12 |
| Riders 14 (XIV) PHILCO 14-144 |

# PHILCO RADIO & TELEVISION CORP. MODELS 42-1008, 42-1009M, 42-1009W



# MODELS 42-1008, 42-1009M, 42-1009W PHILCO RADIO & TELEVISION CORP

## REPLACEMENT PARTS — MODELS 42-1008, 42-1009

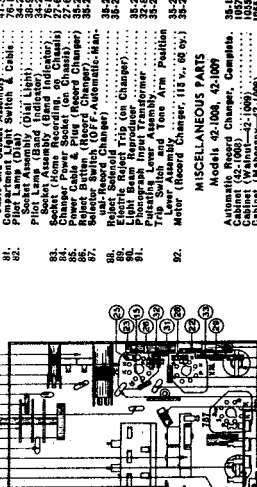


Fig. 2. Locations of Parts—Under Chassis Model 42-1008, 42-1009

D.C. indicated at the tube elements in the diagram were measured with a 1000 ohms per voltmeter, Philco Model 027, using the 300-volt scale line voltage 117 volts A.C. no signal being received-range switch broadcast.

* Condenser changed to .01 mfd., part No. 30-4072 in run 2nd chassis.

The two types of speakers are used on these models. These speakers are electrically identical and will have the same part number, with the exception of suffix letters. Suffix letters added to the part number. The cone assemblies, however, of these speakers are not interchangeable.

PHILCO RADIO & TELEVISION CORP.

MODELS 42-1008, 42-1009M, 42-1009W

# ALIGNING R. F. AND I. F. COMPENSATORS

## MODEL 42-1008, CODE 121; 42-1009W, AND 42-1009M, CODE 121

**The following procedure is the same for both models.**

## EQUIPMENT REQUIRED

1. **SIGNAL GENERATOR:** Covering the frequency range of the receiver, such as Philco Model 070.
2. **ALIGNING INDICATOR:** Either a vacuum tube voltmeter or an audio output meter may be used as an aligning indicator. Philco Models 027 and 028. Circuit testers contain both these meters.
3. **TOOLS:** Philco Fiber Screw Driver, Part No. 45-2610.

## CONNECTING ALIGNING INSTRUMENTS

**VACUUM TUBE VOLTMETER:** To use the vacuum tube voltmeter as an aligning indicator, make the following connections: Attach the negative (−) terminal of the voltmeter to any point in the circuit where the A.V.C. voltage can be obtained. Connect the positive (+) terminal of the vacuum tube voltmeter to the chassis.

**AUDIO OUTPUT METER:** Terminal No. 1 is provided on the loop aerial panel for connecting one lead of the audio output meter to the voice coil of the speaker. The other lead of the meter is connected to the chassis. When using these connections, the lowest A.C. scale of the meter must be used. (0 to 10 volts).

The audio output meter can also be connected between the plate of the output tube and the ground of the chassis.

**SIGNAL GENERATOR:** When adjusting the "I. F." padders, the high side of the signal generator is connected through a .1 mfd. condenser to the antenna section of the tuning condenser. Connect the ground or low side of the generator to the chassis.

When aligning the R. F. padders a loop is made from a few turns of wire and connected to the signal generator output terminals; the signal generator is then placed close to the loop of the radio.

When adjusting the radio outside the cabinet the loop aerial should be placed in approximately the same position around or near the chassis as when assembled.

After connecting the aligning instruments, adjust the compensators as shown in the tabulation below. Locations of the compensators are shown in the figure 3. If the indicating meter pointer goes off scale when adjusting the compensator, reduce the strength of the signal from the generator. Keep volume control of radio at maximum position.

| Operations in Order | SIGNAL GENERATOR | | RECEIVER | | | Special Instructions |
|---|---|---|---|---|---|---|
| | Output Connections to Receiver | Dial Setting | Dial Setting | Control Settings | Adjust Compensators in Order | |
| 1 | Ant. Section of Tuning Cond. with .1 mfd. Cond. | 455 K.C. | Tuning Cond. Closed | Vol. Max. Bands Switch S. W. | 3S, 3SB 43A, 47A | |
| 2 | Loop Signal Generator | 1720 K.C. | 1720 K.C. | Bands Switch "Brdcst" | 1A | Note A |
| 3 | Loop Signal Generator | 1500 K.C. | 1500 K.C. | Bands Switch "Brdcst" | 7A | |
| 4 | Loop Signal Generator | 580 K.C. | 580 K.C. | Bands Switch "Brdcst" | 8A | Roll comp. (8A) to "max." Recheck Operation No. 2 |
| 5 | Loop Signal Generator | 1720 K.C. | 1720 K.C. | Bands Switch "Brdcst" | 1A | |
| 6 | Loop Signal Generator | 15 M.C. | 15 M.C. | Bands Switch S. W. | 14A, B | Note B |

**AERIAL CONNECTIONS:** The built-in loop aerial system is designed to operate without an outside aerial or ground and to give exceptionally sensitive receiving performance of stations on the standard and short wave frequencies. When operating the radio, however, in steel reinforced buildings and other shielded locations, the PHILCO Outdoor Aerial Part No. 45-2817 is recommended for maximum receiving performance. The outdoor aerial can be easily connected to the radio by inserting the plug attached to the transformer unit into the socket provided at the rear of the chassis. This aerial can be obtained from your local PHILCO distributors. A ground connection is not required with either type of installation.

NOTE A.—Dial calibration: In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser. To do this, proceed as follows: Turn the tuning condenser to the maximum capacity position (plates fully meshed). With the condenser in this position, set the tuning pointer on the extreme left index line at the low frequency end of the broadcast scale.

NOTE B.—Adjust padder (14A) to the second signal peak from the tight position. Roll padder (8) slowly to maximum on the first peak from tight position.

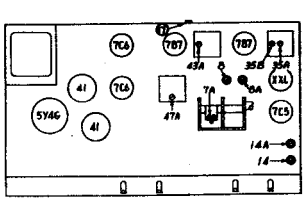



FIG. 3. LOCATIONS OF COMPENSATORS—TOP OF CHASSIS MODELS 42-1008, 42-1009

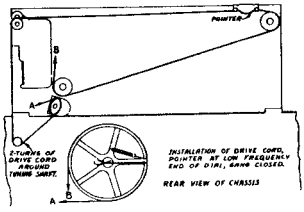



FIG. 4. INSTALLATION OF DRIVE CORDS POINTER AT LOW FREQUENCY END OF DIAL TUNING CONDENSER CLOSED.

**INTERMEDIATE FREQUENCY:** 455 K.C.

**TUNING BAND FREQUENCIES:** 540 to 1720 K.C.; 9 to 15.5 M.C.

**POWER SUPPLY:** 115 volts, 50 or 60 cycle A.C., Consumption Watts. These models are shipped for operation on a 115-volt, 60-cycle, A.C. power supply. To operate on a 115-volt, 50-cycle current, the phonograph motor must be changed to

**PHILCO TUBES USED:** Nine; one 7C5, oscillator; one XXL, converter; two 7B7, I. F. amplifiers; 7C6, 2nd detector, 1st audio; 7C6, Phonograph pre-amplifier; two, 41 audio output, and a 6X5G, Rectifier.

MODELS 42-1008,42-1009M, 42-1009W
MODELS 42-1010,42-1011M

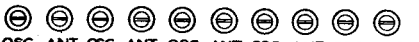
# PHILCO RADIO & TELEVISION CORP.

MODELS 42-1008,42-1009M,42-1009W

## ADJUSTING ELECTRIC PUSH-BUTTON TUNING

Select five of the most popular stations received in the locality. Insert the station call letters into the spaces on the buttons. The station with the lowest frequency is placed in the second button from the left and the highest frequency is placed in the sixth push button on the right. Each push button is adjusted by two adjusting screws located on the rear of the chassis. Each set of screws is numbered and labeled "Ant.", "Osc." and covers a frequency range as follows:

| | | | | |
|---|---|---|---|---|
| KC. 1185 TO 1720 | KC. 850 TO 1600 | KC. 710 TO 1185 | KC. 540 TO 980 | KC. 540 TO 980 |
| 10 9 | 8 7 | 6 5 | 4 3 | 2 1 |




Looking at the front of the cabinet, the second button on the left is adjusted by adjusting screws No. 1 and 2. The next push button by adjusting screws No. 3 and 4, and the remaining push buttons in order.

1. Press in "Off-On" push button, turn "Bands" knob to "Broadcast."

2. Set up a Model 070 Signal Generator near the receiver and connect a loop aerial (made from a few turns of wire 12 inches in diameter) to the high and ground output jacks of the signal generator. Turn the output controls to maximum and set the modulation control to "MOD. ON."

3. Manually tune in the station to be set up on the first push button. After doing this set the indicator of the 070 Signal Generator to the frequency of the station being received. As the indicator approaches the frequency of the station a whistle will be heard; leave the indicator at this point.

4. Turn "Bands" knob to "Push button" position. Using the insulated screw driver, turn the No. 2 "Osc." 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. Readjust No. 2 "Osc." and No. 1 "Ant." screws until the station is clearly and distinctly heard. The push button should then be adjusted properly to the station.

After setting up the first station the same procedure as outlined above is used for the remaining stations. When these models are set up to receive the sound of a television program tuned in by the special type Philco Television Sets or if it is to be used in conjunction with a Philco Record Player, the lowest frequency push button should be used. To tune in these programs, the same procedure as given for broadcast stations above is used.

Further details for setting up these Radios for operation with Philco Television Sets or Record Players are supplied with the instruments.

## ADJUSTING ELECTRIC PUSH BUTTON TUNING

The Electric push button tuning mechanism consists of ten push buttons. Five push buttons control and select power supply, Broadcast, Police and Shortwave Bands and Phonograph Operation. The remaining five push buttons are used for automatically selecting five standard broadcast stations.

Select five of the most popular stations received in the locality. Insert the station call letters into the spaces above the buttons. The station with the lowest frequency is placed in the second button from the left and the highest frequency is placed in the sixth push button from the left. Each push button is adjusted by two adjusting screws located on the rear of the chassis. Each set of screws is numbered and labeled "Ant.", "Osc." and covers a frequency range as shown in Fig. 1.

Looking at the front of the cabinet, the second button from the left is adjusted by adjusting screws No. 1. The next push button by adjusting screws No. 2, and the remaining push buttons in order.

1. Press in "Broadcast" push button.

2. Set up a Model 070 Signal Generator near the receiver and connect a loop aerial (made from a few turns of wire 12 inches in diameter) to the high and ground output jacks of the signal generator. Turn the output controls to maximum and set the modulation control to "MOD. ON."

3. Manually tune in the station to be set up on the first station push button. After doing this set the indicator of the 070 Signal Generator to the frequency of the station being received. As the indicator approaches the frequency of the station a whistle will be heard; leave the indicator at this point.

4. Press "in" the second push button from the left of cabinet. Using the insulated screw driver, turn the No. 1 "Osc." 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. Readjust No. 1 "Osc." and "Ant." screws until the station is clearly and distinctly heard. The push button should then be adjusted properly to the station.

After setting up the first station the same procedure as outlined above is used for the remaining stations. When these models are set up to receive the sound of a television program tuned in by the special type Philco Television Sets or if it is to be used in conjunction with a Philco Record Player, the lowest frequency push button should be used. To tune in these programs, the same procedure as given for broadcast stations above is used.

Further details for setting up these Radios for operation with Philco Television Sets or Record Players are supplied with the instruments.

MODELS 42-1010,42-1011M

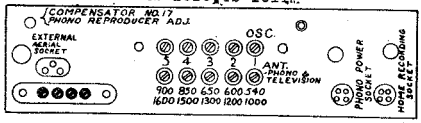



FIG. 1.—PUSH BUTTON COMPENSATOR LOCATIONS

## LIGHT-BEAM REPRODUCER ADJUSTMENTS

To reproduce the sound from a record, the light beam of the reproducer must be carefully positioned on the light sensitive cell. If the light beam is not carefully set, the sound reproduction will be distorted, weak or, if the light beam is completely on or off the cell, the phonograph will be silent.

If any of these conditions exist, the following adjustment procedure should be made:

**NOTE**—These adjustments should be made with the power line voltage at 117 volts A.C.

**A. ADJUSTING WIDTH OF LIGHT BEAM**

To make this adjustment push the lamp socket assembly into its holder until a clear image of the lamp filament appears on the light cell. The socket should then be slightly pushed in beyond this point until the rectangular spot of light is 5/32" in width. The socket assembly is now rotated so that the spotlight is vertical.

**B. POSITIONING THE LIGHT BEAM**

To position the light beam on the light cell, turn the adjusting screw at the lower left side of the reproducer until the spot is half on the cell and half on the metal frame surrounding the cell.

**C. ADJUSTING INTENSITY OF LAMP**

When shipped from the factory, the lamp of the reproducer is adjusted for best operating efficiency. The intensity of the light from the lamp is adjusted by Compensator No. 17 located on the radio chassis. Under ordinary circumstances, an adjustment will not be necessary. When replacing the reproducer or lamp, however, it may be necessary to readjust the light intensity. In this case the compensator is adjusted as follows:

1. Turn volume control on full and play a record.
2. While the record is playing, turn compensator 17 in the direction necessary to obtain the best operating point without distortion. By turning the compensator the strength of the pick-up output is increased or decreased.

**D. INSTALLING NEW LAMP**

When installing a new lamp in the socket, there are two positions in which the lamp can be inserted. Ordinarily, either of these positions can be used. In some cases, however, due to the lamp filament being off center, the lamp must be inserted in the position that gives the best centering of the spot of light on the vibrating mirror.

FOR BOTH CHASSIS

NOTES, CHANGES

# PHILCO RADIO & TELEVISION CORP.

**MODEL 42-1008, CODE 121-122**
**42-1009, CODE 121-122**

Production changes 42-1008, 42-1009, Code 121-122.

No. 1. Two types of Phonograph Reproducer Tone arms (90) were used on the Record changer. Tone arm Part No. 35-2518 is made of metal die cast material and Part No. 35-2540 a Plastic material. Since the weight of each tone arm is different, two counter weights are required. The aluminum arm requires a 1½ ounce weight Part No. 218-1420 and the bakelite arm a 3 ounce weight Part No. 218-1531.

**CODE 121**

To improve the performance of the phonograph reproducer light oscillator circuit, the oscillator transformer (16) was changed from Part No. 32-3785 to 32-3866. The wiring lug arrangement as shown in the Service Bulletin applies to both transformers.

**CIRCUIT DIFFERENCES, CODE 121 AND 122**

Production Code 122 of Models 42-1008 and 42-1009 differs from Code 121 in several circuit parts. The service information in Radio Service Bulletin 401 for Code 121 with the exception of these parts apply to Code 122. The circuit changes are as follows:

The phonograph oscillator transformer (16) changes from Part No. 32-3785 to 32-3866.

Condenser (56) .2 mfd. is replaced with a 10 mfd. condenser Part No. 30-2500 in Code 122 chassis.

Resistor (57) 2200 ohms is changed to 3300 ohms Part No. 33-233339.

Power transformer (78) Part No. 32-8129 is changed to Part No. 32-8217.

Transformer Part No. 32-8217 does not have filament winding "A" "A" for the 7C6 oscillator tube as shown in bulletin 401.

In Code 122 the 7C6 phonograph oscillator tube filament is connected to filament winding B of transformer Part No. 32-8217 one connection of the tube filament is grounded.

The phonograph input transformer (91) in Code 122 models is Part No. 32-8215.

The tuning shaft in Code 122 is Part No. 56-6196 FCP.

Tuning shaft drive cord Code 122 is Part No. 31-2614.

**PUSH-BUTTON PADDING PROCEDURES CHANGE 42-1008, CODE 122**

A few models were assembled with the push-button compensator assembly (20) reversed. The padder locations for the push-button is the reverse of that shown

The push-button adjustments on these receivers should be adjusted in accordance with the frequency coverage shown below.

| Button Position From Front of Cabinet | Adjust Padder Number (From Rear of Cabinet) | Range Coverage K.C. |
|---|---|---|
| 1 (Next to On-Off Switch) | 1 & 2 | 1185-1720 |
| 2 | 3 & 4 | 850-1600 |
| 3 | 5 & 6 | 710-1185 |
| 4 | 7 & 8 | 540-980 |
| 5 | 9 & 10 | 540-980 |

**MODELS 42-1010, 42-1011, CODE 121**

Beginning with later production of Model 42-1010 and first production of Model 42-1011, a 10 mmfd. condenser Part No. 60-010137 was connected in series with compensator (5B) osc. This condenser improves the padding of compensator (5B) osc. on 15 MC.

Beginning with run 2 chassis of Models 42-1010 and 42-1011 resistor (7) Part No. 33-322339 was changed to 33-333339. This change was made to prevent the phono reproducer light control (17) elements from becoming shorted due to high current.

**HUM REDUCTION**

To reduce hum, electrolytic condenser (32)-(32A) 8-8 mfd., 475 volts Part No. 30-2535 was changed to 8-24 mfd., 475 volts Part No. 30-2538. The 8 mfd. section is connected in the circuit position (32) and the 24 mfd. section in position (32A). Chassis with this change are marked run 4. In some receivers prior to this change an 18 mfd. condenser was connected in parallel with (32A).

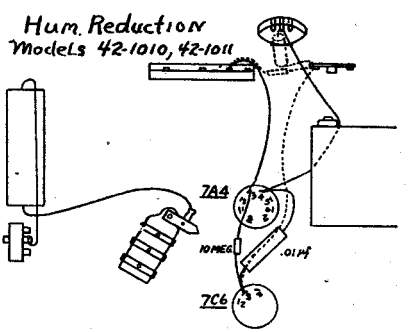
Remove the .01 mfd. condenser, Part No. 30-4572, which is connected to the center tap of the volume control to the terminal on the wiring panel right below it. Also, remove the 10 meg. resistor which is wired to this terminal and to the second terminal of the bias resistor 82 .

Remove the wire which formerly connected the resistor and condenser to the #3 terminal of the 7C6 tube socket.

Connect the center terminal of the volume control to the dummy #4 terminal of the 7A4 tube socket. Connect the second terminal of the resistor 82 to the dummy #3 terminal of the 7A4 tube socket. Both of these leads must be dressed close to the sub base. Follow the layout shown in the accompanying diagram.

Connect the .01 mfd. condenser, Part No. 30-4572, from the #3 terminal of the 7C6 tube to the #4 terminal of the 7A4 tube. Connect the 10 meg, resistor from the #3 terminal of the 7C6 tube to the #3 terminal of the 7A4 tube.

In the diagram, the parts and wires indicated by the dotted lines are to be removed. The 10 meg. resistor and the .01 mfd. condensers are shown in their new location. The location of the 18 mfd. condenser and the wiring connections are also shown.




To prevent oscillation a .2 mfd. 400 volts condenser, Part No. 30-4594, was connected in the circuit at the lug of the terminal panel were resistors (33), (39) and (44) are connected. Ground one side of the condenser. Chassis with this change are marked run 3.

The tuning condenser (24) tuning shaft changed from Part No. 56-6168 FA3 to 56-6195 FCP.

Beginning with chassis marked run 5. Mica condenser (16) 375 mmfd. Part No. 20-037517 was changed to 350 mmfd., Part No. 20-035021. This change made to improve oscillator performance.

Correction diagram

The connection from contact 13 of the B.C. pushbutton should be connected to the tuning condenser only. The line shown connected to the line which connects contact 11 to the antenna socket should be removed.