SPECIFICATIONS

Philco Model 49-1175 is a combination television receiver, AM-FM radio, and phonograph in a period-style, console-type cabinet. The television receiver employs a 10-inch picture tube, and the phonograph section uses an M-9C automatic record changer.

Philco Model 49-1150 is a console television receiver with a chassis similar to the television chassis of Model 49-1175. Provision is made for connection of an external record player.

Philco Model 49-1475 is a combination television receiver, AM-FM radio, and phonograph in a period-style, console-type cabinet. The television receiver employs a 12-inch picture tube, and the phonograph section uses an M-9C automatic record changer.

Philco Model 49-1480 is also a combination television receiver, AM-FM radio, and phonograph. The television and phonograph section is identical to those used in Model 49-1475. The phonograph section uses an M-12C automatic record player. The entire combination is contained in a cuatom-classical, console-type cabinet.

Philco Model 49-1450 is a console television receiver with a chassis similar to the television chassis of Model 49-1475. Provision is made for connection of an external record player.

Both the M-9C and M-12C automatic record players are designed with two turn table speeds and two tone arms, for playing either standard or new long-playing records.

All the above models are identified as A or B chassis depending upon their coil compliers. Chassis A includes coils for channels 2, 3, 4, 5, 7, 9, 11, and 13. Chassis B includes coils for channels 2, 3, 4, 5, 6, 8, 10, and 12.

CABINET

Model 49-1150: Modern style, console type, mahogany finish.
Model 49-1175: Period style, console type, mahogany finish.
Model 49-1475: Modern style, console type, mahogany finish.
Model 49-1480: Custom-style style, console type, mahogany finish.

CIRCUIT

Model 49-1150: 23-tube superheterodyne.
Model 49-1175: Television (19-tube superheterodyne).
Model 49-1475: Television (27-tube superheterodyne).
Model 49-1480: Television (27-tube superheterodyne).

CHANNEL TUNING (TELEVISION)

8-position tuner, using switch-in coils.

- FREQUENCY STABILIZATION (TELEVISION)

Automatic tuning with electronic control (automatic frequency control of local oscillator).

- AUDIO OUTPUT

Television 2.5 watts, Radio 5 watts.

<table>
<thead>
<tr>
<th>FREQUENCY RANGE</th>
<th>Television</th>
<th>Television Channels 2 to 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio</td>
<td>AM 540 to 1620 kc.</td>
<td>FM 88 to 108 mc.</td>
</tr>
<tr>
<td>Radio</td>
<td>AM 455 kc.</td>
<td>FM 9.1 mc.</td>
</tr>
</tbody>
</table>

- AERIAL

Television — Provisions are made for separate low-frequency and high-frequency aerials.
Radio — Built-in loop; also available for external aerial.

- TRANSMISSION LINE (TELEVISION)

300-ohm twin wire lead-in (balanced); 72-ohm coaxial cable (unbalanced) in areas of high interference.

OPERATING VOLTAGE

110 to 120 volts, 60 cycles, a. c.

POWER CONSUMPTION

Television 210 watts, Radio 63 watts, Phonograph 85 watts.

TUBE COMPLEMENT MODELS 49-1150 and 49-1175, TELEVISION CHASSIS

<table>
<thead>
<tr>
<th>Loktal</th>
<th>Octal</th>
<th>Miniature</th>
<th>CRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-72Z</td>
<td>1-23GT</td>
<td>6-6AG5</td>
<td>1-10BP4</td>
</tr>
<tr>
<td>3-7N7</td>
<td>1-6BG6G</td>
<td>1-12AU7</td>
<td></td>
</tr>
<tr>
<td>1-7F7</td>
<td>2-6KG6G</td>
<td>2-6AL3</td>
<td></td>
</tr>
<tr>
<td>1-7F7</td>
<td>1-5VG4G</td>
<td>1-6J6</td>
<td></td>
</tr>
<tr>
<td>1-7F7</td>
<td>1-5VG4G</td>
<td>1-6A6</td>
<td></td>
</tr>
</tbody>
</table>

MODELS 49-1450, 49-1475, and 49-1480, TELEVISION CHASSIS

<table>
<thead>
<tr>
<th>Loktal</th>
<th>Octal</th>
<th>Miniature</th>
<th>CRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-72Z</td>
<td>2-13GT</td>
<td>7-6AG5</td>
<td>1-12LP4</td>
</tr>
<tr>
<td>3-7N7</td>
<td>1-6BG6G</td>
<td>2-6AL3</td>
<td></td>
</tr>
<tr>
<td>1-7F7</td>
<td>2-6KG6G</td>
<td>2-6AL3</td>
<td></td>
</tr>
<tr>
<td>1-7F7</td>
<td>1-5VG4G</td>
<td>1-6J6</td>
<td></td>
</tr>
<tr>
<td>1-7F7</td>
<td>1-5VG4G</td>
<td>1-6A6</td>
<td></td>
</tr>
</tbody>
</table>

HORIZONTAL HOLD ADJUSTMENT

Ordinarily, the range of the HORIZ HOLD control is sufficient to compensate for normal variations and provide horizontal hold control. If, for some reason, such as replacement of tubes or components, it becomes necessary to make further hold adjustments, the following procedure is recommended:
1. Preset the adjustments as follows:
   a. Frequency trimmer CSS20A 1/3 turn counterclockwise from the minimum clockwise position.
   b. Drive trimmer CSS29B 2 turns counterclockwise from the minimum clockwise position. (This trimmer is not used on Models 49-1450, 49-1475, and 49-1480.)
   c. Lockin trimmer CSS29C 1/2 turn counterclockwise from the maximum clockwise position.
   d. HORIZ HOLD control to approximate center of its range.
2. Tune in a station, and adjust TC500 until the picture is brought into sync.
3. Turn the AVC OFF-ON switch to OFF, and adjust the CONTRAST control for normal contrast.

WAVEFORMS OF SYNC and SWEEP CIRCUITS

The following waveforms are stated for clarity, and are not intended to illustrate relative amplitudes. Approximate peak-to-peak voltages are given under the waveforms in each case. These voltages are the approximate values when the CONTRAST control is adjusted to give 1 volt peak-to-peak at the VIDEO TEST Jack J301, and when all other controls are in their normal positions.

For viewing waveforms in the vertical sync and sweep circuits, adjust the oscilloscope sweep to 30 c.p.s. (one-half the vertical sweep rate).

For viewing waveforms in the horizontal sync and sweep circuits, adjust the oscilloscope sweep to 7875 c.p.s. (one-half the horizontal sweep rate).

GRID, PIN 4: SYNC PREAMPL.

GRID, PIN 5: SYNC. SEP.
GRID, PIN 4 SYNC AMPL.  
PIN 4, JS01  
(Provide horiz. blk. osc. tube)  
TP-8226  

ACROSS C508  
(Remove vert. blk. osc. tube)  
TP-8229  

GRID, PIN 5  
HORIZ. BLK. OSC.  
TP-8222  

GRID, PIN 4  
PHASE COMP.  
TP-8224  

* 40 V for Models 49-1150 and 49-1175.  
** 15 V for Models 49-1150 and 49-1175.  
*** 270 V for Models 49-1150 and 49-1175.  

The television chassis of Model 49-1480 is identical to that of Model 49-1475. The television circuits of Model 49-1450 are similar to those of Model 49-1475, and the television circuits of Model 49-1150 are similar to those of Model 49-1175. Circuit variations for Models 49-1450 and 49-1150 are shown in the following schematic insert.

CIRCUIT VARIATIONS

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TELEVISION RECEIVER ALIGNMENT

TEST EQUIPMENT REQUIRED
FOR TELEVISION ALIGNMENT AND ADJUSTMENTS

The following test equipment is recommended for aligning the television receiver:
1. Philco Precision Visual Alignment Generator for Television and FM, Model 7008; this instrument has the following features:
   - FM Signal Generator—Ranges, 4—120 mc, and 141—260 mc, with a maximum deviation of 15 mc.
2. Vacuum-tube voltmeter or a 20,000-ohm-per-volt voltmeter.
3. If separate signal generators and oscilloscope are used, these instruments should have the following characteristics:
   - FM signal generator—Deviation, ± 4 mc; center-frequency ranges, 26 mc to 30 mc; sweep-sync output with either built-in or separate phase corrector.
   - AM signal generator—Carrier-frequency ranges, 20 mc to 30 mc; dial should be suitable for setting and resetting accurately to the frequencies specified in the ALIGNMENT CHART.
   - Oscilloscope—Calibrated; vertical sensitivity of 1 volt (peak-to-peak) per inch, or better.

**NOTE**: When using a separate AM or signal generator to obtain marker pips, couple the output lead of this generator to the output lead of the FM generator, using enhancer coupling to obtain a suitable pip.

ALIGNMENT JIGS

Figure 10 shows a jigg which is recommended for coupling the signal generator to the mixer grid, to provide short connections and good grounding. To construct this jigg, remove the coil form and windings from an oscillator snap-in coil, Philco Part No. 32-4222-2 (or the oscillator coil for any other channel). Solder in a length of coaxial cable, as shown. To use this jigg, insert it into an empty compartment in the mixer-oscillator section of the tuner. Rotate the turret until the contact points on the jigg are engaged with the oscillator-mixer contact panel.

Figure 11 shows a jigg which is recommended for coupling the signal generator to the various if grids. The following parts are necessary for construction of this jigg:
1. 3-inch length of 1/4-inch diameter tubing.
2. 3/4-inch length of 1/8-inch diameter spaghetti.
3. 4-inch length of No. 12 or No. 14 bus wire.
4. Clamp, Philco Part No. 56-3545FA.

To construct this jigg, follow the procedure given below:
1. Insert the spaghetti into the tubing. Allow 1/4 inch to extend from one end of the tubing.
2. Insert the bus wire into the spaghetti. Allow 1/4 inch to extend from one end of the spaghetti.
3. Crimp one end of the tubing, to secure the spaghetti and bus wire.
4. Solder the clamp to the middle of the tubing.

5. If Model 7008 Visual Alignment Generator is used, solder a short piece of bus wire to the tubing, to provide a convenient ground connection for the output cable terminating box.

The connections to the video-if amplifier grids are accessible from the top of the chassis through small holes near the tube shields. To use the jigg, slide the clamp over the tube shield, and insert the probe end of the jigg into the hole; adjust the height to insure good contact with the grid connection.

**GENERAL**

The intermediate frequencies for the television chassis are 22.1 mc for the sound channel and 26.6 mc for the video channel. Alignment of circuits operating at these high frequencies requires careful workmanship and good equipment.

**WARNING**: Dangerous potentials are present in the receiver when it is operating and for a short time after it has been turned off.

1. The top of the work bench must be metallic, and the test equipment and television receiver chassis must make a good metal-to-metal contact with the bench top.

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2. During alignment, the signal generator output should be attenuated to keep the video output indication below 2 volts, peak-to-peak, and the FM detector output indication below 0.5 volts, peak-to-peak.

3. Never disconnect the picture tube, picture-tube yoke, or speaker while the receiver is turned on.

4. Allow the receiver and test equipment to warm up for 15 minutes before starting the alignment.

5. Insert a 10,000-ohm resistor in series with the oscilloscope lead.

6. If additional attenuation of the marker signal is required when using Model 7008 Visual Alignment Generator, insert a 10,000-ohm resistor in series with the output lead.

7. Set the television controls as follows:
   a. OFF-ON VOLUME control half-way through its range.
   b. AVC ON-OFF switch to OFF.
   c. CONTRAST control 1/8 turn clockwise from its maximum clockwise position.
   d. BRIGHTNESS control to give a dim raster.


**TELEVISION ALIGNMENT CHART (Cont.)**

<table>
<thead>
<tr>
<th>STEP</th>
<th>SIGNAL GENERATOR CONNECTION</th>
<th>OUTPUT INDICATOR CONNECTION</th>
<th>SIGNAL GENERATOR SETTING</th>
<th>ADJUSTMENT INSTRUCTIONS</th>
<th>ADJUST</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Connect outputs of AM and FN signal generators through i-f jig to grid (pin 1) of 2nd video—i-f tube.</td>
<td>Connect vertical input of oscilloscope to ALIGN TEST jack, J301.</td>
<td>Set AM generator (modulated) to 22.1 mc.</td>
<td>Adjust TC307 for minimum indication.</td>
<td>TC307</td>
</tr>
<tr>
<td>7</td>
<td>Same as step 6.</td>
<td>Same as step 6.</td>
<td>Set FM generator to 22.1 mc., ± 1 mc. deviation. Set AM generator (modulated) to 21.1 mc.</td>
<td>Adjust TC201 for minimum FM deviation.</td>
<td>TC201</td>
</tr>
<tr>
<td>8</td>
<td>Same as step 6.</td>
<td>Same as step 6.</td>
<td>Set FM generator to 22.1 mc., ± 1 mc. deviation. Turn AM generator off.</td>
<td>Adjust TC200A and TC200B for maximum peaks and symmetry of pattern.</td>
<td>TC200A TC200B</td>
</tr>
<tr>
<td>9</td>
<td>Same as step 6.</td>
<td>Same as step 6.</td>
<td>Set FM generator to 25 mc., ± 4 mc. deviation. Set AM generator (unmodulated) to 26.3 mc., to produce marker pip on response curve.</td>
<td>Adjust TC302 and TC302 for Curve 3.</td>
<td>TC302</td>
</tr>
<tr>
<td>10</td>
<td>Connect outputs of AM and FN signal generators through i-f jig to grid (pin 1) of mixer tube.</td>
<td>Same as step 1.</td>
<td>Set FM generator to 25 mc., ± 4 mc. deviation. Set AM generator (unmodulated) to 25.8 mc., to produce marker pip on response curve.</td>
<td>Adjust TC301 for Curve 4.</td>
<td>TC301</td>
</tr>
<tr>
<td>11</td>
<td>Connect outputs of AM and FN signal generators through i-f jig to grid (pin 1) of mixer tube.</td>
<td>Same as step 1.</td>
<td>Set FM generator to 25 mc., ± 4 mc. deviation. Set AM generator (unmodulated) to 23 mc., 2.4 mc., 21.2 mc., and 20 mc., to produce marker pip on response curve, as required.</td>
<td>Adjust TC300 for Curve 5.</td>
<td>TC300</td>
</tr>
<tr>
<td>12</td>
<td>Connect outputs of AM and FN signal generators through i-f jig to grid (pin 1) of 3rd video—i-f tube.</td>
<td>Connect vertical input of oscilloscope to ALIGN TEST jack, J301. Connect v.t.v.m. (0—10 ranges) to AFC TEST jack, J200.</td>
<td>Set AM generator (modulated) to 22.1 mc. (minimum indication on oscilloscope).</td>
<td>When indication on oscilloscope is minimum, the v.t.v.m. reading should be zero. If reading is not zero, adjust TC202. If the adjustment requires more than one-half turn, repeat step 7.</td>
<td>TC202</td>
</tr>
<tr>
<td>13**</td>
<td>Connect output of AM signal generator to ALIGN TEST jack, J301.</td>
<td>Connect vertical input of oscilloscope across the d-c re- stored load resistor (R356).</td>
<td>Set AM generator (modulated) for a strong 4.5 mc. output.</td>
<td>Adjust TC308 for minimum indication.</td>
<td>TC308</td>
</tr>
</tbody>
</table>

*The AM signal will appear as a series of nine waves superimposed upon the FM detector curve.

**This step applies only to models 49-1430, 49-817, and 49-1480.
## AM Alignment Chart

<table>
<thead>
<tr>
<th>STEP</th>
<th>CONNECTION TO RADIO</th>
<th>DIAL SETTING</th>
<th>DIAL SETTING</th>
<th>SPECIAL INSTRUCTIONS</th>
<th>ADJUST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Connect ground lead to B--; connect output lead through 1 mf condenser to terminal 1 of TR960.</td>
<td>450 kc.</td>
<td>540 kc.</td>
<td>Adjust tuning cores, in order given, for maximum output. Do not repeat adjustments.</td>
<td>TC905A—3rd i-f sec. TC905A—3rd i-f pri. TC905B—2nd i-f sec. TC905B—2nd i-f pri. TC901B—1st i-f sec. TC901A—1st i-f pri.</td>
</tr>
<tr>
<td>2</td>
<td>Use radiating loop (see note below).</td>
<td>1600 kc.</td>
<td>1600 kc.</td>
<td>Adjust for maximum.</td>
<td>C993B—Bc. osc.</td>
</tr>
<tr>
<td>3</td>
<td>Same as step 2.</td>
<td>1500 kc.</td>
<td>1500 kc.</td>
<td>Adjust for maximum.</td>
<td>C993A—Bc. aerial</td>
</tr>
</tbody>
</table>

**Radiating Loop**: Make up a coil of insulated wire, consisting of 5 to 8 turns, about 6" in diameter; connect coil ends to signal-generator leads, and suspend coil near radio broadcast loop.

## FM Alignment Chart

<table>
<thead>
<tr>
<th>STEP</th>
<th>CONNECTION TO RADIO</th>
<th>DIAL SETTING</th>
<th>DIAL SETTING</th>
<th>SPECIAL INSTRUCTIONS</th>
<th>ADJUST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Through 1 mf condenser to pin 1 of first i-f amplifier, 6BJ6.</td>
<td>9.1 mc.</td>
<td>88 mc.</td>
<td>Adjust for maximum de- meter reading. Repeat adjustments until no further increase is noted. After this step, do not disturb any of these adjustments, except as noted in step 3.</td>
<td>TC804B—FM det. sec. TC804A—FM det. pri. TC802B—2nd i-f sec. TC802A—2nd i-f pri.</td>
</tr>
<tr>
<td>2</td>
<td>Through 1 mf condenser to pin 8 of FM converter, 14F9.</td>
<td>9.1 mc.</td>
<td>88 mc.</td>
<td>Same as step 1.</td>
<td>TC800B—1st i-f sec. TC800A—1st i-f pri.</td>
</tr>
<tr>
<td>3</td>
<td>Same as step 2.</td>
<td>9.1 mc.</td>
<td>88 mc.</td>
<td>Same as step 1.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Same as step 4.</td>
<td>105 mc.</td>
<td>105 mc.</td>
<td>Adjust for maximum while using tuning control.</td>
<td>C990D—FM r.f.</td>
</tr>
<tr>
<td>6</td>
<td>Same as step 4.</td>
<td>105 mc.</td>
<td>105 mc.</td>
<td>Same as step 4.</td>
<td>C990B—FM serial</td>
</tr>
<tr>
<td>7</td>
<td>Same as step 4.</td>
<td>92 mc.</td>
<td>92 mc.</td>
<td>Same as step 4.</td>
<td>L906—FM osc. tracking</td>
</tr>
<tr>
<td>8</td>
<td>Same as step 4.</td>
<td>92 mc.</td>
<td>92 mc.</td>
<td>Same as step 4.</td>
<td>L904—FM r-f tracking</td>
</tr>
<tr>
<td>9</td>
<td>Same as step 4.</td>
<td>92 mc.</td>
<td>92 mc.</td>
<td>Same as step 4.</td>
<td>L901—FM serial tracking</td>
</tr>
<tr>
<td>10</td>
<td>Repeat steps 4 through 9 until no further improvement is obtained.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE**: Check resonance of coils L906, L904, and L901 by inserting each end of a soured iron tuning core, such as Philco Part No. 56-6100, in the coils. If the output decreases when one end is inserted, compare the turns slightly. If the output increases when the brass end is inserted, spread the turns slightly. If the output decreases when either end is inserted, no adjustment is necessary.
**RADIO ALIGNMENT**

**AM Circuits**

When the complete AM and FM alignment is to be made, the AM alignment should be made first. If the AM alignment is not required, the FM alignment alone may be made.

**RADIO CONTROLS:** Set VOLUME control to maximum, and OFF-ON-TONE control fully clockwise. Set band switch (BC-FM-PHONO) to BC, and tuning control as indicated in chart.

**OUTPUT METER:** Connect between terminals 2 and 3 of aerial terminal panel TB900. (This meter is used only for step 5.)

**D.C VOLTOMETER:** Connect d-c voltmeter (resistance of at least 20,000 ohms per volt) across 2-mfd condenser, C623, in FM detector circuit, negative lead to pin 2 of 19T5 tube, positive lead to B—bus. Use 0-10 volt range.

**SIGNAL GENERATOR:** Use AM r-f signal generator, with modulated output. Connect generator and set frequency as indicated in chart.

**OUTPUT LEVEL:** During alignment, signal-generator output must be attenuated to hold output meter reading below 1.5 volts.

**FM Circuits**

**NOTE:** Before starting FM alignment, allow radio and signal generator to warm up for 15 minutes.

**RADIO CONTROLS:** Set VOLUME control to maximum, and OFF-ON-TONE control fully clockwise. Set band switch (BC-FM-PHONO) to FM, and tuning control as indicated in chart.

**OUTPUT METER:** Connect between terminals 2 and 3 of aerial terminal panel TB900. (This meter is used only for step 5.)

**D.C VOLTOMETER:** Connect d-c voltmeter (resistance of at least 20,000 ohms per volt) across 2-mfd condenser, C623, in FM detector circuit, negative lead to pin 2 of 19T5 tube, positive lead to B—bus. Use 0-10 volt range.

**SIGNAL GENERATOR:** Use AM r-f signal generator, with modulated output. Connect generator and set frequency as indicated in chart.

**OUTPUT LEVEL:** During alignment, signal-generator output must be attenuated to hold output meter reading below 1.5 volts.

**Calibrating the Dial Backplate**

When the radio chassis has been removed from the cabinet, the alignment points may be marked on the dial backplate, below the pointer, using the following procedure:

With the left-hand edge of the backplate as a reference, use a ruler and mark the backplate off as follows.

**Frequency Setting Distance from**

<table>
<thead>
<tr>
<th>Index mark</th>
<th>Reference Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500 kc.</td>
<td>9 3/8&quot;</td>
</tr>
<tr>
<td>1600 kc.</td>
<td>9 3/8&quot;</td>
</tr>
<tr>
<td>92 mc.</td>
<td>9 3/8&quot;</td>
</tr>
<tr>
<td>105 mc.</td>
<td>8 3/8&quot;</td>
</tr>
</tbody>
</table>

After the chassis is installed in the cabinet, the dial pointer should be moved to coincide with the index on the dial. Coaxial of the pointer and index mark should occur with the tuning condenser fully reset.
**Sweep Circuits—Section 3**

<table>
<thead>
<tr>
<th>Reference Symbol</th>
<th>Description</th>
<th>Service Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>R21</td>
<td>Resistor, horizontal sweep charging, 0.1 Ohm</td>
<td>66-0346-24*</td>
</tr>
<tr>
<td>R22</td>
<td>Resistor, grid return, 100 Ohms</td>
<td>66-0346-24*</td>
</tr>
<tr>
<td>R23</td>
<td>Resistor, load, 3.3 megohms</td>
<td>66-0346-24*</td>
</tr>
<tr>
<td>R24</td>
<td>Resistor, bias by pass, 22 Ohms</td>
<td>66-0346-24*</td>
</tr>
<tr>
<td>R25</td>
<td>Resistor, grid return, 500 Ohms</td>
<td>66-0346-24*</td>
</tr>
<tr>
<td>R26</td>
<td>Resistor, brightness control</td>
<td>66-0346-24*</td>
</tr>
<tr>
<td>R27</td>
<td>Resistor, brightness compensation</td>
<td>66-0346-24*</td>
</tr>
<tr>
<td>R28</td>
<td>Resistor, brightness compensation</td>
<td>66-0346-24*</td>
</tr>
<tr>
<td>R29</td>
<td>Resistor, load, 10.2 Ohms</td>
<td>66-0346-24*</td>
</tr>
<tr>
<td>R30</td>
<td>Resistor, brightness control</td>
<td>66-0346-24*</td>
</tr>
<tr>
<td>R31</td>
<td>Resistor, brightness compensation</td>
<td>66-0346-24*</td>
</tr>
<tr>
<td>R32</td>
<td>Resistor, output divider, 82 Ohms</td>
<td>66-0346-24*</td>
</tr>
</tbody>
</table>

**Model 56-1150, 59-1175, 59-1150, 49-1180**
These models are identified as A or B chassis, depending upon their coil complement. Chassis A includes coils for Television Channels 2, 3, 4, 5, 7, 9, 11, and 13. Chassis B includes coils for Television Channels 2, 3, 4, 5, 6, 8, 10, and 12.

Philco Model 49-1150, Code 124, is a television receiver in a modern-style, console-type cabinet. Philco Model 49-1175, Code 124, is a combination television receiver, AM-FM radio, and phonograph in a period-style, console-type cabinet. The following charts give detailed descriptions of these models.

**MODEL 45-1150, CODE 124**

**TELEVISION CHASSIS**

Similar to that used in Model 49-1240, Code 124, latest run, with following exceptions:

- An electronic fine-tuning-control circuit, known as a "channel-adjuster" circuit, shown in figure 1, is incorporated.
- R300, the CONTRAST control, is a dual potentiometer assembly which includes a 2500-ohm CONTRAST control, a 25000-ohm CHANNEL ADJUSTER control, and a CHANNEL ADJUSTER OFF-ON switch.
- R551, a 470-ohm resistor, is added in series with the lead between C526 and the junction of C525 and R540.

The 150-mfd. condenser between pin 6 of the vertical-blocking-oscillator tube and ground is not present in Model 49-1150, Code 124.

**MODEL 49-1175, CODE 124**

**TELEVISION CHASSIS**

Similar to that used in Model 49-1279, Code 122, latest run, with following exceptions:

- An electronic fine-tuning-control circuit, known as a "channel-adjuster" circuit, shown in figure 1, is incorporated.
- R300, the CONTRAST control, is a dual potentiometer assembly which includes a 2500-ohm CONTRAST control, a 25000-ohm CHANNEL ADJUSTER control, and a CHANNEL ADJUSTER OFF-ON switch.
- R551, a 470-ohm resistor, is added in series with the lead between C526 and the junction of C525 and R540.

The 150-mfd. condenser between pin 6 of the vertical-blocking-oscillator tube and ground is not present in Model 49-1175, Code 124.

**CABINET**

Same as used in Model 49-1150, Code 121, with a different back using a-c interlock.

**MANUAL REFERENCES**

Refer to the Philco Service Manual (PR-1692) covering Model 49-1240, Code 124, for additional service information. Sections 1 through 9 of the Replacement Parts List in that manual apply to Model 49-1150, Code 124, except for the additions and changes given in the Supplemental Parts List.


**MODEL 49-1175, CODE 124**

**TELEVISION CHASSIS**

Same as used in Model 49-1279, Code 122.

**RADIO CHASSIS**

MOC Record Charger. Same as used in Model 49-1279, Code 122.

**PHONOGRAPHER**

Same as used in Model 49-1175, Code 121. Back is same as used in Model 49-1279, Code 122.

**CABINET**

Same as used in Model 49-1175, Code 121. Back is same as used in Model 49-1175, Code 122.

**MANUAL REFERENCES**

Refer to the Philco Service Manual (PR-1692) covering Model 49-1279, Code 122, for additional service information. Sections 1 through 9 of the Replacement Parts List in that manual apply to Model 49-1175, Code 124, except for the additions and changes given in the Supplemental Parts List.


**SUPPLEMENTARY PARTS LIST FOR MODELS 49-1150, CODE 124, AND 49-1175, CODE 124**

**Reference Symbol**

- R300: Potentiometer, assembly, dual, including a 2500-ohm section (CONTRAST control), a 2500-ohm section (CHANNEL ADJUSTER control), and a single-pole, single-throw switch (CHANNEL ADJUSTER OFF-ON switch)

**Service Part No.**

335565-14

**Reference Symbol**

- R14: Potentiometer, CHANNEL ADJUSTER control, Part of R300 control, 250,000 ohms

**Service Part No.**

49-7725-1

**Reference Symbol**

- R15: Resistor, isolating, 330,000 ohms

**Service Part No.**

66-33238040

**Reference Symbol**

- R16: Resistor, voltage divider, 270,000 ohms

**Service Part No.**

66-36782040

**Reference Symbol**

- R17: Resistor, voltage divider, 15,000 ohms

**Service Part No.**

66-36782040

**Reference Symbol**

- S400: Switch, CHANNEL ADJUSTER OFF-ON

**Service Part No.**

49-7713-1

**Reference Symbol**

- R551: Resistor, hum filter, 470 ohms

**Service Part No.**

66-41879300

**Reference Symbol**

- Back television (Model 49-1140, Code 124)

**Service Part No.**

49-7725-1

**Reference Symbol**

- Knob, CONTRAST control

**Service Part No.**

49-4925-1

**Reference Symbol**

- Knob, CHANNEL ADJUSTER control

**Service Part No.**

49-4927-1

**Figure 1. Philco CHANNEL ADJUSTER Circuit, Models 49-1150, Code 124, and 49-1175, Code 124**

**SUPPLEMENTARY PARTS LIST FOR MODELS 49-1150, CODE 123, AND 49-1175, CODE 123**

**Reference Symbol**

- R300: Potentiometer, assembly, dual, including a 250,000-ohm section (CONTRAST control), a 250,000-ohm section (CHANNEL ADJUSTER control), and a single-pole, single-throw switch (CHANNEL ADJUSTER OFF-ON switch)

**Service Part No.**

335565-14

**Reference Symbol**

- R14: Potentiometer, CHANNEL ADJUSTER control, Part of R300 control, 250,000 ohms

**Service Part No.**

49-7725-1

**Reference Symbol**

- R15: Resistor, isolating, 330,000 ohms

**Service Part No.**

66-33238040

**Reference Symbol**

- R16: Resistor, voltage divider, 270,000 ohms

**Service Part No.**

66-36782040

**Reference Symbol**

- R17: Resistor, voltage divider, 15,000 ohms

**Service Part No.**

66-36782040

**Reference Symbol**

- S400: Switch, CHANNEL ADJUSTER OFF-ON

**Service Part No.**

49-7713-1

**Reference Symbol**

- R551: Resistor, hum filter, 470 ohms

**Service Part No.**

66-41879300

**Reference Symbol**

- Back television (Model 49-1140, Code 124)

**Service Part No.**

49-7725-1

**Reference Symbol**

- Knob, CONTRAST control

**Service Part No.**

49-4925-1

**Reference Symbol**

- Knob, CHANNEL ADJUSTER control

**Service Part No.**

49-4927-1

**ADJUSTING THE "DEFLECT," CONTROL**

The DEFLECT. control, R352, is adjusted for optimum performance of the horizontal-sweep circuit, and normally requires no adjustment. If there has been a replacement of tubes or components in the horizontal-sweep circuit, it may be necessary to adjust the DEFLECT. control to obtain sufficient width.
MODELS 49-1450, CODE 123, 49-1475, CODE 123, AND 49-1480, CODE 123

Philco Television Receiver Model 49-1450, Code 123, is similar to Model 49-1450, Code 121; and Philco Television Radio-Photograph Models 49-1475, Code 123, and 49-1480, Code 123, are similar to Models 49-1475, Code 121, and 49-1480, Code 121, respectively, with the following exceptions and additions:

1. The Code 123 Models employ an electronic fine-tuning-control circuit, known as a "channel adjuster" circuit.
2. All leads to the CONTRAST control are stranded. The ground side of the CONTRAST control is grounded at terminal 1 of terminal strip B-24 near the 54FG rectifier, instead of being grounded at the same point as the BRIGHTNESS control.
3. R526 is changed from 10,000 ohms to 47,000 ohms.
4. R531 is changed from 1 to 2 watt to a 2-watt resistor.
5. L406, an r-f choke, is added in series with the filament lead to the filaments of Section 4.
6. C525, the 150-mfd, condenser, is not present in the Code 125 Models.
7. C526 is changed from 0.02 mfd to 0.05 mfd.
8. C528 is changed from 0.02 mfd to 0.05 mfd.
9. R536 is changed from 10,000 ohms to 59,000 ohms.
10. R540 is changed from 10,000 ohms to 10,000 ohms.
11. R550, a 4700-ohm resistor, is added in series with the lead between C525 and the junction of C525 and R540.
12. R551, a 100,000-ohm resistor, is added in series with the lead between R531 and ground.
13. R552, a 10,000-ohm potentiometer (DEFLECT control), is added in series with the lead between R536 and B-1.
14. The cathode, pin 2, of the vertical-blocking-oscillator tube and the cathode, pin 2, of the sync-amplifier tube are grounded through resistors. R553, a 1200-ohm resistor, and C530, a .01 mfd condenser, are added in parallel between the junction of the two cathodes and ground.
15. The lead between pin 3 of the damper tube and the HEIGHT control is removed. The positive end of the HEIGHT control is connected to the ungrounded end of C515A. The B-1 end of R549 is removed from the 20-volt supply and reconnected to pin 3 of the damper tube.

Figure 5 shows the complete sectionalized television schematic diagram for Models 49-1450, Code 123, and 49-1480, Code 123. The circuit variations as shown on pages 2 and 9 show the differences in the circuits of Models 49-1450, Code 123 and 49-1475, Code 123.

For additional service information for Models 49-1450, 49-1475, and 49-1480, all Code 123, refer to the Philco Service Manual (PR-1723) covering Models 49-1450, 49-1475, and 49-1480, all Code 121. The Replacements Parts List in that manual also applies to the Code 123 Models, except for the changes and additions in the Supplementary Parts List below:

SUPPLEMENTARY PARTS LIST

FOR MODELS 49-1450, 49-1475, AND 49-1480, ALL CODE 123

Reference Symbol Description Service Part No.
R303 Potentiometer, horizontal control, 5,000 ohms
R315 Resistors, 30,000 ohms
R316 Resistors, vertical divider, 30,000 ohms
R317 Resistors, voltage divider, 15,000 ohms
R318 Switch, CHASSIS ADJUST OFF-FONT
R335 Condenser, vertical divider, 0.02 mfd
R336 Condenser, horizontal divider, 0.01 mfd
R337 Condenser, cathode by-pass, 1 mfd
R338 Resistor, plate dropping, 10,000 ohms
R339 Resistor, bias tube, 470 ohms
R340 Resistor, vertical divider limiting, 100,000 ohms
R352 Resistor, potentiometer, DEFLECT control, 10,000 ohms
R533 Resistor, contrast, 12,000 ohms
Knob, CONTRAST control, 56-4925-1
Knob, CONTRAST control, 56-4953-L7CP
Knob, CHANNEL ADJUST control, 56-4947
Knob, CHANNEL ADJUST control, 56-4947
Knob, CHANNEL ADJUST control, 56-4947

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All of the above models are identified as A or B chassis, depending upon their coil complement. Chassis A includes coils for Television Channels 2, 3, 4, 5, 7, 9, 11, and 13. Chassis B includes coils for Television Channels 2, 3, 4, 5, 6, 8, 10, and 12.

Philco Model 49-1450, Code 125T is a television receiver in a modern-style, console-type cabinet. Philco Model 49-1475, Code 125T is a combination television receiver, AM-FM radio, and a period-style, console cabinet. Philco Model 49-1480, Code 125T is similar to Model 49-1475, Code 125T, but it is a custom, cabinet model.

The television chassis of the above models are similar to Code 123 of these models with the exception of the following changes in the video section for the Code 123 model:


2. A modification of one of the existing accompanying sound stages (L307), and making it an adjacent sound stage.

3. A modification of the existing accompanying sound stage (L304), and making it an accompanying sound stage.

These changes were made to provide additional accompanying sound rejection for reception in areas where the transmitted sound is more powerful than the transmitted video.

A detailed description of the changes is as follows:

1. The lead connecting L301 to the plate (pin 5) of the 1st video diode amplifier is removed, and the new lead is connected in series.

2. The accompanying sound stage, L307, is modified as follows:

- C320 is changed in value from 56 ufo to 39 ufo.
- C321 is changed in value from 56 ufo to 39 ufo.

These changes increase the resonant frequency of L307 from 221 mc to 281 mc, making it an adjacent sound stage.

### Video-L-F

<table>
<thead>
<tr>
<th>Step</th>
<th>Signal-Generator Connection</th>
<th>Output-Indicator Connection</th>
<th>Signal-Generator Setting</th>
<th>Adjust</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Connect outputs of AM and FM signal generators through 14 j3 to grid (pin 11) of 1st video diode.</td>
<td>Connect vertical input of oscilloscope to ALIGN TEST jack, J91.</td>
<td>Set FM generator to 25 mc ± 4 mc deviation. Set AM generator to 26.25 mc, to produce marker pip on response curve.</td>
<td>TC384 for curve similar to curve 1.</td>
</tr>
<tr>
<td>2</td>
<td>Connect outputs of AM and FM signal generators through 14 j3 to grid (pin 11) of 2nd video diode.</td>
<td>Same as step 1.</td>
<td>Set FM generator to 25 mc ± 4 mc deviation. Set AM generator (unmodulated) to 26.25 mc, and 25 mc, to produce marker pip on response curve as required.</td>
<td>TC385 for peak at 26.25 mc, then adjust J1104.</td>
</tr>
<tr>
<td>3</td>
<td>Connect outputs of AM and FM signal generators through 14 j3 to grid (pin 11) of 2nd video diode.</td>
<td>Same as step 1.</td>
<td>Set FM generator to 25 mc ± 4 mc deviation. Set AM generator (unmodulated) to 25 mc, to produce marker pip on response curve.</td>
<td>TC386 for curve similar to curve 2.</td>
</tr>
<tr>
<td>4</td>
<td>Connect outputs of AM and FM signal generators through 14 j3 to grid (pin 11) of 1st video diode.</td>
<td>Same as step 1.</td>
<td>Set FM generator to 25 mc ± 4 mc deviation.</td>
<td>TC387 for curve similar to curve 4.</td>
</tr>
<tr>
<td>5</td>
<td>Connect output of AM signal generator through 14 j3 to grid (pin 11) of mixer tube.</td>
<td>Same as step 1.</td>
<td>Set AM generator (modulated) to 28.1 mc.</td>
<td>TC371 and TC387 for minimum indication on oscillator.</td>
</tr>
</tbody>
</table>

**SUPPLEMENTARY PARTS LIST FOR MODELS 49-1450, 49-1475, AND 49-1480, ALL CODE 123T**

<table>
<thead>
<tr>
<th>References Symbol</th>
<th>Description</th>
<th>Service Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C312</td>
<td>Condenser, accompanying sound trap.</td>
<td>21-12232-2</td>
</tr>
<tr>
<td>C309</td>
<td>Condenser, accompanying sound trap.</td>
<td>21-12232-2</td>
</tr>
<tr>
<td>C308</td>
<td>Condenser, fixed trimmer, 50 puf.</td>
<td>21-12443-2</td>
</tr>
<tr>
<td>C303</td>
<td>Condenser, adjacent sound trap, 19 puf.</td>
<td>10-21341-3</td>
</tr>
<tr>
<td>C304</td>
<td>Condenser, adjacent sound trap, 14 puf.</td>
<td>10-21341-3</td>
</tr>
<tr>
<td>L317</td>
<td>Cells, adjacent sound trap.</td>
<td>32-43032</td>
</tr>
<tr>
<td>R315</td>
<td>Resistor, loading, 510 ohms.</td>
<td>66-5315840</td>
</tr>
<tr>
<td>R341</td>
<td>Resistor, loading, 10,000 ohms.</td>
<td>66-5310340</td>
</tr>
<tr>
<td>TC300</td>
<td>Tuning core (Port of L317).</td>
<td>56-39315</td>
</tr>
</tbody>
</table>

**SOUND I-F**

11 Connect output of AM signal generator through 14 j3 to grid (pin 11) of mixer tube. Connect vertical input of oscilloscope to ALIGN TEST jack, J91. Connect 50 to 250 (or 10 to 50) range to AFC TEST jack, J90. Set AM generator (modulated) to 26.25 mc, minimum indication on oscilloscope.

**FINAL I-F CHECK**

11 Connect output of AM signal generator through 14 j3 to grid (pin 11) of mixer tube. Connect vertical input of oscilloscope to ALIGN TEST jack, J91. Connect 50 to 250 (or 10 to 50) range to AFC TEST jack, J90. Set AM generator (modulated) to 26.25 mc, minimum indication on oscilloscope.

**NOTE:** The AM signal will appear as a series of sine waves superimposed on the discriminator curve.

**PRODUCTION CHANGES FOR MODELS 49-1450, 49-1475, AND 49-1480, ALL CODE 123**

**RUN NO.** | **DESCRIPTION** | **NEW PART NO.** | **REASON FOR CHANGE** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Aerial terminal leads removed from chassis, and placed over power transformer by means of a bracket-screw. The top terminal board is the low-frequency audio input, and the bottom terminal board is the high-frequency audio input.</td>
<td>19 (49-1450)</td>
<td>54-71218</td>
</tr>
<tr>
<td>3</td>
<td>Aerial terminal leads removed from chassis, and placed over power transformer by means of a bracket-screw. The top terminal board is the low-frequency audio input, and the bottom terminal board is the high-frequency audio input.</td>
<td>19 (49-1451)</td>
<td>54-71218</td>
</tr>
<tr>
<td>4</td>
<td>Achromatized wire resistors added in parallel with CONTRAST control.</td>
<td>56-3233140</td>
<td>To improve resolution by modifying contrast range.</td>
</tr>
</tbody>
</table>

For additional service information for the above models, refer to Philco Service Manuals PR-1743 and PR-1723. The Replacement Parts List in these manuals also applies to Code 123T models except for the changes and additions indicated in the Supplementary Parts List below.

For additional data: See information on Code 123 for these models.