

# PHILCO RADIO-PHONOGRAPH MODELS 51-1730 and 51-1730(L)

## SPECIFICATIONS

CABINET .....	Wood console, mahogany or white oak finish
CIRCUIT .....	5-tube superheterodyne (with t-r stage)
FREQUENCY RANGE .....	540—1620 kc.
AUDIO OUTPUT .....	3 watts
OPERATING VOLTAGE .....	105—120 volts, 60 cycles, a.c.
POWER CONSUMPTION	
Radio .....	50 watts
Phonograph .....	65 watts, total
INTERMEDIATE FREQUENCY .....	455 kc.
AERIAL .....	Built-in low-impedance loop; provision for external aerial
PHILCO TUBES (6) .....	7B7 r-f ampl., 7B7 i-f ampl., 7A8 converter, 7B6 det.-a.v.c.-1st audio ampl., 6W6GT output, 7X6 rectifier
PHONOGRAPH .....	Philco Model M-22 All-Speed Automatic Record Changer. (For service information, refer to the Record Changer section of this Yearbook.)

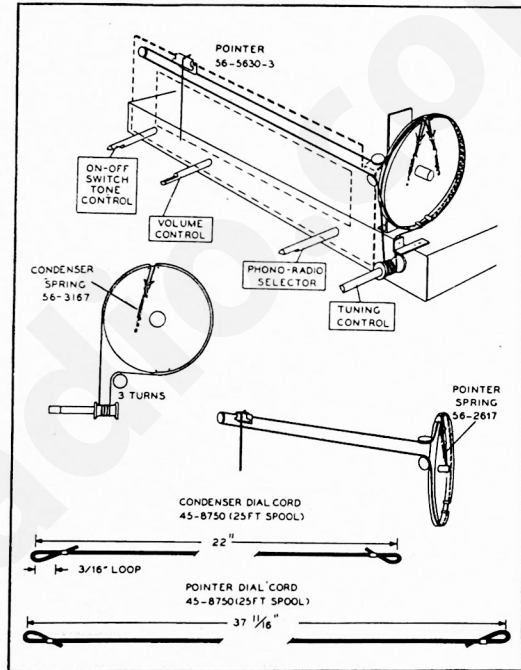


Figure 1. Drive-Cord Installation Details

## ALIGNMENT PROCEDURE

**DIAL POINTER**—With tuning gang fully meshed, set pointer to coincide with the first scribe mark from the left on the dial backplate.

**RADIO CONTROLS**—Set volume control to maximum, tone control fully counterclockwise, and RADIO-PHONO switch to RADIO position.

**OUTPUT METER**—Connect across voice-coil terminals.

**SIGNAL GENERATOR**—Connect ground lead to B-. Connect output lead as indicated in chart. Use modulated output.

**OUTPUT LEVEL**—During alignment, attenuate input signal to maintain an output-meter indication of 1.25 volts.

ALIGNMENT PROCEDURE (Continued)

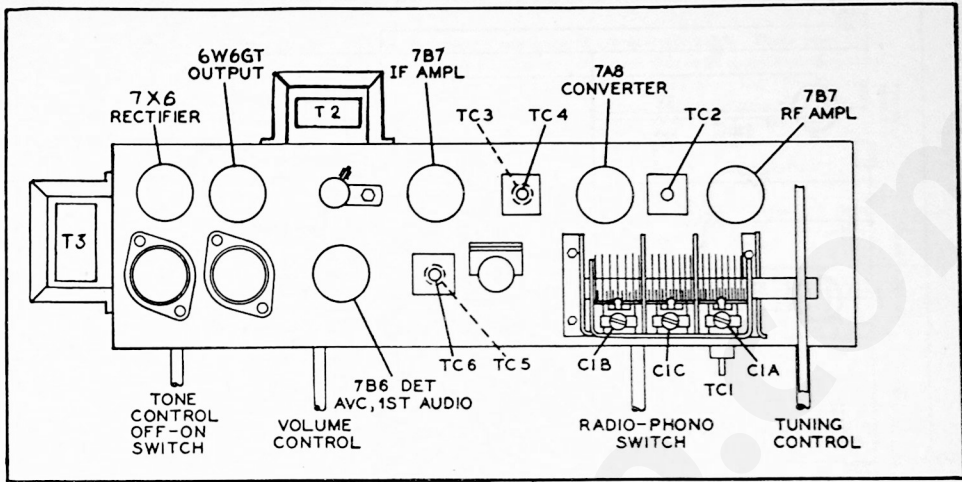


Figure 2. Top View, Showing Trimmer Locations

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through a .1- $\mu$ f. condenser to r-f. ampl. section of C1.	455 kc.	Gang fully meshed.	Adjust, in order given, for maximum output.	TC2—2nd i-f sec. TC5—2nd i-f pri. TC4—1st i-f sec. TC3—1st i-f pri.
2	Radiating loop (see note below).	1620 kc.	1620 kc.	Adjust for maximum.	C1C—osc. trimmer
3	Same as Step 2.	1500 kc.	1500 kc.	Adjust for maximum.	C1B—r-f trimmer C1A—ant. trimmer
4	Same as Step 2.	580 kc.	580 kc.	Adjust for maximum while rocking tuning control.	TC2—r-f core TC1—ant. core*

**RADIATING LOOP:** Make up a 6-to-8 turn, 6-inch diameter loop of insulated wire; connect to signal-generator output leads, and place near radio loop.

\* The aerial tuning core, TC1, should NOT be adjusted unless the coil has been replaced.

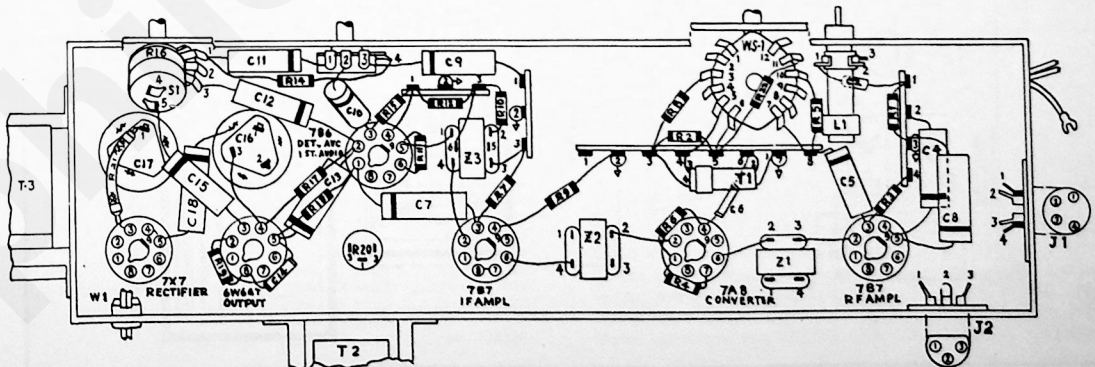


Figure 3. Symbolized Chassis, Showing Parts Placement

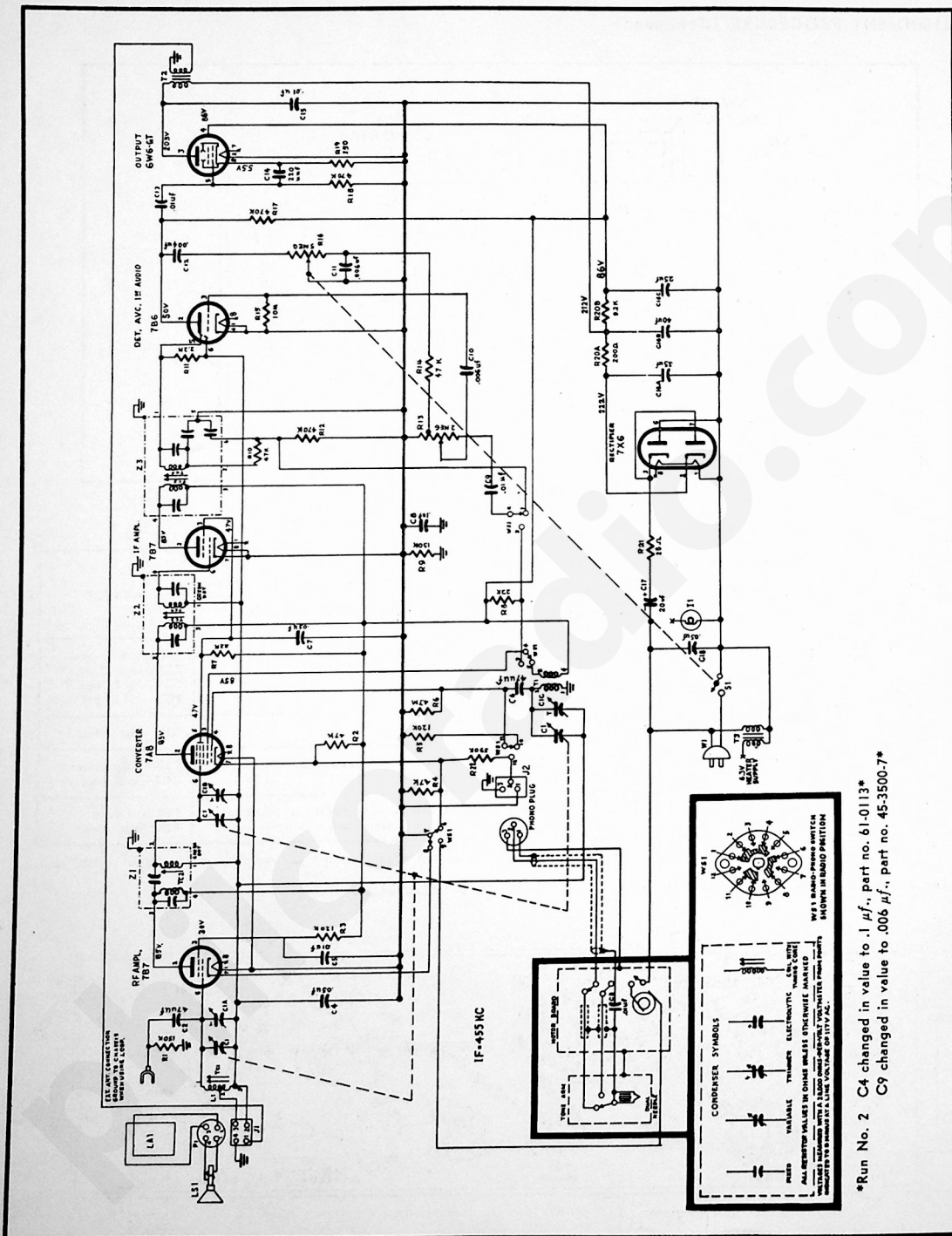


Figure 4. Philco Radio-Phonograph Models 51-1730 and 51-1730 (L), Schematic Diagram

**COMPONENT SYMBOLS**

- RESISTOR
- VARIABLE RESISTOR
- ELECTRONIC
- THIMER
- CIRCUIT BREAKER
- CAPACITOR
- ELECTROLYTIC CAPACITOR
- WIRE-WOUND RESISTOR
- TAPPED CAPACITOR
- SWITCH
- POWER TRANSFORMER
- IF TRANSFORMER
- SPEAKER
- HEADPHONE
- GROUND
- AC LINE

W.F. 1 BRAND-PHONO SWITCH  
 W.F. 1 BRAND-PHONO SWITCH  
 INPUT IN REMOTE POSITION

\*Run No. 2 C4 changed in value to .1  $\mu$ f., part no. 61-0113\*  
 C5 changed in value to .006  $\mu$ f., part no. 45-3500-7\*

## REPLACEMENT PARTS LIST

NOTE: Part numbers marked with an asterisk (\*) are general replacement items. These numbers may not be identical with those on factory parts; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the radio will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Symbol	Description	Part No.
C1	Condenser, tuning gang, 3-section	31-2748-2
C1A	Condenser, aerial trimmer	Part of C1
C1B	Condenser, r-f trimmer	Part of C1
C1C	Condenser, oscillator trimmer	Part of C1
C2	Condenser, aerial (external) coupling, 4.7 $\mu$ f.	30-1221-5*
C3	Condenser, d-c blocking, phono isolation, .01 $\mu$ f.	61-0120*
C4	Condenser, a-v-c filter, .05 $\mu$ f.	61-0122*
C5	Condenser, screen by-pass, .01 $\mu$ f.	61-0120*
C6	Condenser, d-c blocking, 47 $\mu$ f.	60-00475417*
C7	Condenser, screen by-pass, .05 $\mu$ f.	61-0122*
C8	Condenser, by-pass, B- to ground, .1 $\mu$ f.	61-0113*
C9	Condenser, d-c blocking, .01 $\mu$ f.	61-0120*
C10	Condenser, d-c blocking, .006 $\mu$ f.	61-0105*
C11	Condenser, tone compensation, .01 $\mu$ f.	61-0120*
C12	Condenser, tone compensation, high-cut, .004 $\mu$ f.	61-0179*
C13	Condenser, d-c blocking, .01 $\mu$ f.	61-0120*
C14	Condenser, grid by-pass, 220 $\mu$ f.	62-122001001*
C15	Condenser, tone compensation, .01 $\mu$ f.	61-0120*
C16	Condenser, electrolytic, 3-section	30-2568-45
C16A	Condenser, filter, 35 $\mu$ f., 250v	Part of C16
C16B	Condenser, filter, 40 $\mu$ f., 250v	Part of C16
C16C	Condenser, filter, 25 $\mu$ f., 250v	Part of C16
C17	Condenser, electrolytic, voltage doubler, 20 $\mu$ f., 150v	30-2568-22
C18	Condenser, line by-pass, .05 $\mu$ f.	61-0122*
I1	Pilot lamp	34-2064
J1	Socket, aerial input and speaker	27-6214-1
J2	Socket, phono input	27-6126*
L1	Coil, aerial	32-4413-1
LA1	Loop aerial	32-4394-8
LS1	Speaker, 8-inch, p-m	36-1626-1
P1	Cable-and-plug assembly, speaker and loop	41-3948-3
R1	Resistor, aerial isolating, 150,000 ohms	66-4158340*
R2	Resistor, voltage divider, 47,000 ohms	66-3478340*
R3	Resistor, screen dropping, 120,000 ohms	66-4128340*
R4	Resistor, voltage divider (phono), 4700 ohms	66-2478340*
R5	Resistor, grid return, 120,000 ohms	66-4128340*
R6	Resistor, grid return (phono), 4.7 megohms	66-5478340*
R7	Resistor, dropping, 22,000 ohms	66-3228340*
R8	Resistor, plate load (phono), 22,000 ohms	66-3228340*
R9	Resistor, leakage, 150,000 ohms	66-4158340*
R10	Resistor, i-f filter, 47,000 ohms	66-3478340*
R11	Resistor, a-v-c diode load, 2.2 megohms	66-5228340*
R12	Resistor, diode load, 470,000 ohms	66-4478340*
R13	Volume control, 2 megohms, tapped at 1 megohm	33-5535-29
R14	Resistor, tone compensation, 47,000 ohms	66-3478340*
R15	Resistor, grid return, 10 megohms	66-6108340*
R16	Tone control (with off-on switch), 5 megohms	33-5568-19
R17	Resistor, plate load, 470,000 ohms	66-4478340*
R18	Resistor, grid return, 470,000 ohms	66-4478340*
R19	Resistor, cathode bias, 150 ohms	66-1154340*
R20	Resistor, 2-section, wire-wound	33-3445-1
R20A	Resistor, filter, 200 ohms, 2 watts	Part of R20
R20B	Resistor, filter, 9200 ohms, 4 watts	Part of R20
R21	Resistor, current limiting, 25 ohms	33-1334-5
R22	Resistor, phono tone compensation, 390,000 ohms	66-4398340*

Symbol	Description	Part No.
S1	Switch, off-on	Part of R16
T1	Transformer, oscillator	32-4263
T2	Transformer, output	32-8450-1
T3	Transformer, filament	_____
W1	Line cord	L-2183*
WS1	Switch, water, radio-phono	42-1926
Z1	Transformer, r-f	32-4399-4A
Z2	Transformer, 1st i-f	32-4160A
Z3	Transformer, 2nd i-f	32-4240A

### MISCELLANEOUS

Description	Service Part No.
Cabinet, 51-1730	10821
Cabinet, 51-1730 (L)	10821-1
Dial scale	_____
Domes (4)	45-6190
Door pull	56-6493
Door pull, light cabinet	56-6493-1
Door support	76-6275
Frame, changer mounting	76-6264
Knife hinge (2), RH and LH	45-6036
Knife, hinge (2), RH and LH, light cabinet	45-6036-1
Rubber band (2), scale mounting	54-4480
Scale strap (2), ends	56-4860
Scale, strap, middle	56-4756FE11
Screw (6), scale strap mounting	1W25328FE11
Speaker bolts (4)	W-700-2
Tapped stud (2)	56-6296
Washer, fiber (4), speaker mounting	27-7467
Dial backplate assembly	76-5723
Bracket-and-pulley assembly	76-4003
Bumper, rubber (2)	54-4181
Diffusing panel	54-7606-1
Fastener, snap	28-4342FA3
Spring (2)	56-3841
Drive cord, 25-foot spool	48-8750*
Pointer	_____
Spring, pointer drive	56-2617
Fish paper	27-9111
Knob (1)	54-4718-12
Knob (3)	54-4718-6
Mount, rubber, gang mounting (4)	27-4771-1
Pilot-lamp bracket-and-clip assembly	_____
Pilot-lamp-socket assembly	27-6233-2
Rubber band, around electrolytic	54-4480
Shaft-and-pulley assembly, drive	76-3959-3
Bushing	27-9437
Spring, hairpin (2)	_____
Spring, hairpin	57-0985
Sleeve, changer mounting (3)	54-7798
Socket, Loktal (5)	27-6207
Socket, octal	27-6174
Speed nut, changer mounting (3)	_____
Spring, changer mounting, heavy (3)	56-7059FA9
Spring, changer mounting, light (3)	56-7059-1F747
Spring, gang drive	56-3167
Wafer, electrolytic mtg. (2)	27-9508

**MODELS 51-1730 AND 51-1730(L)  
CORRECTIONS TO PARTS LIST**

Reference Symbol	Description	Service Part No.
T3	Transformer, filament .....	32-8461
	Dial scale .....	54-5100-1
	Pilot-lamp bracket and clip assembly .....	Delete
	Pointer .....	56-5630-3FCP
	Speed nut, changer mounting (3) .....	W-2554
	Spring, hairpin (2) .....	57-1468FA3

**PRODUCTION CHANGES**

NOTE: The following two changes were made early in production, but were not identified by run number.

C15 was changed to .0068  $\mu$ f., Part No. 45-3505-57\*.

C18 was changed to .047  $\mu$ f., Part No. 45-3505-62\*.

**Run 2**

To reduce modulation hum, C4 was changed to 1 $\mu$ f., Part No. 61-0113\*, and C9 was changed to .006  $\mu$ f., Part No. 45-3500-7\*.

**Run 3**

To reduce a-v-c distortion, the following changes were made:

The secondary of the first i-f transformer, Z2, was returned to B-.

A 330-ohm bias resistor, Part No. 66-1338340\*, was added, between the cathode of the 1st i-f tube, 7B7, and B-.

A .05  $\mu$ f. by-pass condenser, Part No. 61-0122\*, was added, from the cathode of the 7B7 1st i-f tube to B-.