PHILCO RADIO-PHONOGRAPH MODEL 53-1754

SPECIFICATIONS

CABINET	Wood console, mahogany
CIRCUIT	Five-tube superheterodyne (plus rectifier)
FREQUENCY RANGE	
Broadcast	540 kc. to 1620 kc.
Special Services	1700 kc. to 3400 kc.
AUDIO OUTPUT	4.5 watts
OPERATING VOLTAGE	105—120 volts, a.c.
POWER CONSUMPTION	80 watts
ANTENNA	Built-in, low-impedance loop
INTERMEDIATE FREQUENCY	455 kc.
PHILCO TUBES	6BJ6 r-f ampl; 6BE6 converter, osc., phono preampl; 6BJ6 i-f ampl; 6AV6 detector, a.v.c., 1st audio; 6AQ5 output; 6X4 rectifier

MODEL 53-1754

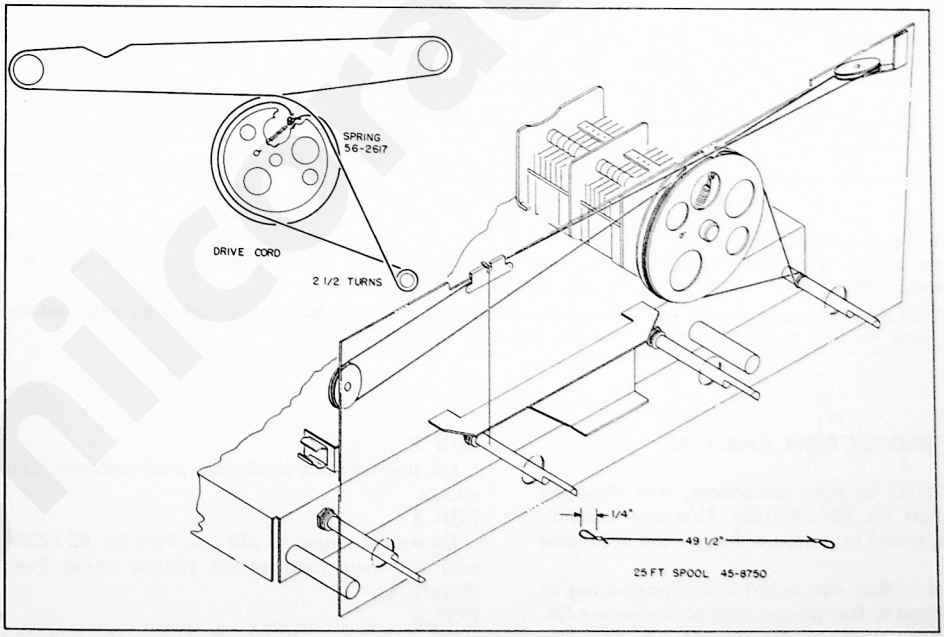

Figure 1. Drive-Cord Installation Details

ALIGNMENT PROCEDURE

GENERAL

RADIO CONTROLS—Set volume control for maximum output, and set tuning control as indicated in the alignment chart. Set band switch to broadcast position for first 5 steps, then to special services position for steps 6 and 7.

OUTPUT INDICATOR—Connect output indicator (either an oscilloscope or a 1000-ohms-per-volt, a-c voltmeter) across voice-coil terminals.

SIGNAL GENERATOR—Use an AM r-f generator, connected as indicated in the alignment chart.

OUTPUT LEVEL—During alignment, attenuate signal-generator output to maintain output indication below 1 volt.

DIAL POINTER—Before the alignment is started, the dial pointer should be set to coincide with the dial scale mark to the left of "55" when the tuning gang is fully meshed.

ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO		
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to chassis. Output lead through a .01-μf. condenser to pin 7 (mixer grid) of 6BE6, converter.	455 kc.	Tuning gang fully open.	Adjust, in order given in next column, for maximum output.	TC6—2nd i-f sec. TC3—1st i-f pri. TC5—2nd i-f pri. TC4—1st i-f sec.
2	Radiating loop. See Note 1 below.	1620 kc.	1620 kc. See Note 2 below.	Adjust for maximum output.	C1C—osc. trimmer
3	Same as step 2.	1520 kc.	Tune radio to generator signal.	Adjust for maximum output. (High-frequency adjustment)	C1B—mixer-grid trimmer C1A—r-f trimmer
4	Same as step 2.	580 kc.	Same as step 3.	Adjust for maximum output. (Low-frequency adjustment)	TC2—r-f transformer
5	Repeat steps 3 and 4 until no further improvement is obtained.				
6	Same as step 2.	3200 kc.	Same as step 3.	Adjust for maximum output.	C10—special services mixer-grid trimmer C4—special services r-f trimmer
7	Same as step 2.	1800 kc.	Same as step 3.	Adjust for maximum output.	C2—special services r-f padder

NOTE 1: Make up a 6–8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place about 1 foot from radio loop antenna. The position of the radio loop with respect to the chassis should be approximately the same as when both are mounted in the cabinet.

NOTE 2: To set the tuning gang to 1620 kc., place a piece of 6-mil flat shim stock beneath the heel of the rotor, and turn the rotor until it holds the shim firmly in place. Then remove the shim.

PRODUCTION CHANGES

RUN 2

C5, r-f cathode by-pass condenser, was changed to 100 μμf., Part No. 62-110001001. This new condenser was then wired to a ground lug on the 6BJ6 tube socket.

The lead of L2 that was wired to the ground lug of TB1 was rewired to the ground side of condenser C4.

C8, r-f padder, was changed to 865 μμf., Part No. 30-1220-68.

RUN 3

C5, line by-pass condenser, was removed from the circuit.

RUN 4

C9 was changed to 220 μμf., Part No. 62-122001001, and R14 was changed to 470,000 ohms, Part No. 66-4478340.

RUN 5

C9 was changed to .0047 μf., Part No. 30-4650-56.

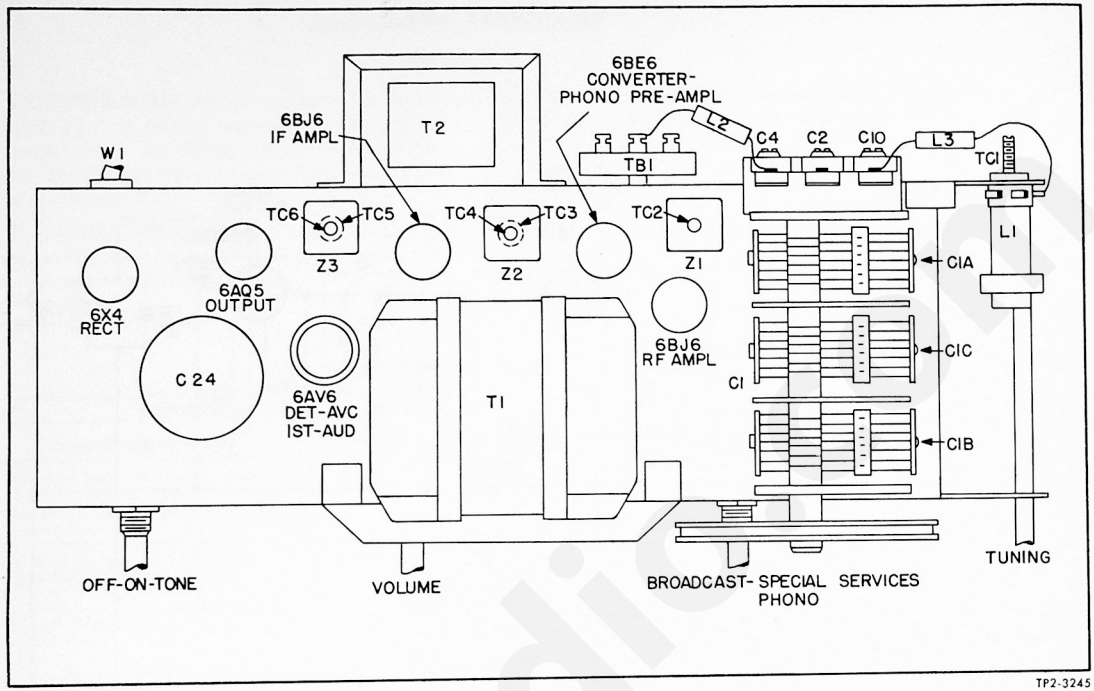

Figure 2. Top View, Showing Tuning Adjustments

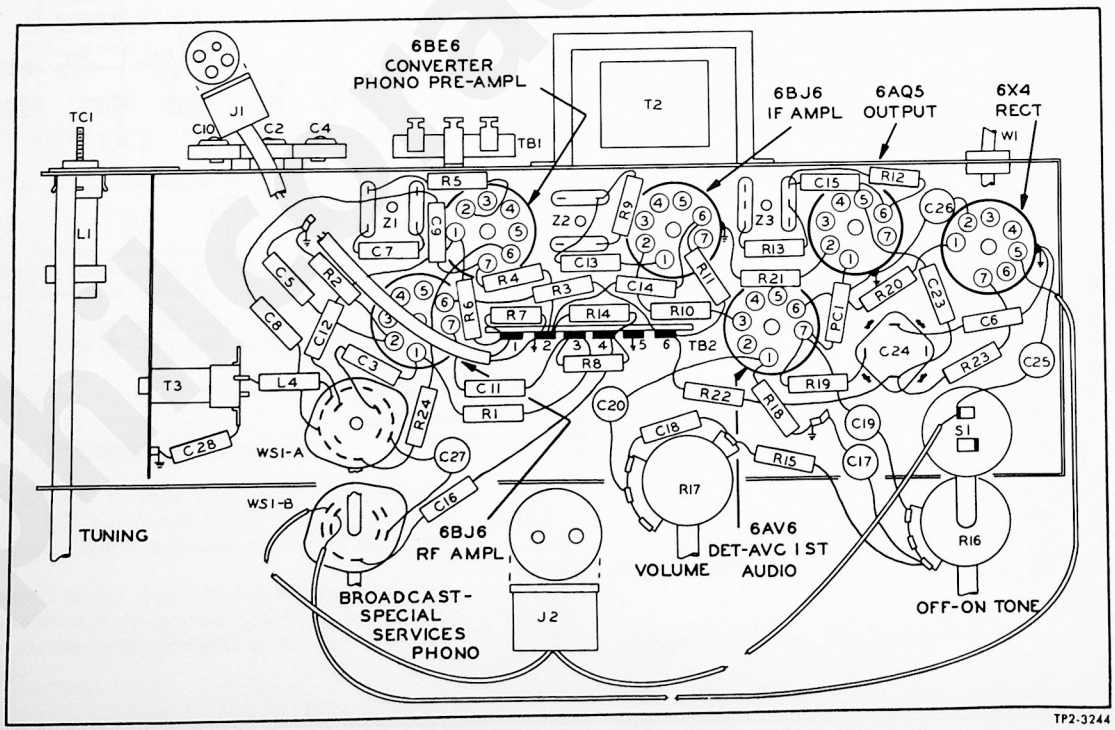

Figure 3. Base View, Showing Parts Placement

REPLACEMENT PARTS LIST

NOTE: Part numbers identified by 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 will be unchanged. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.
C1	Condenser, tuning gang, 3-section	31-2771-3
C1A	Condenser, trimmer, antenna	Part of C1
C1B	Condenser, trimmer, r-f	Part of C1
C1C	Condenser, trimmer, oscillator	Part of C1
C2	Condenser, padder, special services r-f	Part of CA1
C3	Condenser, d-c blocking, 100 μμf.	62-110001001*
C4	Condenser, trimmer, special services r-f	Part of CA1
C5	Condenser, cathode by-pass, .047 μf.	30-4650-45
C6	Condenser, screen by-pass, .047 μf.	30-4650-45
C7	Condenser, r-f by-pass, 5 μμf.	60-90505020
C8	Condenser, fixed padder, 944 μμf.	30-1220-65
C9	Condenser, d-c blocking, 100 μμf.	62-110001001*
C10	Condenser, trimmer, special services mixer-grid	Part of CA1
C11	Condenser, a-v-c by-pass, .047 μf.	30-4650-45*
C12	Condenser, oscillator coupling, 47 μμf.	60-00475417
C13	Condenser, i-f coupling, 220 μμf.	62-122001001*
C14	Condenser, screen by-pass, .047 μf.	30-4650-45*
C15	Condenser, plate by-pass, .01 μf.	30-1238-2*
C16	Condenser, audio coupling, .0068 μf.	30-4650-57
C17	Condenser, tone compensation (bass boost), .005 μf.	30-1238-1*
C18	Condenser, tone compensation, 47 μμf.	60-00475417
C19	Condenser, tone compensation (high cut) .01 μf.	30-1238-2*
C20	Condenser, audio coupling, .005 μf.	30-1238-1*
C21	Condenser, d-c blocking, .007 μf.	Part of PC1
C22	Condenser, r-f by-pass, 220 μμf.	Part of PC1
C23	Condenser, tone compensation, .0033 μf.	30-4650-89*
C24	Condenser, electrolytic filter	30-2584-32
C24A	Condenser, filter, 20 μf.	Part of C24
C24B	Condenser, filter, 20 μf.	Part of C24
C24C	Condenser, filter, 40 μf.	Part of C24
C24D	Condenser, filter, 10 μf.	Part of C24
C25	Condenser, line by-pass, .01 μf.	30-1238-2
C26	Condenser, line by-pass, .01 μf.	30-1238-2
C27	Condenser, audio coupling (phono), .005 μf.	30-1238-1
C28	Condenser, fixed trimmer, 7.5 μμf.	30-1224-65
CA1	Condenser assembly, trimmer	31-6477-17
I1	Lamp assembly, pilot (2)	27-6233-4
J1	Connector, phono input	76-8262-1
J2	Connector, phono a-c	76-8366
L1	Coil, antenna	32-4413-2
L2	Coil, special services r-f	32-4561-5
L3	Coil, special services mixer grid	32-4561-5
L4	Coil, oscillator shunt	32-4562-1
LA1	Loop antenna	32-4394-13
LS1	Speaker (10")	
PC1	Printed circuit	30-1239-4
R1	Resistor, r-f a-v-c, 1 megohm	66-5108340*
R2	Resistor, cathode bias, 82 ohms	66-0828340*
R3	Resistor, screen dropping, 22,000 ohms	66-3225340*
R4	Resistor, grid leak, 1 megohm	66-5108340
R5	Resistor, cathode bias, 27,000 ohms	66-3278340*
R6	Resistor, oscillator grid leak, 33,000 ohms	66-3338340*
R7	Resistor, load (phono), 1 megohm	66-5108340*
R8	Resistor, a-v-c load, 2.2 megohms	66-5228340*
R9	Resistor, grid leak, 470,000 ohms	66-4478340*
R10	Resistor, cathode bias, 270 ohms	66-1275340*
R11	Resistor, screen dropping, 68,000 ohms	66-3688340*
R12	Resistor, plate dropping, 10,000 ohms	66-3108340*
R13	Resistor, i-f filter, 47,000 ohms	66-3478340*
R14	Resistor, diode load, 330,000 ohms	66-4338340*
R15	Resistor, tone compensation (bass boost)	66-3478340*
R16	Resistor, tone control, 5 megohms	33-5566-48
R17	Resistor, volume control, 2 megohms	33-5535-36
R18	Resistor, grid leak, 10 megohms	66-6108340*
R19	Resistor, plate load, 220,000 ohms	66-4228340*
R20	Resistor, grid leak, 470,000 ohms	66-4478340*
R21	Resistor, cathode bias, 330 ohms, 1 watt	66-1334340*
R22	Resistor, B+ filter, 1000 ohms	66-2105340*
R23	Resistor, B+ filter, 270 ohms	66-1275340*
R24	Resistor, plate load, preampl., 220,000 ohms	66-4228340*
S1	Switch, off-on	Part of R16
S2	Switch, off-on, phono motor	Part of M-24 Record Changer
T1	Transformer, power	32-8610
T2	Transformer, output	32-8242-13
T3	Transformer, oscillator	32-4453-2
W1	Line cord	L2183*
WS1	Switch, band	42-1997
Z1	Transformer, r-f	32-4399-7A
Z2	Transformer, 1st i-f	32-4160A
Z3	Transformer, 2nd i-f	32-4240A

MISCELLANEOUS

Description	Service Part No.
Cabinet	10985
Back	54-8932
Dome (4)	45-6190
Door pull (2)	56-7062-1
Hinge, right hand (2)	56-9922
Hinge, left hand (2)	56-9922-1
Bullet catch (2)	45-6002
Strike plate (2)	45-6003
Changer frame ass'y.	76-6600-2
Rail ass'y., r.h. (changer drawer)	76-6597
Rail ass'y., l.h. (changer drawer)	76-6258
Spring, changer mtg. (3)	56-7059FA9
Spring, changer mtg. (3)	56-7059-1FCP
Sleeve, changer mtg. (3)	54-7798
Pull knob, changer drawer	56-8496
Frame ass'y.	45-9790
Dial backplate ass'y.	76-8321
Dial scale	54-5184
Clip, scale	56-4756FE11
Knob (3)	54-4718-20
Knob	54-4718-21
Spring, shaft retaining	28-8610
Pointer	56-5630-57
Socket (5)	27-6275
Socket (6AV6)	27-6203-14
Rubber mount, gang mounting	27-4596
Tube shield	56-5629FA3

PARTS LIST ADDITIONS

Description	Service Part No.
Lamp, pilot	34-2064
Cable and socket assembly, phono	76-8366
Shaft, tuning	56-9807-5

PARTS LIST CORRECTIONS

Reference Symbol	Description	Service Part No.
LS1	Speaker	36-1610-9

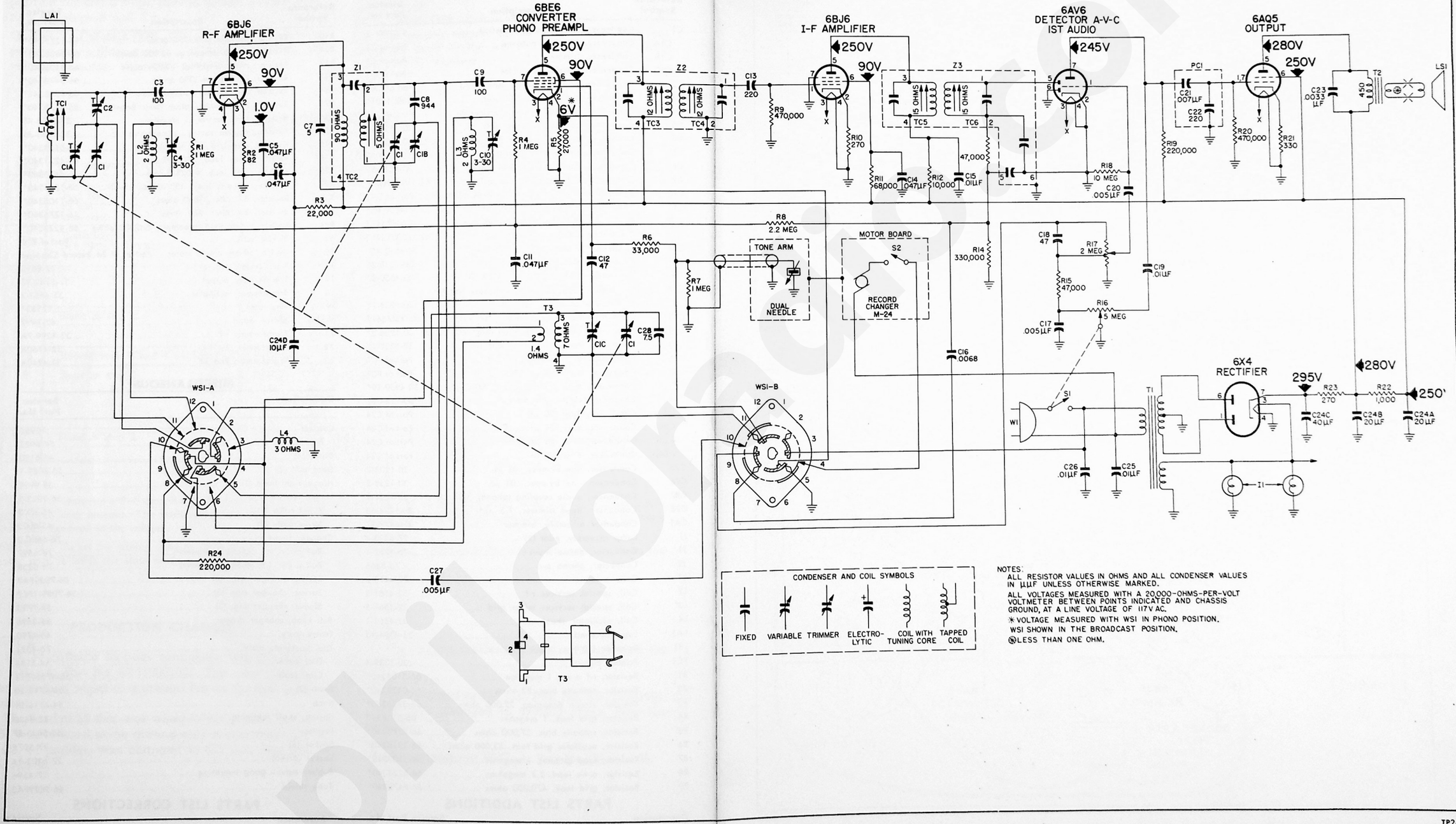

Figure 4. Philco Radio-Phonograph Model 53-1754, Schematic Diagram

1953 TROPIC RADIOS AND RADIO-PHONOGRAPHS