PHILCO RADIO MODELS 53-950, AND 53-954

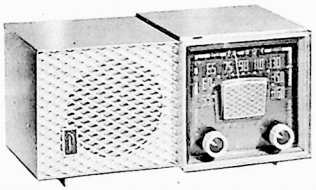
SPECIFICATIONS

Cabinet
- Model 53-950 ..... Phenolic, brown or ivory
- Model 53-954 ..... Wood, mahogany or blond

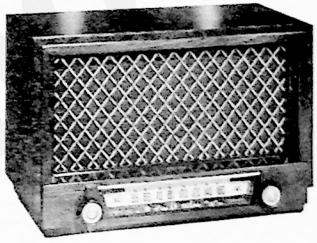
Circuit ..... Five-tube superheterodyne (plus rectifier)

Frequency Range
- Broadcast ..... 540—1620 kc.
- Special Services ..... 1700—3400 kc.

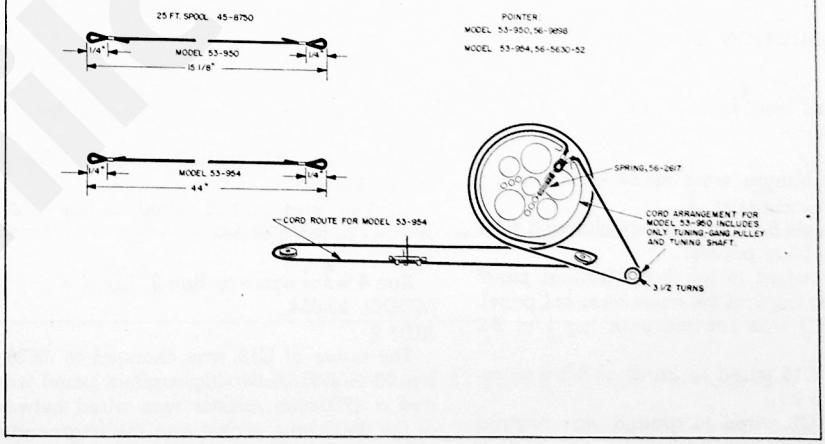
Audio Output ..... 1 watt
Operating Voltage ..... 105—120 volts, a.c. or d.c.
Power Consumption ..... 30 watts
Antenna ..... Built-in, high-impedance loop
Intermediate Frequency ..... 455 kc.
Philco Tubes ..... 6BJ6 r-f ampl.; 12BE6 converter; 6BJ6 i-f ampl.; 6AQ6 det., a.v.c., 1st audio; 35C5 output; 35W4 rectifier



MODEL 53-950



MODEL 53-954



TP2-2656

Figure 1. Drive-Cord Installation Details

ALIGNMENT PROCEDURE

GENERAL

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

OUTPUT INDICATOR—Connect output indicator (either on 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

	SIGNAL GENERATOR		RADIO		
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to B—. Output lead through a .01-μf. condenser to pin 7 (mixer grid) of 12BE6, converter.	455 kc.	Tuning gang fully open.	Adjust, in order given in next column, for maximum output.	TC5—2nd i-f sec. TC4—2nd i-f pri. TC3—1st i-f sec. TC2—1st i-f pri.
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)	TC1—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.	C5—special-services mixer-grid trimmer C2—special-services r-f trimmer
7	Same as step 2.	1800 kc.	Same as step 3.	Adjust for maximum output.	C3—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 near radio loop antenna. The loop antenna must be connected to the radio.

PRODUCTION CHANGES

MODEL 53-950

RUN 2

C18 was rewired from lug 5 of S2 to pin 7 of the 12BE6 tube socket.

RUN 3

The following changes were made in the wiring arrangement of the chassis:

1. Terminal panels B-1 and B-2 were changed from four-lug panels to 5-lug panels.
2. C9, formerly wired to lug 2 of terminal panel B-1, was rewired to lug 1 of the same terminal panel.
3. Lead 1 of PC1 was rewired from lug 1 of B-2 to lug 2 of B-2.
4. The lead of C15 wired to lug 2 of B-2 was rewired to lug 3 of B-2.
5. The lead of C7 wired to ground was rewired to lug 4 of T1.
6. The lead of C10 wired to pin 2 of the 6AQ6 tube socket was rewired to lug 5 of B-1.

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.

7. The lead of R18 wired to pin 3 of the 12BE6 tube socket was rewired to pin 4 of the same tube socket.
8. The lead of R12 wired to pin 1 of the 35W4 tube socket was rewired to pin 6 of the 6AQ6 tube socket.
9. The lead of R17 wired to lug 2 of B-2 was rewired to lug 3 of B-2.
10. The lead of R16 wired to lug 1 of B-2 was rewired to lug 3 of B-2.

RUN 4

Run 4 is the same as Run 3.

MODEL 53-954

RUN 2

The value of C15 was changed to .0068 μf., Part No. 30-4650-91. A two-lug terminal panel was added, and a 4700-ohm resistor was wired between pin 7 of the 35C5 tube socket and the ungrounded lug of this added terminal panel. A .047-μf. condenser was wired between the same lug on the terminal and pin 5 of S1. The Part No. for this condenser is 30-4650-62. The Part No. for the resistor is 66-2474340.

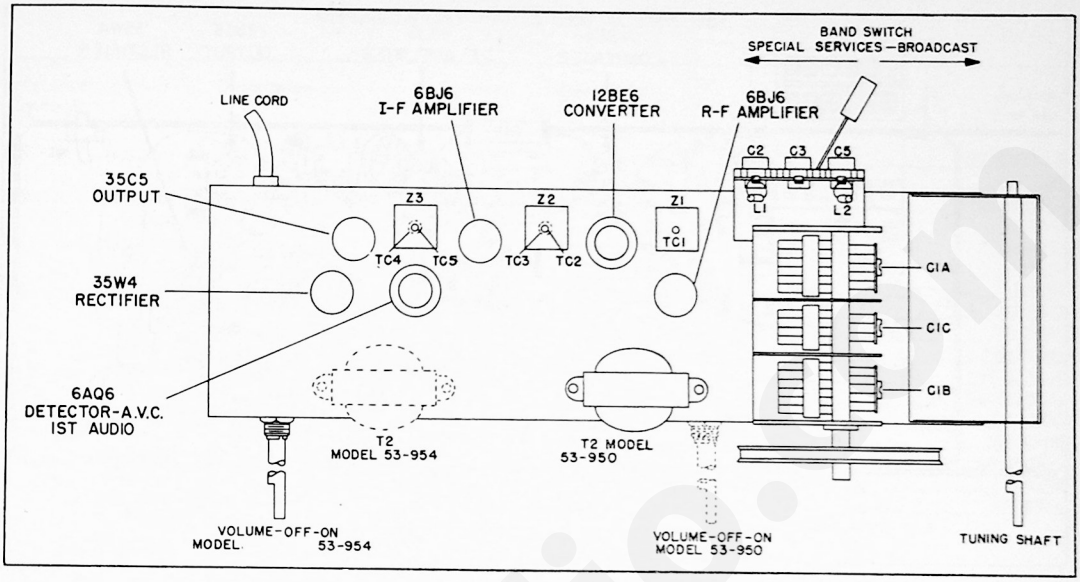


Figure 2. Top View, Showing Tuning Adjustments

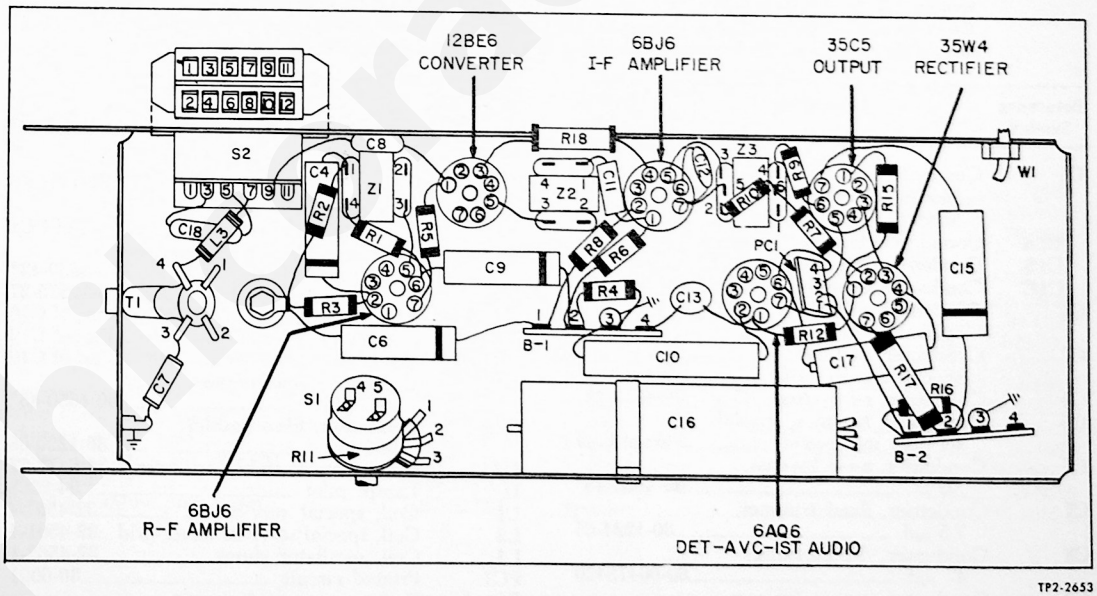


Figure 3. Base View, Model 53-950, Showing Parts Placement

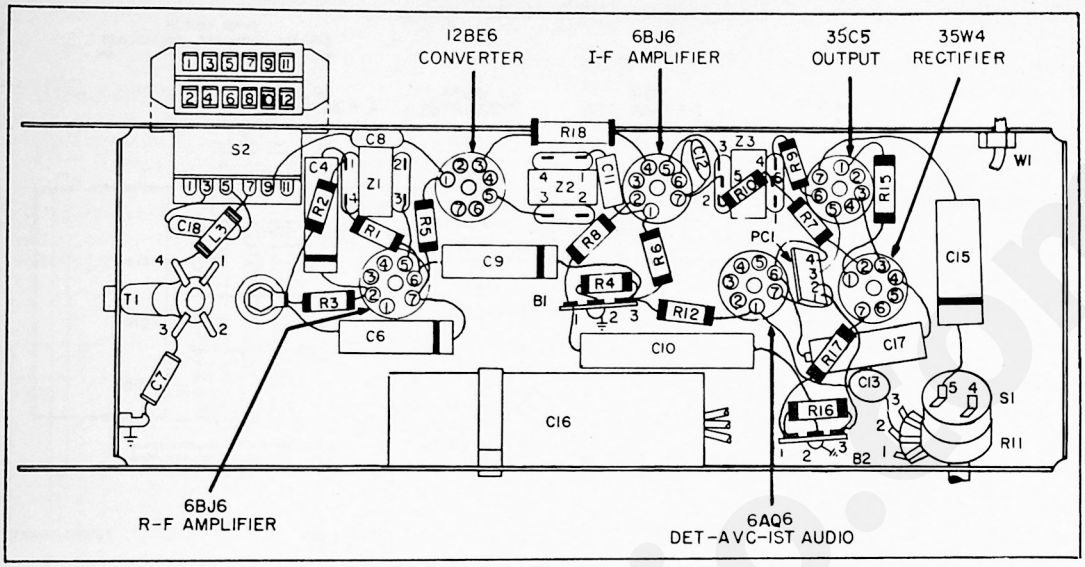


Figure 4. Base View, Model 53-954, Showing Parts Placement

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	
	Model 53-950	31-2771
	Model 53-954	31-2771-1
C1A	Condenser, trimmer, antenna	Part of C1
C1B	Condenser, trimmer, r-f	Part of C1
C1C	Condenser, trimmer, oscillator	Part of C1
C2	Condenser, trimmer, special services r-f	Part of CA1
C3	Condenser, padder, special services r-f	Part of CA1
C4	Condenser, r-f by-pass, .05 μf.	30-4650-45*
C5	Condenser, trimmer, special services mixer-grid	Part of CA1
C6	Condenser, a-v-c by-pass, .05 μf.	30-4650-45*
C7	Condenser, fixed trimmer, 7.5 μμf.	30-1224-65
C8	Condenser, d-c blocking, 47 μμf.	60-00475420
C9	Condenser, screen by-pass, .05 μf.	30-4650-45*
C10	Condenser, special, B− to chassis, .2 μf.	30-4644
C11	Condenser, i-f coupling, 220 μμf.	62-122001001*
C12	Condenser, screen by-pass, .002 μf.	30-1238-8*
C13	Condenser, audio coupling. .005 μf.	30-1238-1*
C14	Condenser, d-c blocking, .005 μf.	Part of PC1
C15	Condenser, tone compensation, .022 μf.	30-4650-43*
C16	Condenser, electrolytic filter	30-2575-27
C16A	Condenser, filter, 30 μf., 150v	Part of C16
C16B	Condenser, filter, 30 μf., 150v	Part of C16
C16C	Condenser, filter, 40 μf., 150v	Part of C16
C17	Condenser, line by-pass, .047 μf.	30-4650-45*
C18	Condenser, fixed padder, 865 μf.	30-1220-68
CA1	Condenser assembly, trimmer	31-6477-17
I1	Lamp, pilot	34-2068
L1	Coil, special services r-f	32-4561-4
L2	Coil, special services mixer-grid	32-4561-4
L3	Coil, oscillator shunt	32-4562-1
PC1	Printed circuit	30-6001
R1	Resistor, screen dropping, 10,000 ohms	66-3108340*
R2	Resistor, a-v-c load, 4.7 megohms	66-5478340*
R3	Resistor, a-v-c load, 2.2 megohms	66-5228340*
R4	Resistor, B− to chassis, 150,000 ohms	66-4158340*

REPLACEMENT PARTS LIST (Continued)

Reference Symbol	Description	Service Part No.
R5	Resistor, grid leak, 22,000 ohms	66-3228340°
R6	Resistor, grid leak, 2.2 megohms	66-5228340°
R7	Resistor, a-v-c load, 2.2 megohms	66-5228340°
R8	Resistor, cathode bias, 180 ohms	66-1188340°
R9	Resistor, screen dropping, 2200 ohms	66-2228340°
R10	Resistor, i-f filter, 47,000 ohms	66-3478340°
R11	Volume control, 500,000 ohms Models 53-950, 53-954	33-5566-43
R12	Resistor, grid leak, 10 megohms	66-6108340°
R13	Resistor, plate load, 500,000 ohms	Part of PC1
R14	Resistor, grid leak, 500,000 ohms	Part of PC1
R15	Resistor, cathode bias, 150 ohms, 1 watt	66-1154340°
R16	Resistor, B+ filter, 1200 ohms	66-2128340°
R17	Resistor, B+ filter, 220 ohms, 1 watt	66-1224340°
R18	Resistor, tube saver, 100 ohms	33-1343-3
S1	Switch, off-on	Part of R11
S2	Switch, broadcast-special services Model 53-950	42-1893-3
	Model 53-954	42-1893-4
T1	Transformer, oscillator	32-4453-2
T2	Transformer, output	32-8310-3
W1	Line cord	L-2183°
Z1	Transformer, r-f	32-4399-7A
Z2	Transformer, 1st i-f	32-4160A
Z3	Transformer, 2nd i-f	32-4240A

MISCELLANEOUS

PARTS COMMON TO ALL MODELS

Description	Service Part No.
Drive cord, 25-ft. spool	45-8750°
Spring, drive cord	56-2617
Rubber mount, gang mtg. (3)	27-4596
Shield, tube (2)	56-5629FA3
Socket assembly, pilot lamp	27-6233-6
Socket, tube (2)	27-6203-14
Socket, tube (4)	27-6265
Speed nut (4)	1W56920FE7

MODEL 53-950

Description	Service Part No.
Cabinet, mahogany	10938
Cabinet, ivory	10938-2
Cabinet back and loop assembly	76-7881
Scale, mahogany	54-5152
Scale, ivory	54-5152-1
Knob (2)	54-4718-39
Knob, band switch	54-4998
Pointer	56-9898
Shaft, tuning	56-9807-1
Spring, retaining	28-8610
Speaker	45-9731

MODEL 53-954

Description	Service Part No.
Cabinet, mahogany	10959
Cabinet, blond	10959-1
Back assembly, mahogany cabinet	76-8063
Back assembly, blond cabinet	
Loop assembly, antenna	76-2127-13
Metal grille	56-10034
Knob (2), mahogany	54-6019
Knob (2), blond	54-6019-1
Knob, band switch	54-4998
Panel, diffusing	54-8817
Clip, diffusing panel	56-3587-1
Pointer	56-5630-52
Pointer rail assembly	76-7981
Shaft, tuning	56-9807-1
Spring, retaining	28-8610
Speaker	36-1626-5

PARTS LIST CORRECTIONS

Description	Service Part No.
Back assembly, ivory cabinet	76-8085-1

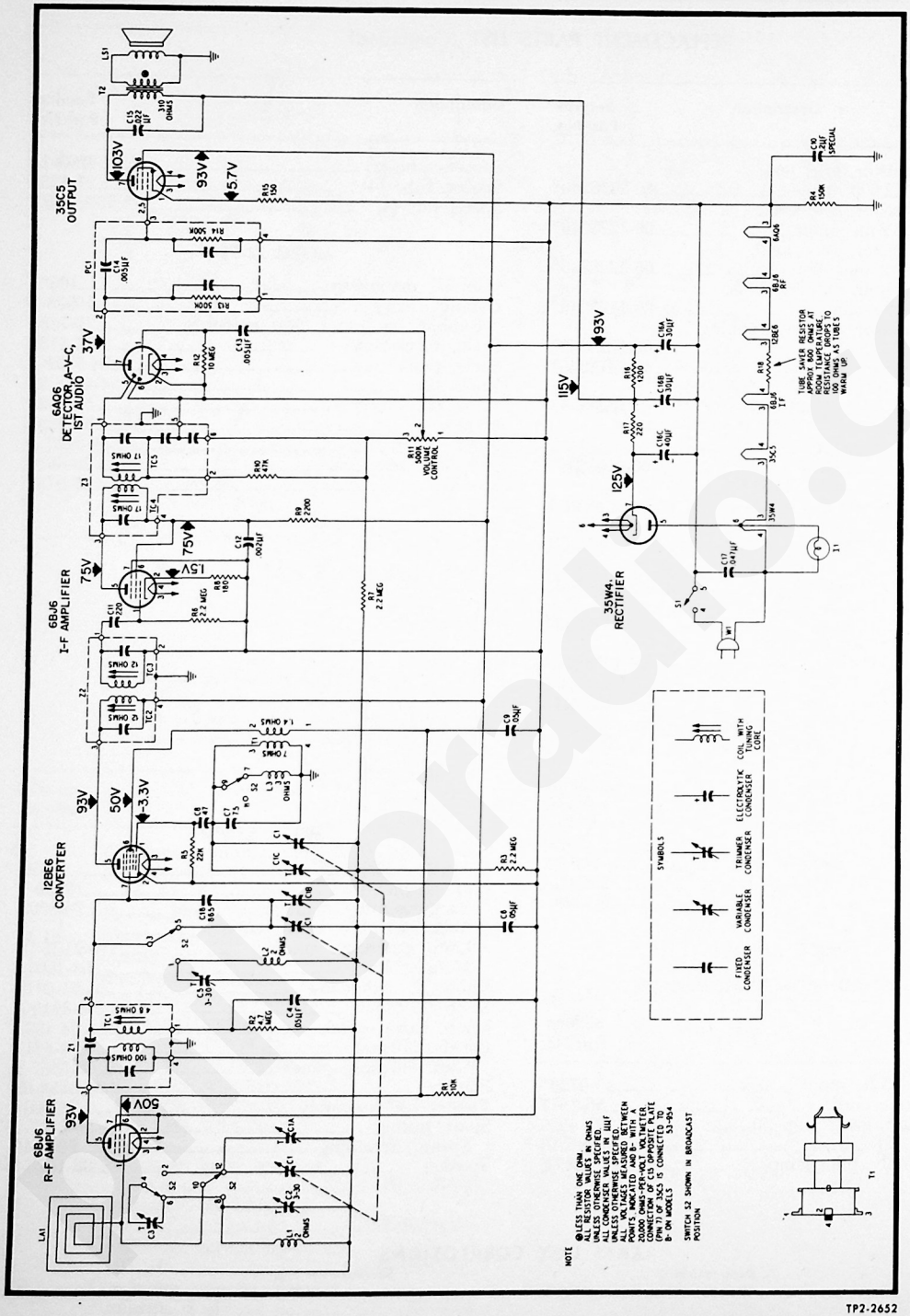


Figure 5. Philco Radio Models 53-950, and 53-954, Schematic Diagram