

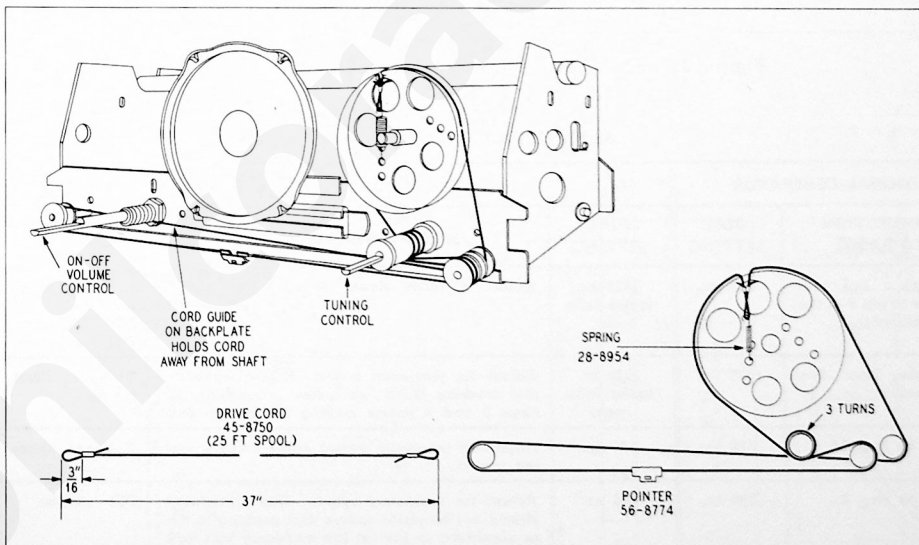
PHILCO RADIO MODEL 52-643

SPECIFICATIONS

CABINET	Molded plastic, brown
CIRCUIT	Five-tube superheterodyne (plus selenium rectifier)
FREQUENCY RANGE	540—1620 kc.
AUDIO OUTPUT	160 milliwatts
OPERATING VOLTAGES	117 volts, a.c. or d.c.; or 9-volt "A" battery and 90-volt "B" battery
POWER CONSUMPTION	
A-c or d-c operation	15 watts
Battery operation	55 ma. at 9 volts, and 13 ma. at 90 volts
AERIAL	Magnecor high-impedance loop; provision for connecting external aerial
INTERMEDIATE FREQUENCY	265 kc.
PHILCO TUBES (5)	1T4 r-f ampl., 1R5 converter, 1U4 i-f ampl., 1U5 det.-a.v.c.—1st audio, 3V4 output
BATTERY TYPE	Philco P-274



MODEL 52-643



TPI-1711

Figure 1. Drive-Cord-Installation Details

ALIGNMENT PROCEDURE

POINTER—Set pointer to coincide with first index mark from left side of dial backplate (looking at backplate).

RADIO CONTROLS—Set volume control to maximum.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Use modulated output.

OUTPUT LEVEL—During alignment, adjust signal-generator output to maintain output-meter indication below .5 volt.

SPECIAL NOTE—The orientation of the loop with respect to the chassis and battery is critical for correct tracking. During

alignment, with the cabinet back (containing the loop) lying flat on the bench, the chassis should be laid on its back in approximately its normal relation to the loop, with a 1/4" thick wooden board separating the loop and chassis. The battery should also be placed as close as possible to its normal position with respect to the chassis and loop.

CRITICAL LEAD DRESS—To secure proper padding capacity, the green lead from pin 6 of the 1R5 tube to Z1 must be dressed over wiring panel, away from chassis, and the green lead from Z1 to the tuning condenser must be dressed away from chassis.

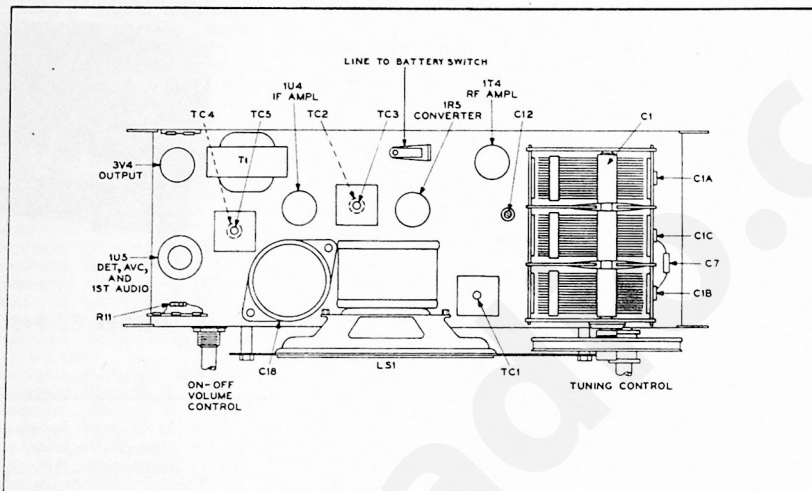


Figure 2. Top View, Showing Trimmer Locations

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ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through a .1- μ f. condenser to pin 6 of the 1R5 converter.	265 kc.	1620 kc. (gang fully open)	Adjust, in order given, for maximum output.	TC5—2nd i-f sec. TC4—2nd i-f pri. TC2—1st i-f pri. TC3—1st i-f sec.
2	Radiating loop. See note below.	1620 kc.	1620 kc. (gang fully open)	Adjust for maximum output. If low-frequency dial tracking is far off, make adjustments in steps 3 and 4 before making this adjustment.	C1C—osc. shunt
3	Same as step 2.	580 kc.	580 kc.	Adjust for maximum output while rocking tuning control.	C13—osc. series
4	Same as step 2.	580 kc.	580 kc.	Adjust for maximum output. This adjustment should not be made unless dial tracking is off, or sensitivity is low at low-frequency end (580 kc.).	TC1—r-r sec.
5	Same as step 2.	1500 kc.	1500 kc. (index mark at right)	Adjust, in order given, for maximum output.	C1B—r-f trimmer C1A—aerial trimmer
6	Repeat steps 3 and 5 until no further improvement is obtained.				

RADIATING LOOP: Make up a six-to-eight-turn, 6-inch-diameter loop using insulated wire; connect to signal-generator leads and place near radio loop.

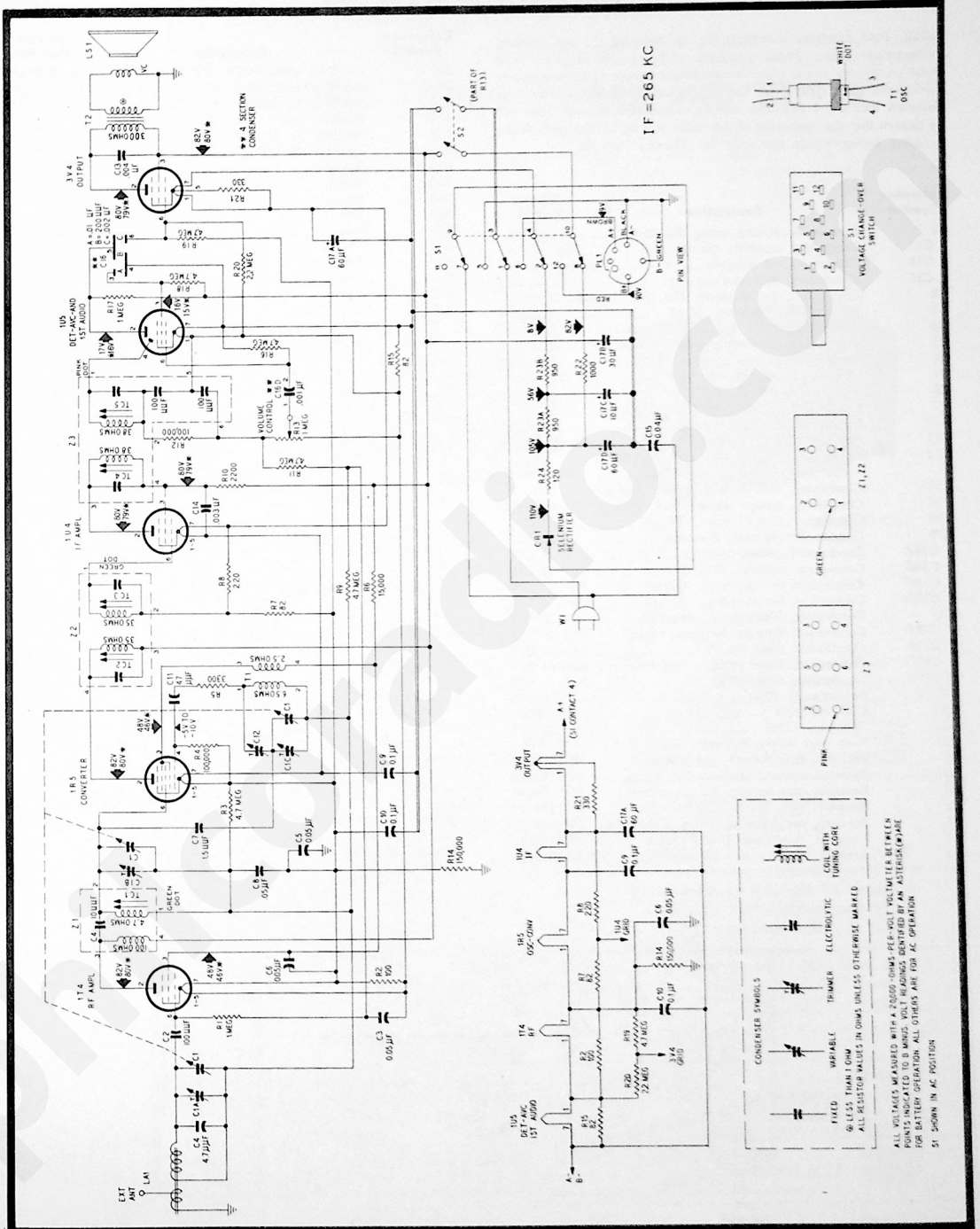


Figure 3. Philco Radio Model 52-643, Schematic Diagram

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CONDENSER SYMBOLS

	COIL WITH TUNING CORE
	TRIMMER
	ELECTROLYTIC
	VARIABLE
	FIXED
	LESS THAN 1 OHM
	ALL RESISTOR VALUES IN OHMS UNLESS OTHERWISE MARKED

ALL VOLTAGES MARKED WITH A 300-OMEGA PER-VOLT VOLTMETER BETWEEN COILS WITH TUNING CORE
 ALL VOLTAGES MARKED WITH A 500-OMEGA PER-VOLT VOLTMETER BETWEEN COILS WITH TUNING CORE
 * ALL VOLTAGES MARKED WITH AN ASTERISK (*) ARE FOR AC OPERATION
 * ALL RESISTOR VALUES IN OHMS UNLESS OTHERWISE MARKED
 * 500 OHM IN AC POSITION

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 of the radio will be unchanged. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.	Reference Symbol	Description	Service Part No.
R8	Resistor, grid return, 220 ohms	66-1228340*	S1	Switch, change-over	42-1899
R9	Resistor, a-v-c filter, 4.7 megohms	66-5478340*	S2	Switch, on-off	Part of R13
R10	Resistor, neutralization, 2200 ohms	66-2228340*	T1	Transformer, oscillator	32-4263-2
R11	Resistor, a-v-c filter, 4.7 megohms	66-5478340*	T2	Transformer, output	32-8528
R12	Resistor, i-f filter, 100,000 ohms	66-4108340*	W1	Line cord	L2183
R13	Resistor, VOLUME control, 1 megohm	33-5566-11	Z1	Transformer, r-f	32-4399A
R14	Resistor, leakage, 150,000 ohms	66-4158340*	Z2	Transformer, 1st i-f	32-4160-2A
R15	Resistor, current limiting, 82 ohms	66-0828340*	Z3	Transformer, 2nd i-f	32-4240-6A
R16	Resistor, grid return, 4.7 megohms	66-5478340*			
R17	Resistor, plate load, 1 megohm	66-5108340			
R18	Resistor, screen dropping, 4.7 megohms	66-5478340*			
R19	Resistor, grid return, 4.7 megohms	66-5478340*			
R20	Resistor, grid return, 2.2 megohms	66-5228340*			
R21	Resistor, current limiting, 330 ohms	66-1338340*			
R22	Resistor, filter, 1000 ohms	66-2108340			
R23	Resistor, wire wound, 2-section	33-3431-7			
R23A	Resistor, filament dropping, 950 ohms	Part of R23			
R23B	Resistor, filament dropping, 950 ohms	Part of R23			
R24	Resistor, wire wound, current limiting, 120 ohms	33-1334-14			
C1	Condenser, tuning gang, 3-section	31-2747-2			
C1A	Condenser, antenna trimmer	Part of C1			
C1B	Condenser, r-f trimmer	Part of C1			
C1C	Condenser, osc. trimmer	Part of C1			
C2	Condenser, d-c blocking, 100 μf.	62-110009001*			
C3	Condenser, bias filter, .05 μf.	61-0122*			
C4	Condenser, fixed trimmer, 4.7 μf.	30-1230			
C5	Condenser, filament by-pass, .05 μf.	61-0122*			
C6	Condenser, screen by-pass, .05 μf.	61-0122*			
C7	Condenser, neutralization, 1.5 μf.	30-1221-3			
C8	Condenser, a-v-c filter, .05 μf.	61-0122*			
C9	Condenser, filament by-pass, .1 μf.	61-0113*			
C10	Condenser, filament by-pass, .1 μf.	61-0113*			
C11	Condenser, d-c blocking, 47 μf.	60-00475417*			
C12	Condenser, osc. series padder, 600 to 800 μf.	31-6473-16			
C13	Condenser, tone compensation, .004 μf.	61-0179*			
C14	Condenser, screen neutralizing, .003 μf.	61-0109*			
C15	Condenser, line by-pass, .04 μf.	45-3500-2*			
C16	Condenser, ceramic, 4-section	30-1237			
C16A	Condenser, screen by-pass, .01 μf.	Part of C16			
C16B	Condenser, by-pass, 200 μf.	Part of C16			
C16C	Condenser, d-c blocking, .002 μf.	Part of C16			
C16D	Condenser, d-c blocking, .001 μf.	Part of C16			
C17	Condenser, electrolytic, 4-section	30-2568-26			
C17A	Condenser, filament by-pass, 60 μf.	Part of C17			
C17B	Condenser, filter, 30 μf.	Part of C17			
C17C	Condenser, filter, 10 μf.	Part of C17			
C17D	Condenser, filter, 60 μf.	Part of C17			
CR1	Selenium rectifier	34-8003*			
LA1	Coil, antenna	32-4455-4			
LS1	Speaker, 5-inch	36-1625			
PL1	Plug and cable, battery	41-3712-5			
R1	Resistor, grid return, 1 megohm	66-5108340*			
R2	Resistor, current limiting, 100 ohms	66-1108340*			
R3	Resistor, grid return, 4.7 megohms	66-5478340*			
R4	Resistor, grid return, 100,000 ohms	66-4108340*			
R5	Resistor, oscillator coupling, 3300 ohms	66-2338340*			
R6	Resistor, dropping, 15,000 ohms	66-3158340*			
R7	Resistor, grid return, 82 ohms	66-0828340*			

MISCELLANEOUS

Description	Service Part No.
Cabinet complete	10883
Back	54-4903
Clip (2), back	56-3807-3
Handle assembly	76-6970-4
Handle and cover, plastic	54-4909
Handle mounting bracket, metal	56-9583
Scale	54-5127
Dial backplate assembly	56-9190
Backplate	56-9190FCP
Drive cord, 25-ft. spool	45-8750
Pointer	56-8774-1FCP
Spring, drive cord	28-8954
Shaft-and-pulley assembly	76-3671-4
Bushing	27-9437
Clip (1)	56-4109
Knob (2)	54-4773-1
Mount (3), rubber	27-4596
Spring, retaining	57-1468FA3
Shield, 1U5 tube	56-5629FA3
Socket (4)	27-6203
Socket (1), 1U5 tube	27-6203-22

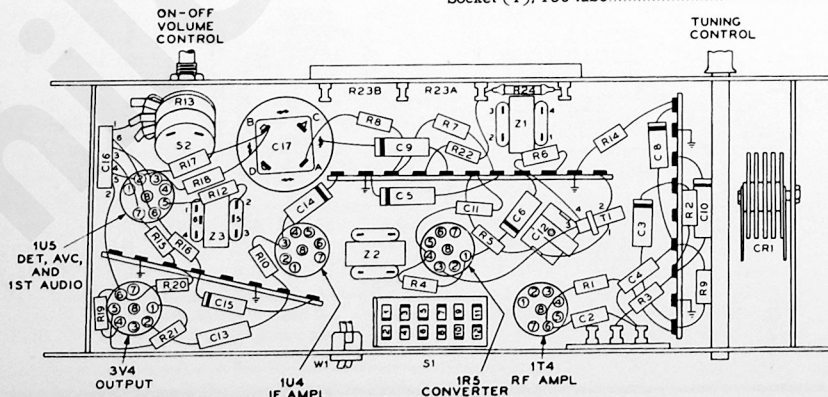


Figure 4. Bottom View, Showing Symbolized Chassis

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