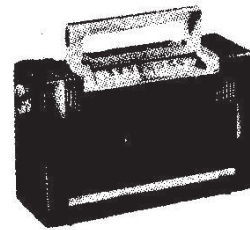


MODEL 52-640



MODEL 52-641

SPECIFICATIONS

CABINET	Plastic, portable
CIRCUIT	Four-tube superheterodyne (plus selenium rectifier)
FREQUENCY RANGE	540—1620 kc.
AUDIO OUTPUT	
A-c or d-c operation	150 milliwatts
Battery operation	
Model 52-640	150 milliwatts
Model 52-641	75 milliwatts
OPERATING VOLTAGES	
Model 52-640	117 volts, a.c. or d.c.; 1.5-volt "A" and 90-volt "B" battery
Model 52-641	117 volts, a.c. or d.c.; 1.5-volt "A" and 67.5-volt "B" battery
POWER CONSUMPTION	
A-c or d-c operation	11 watts
Battery operation	
Model 52-640	13 ma. from 90-volt "B" battery; 250 ma. from 1.5-volt "A" battery
Model 52-641	9.5 ma. from 67.5-volt "B" battery; 250 ma. from 1.5-volt "A" battery
AERIAL	
Model 52-640	High-impedance loop; provision for connecting external aerial
Model 52-641	Magnecor high-impedance loop; provision for connecting external aerial
INTERMEDIATE FREQUENCY	455 kc.
PHILCO TUBES (4)	1R5 converter, 1U4 i-f ampl., 1U5 det.-a.v.c.-1st audio, 3V4 output
BATTERY TYPE	
Model 52-640	P-364
Model 52-641	P-67 "B" battery; Type D "A" battery

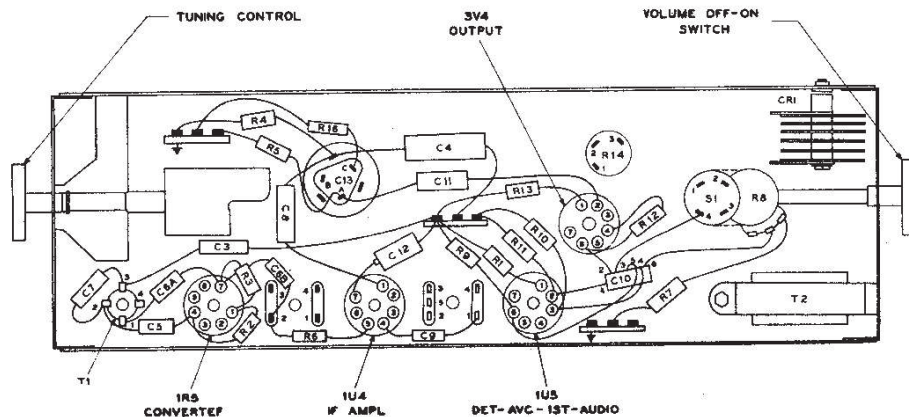


Figure 1. Bottom View, Showing Symbolized Chassis

TP1-1167

ALIGNMENT PROCEDURE

DIAL POINTER—With tuning-condenser plates fully meshed, set pointer to coincide with first index hole above pointer.

OUTPUT METER—Connect across speaker voice coil terminals.

SIGNAL GENERATOR—Connect signal generator as indicated in chart. Use modulated output.

RADIO CONTROLS—Set volume control to maximum. Set tuning control and signal-generator frequency as indicated in chart.

OUTPUT LEVEL—During alignment, signal-generator output must be attenuated to maintain output-meter reading below .5 volt.

NOTE: While the radio is being aligned, the batteries (if used) should be in the same position with respect to the chassis and loop as they are in the cabinet.

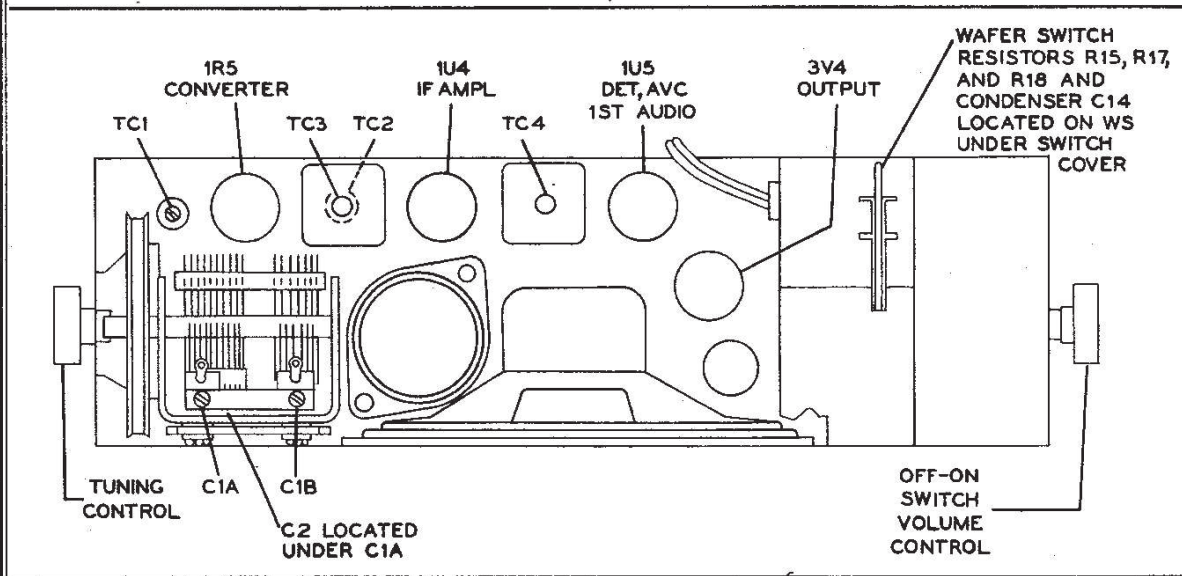


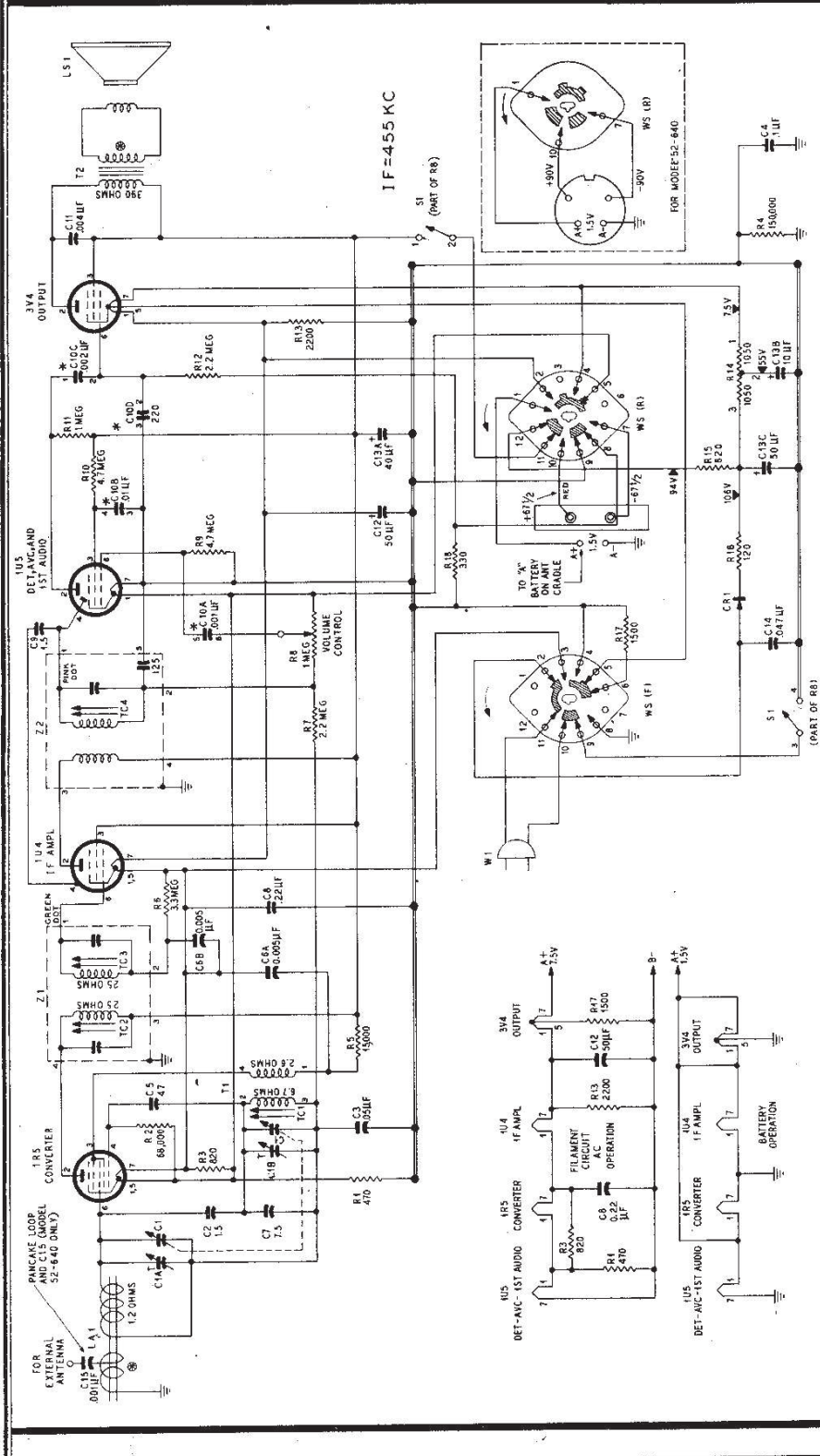
Figure 2. Top View, Showing Trimmer Locations

TP0-392

ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through .1- μ f. condenser to antenna section of tuning condenser.	455 kc.	Tuning gang fully meshed	Adjust, in order given, for maximum output.	TC4—2nd i-f sec. TC3—1st i-f sec. TC2—1st i-f pri.
2	Radiating loop. See note below.	1620 kc.	1620 kc.	Adjust for maximum output.	C1B—osc. trimmer
3	Same as step 2.	1500 kc.	1500 kc.	Adjust for maximum output.	C1A—aerial trimmer
4	Same as step 2.	535 kc.	Tuning gang fully meshed	Adjust for maximum output; then repeat steps 2 and 3 until no further increase in output is obtained. This step SHOULD NOT be necessary unless the oscillator transformer has been replaced.	TC1—osc. core

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 aerial.



CONDENSER SYMBOLS

NOTE: ALL CONDENSER VALUES IN OHMS AND ALL CONDENSER VALUES IN UUF UNLESS OTHERWISE MARKED. ALL VOLTAGES SHOWN WERE MEASURED WITH A 20000 OHMS-PER-VOLT METER FROM POINTS INDICATED TO B.

TUBE SOCKET VOLTAGES	1U4	1U5	3V4
B SUPPLY			
OSC PLATE	PN3	PN2	PN3
RF PLATE	PN2	PN3	PN2
SCREEN PLATE	PN3	PN2	PN3
GRID	90	55	90
CONTROL	60	48	80
BATTERY	65	38	65
7.5V			
67/2V			
BATTERY			

TUBE SOCKET VOLTAGES

* C10 FOUR SECTION CONDENSER

PHILCO Schematic Diagram

TP1-1164

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Figure 3. Philco Radio Models 52-640 and 52-641, Schematic Diagram

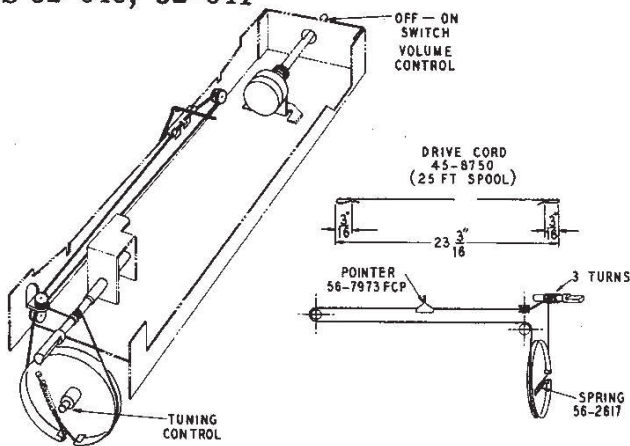


Figure 4. Drive-Cord-Installation Details

TPO-390

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 either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.
C1	Condenser, tuning gang, 2-section Model 52-640 Model 52-641	31-2735-3 31-2735-2
C1A	Condenser, trimmer, antenna	Part of C1
C1B	Condenser, trimmer, oscillator	Part of C1
C2	Condenser, neutralizing, 1.5 µf.	30-1221-3
C3	Condenser, α-v-c by-pass, .05 µf.	61-0122*
C4	Condenser, i-f by-pass, .1 µf.	61-0113*
C5	Condenser, d-c blocking, 47 µf.	62-051009001*
C6	Condenser, dual ceramic	30-1239
C6A	Condenser, osc. B+ by-pass, .004 µf.	Part of C6
C6B	Condenser, grid by-pass, .004 µf.	Part of C6
C7	Condenser, temperature compensation, 7.5 µf.	30-1224-83
C8	Condenser, filament by-pass, .25 µf.	30-4656-1
C9	Condenser, neutralizing, 1.5 µf.	30-1221-3
C10	Condenser, ceramic, 4-section	30-1327
C10A	Condenser, d-c blocking, .001 µf.	Part of C10
C10B	Condenser, screen by-pass, .01 µf.	Part of C10
C10C	Condenser, d-c blocking, .002 µf.	Part of C10
C10D	Condenser, grid by-pass, 220 µmf.	Part of C10
C11	Condenser, tone compensation, .004 µf.	61-0179*
C12	Condenser, electrolytic, filament by-pass, 50 µf., 25v	30-2417-12
C13	Condenser, electrolytic, 3-section	30-2568-39
C13A	Condenser, filter, 40 µf., 150v	Part of C13
C13B	Condenser, filter, 10 µf., 150v	Part of C13
C13C	Condenser, filter, 50 µf., 150v	Part of C13
C14	Condenser, line by-pass, .047 µf.	45-3505-45*
C15	Condenser, antenna coupling, .001 µf.	45-3500-5
CR1	Selenium rectifier, 75 ma. at 117 volts	34-8003-1*
LA1	Loop aerial Model 52-640 (flat loop)	32-4052-52
	Model 52-641 (Magnechor)	32-4455
LS1	Speaker, 4-inch p.m.	36-1627-21
R1	Resistor, current limiting, 470 ohms	66-1478340*
R2	Resistor, grid return, 68,000 ohms	66-3688340*
R3	Resistor, bias, 880 ohms	66-1888340*
R4	Resistor, leakage, 150,000 ohms	66-4158340*
R5	Resistor, oscillator dropping, 15,000 ohms	66-3158340*
R6	Resistor, grid return, 3.3 megohms	66-5338340*
R7	Resistor, α-v-c filter, 2.2 megohms	66-5228340*
R8	Resistor, VOLUME control (with "off-on" switch), 1 megohm	33-5566-21
R9	Resistor, grid return, 4.7 megohms	66-5478340*

Reference Symbol	Description	Service Part No.
R10	Resistor, screen dropping, 4.7 megohms	66-5478340*
R11	Resistor, plate load, 1 megohm	66-5108340*
R12	Resistor, grid return, 2.2 megohms	66-5228340*
R13	Resistor, bias, 2200 ohms	66-2228340*
R14	Resistor, filament dropping and filter, 2100 ohms (center-tapped)	33-3445
R15	Resistor, filter, 820 ohms	66-1828340*
R16	Resistor, current limiting, 120 ohms	33-1334-14
R17	Resistor, bias, 1500 ohms	66-2158340*
R18	Resistor, bias, 330 ohms	66-1338340*
S1	Switch, off-on	Part of R8
T1	Transformer, oscillator	32-4453-1
T2	Transformer, output	32-8434
W1	Line cord	L2183
WS	Water switch, voltage change-over	42-1925
Z1	Transformer, 1st if	32-4160-4A
Z2	Transformer, 2nd if	32-4454-1A

MISCELLANEOUS

Description	Service Part No.
Cabinet, Model 52-640, maroon	10816-3
Back, maroon	54-4810
Clip (2), back	56-3807-3
Handle-and-bracket assembly	76-6967
Handle	54-4811-2
Knob assembly (2)	76-6206
Pointer	56-7973-1
Cabinet, Model 52-641, maroon	10799-1
Back, maroon	54-4767-1
Cabinet, Model 52-641, red	10799-2
Back, red	54-4767-2
Cabinet, Model 52-641, Nile	10799-4
Back, Nile	54-4767-4
Cabinet, Model 52-641, sand	10799-5
Back, sand	54-4767-5
Clip (2), back	56-9162
Fastener (2)	W2235-7FA9
Handle-and-bracket assembly	76-6081
Handle	56-7940FCP
Hinge, l.h.	56-7915
Hinge, r.h.	56-7915-1
Knob (2)	54-4773
Pointer	56-7973FCP
Scale, dial	54-5087
Baffle-and-cloth assembly	40-7884
Insulator, electrolytic-condenser mounting	27-9508
Cable-and-connector assembly, battery	41-3988
Drive cord (25-ft. spool)	45-8750*
Mount, rubber, tuning gang	27-4099-3
Retaining ring	1W60978FA3
Spring, drive cord	56-2617
Socket (2), tube, 1R5 and 1U4	27-6203
Socket (2), tube, 1U5 and 3V4	27-6203-12
Tube shield, 1U5	56-3978-1FA3
Tuning shaft	56-7906FA42