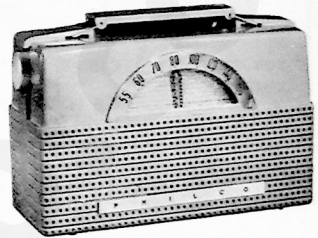


PHILCO PORTABLE RADIO MODEL 53-652

SPECIFICATIONS

CABINET	Plastic portable
CIRCUIT	Four-tube superheterodyne (plus selenium rectifier)
AUDIO OUTPUT	
A-C or d-c operation	150 milliwatts
Battery operation	90 milliwatts (75 milliwatts: battery-saver operation)
OPERATING VOLTAGE	
117 volts, a.c. or d.c.	1.5-volt "A" battery and 75-volt "B" battery
POWER CONSUMPTION	
A-C or d-c operation	11 watts
Battery operation	10 ma. from 75-volt "B" Battery (9 ma.: battery-saver operation) 260 ma. from 1.5-volt "A" battery
ANTENNA	
Magnecor high-impedance loop with provision for external antenna	
INTERMEDIATE FREQUENCY	
455 kc.	
PHILCO TUBES	
1R5 converter, 1U4 i-f amplifier,	
1U5 detector-a.v.c. 1st audio,	
3V4 output	
BATTERY TYPE	
P144 "B" battery	P77 "A" battery



MODEL 53-652

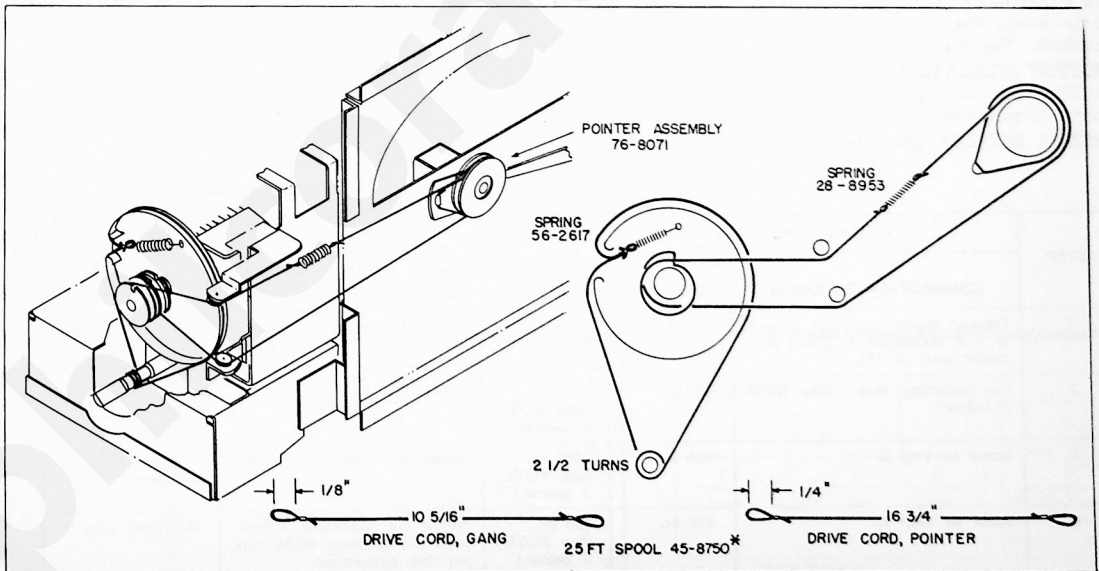


Figure 1. Dial-Cord Stringing Arrangement

TP2-3225

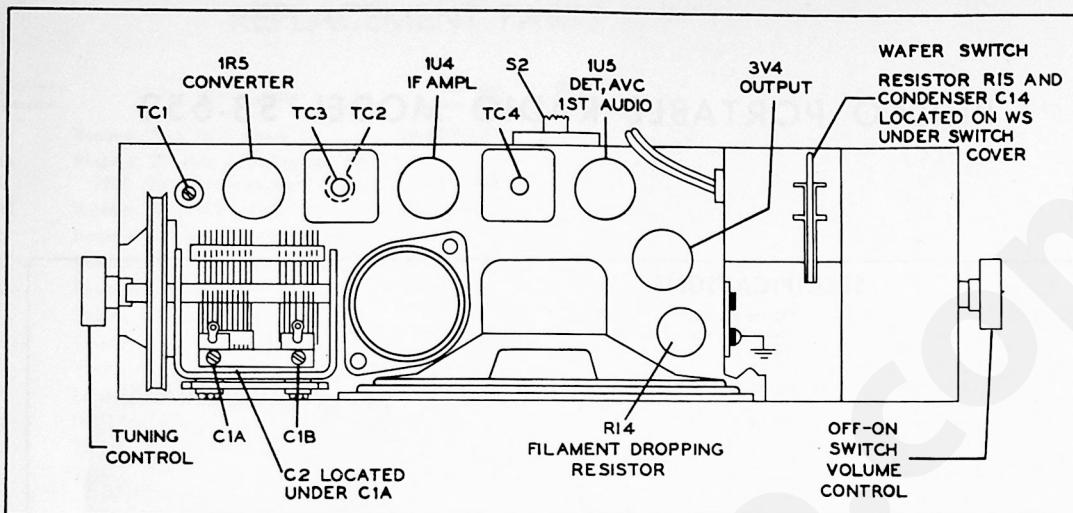


Figure 2. Top View, Showing Tuning Adjustments

TP2-3168

ALIGNMENT PROCEDURE

GENERAL—Allow the set and the test equipment to warm up for fifteen minutes before starting the alignment procedure.

DIAL POINTER—Before proceeding with the alignment, the dial pointer should be set to coincide with the index mark to the extreme left of the dial backplate when the tuning-condenser plates are fully meshed. See figure 4.

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

SIGNAL GENERATOR—Use an AM r-f signal gen-

erator. Connect the ground lead to B-, and connect the output lead as indicated in the alignment chart.

OUTPUT LEVEL—Attenuate the signal-generator output throughout the alignment so as to maintain the output level below .5 volt.

RADIO CONTROLS—Set the volume control to maximum. Set the tuning control as indicated in the alignment chart. During alignment of the radio, the batteries should be in the same position with respect to the chassis and the loop antenna as they normally are in the cabinet. It is recommended that a-c power be used when aligning the radio.

ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Connect signal generator through a .1- μ f. condenser to pin 6 (converter grid) of 1R5.	455 kc.	Tuning gang fully open.	Adjust for maximum output in order given.	TC4—2nd i-f sec. TC3—1st i-f sec. TC2—1st i-f pri.
2	Use radiating loop. (See NOTE 1 below.)	1620 kc.	1620 kc. (See NOTE 2 below.)	Adjust for maximum output.	C1B—osc. trimmer
3	Same as step 2.	1400 kc.	1400 kc. (See NOTE 2 below.)	Adjust for maximum output.	C1A—antenna trimmer
4	Same as step 2.	600 kc.	600 kc. (See NOTE 2 below.)	Adjust for maximum output. Rock tuning gang while making this adjustment.	TC1—osc. core
5	Repeat steps 2, 3, and 4 until no further improvement is obtained.				

NOTE 1. Use a 6-to-8-turn, 6-inch-diameter loop made up of insulated wire. Connect to generator terminals, and place about one foot from radio loop.

NOTE 2. The tuning condenser can be set to the proper frequency by turning it until the dial pointer coincides with the respective marks on the dial backplate. See figure 2.

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	31-2735-4
C1A	Condenser, trimmer, antenna	Part of C1
C1B	Condenser, trimmer, oscillator	Part of C1
C2	Condenser, i-f neutralizing, 1.5 μ f.	30-1221-7
C3	Condenser, screen by-pass, .004 μ f.	30-1239*
C4	Condenser, B- to chassis, .1 μ f.	30-4650-47*
C5	Condenser, d-c blocking, 47 μ f.	60-00475420*
C6	Condenser, grid by-pass, .004 μ f.	30-1239*
C7	Condenser, temperature compensating, 7.5 μ f.	30-1224-83
C8	Condenser, filament by-pass, .25 μ f.	30-4656-1
C9	Condenser, neutralizing, 1.5 μ f.	30-1221-7
C10	Condenser, audio circuit	30-1237
C10A	Condenser, audio coupling, .001 μ f.	Part of C10
C10B	Condenser, screen by-pass, .01 μ f.	Part of C10
C10C	Condenser, d-c blocking, .002 μ f.	Part of C10
C10D	Condenser, grid by-pass, 220 μ f.	Part of C10
C11	Condenser, tone compensation, .004 μ f.	30-4650-56*
C12	Condenser, electrolytic, filament by-pass, 50 μ f.	30-2417-12
C13	Condenser, electrolytic, filter	30-2568-39
C13A	Condenser, filter, 40 μ f.	Part of C13
C13B	Condenser, filter, 10 μ f.	Part of C13
C13C	Condenser, filter, 50 μ f.	Part of C13
C14	Condenser, line by-pass, .047 μ f.	30-4650-45*
C15	Condenser, a-v-c by-pass, .05 μ f.	30-4650-45*
CR1	Rectifier, selenium	34-8003
J1	Private listening unit	42-1975-2
LA1	Coil, antenna	32-4455-9
LS1	Loudspeaker	36-1637
R1	Resistor, filament dropping, 820 ohms	66-1828340*
R2	Resistor, grid leak, 68,000 ohms	66-3688340*
R3	Resistor, cathode bias, 470 ohms	66-1478340*
R4	Resistor, B- to chassis, 150,000 ohms	66-4158340*
R5	Resistor, screen dropping, 15,000 ohms	66-3158340*
R6	Resistor, grid leak, 3.3 megohms	66-5338340*
R7	Resistor, a-v-c load, 2.2 megohms	66-5228340*
R8	Volume control, 1 megohm	33-5566-21
R9	Resistor, grid leak, 4.7 megohms	66-5478340*
R10	Resistor, screen dropping, 4.7 megohms	66-5478340*
R11	Resistor, plate load, 680,000 ohms	66-4688340*
R12	Resistor, grid leak, 2.2 megohms	66-5228340*
R13	Resistor, filament dropping, 2200 ohms	66-2228340*
R14	Resistor, limiting, 2100 ohms	33-3445
R15	Resistor, B+ filter, 820 ohms	66-1828340*
R16	Resistor, limiting, 120 ohms	33-1334-14
R17	Resistor, filament dropping, 1500 ohms	66-2158340*
R18	Resistor, battery economizer, 330 ohms	66-1338340*
R19	Resistor, battery economizer, 560 ohms	66-1568340*
R20	Resistor, private listening unit, 10 ohms....	66-0108340*
S1	Switch, on-off	Part of R8
S2	Switch, battery economizer	42-1796-3
T1	Transformer, oscillator	32-4453-1
T2	Transformer, output	32-8434
W1	Line cord	L 2183*
WS1	Switch, water, battery to line	42-1925-1
Z1	Transformer, 1st i-f	32-4160-4A
Z2	Transformer, 2nd i-f	32-4454-1A

MISCELLANEOUS

Description	Service Part No.
Cabinet, light beige	
Back, cabinet, light beige	
Handle, cabinet, light beige	
Cabinet, spruce green	
Back, cabinet, spruce green	
Handle, cabinet, spruce green	
Cable, battery	41-3988-1
Clip, cabinet back (2)	56-9162
Dial scale	56-9986
Backplate assembly, dial	76-8177
Window, dial	54-6011
Drive cord, 25-ft. spool	45-8750*
Spring, gang drive	56-2617*
Spring, pointer drive	28-8953
Fastener, speaker baffle (2)	W2235-7FA9
Hinge, cabinet (2)	56-5457
Insulator, tuning-condenser mtg.	27-9508
Knobs, (2) light beige or spruce green	
Pointer assembly	76-8071
Ring, handle mtg. (2)	56-9987
Rubber mount, tuning-condenser mtg. (3)	27-4099-3
Shaft, tuning	56-7906FA42
Shield, tube base	56-3978-1FA3
Socket, tube (2)	27-6203
Socket, tube (2)	27-6203-12
Spring, hairpin, shaft mtg.	28-8610
Spring, retaining	57-1868FA11

PARTS LIST ADDITIONS

Description	Service Part No.
Cabinet	
Swedish red	10954-6
Teal green	10954-8
Charcoal gray	10954-4
Pine green	10954-10
Driftwood	10954-14
Spruce green	10954-16
Cherry	10954-12
Back, cabinet	
Swedish red	54-6010-3
Teal green	54-6010-4
Charcoal gray	54-6010-2
Pine green	54-6010-5
Driftwood	54-6010-7
Spruce green	54-6010-8
Cherry	54-6010-6
Handle, cabinet	
Swedish red	54-6012-3
Teal green	54-6012-4
Charcoal gray	54-6012-2
Pine green	54-6012-5
Driftwood	54-6012-7
Spruce green	54-6012-8
Cherry	54-6012-6

Description	Service Part No.
Knob (2 required)	
Swedish red	54-6016-6
Teal green	54-6016-7
Charcoal gray	54-6016-8
Pine green	54-6016-2
Driftwood	54-6016-4
Spruce green	54-6016-3
Cherry	54-6016-1
Baffle, speaker	54-9035
"A" battery retainer assembly	76-8239
Cover, private listening unit	54-4967-11

DESCRIPTION	SERVICE PART NO.
Cabinet, light beige	Not available
Back, cabinet, light beige	Not available
Handle, cabinet, light beige	Not available
Cabinet, spruce green	Not available
Back, cabinet, spruce green	Not available
Handle, cabinet, spruce green	Not available
Knob (2), light beige or spruce green	Not available

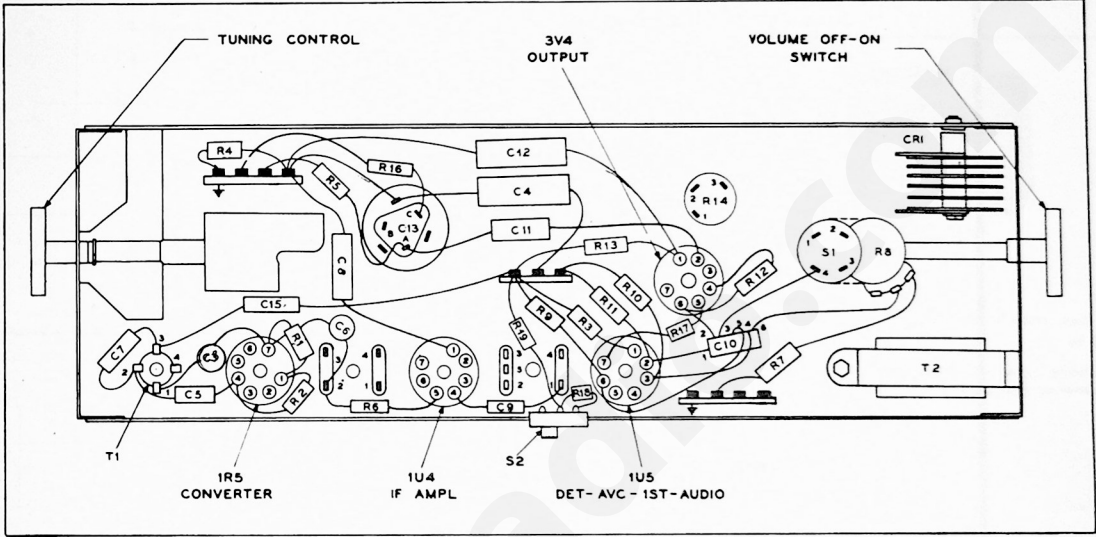


Figure 3. Base View, Showing Parts Placement

TP2-3167

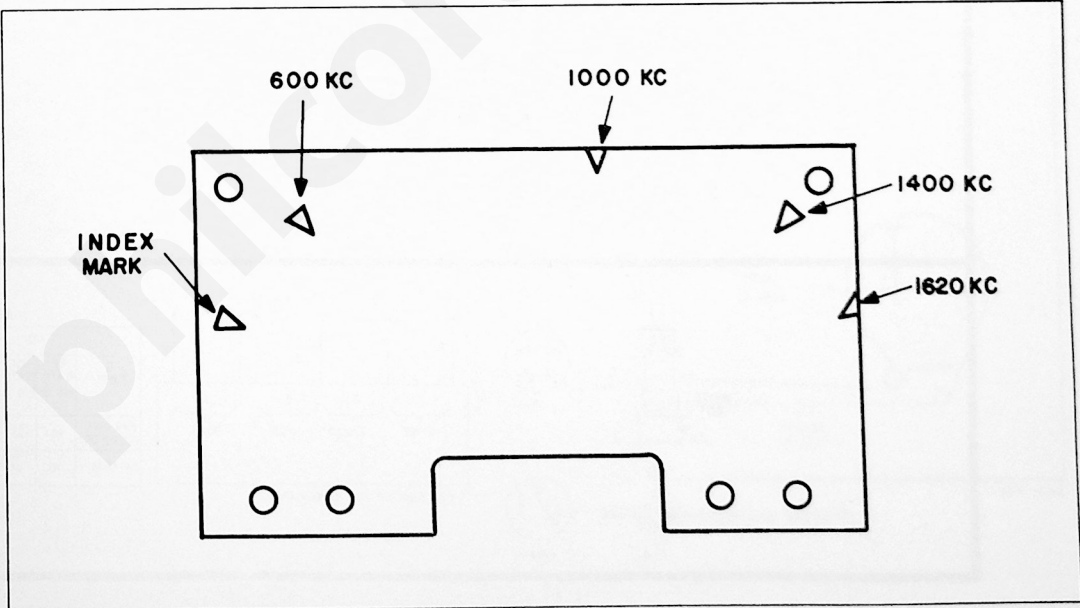
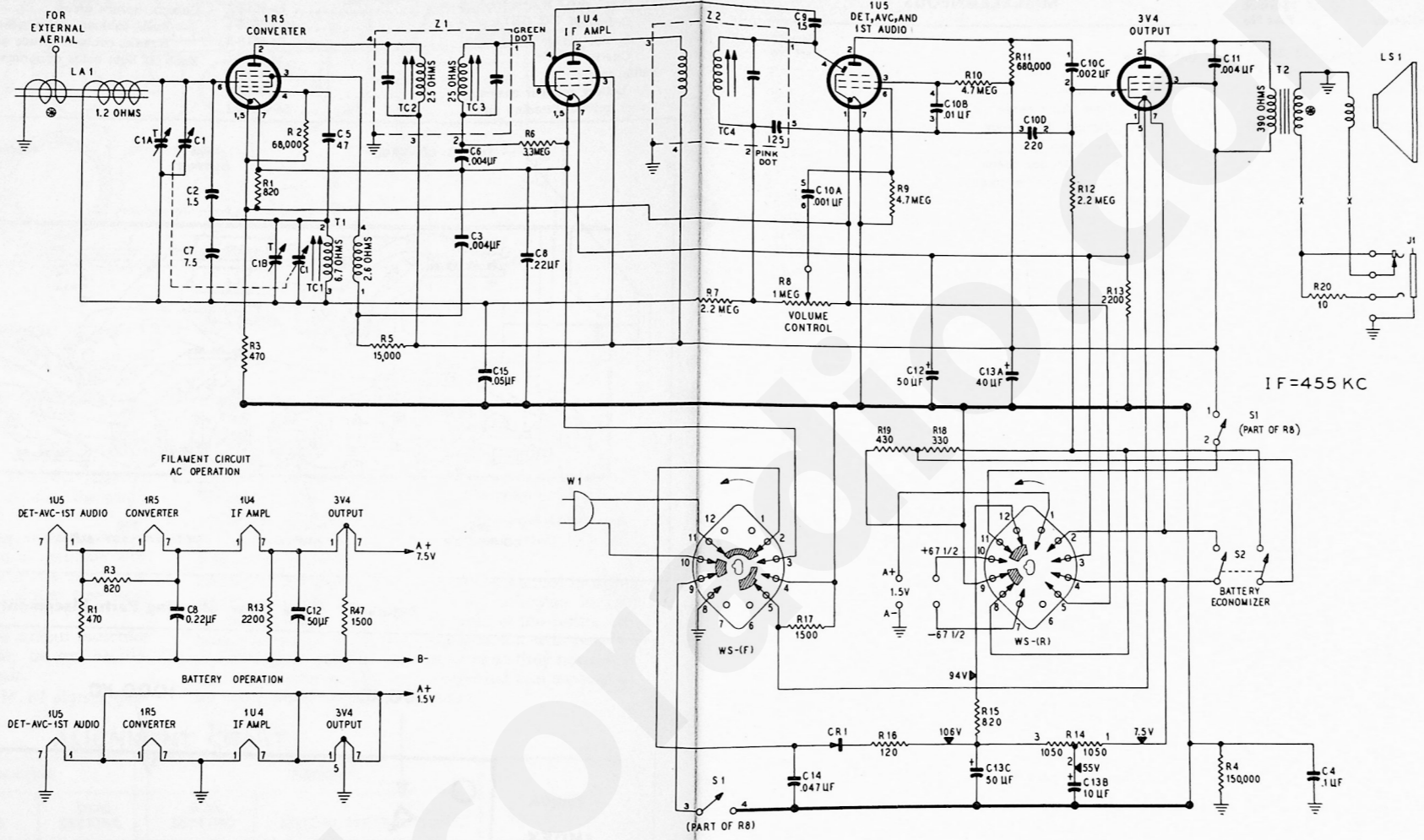
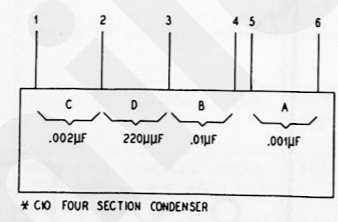
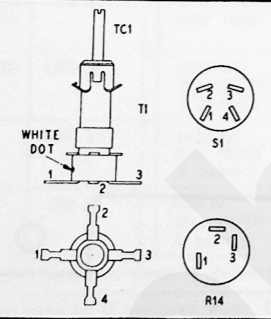
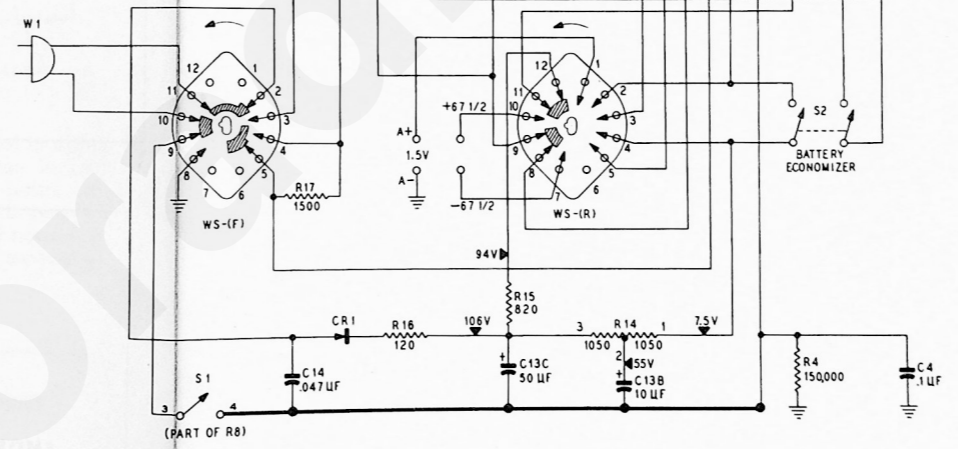
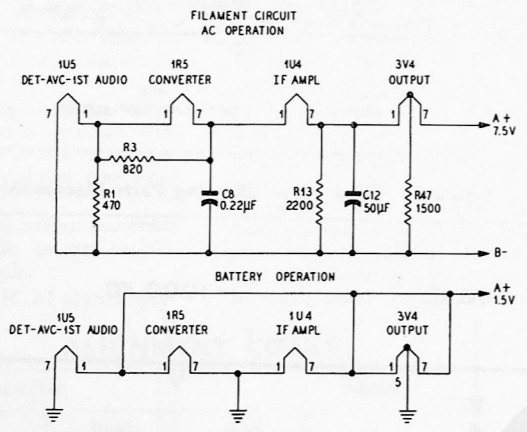


Figure 4. Dial Backplate, Showing Alignment Marks

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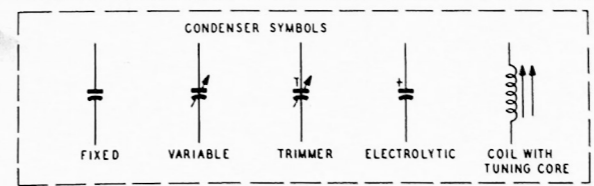


IF=455 KC



TUBE SOCKET VOLTAGES

	1R5	1U4	1U5	3V4
B SUPPLY				
RF PLATE PIN 2	90	90	90	90
OSC PLATE PIN 3	55	90	18	16
PLATE PIN 2	90	90	16	86
SCREEN PIN 3	70	70	17	67
SCREEN PIN 2			16	70



NOTES:
 ALL RESISTOR VALUES IN OHMS AND ALL CONDENSER VALUES IN µµF UNLESS OTHERWISE MARKED.
 ⊕ LESS THAN 1 OHM
 ALL VOLTAGES SHOWN WERE MEASURED WITH A 20,000 OHMS-PER-VOLT METER FROM POINTS INDICATED TO B-

Figure 5. Philco Portable Radio Model 53-652, Schematic Diagram

TP2-3166