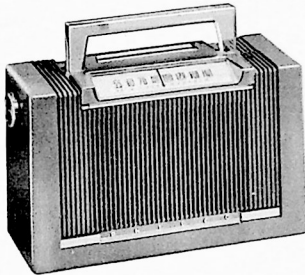


PHILCO PORTABLE RADIO MODEL 53-651

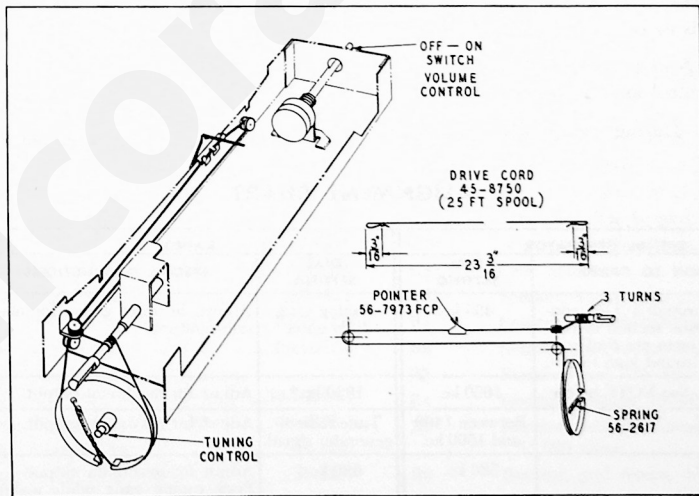
SPECIFICATIONS



MODEL 53-651

MODEL 53-651

| | |
|--------------------------------|--|
| CABINET | Molded plastic |
| CIRCUIT | Four-tube superheterodyne (plus selenium rectifier) |
| FREQUENCY RANGE | 540 kc.—1620 kc. |
| AUDIO OUTPUT | 150 milliwatts |
| A.C. or d.c. | 75 milliwatts |
| Battery | |
| OPERATING VOLTAGE | 117 volts, a.c. or d.c. |
| Line operation | 2 D cells and 67½-volt "B" battery |
| Battery operation | |
| POWER CONSUMPTION | 15 watts |
| A.-C. or d.-c. operation | 10 ma. from 67½-volt "B" battery; |
| Battery operation | 260 ma. from 2 D cells |
| ANTENNA | Magneor 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 | P67 "B" battery; 2 D cells |



TPO-390

Figure 1. Drive-Cord Stringing Arrangement

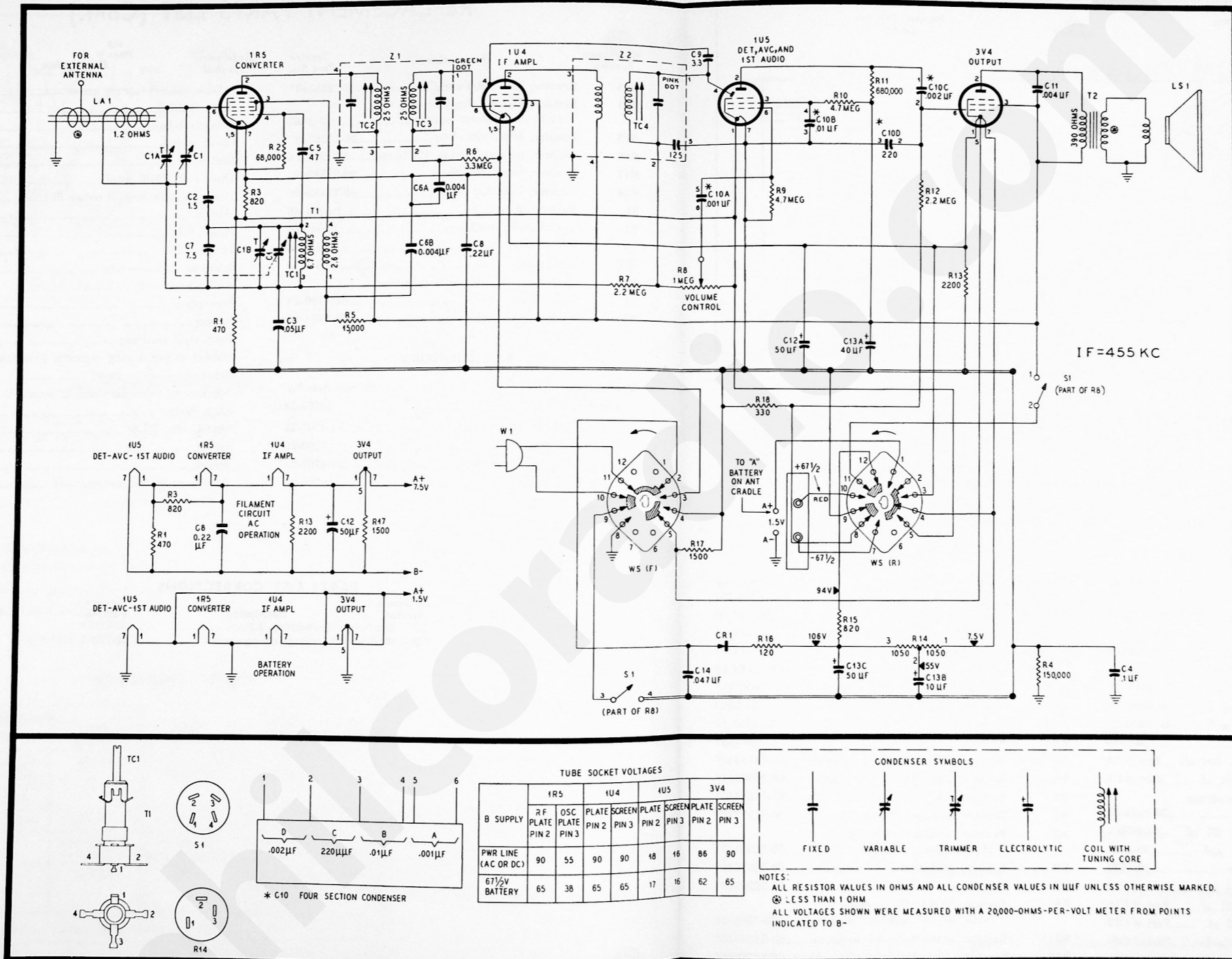


Figure 4. Philco Portable Radio Model 53-651, Schematic Diagram

TPI-1164-1

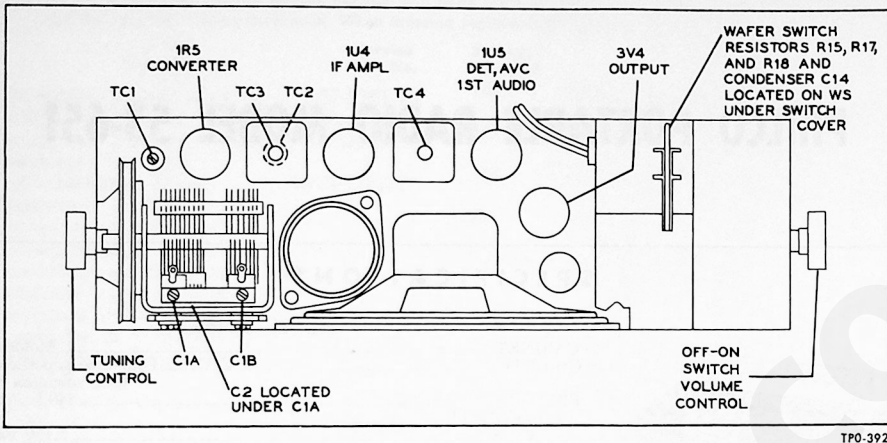


Figure 2. Top View, Showing Tuning Adjustments

ALIGNMENT PROCEDURE

DIAL POINTER—With tuning-condenser plates fully meshed, set pointer to coincide with alignment index mark on bottom of chassis.

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

SIGNAL GENERATOR—Use AM r-f signal generator. Connect output leads as indicated in alignment chart.

RADIO CONTROLS—Set volume control to maximum. Set tuning control as indicated in chart.

OUTPUT LEVEL—During alignment, attenuate

signal-generator output to maintain output level below .5 volt.

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

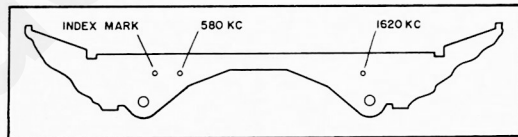


Figure 3. Front View of Pointer Rail, Showing Alignment Marks

ALIGNMENT CHART

| STEP | SIGNAL GENERATOR | | RADIO | | ADJUST |
|------|--|---------------------------|---------------------------------|---|--|
| | CONNECTION TO RADIO | DIAL SETTING | DIAL SETTING | SPECIAL INSTRUCTIONS | |
| 1 | Output lead through a .1- μ f. condenser to antenna section of tuning condenser or to pin 6 of converter (1R5). Ground lead to B-. | 455 kc. | Tuning gang fully open. | Adjust, in order given, for maximum output. | TC4—2nd i-f sec. TC2—1st i-f pri. TC3—1st i-f sec. |
| 2 | Radiating loop. See NOTE below. | 1620 kc. | 1620 kc.† | Adjust for maximum output. | C1B—osc. trimmer |
| 3 | Same as step 2. | Between 1400 and 1500 kc. | Tune radio to generator signal. | Adjust for maximum output. | C1A—antenna trimmer |
| 4 | Same as step 2. | 580 kc. | 580 kc.† | 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: Use a 6–8 turn, 6-inch diameter loop made up of insulated wire. Connect to signal-generator leads, and place about 1 foot from radio loop antenna.

† The radio can be set to this frequency by tuning it until the dial pointer coincides with the proper alignment mark on the bottom of the chassis. See figure 3.

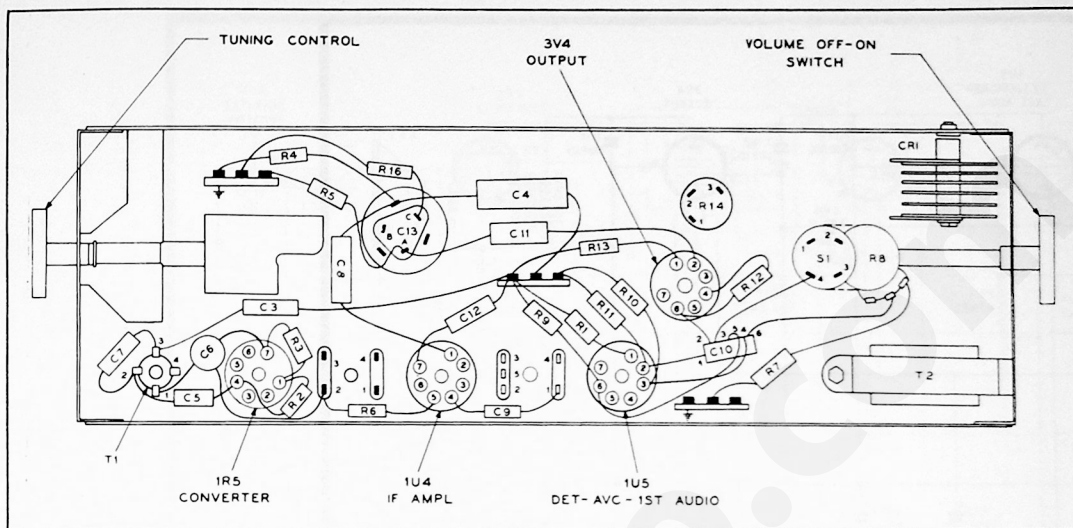


Figure 5. Base View, Showing Parts Placement

TP1-1167-1

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. |
|------------------|---|------------------|------------------|---|------------------|
| C1 | Condenser, tuning gang, 2-section | 31-2735-2 | C13 | Condenser, electrolytic, 3-section | 30-2568-39 |
| C1A | Condenser, trimmer, antenna | Part of C1 | C13A | Condenser, filter, 40 μ f., 150v | Part of C13 |
| C1B | Condenser, trimmer, oscillator | Part of C1 | C13B | Condenser, filter, 10 μ f., 150v | Part of C13 |
| C2 | Condenser, neutralizing, 1.5 μ f. | | C13C | Condenser, filter, 50 μ f., 150v | Part of C13 |
| C3 | Condenser, a-v-c by-pass, .05 μ f. | 30-4650-45* | C14 | Condenser, line by-pass, .047 μ f. | 30-4650-45* |
| C4 | Condenser, B- to ground, .1 μ f. | 30-4650-47* | CR1 | Selenium rectifier, 75 ma. at 117 volts | 34-8003 |
| C5 | Condenser, d-c blocking, 47 μ f. | 60-00475420 | LA1 | Loop antenna | 32-4455-10 |
| C6 | Condenser, dual ceramic | 30-1239 | LS1 | Speaker, 4-inch, p-m | 36-1637 |
| C6A | Condenser, osc. B+ by-pass, .004 μ f. | Part of C6 | R1 | Resistor, current limiting, 470 ohms | 66-1478340* |
| C6B | Condenser, grid by-pass, .004 μ f. | Part of C6 | R2 | Resistor, grid return, 68,000 ohms | 66-3688340* |
| C7 | Condenser, temperature compensation, 7.5 μ f. | 30-1224-83 | R3 | Resistor, bias, 820 ohms | 66-1828340* |
| C8 | Condenser, filament by-pass, .25 μ f. | 30-4656-1 | R4 | Resistor, leakage, 150,000 ohms | 66-4158340* |
| C9 | Condenser, neutralizing, 3.3 μ f. | 30-1221 | R5 | Resistor, oscillator dropping, 15,000 ohms | 66-3158340* |
| C10 | Condenser, ceramic, 4-section | 30-1237 | R6 | Resistor, grid return, 3.3 megohms | 66-5338340* |
| C10A | Condenser, d-c blocking, .001 μ f. | Part of C10 | R7 | Resistor, a-v-c filter, 2.2 megohms | 66-5228340* |
| C10B | Condenser, screen by-pass, .01 μ f. | Part of C10 | R8 | Resistor, VOLUME control (with "off-on" switch), 1 megohm | 33-5566-21 |
| C10C | Condenser, d-c blocking, .002 μ f. | Part of C10 | R9 | Resistor, grid return, 4.7 megohms | 66-5478340* |
| C10D | Condenser, grid by-pass, 220 μ f. | Part of C10 | R10 | Resistor, screen dropping, 4.7 megohms | 66-5478340* |
| C11 | Condenser, tone compensation, .004 μ f. | 30-4650-56* | R11 | Resistor, plate load, 680,000 ohms | 66-4688340* |
| C12 | Condenser, electrolytic, filament by-pass, 50 μ f., 25v | 30-2417-12 | R12 | Resistor, grid return, 2.2 megohms | 66-5228340* |

REPLACEMENT PARTS LIST (Cont.)

| <i>Reference Symbol</i> | <i>Description</i> | <i>Service Part No.</i> | <i>Reference Symbol</i> | <i>Description</i> | <i>Service Part No.</i> |
|-------------------------|--|-------------------------|-------------------------|--|-------------------------|
| R13 | Resistor, bias, 2200 ohms | 66-2228340° | | Back, cabinet, spruce green | 54-4767-22 |
| R14 | Resistor, filament dropping and filter, 2100 ohms (center-tapped) | 33-3445 | | Cable, battery | 41-3988 |
| R15 | Resistor, filter, 820 ohms | 66-1828340° | | Cover, sub-base | 56-7912 |
| R16 | Resistor, current limiting, 120 ohms | 33-1334-14 | | Cover, switch | 56-7911 |
| R17 | Resistor, bias, 1500 ohms | 66-2158340° | | Dial scale | 54-5087 |
| R18 | Resistor, bias, 330 ohms | 66-1338340° | | Drive cord (25-ft. spool) | 45-8750° |
| S1 | Switch, off-on | Part of R8 | | Fastener, baffle mtg. (4 required) | W2235-7FA9 |
| T1 | Transformer, oscillator | 32-4453-1 | | Handle | 54-4883 |
| T2 | Transformer, output | 32-8434 | | Hinge, R.H. | 56-7915-1 |
| W1 | Line cord | L2183 | | Hinge, L.H. | 56-7915 |
| WS | Wafer switch, voltage change-over | | | Insulator, capacitor mtg. | 27-9508 |
| Z1 | Transformer, 1st i-f | 32-4160-4A | | Knob (2 required) | 54-4773 |
| Z2 | Transformer, 2nd i-f | 32-4454-1A | | Nameplate | 54-4884 |

MISCELLANEOUS

| <i>Description</i> | <i>Service Part No.</i> |
|--------------------------------|-------------------------|
| Cabinet, cherry | 10799-24 |
| Back, cabinet, cherry | 54-4767-21 |
| Cabinet, driftwood | 10799-26 |
| Back, cabinet, driftwood | 54-4767-23 |
| Cabinet, spruce green | 10799-25 |

| | | |
|--|--|--------------|
| | Ring, shaft retaining | 28-8610 |
| | Rubber mount, tuning capacitor (3 required)..... | 27-4099-3 |
| | Screw, hinge (2 required) | W2537-15FA1 |
| | Speed nuts, nameplate mtg. (2 required) | 1W56912FE7 |
| | Shaft, tuning | 56-7906FA42 |
| | Shield, tube (1U5) | 56-3978-1FA3 |
| | Socket | 27-6203 |
| | Socket | 27-6203-12 |
| | Battery cradle and antenna ass'y. | 76-5740-1 |

PARTS LIST CORRECTIONS

| <i>Reference Symbol</i> | <i>Description</i> | <i>Service Part No.</i> |
|-------------------------|--|-------------------------|
| C2 | Condenser, neutralizing, 1.5 μ f. | 30-1221-7 |
| WS | Wafer switch, voltage change-over | 42-1925-1 |