

PHILCO PORTABLE RADIO

MODEL 463



HOME RADIO

ALIGNMENT PROCEDURE

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

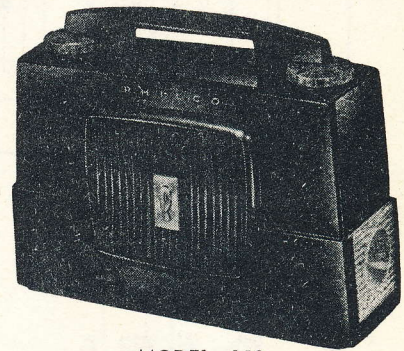
Dial Indicator — Before alignment, the dial knob should be set as follows: with the condenser gang plates fully meshed, the first knob marking (past the 550 KC point) should be perpendicular to the front of the chassis.

Output Indicator — Connect a 1000-ohms-per-volt a-c voltmeter or an oscilloscope across the voice-coil terminals.

Signal Generator — Use an AM r-f signal generator. 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 below .4 volts.

Radio Controls — Set the volume control to maximum. Set the tuning control as indicated in the alignment chart. It is recommended that a-c power be used when aligning the radio.



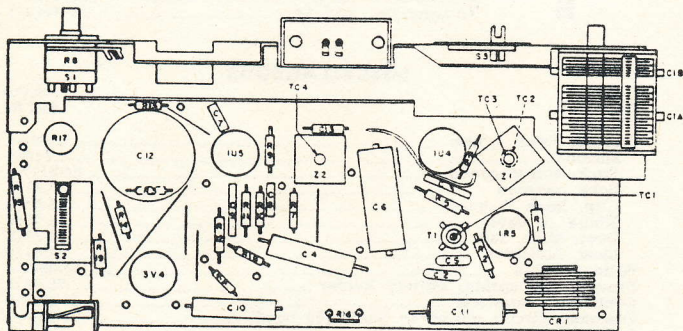
MODEL 463

ALIGNMENT CHART

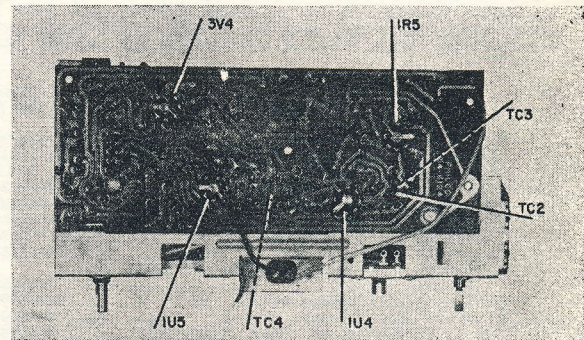
STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Connect signal generator through a .1 mfd condenser to pin 6 (converter grid) of 1R5.	460 kc.	Tuning gang fully open.	Adjust for maximum output in order given.	TC4—2nd I-F sec. TC3—1st I-F sec. TC2—1st I-F pri.
2	Use radiating loop (See note one below).	1620 kc.	1620 kc. (See note 2 below).	Adjust for maximum.	C1B—osc. trimmer
3	Same as step 2.	1400 kc.	1400 kc. (Tune for signal.)	Adjust for maximum.	C1A—ant. trimmer
4	Same as step 2.	600 kc.	600 kc. (Tune for signal.)	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 noted.				

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.

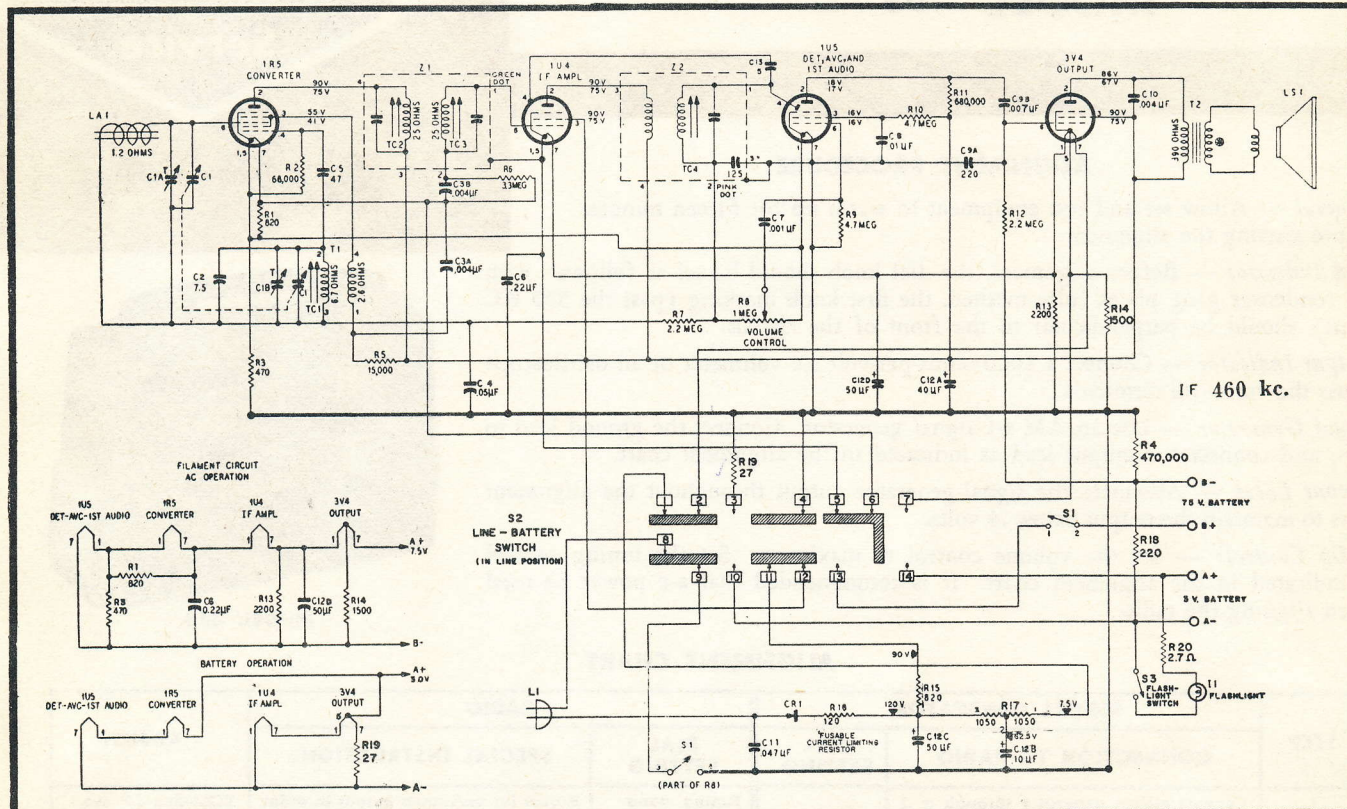
NOTE 2: The tuning condenser can be set to the proper frequency for the oscillator adjustment as follows: Fully open the tuning gang and insert a .006 non-metallic shim between the heel of the rotor and the top of the stator plates. Close the gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.



NOTES: R20 wired between positive "A" battery terminal and the flashlight socket assembly. Jumpers are indicated by solid lines.



Under-chassis printed wiring

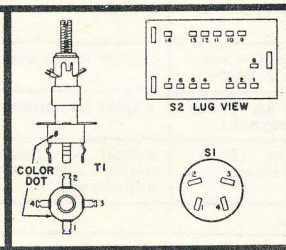


SPECIFICATIONS

CABINET..... PLASTIC PORTABLE
 CIRCUIT..... FOUR TUBE SUPERHETERODYNE (PLUS SELENIUM RECTIFIER)
 AUDIO OUTPUT... AC OR DC OPERATION - 150 MILLIWATTS
 BATTERY OPERATION - 75 MILLIWATTS
 SUPPLY VOLTAGE... 117 VOLTS, AC OR DC
 3.0 VOLT "A" SUPPLY & 75 VOLT "B" BATTERY
 AC OR DC OPERATION..... 11 WATTS
 BATTERY OPERATION..... 10 MA FROM "A"
 150 MA FROM "B"
 POWER CONSUMPTION... BATTERY OPERATION..... 10 MA FROM "A"
 150 MA FROM "B"
 ANTENNA..... MARCONI HIGH-IMPEDANCE LOOP
 INTERMEDIATE FREQUENCY... 460 KC
 PHILCO TUBES... 1R5 CONVERTER, 1U4 I-F AMPLIFIER,
 1U5 DETECTOR-ANC-1 AUDIO, 3V4 OUTPUT
 BATTERY TYPES... P-144 "B" BATTERY
 (20 P-77 "A" BATTERIES)
 FLASHLIGHT BULB... TYPE PR-4, PHILCO PART NUMBER 3483-2

NOTES

VALUES-RESISTORS IN OHMS, CONDENSERS IN μ F UNLESS OTHERWISE MARKED...
 @ LESS THAN 1 OHM.
 VOLTAGES MEASURED WITH A 20,000 OHMS-PER-VOLT METER FROM B-.
 TUBE VOLTAGES-TOP VOLTAGE WITH LINE SUPPLY, BOTTOM VOLTAGE WITH BATTERY.



REPLACEMENT PARTS LIST FOR MODEL 463

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.
R9	Resistor, grid leak, 4.7 megohms	1/2 watt
R10	Resistor, screen dropping, 4.7 megohms	1/2 watt
R11	Resistor, plate load, 680,000 ohms	1/2 watt
R12	Resistor, grid leak, 2.2 megohms	1/2 watt
R13	Resistor, filament dropping, 2200 ohms	1/2 watt
R14	Resistor, filament dropping, 1500 ohms	1/2 watt
R15	Resistor, B- filter, 820 ohms	1 watt
R16	Resistor, Fusible, Current limiting, 120 ohms (Replace only with this special part)	33-1334-19
R17	Resistor, filament dropping and limiting, dual 1050/1050 ohms	33-3445-8
R18	Resistor, bias, 220 ohms	68-1228340
R19	Resistor, filament dropping, 27 ohms	68-0278340
R20	Resistor, flashlight limiting, 2.7 ohms	68-9274360
S1	Switch, off-on, set	Part of R8
S2	Switch, line-battery change over	42-2033
S3	Switch, off-on, flashlight	42-1796-9
T1	Transformer, oscillator	32-4618
T2	Transformer, output OPT-12-0128	32-8434-1*
Z1	Transformer, 1st i-f	32-4583-4
Z2	Transformer, 2nd i-f	32-4619-1

MISCELLANEOUS

Reference Symbol	Description	Service Part No.
C1	Condenser, tuning gang	31-2735-6
C2	Condenser, temperature compensating, 7.5 mmf	30-1224-83
C3	Condenser, dual by-pass, .004 mf / .004 mf	30-1239
C4	Condenser, a-v-c by-pass, .05 mf	30-4650-45*
C5	Condenser, d-c blocking, 47 mmf	62-047009001
C6	Condenser, filament by-pass, .22 mf	30-4650-49*
C7	Condenser, audio coupling, .001 mf	30-1238-3
C8	Condenser, screen by-pass, .01 mf	30-1238-2
C9	Condenser, dual, audio coupling and grid by-pass, .007/220	30-1239-7
C10	Condenser, tone compensation, .004 mf	30-4650-56*
C11	Condenser, line by-pass, .047 mf	30-4650-45*
C12	Condenser, electrolytic, filter, 40/10/50/50	30-2585-1
C13	Condenser, neutralization, 5 mmf	30-1224-5
CR1	Rectifier, selenium	34-8003-18
I1	Lamp, flashlight	3463-2
L1	Linecord	41-3865-5
LA1	Coil, antenna	32-4455-13
LS1	Speaker OPT-16-0152	38-1654-3*
R1	Resistor, filament dropping, 820 ohms	1/2 watt
R2	Resistor, grid leak, 68,000 ohms	1/2 watt
R3	Resistor, cathode bias, 470 ohms	1/2 watt
R4	Resistor, output bias, 470,000 ohms	1/2 watt
R5	Resistor, screen dropping, 15,000 ohms	1/2 watt
R6	Resistor, grid leak, 3.3 megohms	1/2 watt
R7	Resistor, a-v-c lead, 2.2 megohms	1/2 watt
R8	Volume control, 1 megohm	1/2 watt

Description	Service Part No.
Cabinet forest green	11045-1
Maroon	11045
Back, forest green	54-6117-1
Back, maroon	54-6117
Clip, back (2 used)	28-9783
Hinge (2 used)	56-7968
Door, slide, left	54-6119
Lens, indicator	54-6120
Battery cable	41-3988-4
Bracket and spring, battery holder	76-9049
Connector, interlock	27-6240-3
Fastener, circuit wiring to panel (18 used)	28-2669-3
Indicator assembly, flashlight	76-9051
Knob, off-on, volume	54-6121-1
Knob, tuning	54-6122
Knob, dial	54-6121-1
Knob, flashlight switch, forest green	54-6126
Knob, flashlight switch, maroon	54-6126
Nut, stamped (4 used)	1W29056FA3
Shield, tube (2 used) 1U5, 1U4	56-6228-12
Socket, tube (1U5)	27-6236-11
Socket, tube (1U4)	27-6236-12
Socket, tube 2 used (3V4, 1R5)	27-6296-10
Spring, antenna mounting	28-1014
Spring, battery clamp	28-10099
Spring, contact, "A" battery	28-9117-3
Spring, change over switch	28-10024