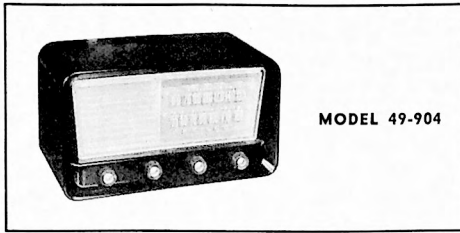


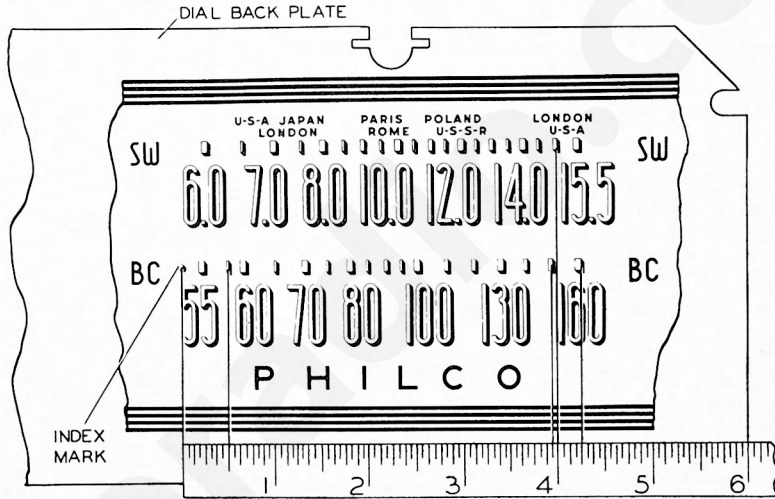
PHILCO RADIO MODEL 49-904

SPECIFICATIONS



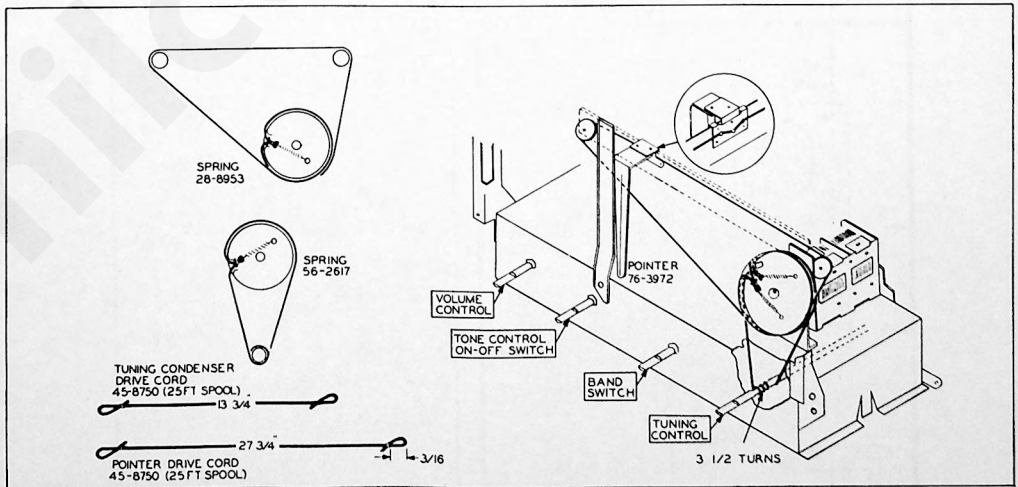
CABINET	Plastic, brown
CIRCUIT	6-tube superheterodyne
FREQUENCY RANGES	
Broadcast540—1620 kc.
Short Wave	5.8—15.5 mc.
AUDIO OUTPUT	1 watt
OPERATING VOLTAGE	105—120 volts, a.c. or d.c.
POWER CONSUMPTION	30 watts
AERIAL	Built-in loop; terminal also provided for external aerial
INTERMEDIATE FREQUENCY	455 kc.
PHILCO TUBES (6)	14AF7, 12BA6, 12AU6, 14B6, 35A5, 35Y4

TP-6153A



TP-6290

Figure 1. Calibration Measurements for Dial Backplate



TP-6419E

Figure 2. Drive-Cord Installation Details

ALIGNMENT PROCEDURE

DIAL—Calibration and pointer-index measurements are shown in figure 1. With tuning condenser fully meshed, set pointer to index mark.

OUTPUT METER—Connect to terminals indicated in figure 4.

SIGNAL GENERATOR—Connect as indicated in chart.

STEP	SIGNAL GENERATOR		RADIO			ADJUST
	CONNECTION TO RADIO	DIAL SETTING	BAND SWITCH	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Ground lead to B-; output lead through .1-mf. condenser to tuning-condenser stator (aerial section).	455 kc.	BC	540 kc.	Adjust, in order given, for maximum output.	TC301B—2nd i-f sec. TC301A—2nd i-f pri. TC3008—1st i-f sec. TC300A—1st i-f pri.
2	Radiating loop (see note below).	580 kc.	BC	580 kc.	Adjust for maximum.	C401A—BC osc. (series)
3	Same as step 2.	1600 kc.	BC	1600 kc.	Adjust for maximum.	C401B—BC osc. (shunt)
4	Same as step 2.	15 mc.	SW	15 mc.	Adjust for maximum on first peak from loose position. Image should be heard with signal generator set at 14.1 mc.	C401C—SW osc.
5	Same as step 2.	15 mc.	SW	15 mc.	Adjust for maximum from tight position.	C400A—SW aerial
6	Same as step 2.	1500 kc.	BC	1500 kc.	Adjust for maximum.	C402—BC aerial
7	Same as step 2.	580 kc.	BC	580 kc.	Adjust for maximum while rocking tuning control.	C401A—BC osc. (series)
8	Same as step 2.				Repeat steps 3 and 7 until no further improvement is noted, then repeat step 3.	

RADIATING LOOP: Make up a 6–8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place near radio loop aerial. Make sure that loop aerial is connected to radio.

RADIO CONTROLS—Set volume control to maximum, and tone control fully counterclockwise (treble). Set band switch and tuning control as indicated in chart.

OUTPUT LEVEL—During alignment, adjust signal-generator output to hold output-meter indication below 1.25 volts.

NOTE: TC300A AND TC301A ARE LOCATED ON UNDERSIDE OF CHASSIS.

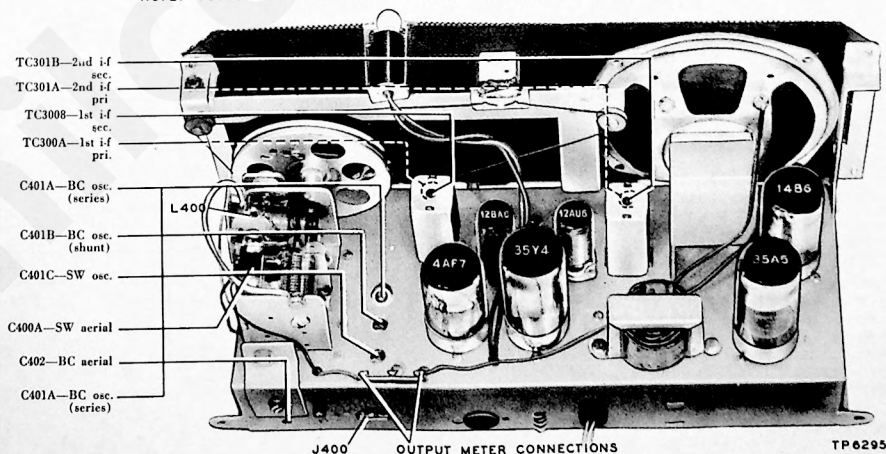


Figure 4. Top View, Showing Trimmer Locations

The components in the radio circuit are symbolized according to the types of parts and the sections of the radio in which the parts are located. The prefix letter of the symbol designates the type of part, as follows:

C—condenser
I—pilot lamp
L—choke or coil

LA—loop aerial
LS—loud-speaker
R—resistor

S—switch
T—transformer
W—line cord

WS—wafer switch
Z—electrical assembly

The number of the symbol designates the section in which the part is located, as follows:

- 100-series components are in Section 1—the power supply
- 200-series components are in Section 2—the audio circuits
- 300-series components are in Section 3—the i-f, detector, and a-v-c circuits
- 400-series components are in Section 4—the r-f and converter circuits

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

SECTION 1—POWER SUPPLY

Reference Symbol	Description	Service Part No.
C100	Condenser, by-pass, .04 mf.	45-3500-2*
C101	Condenser, electrolytic, 3-section	30-2575-27
C101A:	Condenser, filter, 40 mf.	Part of C101
C101B:	Condenser, filter, 30 mf.	Part of C101
C101C:	Condenser, filter, 30 mf.	Part of C101
C102	Condenser, by-pass, .04 mf.	45-3500-2*
I100	Panel lamp	34-2068*
R100	Resistor, 1st B+ filter, 220 ohms.	66-1224340*
R101	Resistor, 2nd B+ filter, 1200 ohms.	66-2123340*
R102	Resistor, leakage, 150,000 ohms.	66-4153340*
S100	Switch, a-c power	Part of R201
W100	Line-cord and plug	L2183*

SECTION 2—AUDIO CIRCUITS

C200	Condenser, d-c blocking, .01 mf.	61-0120*
C201	Condenser, d-c blocking, .01 mf.	61-0120*
C202	Condenser, parasitic suppressor, 220 mmf.	30-1224-20*
C203	Condenser, tone control, .006 mf.	45-3500-7*
C204	Condenser, tone compensation, .02 mf.	61-0108*
C205	Condenser, electrolytic, cathode by-pass, 25 mf.	45-3001*
LS200	Loud-speaker, PM	36-1625
R200	Volume control, .5 megohm.	33-5539-46
R201	Tone control (including a-c switch), .5 megohm	33-5538-35
R202	Resistor, grid return, 3.3 megohms.	66-5333340*
R203	Resistor, plate load, 470,000 ohms.	66-4473340*
R204	Resistor, grid return, 470,000 ohms.	66-4473340*
R205	Resistor, cathode bias, 130 ohms.	66-1123340*
T200	Transformer, output	32-8310-3

SECTION 3—I-F, DETECTOR, AND A-V-C CIRCUITS

C300A	Condenser, fixed	Part of Z300
C300B	Condenser, fixed	Part of Z300
C301A	Condenser, fixed	Part of Z301
C301B	Condenser, fixed	Part of Z301
C301C	Condenser, i-f filter	Part of Z301
C301D	Condenser, i-f filter	Part of Z301
C302	Condenser, r-f by-pass, .05 mf.	61-0122*
C303	Condenser, r-f by-pass, .01 mf.	61-0120*
C304	Condenser, a-v-c filter, .1 mf.	61-0113*
C305	Condenser, r-f by-pass, .01 mf.	61-0120*
C306	Condenser (inductively wound), i-f by-pass, .1 mf.	30-4644-1
C307	Condenser, cathode by-pass, .001 mf.	45-3500-5*
C308	Condenser, screen by-pass, .05 mf.	61-0122*
C309	Condenser, d-c blocking, 220 mmf.	30-1224-20*
C310	Condenser, screen by-pass, .05 mf.	61-0122*
C311	Condenser, r-f by-pass, .05 mf.	61-0122*
R300	Resistor, plate decoupling, 2200 ohms.	66-2223340*
R301	Resistor, cathode bias, 220 ohms.	66-1223340*
R302	Resistor, screen dropping, 47,000 ohms	66-3473340*
R303	Resistor, plate load, 15,000 ohms.	66-3153340*
R304	Resistor, grid return, 150,000 ohms.	66-4153340*
R305	Resistor, cathode bias, 220 ohms.	66-1223340*
R306	Resistor, plate and screen decoupling, 1000 ohms	66-2103340*
R307	Resistor, i-f filter, 47,000 ohms.	66-3473340*

SECTION 3 (Cont.)

Reference Symbol	Description	Service Part No.
R308	Resistor, a-v-c load, 1 megohm.	66-5103340*
TC300A	Tuning core, 1st i-f primary.	Part of Z300
TC300B	Tuning core, 1st i-f secondary.	Part of Z300
TC301A	Tuning core, 2nd i-f primary.	Part of Z301
TC301B	Tuning core, 2nd i-f secondary.	Part of Z301
Z300	Transformer, 1st i-f	32-4258
Z301	Transformer, 2nd i-f	32-4240-3

SECTION 4—R-F AND CONVERTER CIRCUITS

C400	Condenser, tuning, 2-gang	31-2727-4
C400A:	Condenser, trimmer, SW aerial	Part of C400
C401	Condenser strip, trimmer, 3-section	31-6477-2
C401A:	Condenser, series padder, BC osc.	Part of C401
C401B:	Condenser, trimmer, BC osc.	Part of C401
C401C:	Condenser, trimmer, SW osc.	Part of C401
C402	Condenser, trimmer, BC aerial	31-6474
C403	Condenser, isolating, .02 mf.	61-0108*
C404	Condenser, blocking, 100 mmf.	30-1224-26*
C405	Condenser, isolating, 100 mmf.	62-110009001
C406	Condenser, d-c blocking, 220 mmf.	30-1224-20
C407	Condenser, d-c blocking, 220 mmf.	30-1224-20
C408	Condenser, cathode by-pass, .05 mf.	61-0122*
C409	Condenser, r-f by-pass, 100 mmf.	62-110009001
J400	Jack, external aerial connector.	27-6126
L400	Coil, BC aerial	32-4033-7
L401	Coil, shunt, SW aerial	32-3858
L402	Coil, choke, SW plate	32-4143-4
LA400	Loop-aerial assembly	Part of Cabinet
R400	Resistor, grid return, 10,000 ohms.	66-3103340*
R401	Resistor, cathode bias, 2200 ohms.	66-2223340*
R402	Resistor, plate load, 10,000 ohms.	66-3103340*
R403	Resistor, grid return, 2.2 megohms.	66-5223340*
T400	Coils, BC and SW oscillator	32-4311
WS	Wafer (band) switch	42-1869

MISCELLANEOUS

Description	Service Part No.
Baffle, speaker	54-4585
Bracket, pointer support rivet assembly	76-4027
Bracket, speaker	56-5690FA3
Cabinet-and-loop assembly	76-4026
Cabinet back	54-7639
Cord, drive (25-ft. spool)	45-8750*
Fastener (7)	1W56913FA3
Grille (ornamental)	56-5694FCP
Knob, SW-BC	54-4527-7
Knob, tone—on-off	54-4527-5
Knob, tuning	54-4527-1
Knob, volume	54-4527-6
Pilot-lamp-socket assembly	76-1280
Pointer	76-3972
Scale, dial	54-5012
Shaft, tuning	56-5688FE11
Bushing, tuning shaft	27-9437
Socket, loktal	27-6138
Socket, miniature	27-6203
Spring, pointer drive	28-8953
Spring, tuning-condenser drive	56-2617
Stud (4)	W2235FA9
Stud, trimount (4)	W2235-1FA9