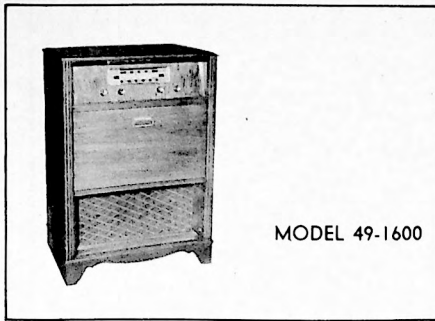


# PHILCO RADIO-PHONOGRAPH MODEL 49-1600

## SPECIFICATIONS



CABINET	Modern classical, wood console, walnut finish.
CIRCUIT	Five-tube superheterodyne
FREQUENCY RANGE	540-1620 kc.
AUDIO OUTPUT	3 watts
OPERATING VOLTAGE	117 volts, 60 cycles, a.c.
POWER CONSUMPTION	
Radio	35 watts
Phonograph	50 watts
AERIAL	High-impedance loop; also provision for external aerial.
INTERMEDIATE FREQUENCY	455 kc.
PHILCO TUBES (5)	14Q7, 12BA6, 7C6, 35L6GT, 50X6
RECORD PLAYER	Philco Automatic Record Changer Model M-9 (For service information refer to Page 493)

DIAL BACK PLATE

TP 5872

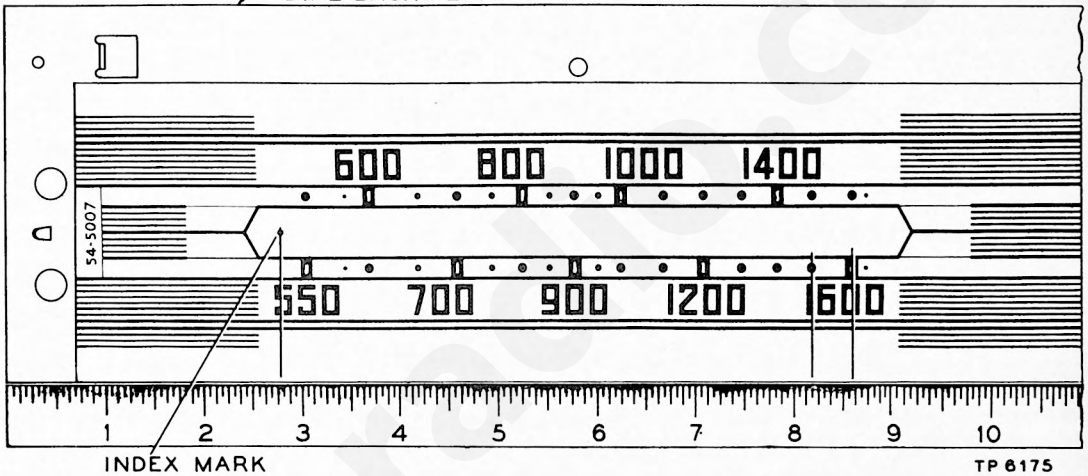


Figure 1. Calibration Measurements for Dial Backplate

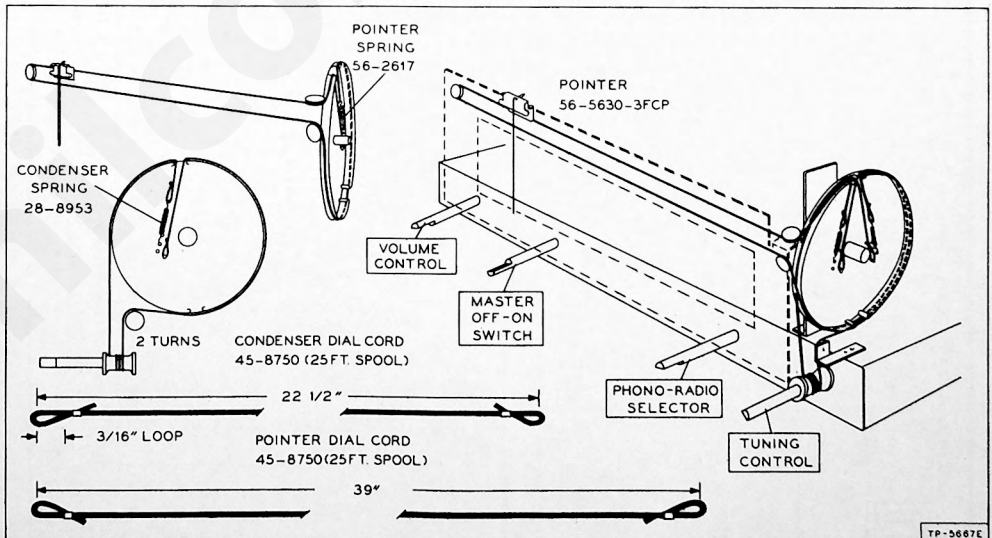


Figure 2. Drive-Cord Installation Details

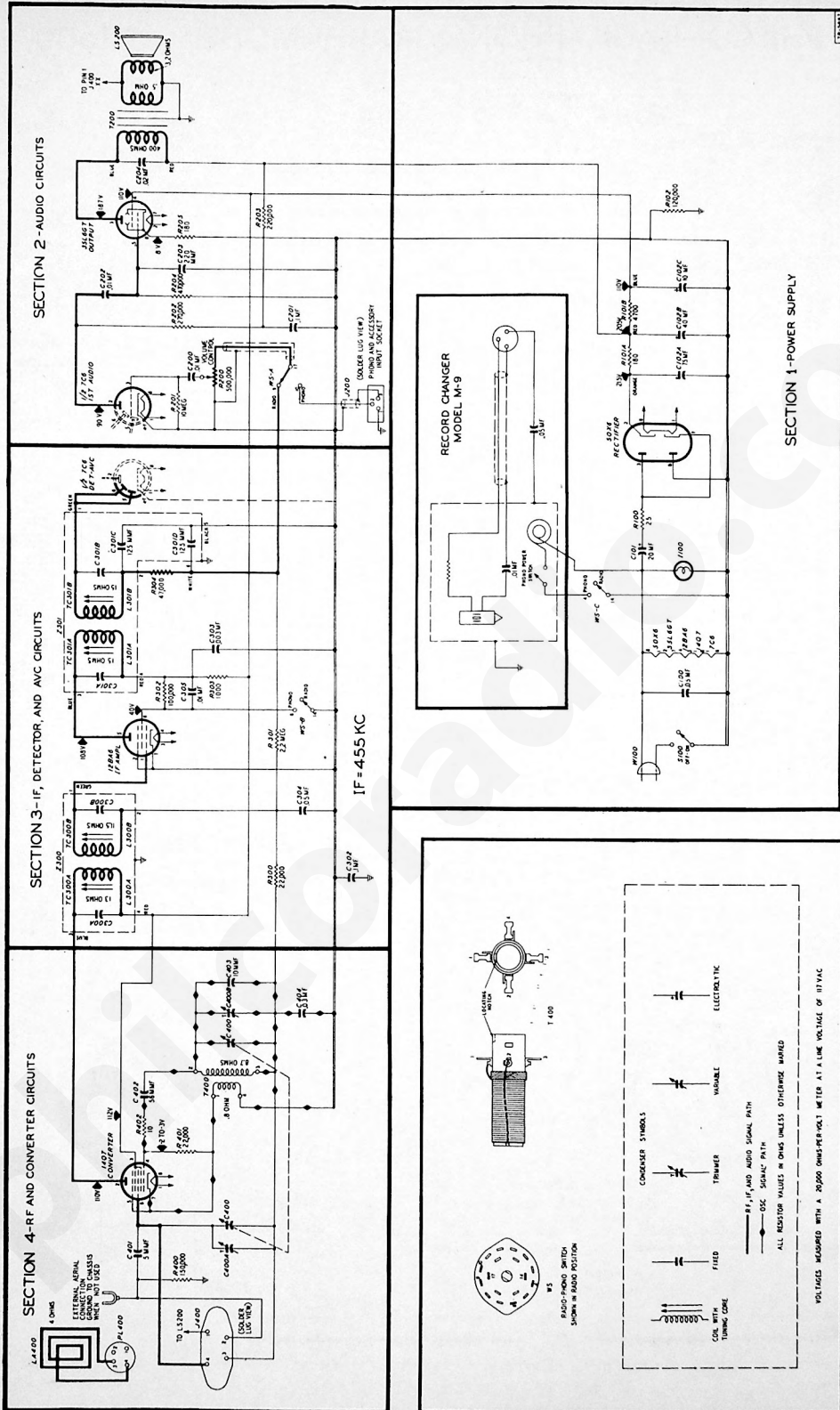


Figure 3. Philco Radio-Phonograph Model 49-1600, Sectionalized Schematic Diagram.

# 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 across voice coil.

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

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Ground lead to B-; output lead through .1-mf. condenser to external-aerial lead (loop aerial must be connected).	455 kc.	Tuning condenser fully meshed.	Adjust tuning cores, in order given, for maximum output.	TC301B—2nd i-f sec. TC301A—2nd i-f pri. TC300B—1st i-f sec. TC300A—1st i-f pri.
2	Radiating loop (see note below).	1600 kc.	1600 kc.	Adjust trimmer for maximum output.	C400B—osc.
3	Same as step 2.	1500 kc.	1500 kc.	Adjust trimmer for maximum output.	C400A—aerial

**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. The loop aerial must be connected.

**RADIO CONTROLS**—Set volume control to maximum, and radio-phonograph switch to radio position.

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

NOTE:— TC300A AND TC301A ARE ACCESSIBLE FROM UNDERSIDE OF CHASSIS.

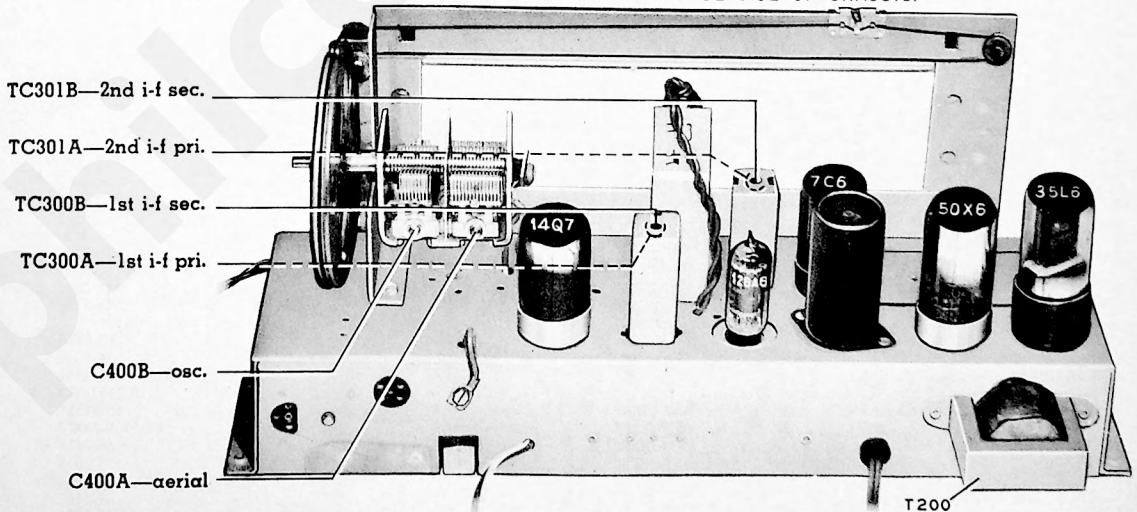


Figure 4. Top View, Showing Trimmer Locations

TP6156

SYMBOLIZATION

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
- TC—tuning core
- W—line-cord-and-plug assembly
- WS—Water 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 powersupply.
- 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.

NOTE: Part numbers identified by an asterisk (\*) indicate general replacement items. These numbers may not be identical with those on factory assemblies; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and replacement 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."

REPLACEMENT PARTS LIST

SECTION 1  
POWER SUPPLY

Reference Symbol	Description	Service Part No.
C100	Condenser, line filter, 05 mf.	61-0122*
C101	Condenser, electrolytic, doubler, 20 mf.	30-2568-22
C102	Condenser, electrolytic, filter, 3-section	30-2575-23
C102A	Condenser, electrolytic, filter, 75 mf., 250v	Part of C102
C102B	Condenser, electrolytic, filter, 40 mf., 250v	Part of C102
C102C	Condenser, electrolytic, filter, 10 mf., 250v	Part of C102
I100	Lamp, pilot, 110v	34-2605*
R100	Resistor, current limiting, 25 ohms	33-1334-5
R101	Resistor, filter, 2-section	33-3435-18
R101A	Resistor, filter, 180 ohms	Part of R101
R101B	Resistor, filter, 4700 ohms	Part of R101
R102	Resistor, leakage, 120,000 ohms	66-4123340*
S100	Switch, off-on power	42-1837-3
W100	Line-cord-and-plug assembly	L-2183*
WS-C	Water switch, radio-phon	Part of WS

SECTION 2  
AUDIO CIRCUITS

C200	Condenser, blocking, 01 mf.	61-0120*
C201	Condenser, decoupling, 1 mf.	61-0113*
C202	Condenser, d-c blocking, 01 mf.	61-0120*
C203	Condenser, grid by-pass, ceramic, 220 mmf.	62-122001001*
C204	Condenser, parasitic suppressor, .02 mf.	61-0108*
J200	Jack, phono input	27-6126
LS200	Speaker, permanent magnet	36-1626-1
R200	Volume control, 500,000 ohms	33-5539-51*
R201	Resistor, grid return, 10 megohms	66-6103340*
R202	Resistor, plate load, 270,000 ohms	66-4273340*
R203	Resistor, plate filter, 20,000 ohms	66-4223340*
R204	Resistor, grid return, 470,000 ohms	66-4473340*
R205	Resistor, cathode bias, 180 ohms	66-1183340*
T200	Transformer, output	32-8242-3
WS	Water switch, radio-phon	42-1824-2
WS-A	Water switch, radio-phon	Part of WS

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

C300A	Condenser, fixed trimmer	Part of Z300
C300B	Condenser, fixed trimmer	Part of Z300
C301A	Condenser, fixed trimmer	Part of Z301
C301B	Condenser, fixed trimmer	Part of Z301
C301C	Condenser, i-f by-pass	Part of Z301
C301D	Condenser, i-f by-pass	Part of Z301
C302	Condenser, i-f by-pass, 1 mf.	61-0113*
C303	Condenser, decoupling, .003 mf.	61-0109*
C304	Condenser, a-v-c by-pass, .05 mf.	45-3500-2*
C305	Condenser, screen by-pass, 01 mf.	61-0120*
L300A	Primary, 1st i-f transformer	Part of Z300
L300B	Secondary, 1st i-f transformer	Part of Z300
L301A	Primary, 2nd i-f transformer	Part of Z301
L301B	Secondary, 2nd i-f transformer	Part of Z301
R300	Resistor, a-v-c filter, 22,000 ohms	66-3223340*

SECTION 3 (Continued)  
I-F, DETECTOR, AND A-V-C CIRCUITS

	Description	Service Part No.
R301	Resistor, a-v-c filter, 2.2 megohms	66-5223340*
R302	Resistor, screen dropping, 100,000 ohms	66-5103340*
R303	Resistor, plate dropping, 1,000 ohms	66-3103340*
R304	Resistor, diode load, 47,000 ohms	66-3473340*
TC300A	Tuning core	Part of Z300
TC300B	Tuning core	Part of Z300
TC301A	Tuning core	Part of Z301
TC301B	Tuning core	Part of Z301
WS-B	Switch, radio-phon	Part of WS
Z300	Transformer, 1st i-f	32-4160
Z301	Transformer, 2nd i-f	32-4240

SECTION 4  
R-F AND CONVERTER CIRCUITS

C400	Condenser, variable, 2-section	31-2727-3
C400A	Condenser, trimmer, aerial	Part of C400
C400B	Condenser, trimmer, osc	Part of C400
C401	Condenser, aerial coupling, mica, 5 mmf.	60-90505007*
C402	Condenser, blocking, mica, 56 mmf.	62-056409001*
C403	Condenser, fixed trimmer, ceramic, 10 mmf.	30-1224-26
C404	Condenser, a-v-c by-pass, .03 mf.	45-3500-1*
J400	Jack, aerial input	27-6214-1
LA400	Loop-aerial assembly	76-2127-8
PL400	Plug, loop aerial	Part of LA400
R400	Resistor, isolating, 150,000 ohms	66-4153340*
R401	Resistor, grid return, 22,000 ohms	66-3223340*
R402	Resistor, parasitic suppressor, 10 ohms	66-0103340*
T400	Transformer, oscillator	32-4190-2

MISCELLANEOUS

Description	Service Part No.
Bracket-and-clip assembly, pilot lamp	76-4004
Cable-and-plug assembly, phono input	41-3864-1
Cabinet (less scale)	10713
Baffle and cloth	40-7512
Bezel	56-5367
Cabinet back	54-7603
Dial scale	54-5007
Hinges (2)	56-5765
Dial-Scale Hardware	
Dial-backplate assembly	76-4005
Diffusing panel	54-7606
Spring (2 required)	56-3841
Snap fastener	28-4342FA3
Drive cord (25-ft spool)	45-8750*
Pointer	56-5630-3FCP
Spring	56-2617
Shaft-and-pulley assembly	76-3959
Spring, tuning-gang drive	28-8953
Knob (4 required)	54-4486
Socket assembly, pilot lamp	27-6233
Socket, Loktal	27-6138*
Socket, miniature	27-6226
Socket, octal	27-6174