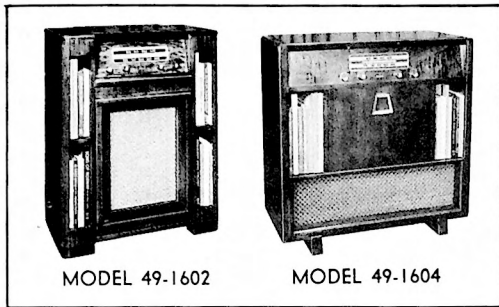


PHILCO RADIO-PHONOGRAPH MODELS 49-1602 AND 49-1604

SPECIFICATIONS



CABINET	
Model 49-1602	Wood console, walnut finish
Model 49-1604	Wood console, mahogany finish
CIRCUIT	
	Six-tube superheterodyne
FREQUENCY RANGE	
	540-1620 kc.
AUDIO OUTPUT	
	3 watts
OPERATING VOLTAGE	
	105-120 volts, a. c.
POWER CONSUMPTION	
Radio	65 watts
Phonograph	30 watts
AERIAL	
	Built-in semi-high-impedance loop; also provision for connecting external aerial.
INTERMEDIATE FREQUENCY	
	455 kc.
PHILCO TUBES (6)	
	7B7(2), 7C6, 14AF7, 35L6GT, 50X6
PHONOGRAPH	
	Philco Automatic Record Changer Model M-9 (For service information, refer to Page 453.)

TP 5870 & TP 5819A

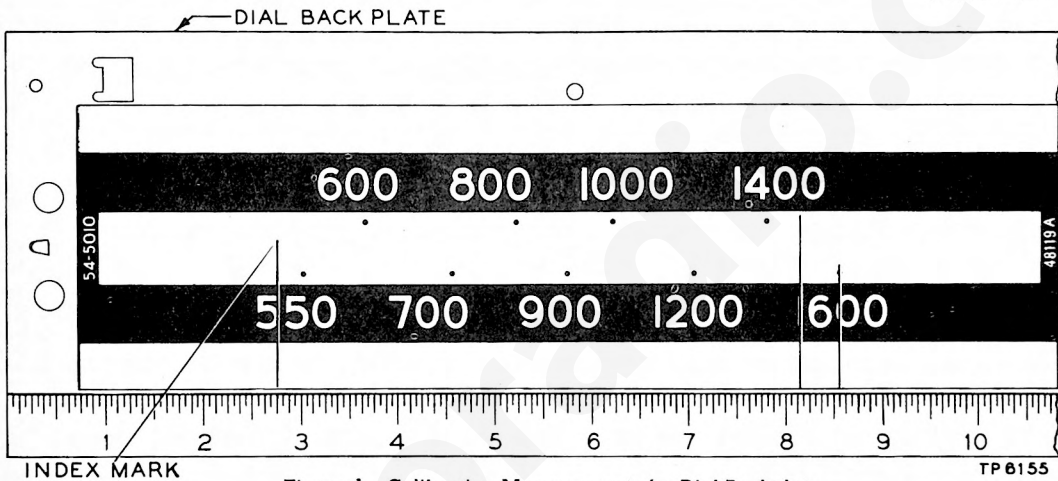


Figure 1. Calibration Measurements for Dial Backplate

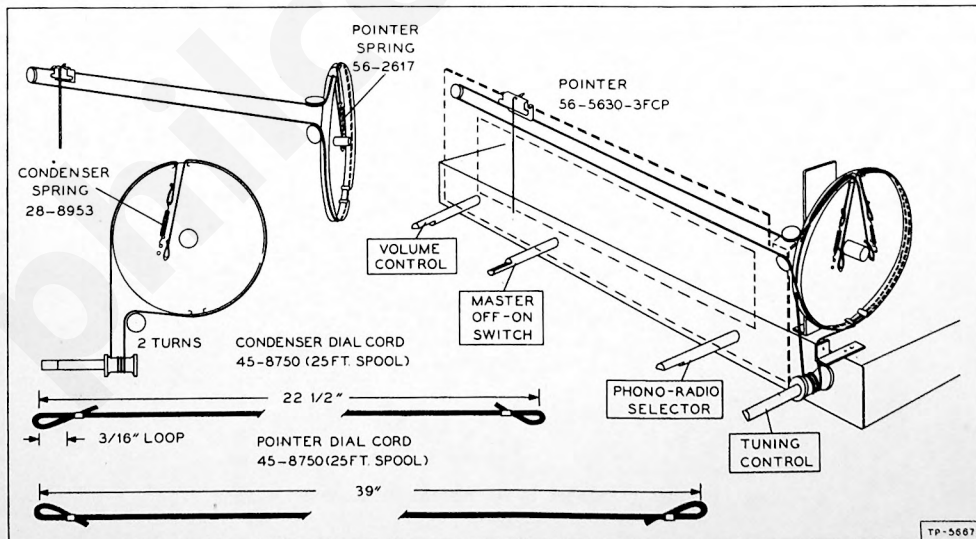


Figure 2. Drive-Cord Installation Details
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MODELS 49-1602 and 49-1604

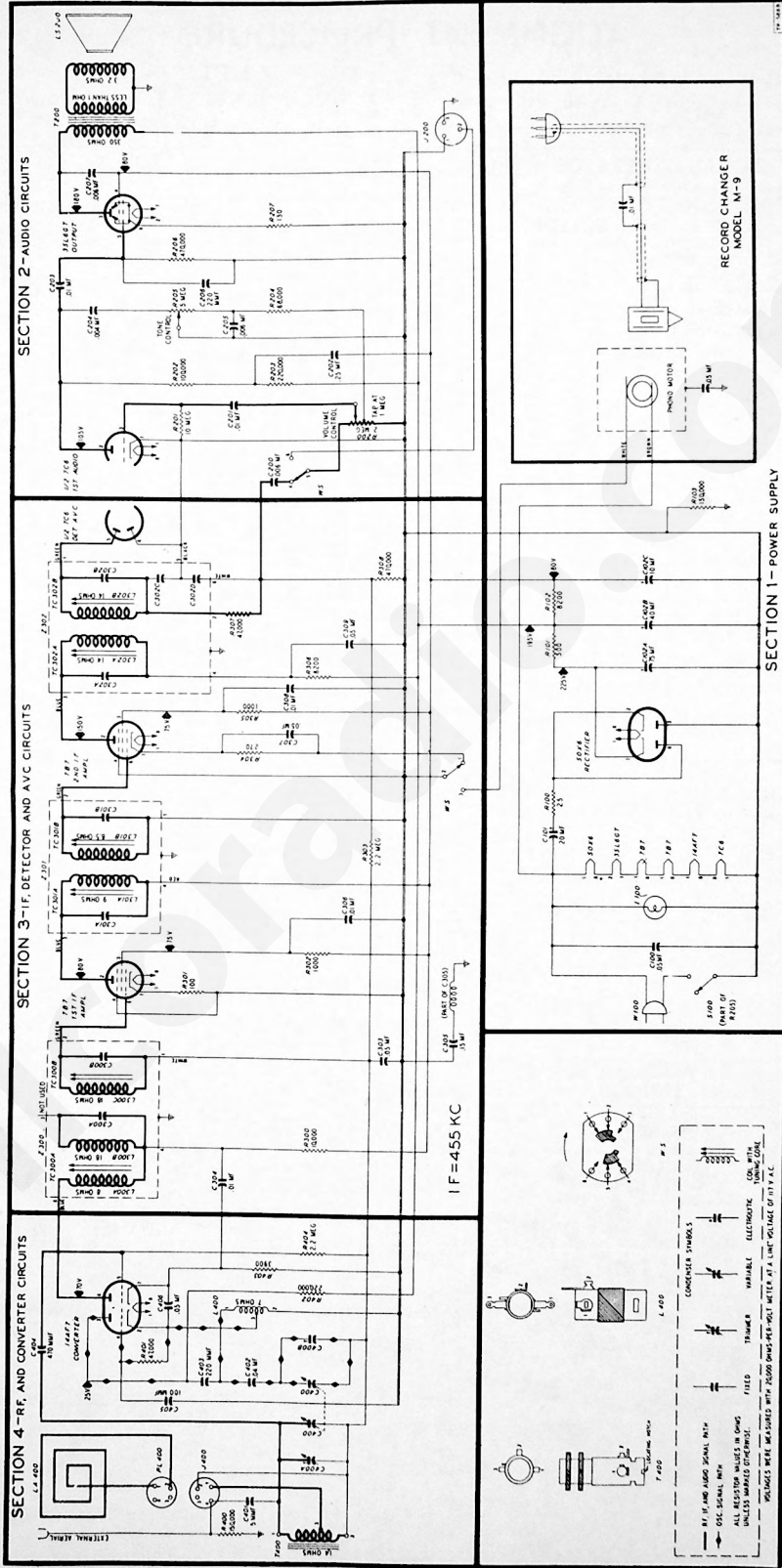


Figure 3. Philco Radio-Phonograph Models 49-1602 and 49-1604, Sectionalized Schematic Diagram.

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 mixer grid (pin 5 of 14AF7).	455 kc.	540 kc.	Adjust tuning cores, in order given, for maximum output.	TC302B—3rd i-f sec. TC302A—3rd i-f pri. 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, turn tone control fully counterclockwise, and set radio-phono switch to radio position.

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

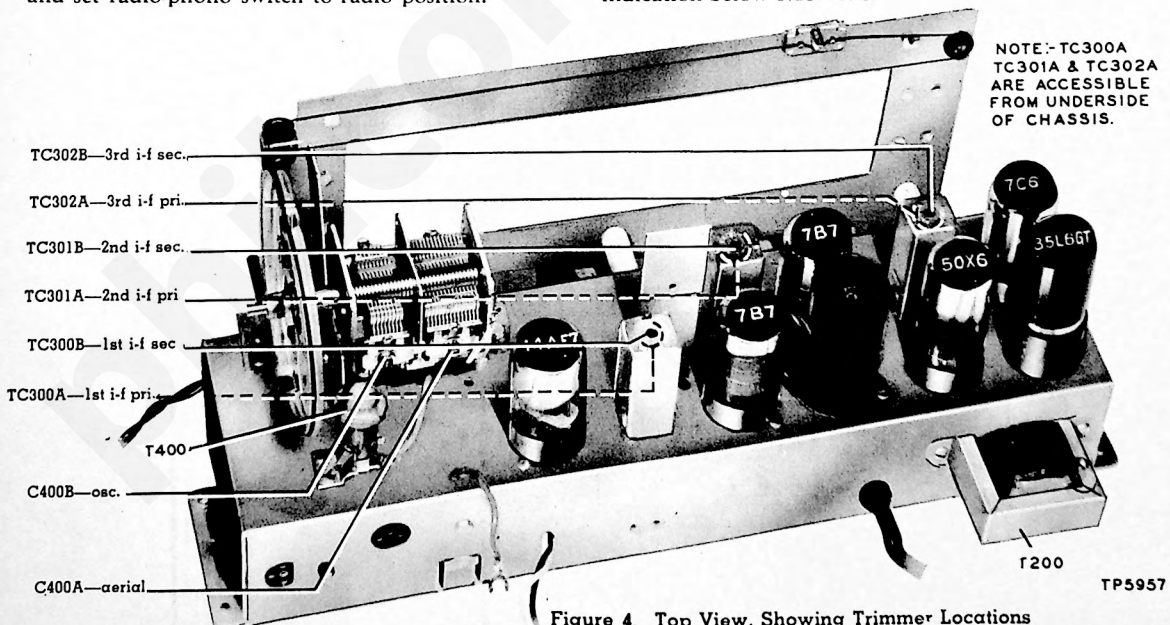


Figure 4. Top View, Showing Trimmer Locations

REPLACEMENT PARTS LIST

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."

SECTION 1 POWER SUPPLY		Service Part No.	SECTION 3 (Continued) I-F, DETECTOR, AND A-V-C CIRCUITS		Service Part No.
Reference Symbol	Description		Reference Symbol	Description	
C100	Condenser, line filter, .05 mf.	61-0122*	R305	Resistor, screen dropping, 1000 ohms	66-2103340*
C101	Condenser, electrolytic, doubler, 20 mf.	30-2568-22	R306	Resistor, plate dropping, 8200 ohms	66-2823340*
C102	Condenser, electrolytic, 3-section	30-2575-23	R307	Resistor, diode load, 47,000 ohms	66-3473340*
C102A	Condenser, filter, 75 mf.	Part of C102	R308	Resistor, a-v-c filter, 470,000 ohms	66-4473340*
C102B	Condenser, filter, 40 mf.	Part of C102	TC300A	Tuning core	Part of Z300
C102C	Condenser, filter, 10 mf.	Part of C102	TC300B	Tuning core	Part of Z300
I100	Lamp, pilot, 110v	34-2605	TC301A	Tuning core	Part of Z301
R100	Resistor, current limiter, 25 ohms	33-1334-5	TC301B	Tuning core	Part of Z301
R101	Resistor, filter, 500 ohms	33-3435-3	TC302A	Tuning core	Part of Z302
R102	Resistor, filter, wire-wound, 8200 ohms, 2.5 watts	66-2825340	TC302B	Tuning core	Part of Z302
R103	Resistor, leakage, 150,000 ohms	66-4153340*	WS	Switch, radio-phon	Part of WS
S100	Switch, off-on	Part of R205	Z300	Transformer, 1st i-f	32-4258
W100	Line-cord-and-plug assembly	L-2183*	Z301	Transformer, 2nd i-f	32-4160-3
			Z302	Transformer, 3rd i-f	32-4240-2
SECTION 2 AUDIO CIRCUITS			SECTION 4 R-F AND CONVERTER CIRCUITS		
C200	Condenser, blocking, .006 mf.	45-3500-7*	C400	Condenser, tuning gang	31-2727-3
C201	Condenser, blocking, .01 mf.	61-0120*	C400A	Condenser, trimmer	Part of C400
C202	Condenser, plate decoupling, .25 mf.	61-0125*	C400B	Condenser, trimmer	Part of C400
C203	Condenser, d-c blocking, .01 mf.	61-0120*	C401	Condenser, series blocking, 5 mmf.	60-90505007*
C204	Condenser, tone compensation, .004 mf.	61-0179*	C402	Condenser, isolating, .04 mf.	45-3500-2*
C205	Condenser, bass compensation, .006 mf.	45-3500-7*	C403	Condenser, osc. plate 220 mmf.	62-122001001*
C206	Condenser, grid by-pass, 220 mmf.	62-122001001*	C404	Condenser, grid blocking, 470 mmf.	60-10475417*
C207	Condenser, parasitic suppressor, .006 mf.	45-3500-7*	C405	Condenser, osc. grid, 100 mmf.	60-10105407*
J200	Jack, phono input	27-6126	C406	Condenser, by-pass, .05 mf.	61-0122*
LS200	Speaker, permanent magnet	36-1626-1	J400	Jack, aerial input	27-6214-1
R200	Volume control, 2 megohms (tap at 1 megohm)	33-5535-18*	L400	Coil, oscillator	32-4153
R201	Resistor, grid return, 10 megohms	66-6103340*	LA400	Loop aerial	76-3583-4, 1604
R202	Resistor, plate load, 100,000 ohms	66-4103340*	R400	Loop aerial	76-3583-3, 1602
R203	Resistor, plate filter, 220,000 ohms	66-4223340*	R400	Resistor, external aerial loading, 150,000 ohms	66-4153340*
R204	Resistor, bass compensation, 68,000 ohms	66-3683340*	R401	Resistor, osc. grid, 47,000 ohms	66-3473340*
R205	Tone control (with off-on switch) 5 megohms	33-5538-38	R402	Resistor, plate dropping, 220,000 ohms	66-4223340*
R206	Resistor, grid return, 470,000 ohms	66-4473340*	R403	Resistor, cathode bias, 3900 ohms	66-2393340
R207	Resistor, cathode bias, 130 ohms	66-1123340*	R404	Resistor, grid return, 2.2 megohms	66-5223340*
T200	Transformer, output	32-8242-3	T400	Transformer, aerial	32-4033-9
WS	Switch, radio-phon	42-1745-1	MISCELLANEOUS		
SECTION 3 I-F, DETECTOR, AND A-V-C CIRCUITS			Description	Service Part No.	
C300A	Condenser, fixed trimmer	Part of Z300	Antenna-lead assembly	76-1472	
C300B	Condenser, fixed trimmer	Part of Z300	Bracket-and-clip assembly	76-4004	
C301A	Condenser, fixed trimmer	Part of Z301	Cabinet and Cabinet Hardware		
C301B	Condenser, fixed trimmer	Part of Z301	Cabinet (less scale)		
C302A	Condenser, fixed trimmer	Part of Z302	Model 49-1602	10718	
C302B	Condenser, fixed trimmer	Part of Z302	Model 49-1604(L)	10725A	
C302C	Condenser, i-f by-pass	Part of Z302	Model 49-1604(W)	10725	
C302D	Condenser, i-f by-pass	Part of Z302	Model 49-1604(W)	10725	
C303	Condenser, a-v-c by-pass, .05 mf.	61-0122*	Back	54-7638	
C304	Condenser, decoupling, .01 mf.	61-0120*	Bezel		
C305	Condenser-and-choke assembly, .15 mf.	76-2361	Model 49-1602	56-5367FCP	
C306	Condenser, screen by-pass, .01 mf.	61-0120*	Model 49-1604	56-5855FCP	
C307	Condenser, cathode by-pass, .05 mf.	61-0122*	Dial scale		
C308	Condenser, screen by-pass, .01 mf.	61-0120*	49-1602	54-5010	
C309	Condenser, plate by-pass, .05 mf.	61-0122*	49-1604	27-5999-1	
L300A	Primary, 1st i-f transformer	Part of Z300	Knob (4)	54-4486	
L300B	Tertiary, 1st i-f transformer	Part of Z300	Cable, shielded, pickup	41-3754-16	
L300C	Secondary, 1st i-f transformer	Part of Z300	Cable, speaker	41-3806-6	
L301A	Primary, 2nd i-f transformer	Part of Z301	Cable, phono power	41-3747-17	
L301B	Secondary, 2nd i-f transformer	Part of Z301	Dial-backplate assembly	76-4005	
L302A	Primary, 3rd i-f transformer	Part of Z302	Diffusing panel	54-7606	
L302B	Secondary, 3rd i-f transformer	Part of Z302	Drive cord (25-ft. spool)	45-8750*	
R300	Resistor, plate dropping, 10,000 ohms	66-3103340*	Pointer	56-5630	
R301	Resistor, cathode bias, 100 ohms	66-1103340*	Spring (gang drive)	56-2617	
R302	Resistor, screen dropping, 1000 ohms	66-2103340*	Spring (diffusing panel) (2)	56-3841	
R303	Resistor, a-v-c filter, 2.2 megohms	66-5223340*	Spring (pointer drive)	28-8953	
R304	Resistor, cathode bias, 270 ohms	66-1273340*	Rubber mount (3)	27-4771-1	
			Mounting clips, aerial and osc. coil	28-5002	
			Mounting clips, i-f transformer	56-4109	
			Shaft-and-pulley assembly	76-3959	
			Shield, light, fiber	54-7390	
			Socket assembly, pilot lamp	27-6233	
			Socket, Loktal	27-6138*	
			Socket, octal	27-6174	