

PHILCO RADIO-PHONOGRAPH MODEL 48-1284



SPECIFICATIONS

CABINET	Wood console, walnut finish
RADIO CIRCUIT	Seven-tube superheterodyne
FREQUENCY RANGES	
Broadcast	540—1650 kc.
Short Wave	9.3—15.7 mc.
AUDIO OUTPUT	6 watts
OPERATING VOLTAGE 105—120 volts, 60 cycles, a.c.	
POWER CONSUMPTION	
Radio	75 watts
Record Changer	20 watts
AERIAL	Built-in low-impedance loop; terminal provided for external aerial
INTERMEDIATE FREQUENCY 455 kc.	
PHILCO TUBES (7)	7AF7, 7A7, 7R7, 7F7, 6K6GT (2), 7Z4
PHONOGRAPH	Philco Automatic Record Changer Model M-8 (for service information see Page 475)

TP-4526

CALIBRATING DIAL BACKPLATE

When the radio chassis has been removed from the cabinet, dial calibration and alignment points should be marked on the dial backplate below the pointer.

The method of measuring for these points is illustrated in figure 1. Hold a ruler against the scale backplate, with the start of the ruler at the reference line shown, and mark pencil dots at the proper points for the required frequency settings. When the ruler is correctly placed, the index mark is approximately 2

inches from the reference point indicated in figure 1. With the tuning gang fully meshed, the pointer should be adjusted on the dial-drive cord to coincide with the index mark.

After installation of the chassis in the cabinet, the dial pointer should be moved to coincide with the index mark on the dial. Coincidence of the pointer and index mark should occur with the tuning condenser fully meshed.

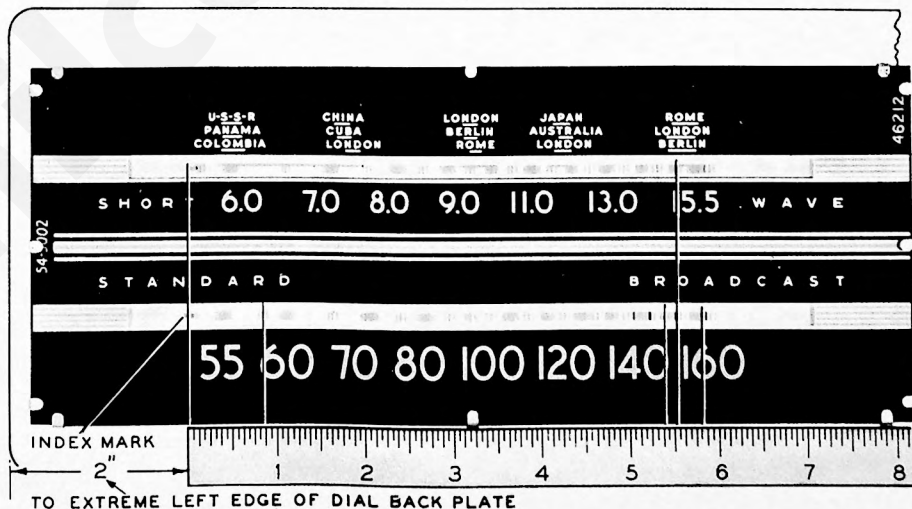


FIGURE 1. CALIBRATION MEASUREMENTS FOR DIAL BACKPLATE

TP-5774

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	LS—loud-speaker	T —transformer
I —pilot lamp	R —resistor	WS—wafer switch
L —choke or coil	S —switch	Z —electrical assembly
LA—loop aerial		

The number of the symbol, except when the number is less than 100, 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

A suffix letter identifies the part as a component of the assembly which bears an identical number without a suffix letter, and with perhaps a different prefix letter.

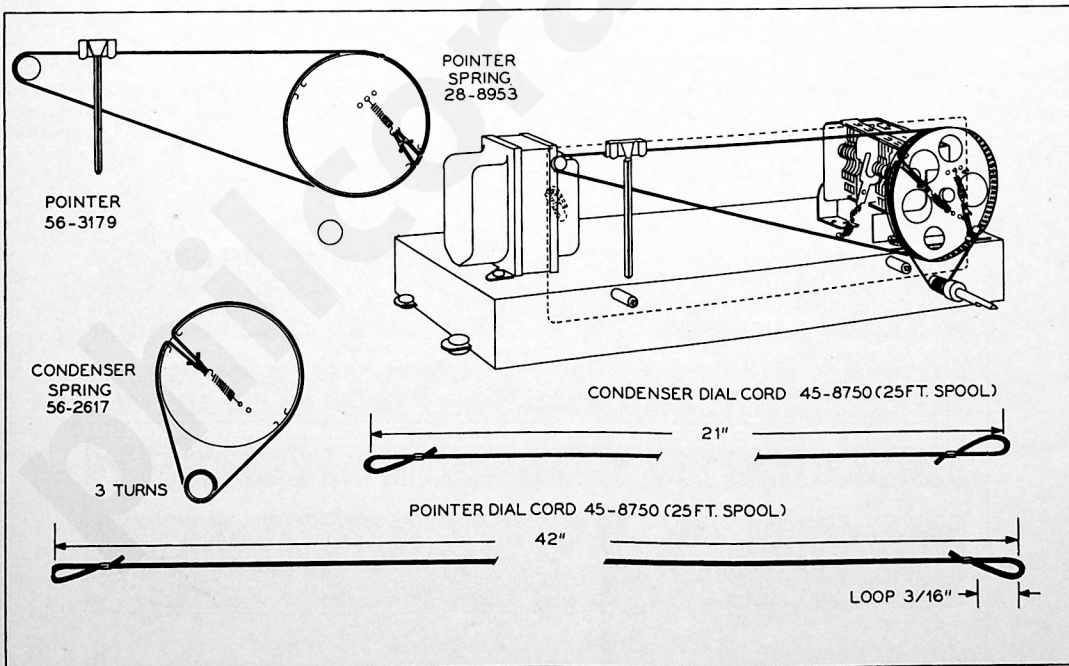


FIGURE 2 DRIVE-CORD INSTALLATION DETAILS

TP-5356-E

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 one lead to chassis, and other lead to terminal 3 of TB400.

SIGNAL GENERATOR—Connect generator ground lead to chassis; connect output lead as indicated in chart. Use modulated output.

RADIO CONTROLS—Set volume control to maximum and turn tone control fully counterclockwise.

OUTPUT LEVEL—During alignment, adjust signal-generator output to maintain output-meter indication below 1.5 volts.

STEP	SIGNAL GENERATOR		RADIO			ADJUST
	CONNECTION TO RADIO	DIAL SETTING	BAND SWITCH	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through .1-mf. condenser to terminal 1 of TB400.	455 kc.	BC	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).	580 kc.	BC	580 kc.	Adjust trimmer for maximum output.	C401C—BC osc. (series)
3	Same as step 2.	1600 kc.	BC	1600 kc.	Adjust trimmer for maximum output.	C402B—BC osc. (shunt)
4	Same as step 2.	1500 kc.	BC	1500 kc.	Adjust trimmer for maximum output.	C402A—BC aerial
5	Same as step 2.	580 kc.	BC	580 kc.	Adjust trimmer for maximum output while rocking tuning condenser.	C401C—BC osc. (series)
6	Repeat steps 3, 4, 5, 3, and 4 until no further improvement is noted.					
7	Same as step 2.	15 mc.	SW	15 mc.	Adjust trimmer for maximum output on first peak from loose position. Check for image at 14.1 mc.	C401B—SW osc.
8	Same as step 2.	15 mc.	SW	15 mc.	Adjust trimmer for maximum output while rocking tuning condenser.	C401A—SW aerial

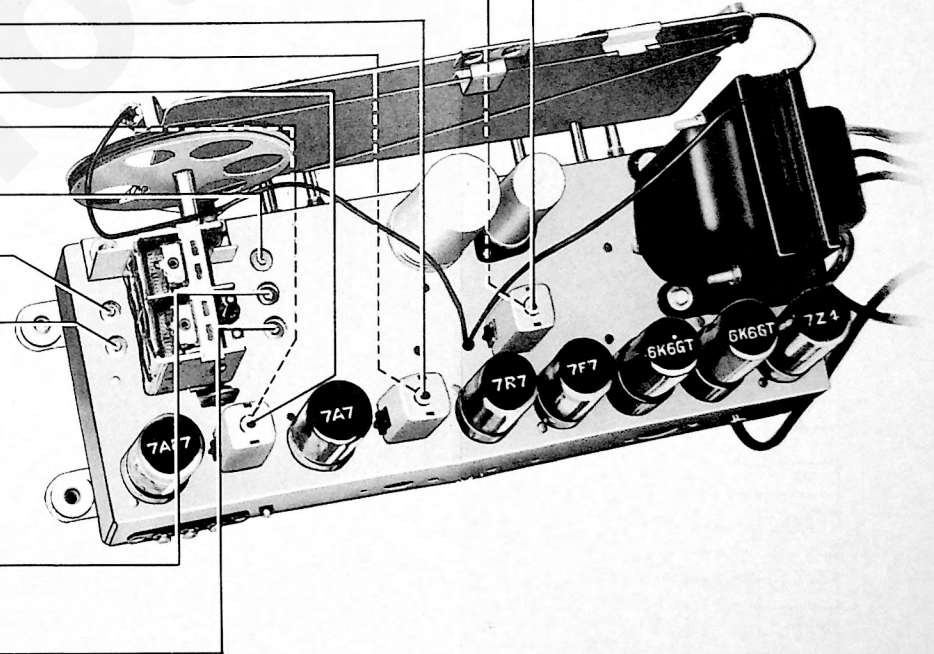


FIGURE 3. TOP VIEW, SHOWING TRIMMER LOCATIONS

TP-5281

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 certain that radio loop aerial is connected to radio.

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 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, line filter, .01 mf.	61-0120*
C101	Condenser, line filter, .01 mf.	61-0120*
C102	Condenser, electrolytic, filter, 35 mf., 450v.	30-2570-25
C103	Condenser, electrolytic, 2-section	30-2570-24
C103A	Condenser, filter, 10 mf., 450v.	Part of C103
C103B	Condenser, filter, 40 mf., 450v.	Part of C103

REPLACEMENT PARTS LIST (Continued)

SECTION 1—POWER SUPPLY (Continued)

Reference Symbol	Description	Service Part No.
I100	Pilot lamp	
I101	Pilot lamp	
J100	Socket, record changer power	27-6200
L100	Speaker, field	Part of 36-1611-3
PL100	Plug, a-c power	Part of W100
R100	Resistor, filter, 15,000 ohms	
R101	Resistor, bias, 165 ohms	33-1334-3

SECTION 1—POWER SUPPLY (Continued)

Reference Symbol	Description	Service Part No.
S100	Switch, on-off	Part of 33-5538-29
T100	Transformer, power	32-8350
W100	Line-cord-and-plug assembly	L-2183*
WS-1 (F)	Switch-wafer section	Part of 42-1846

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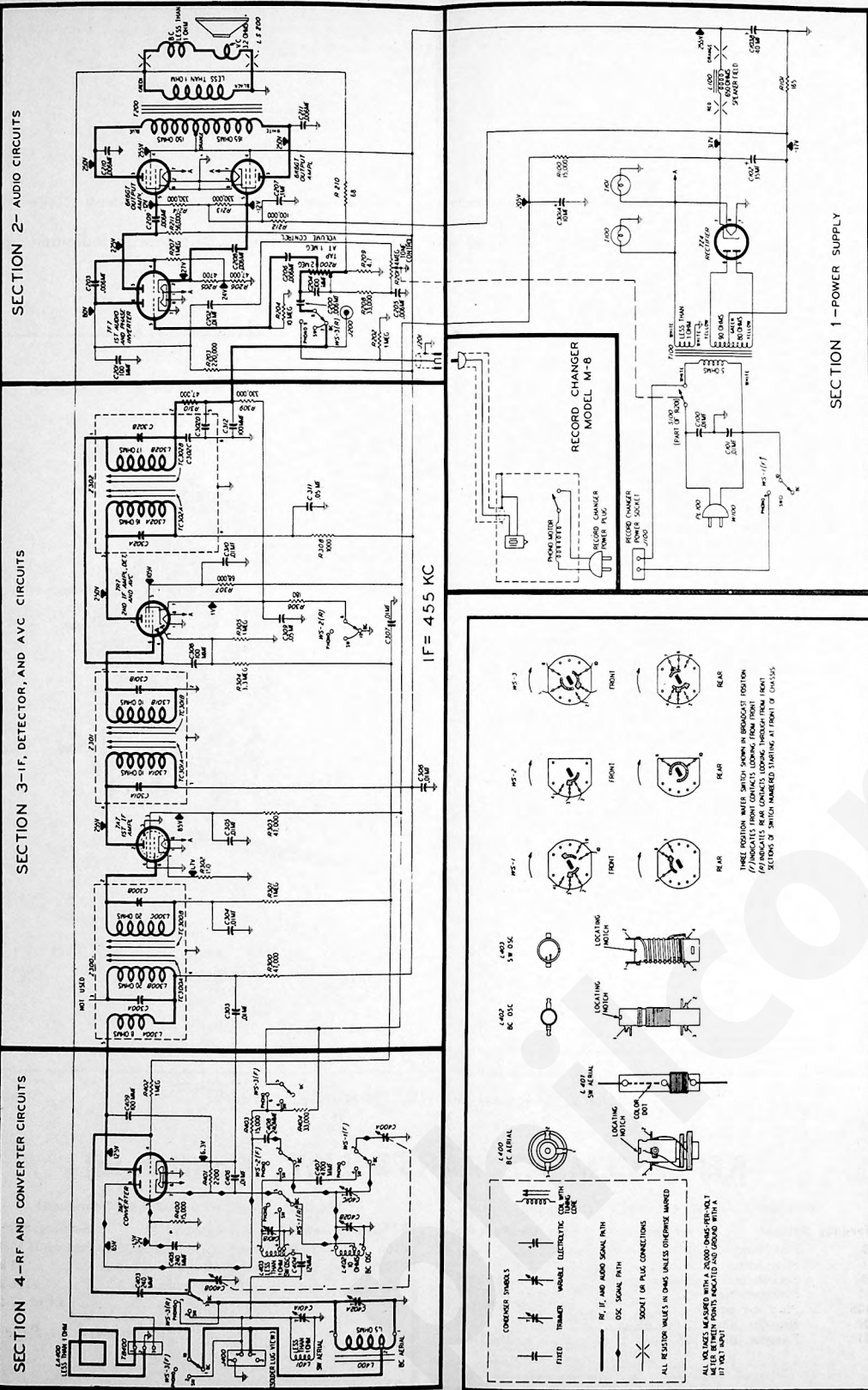


FIGURE 4. PHILCO RADIO-PHONOGRAPH MODEL 48-1284, SECTIONALIZED SCHEMATIC DIAGRAM.

MODEL 48-1284

REPLACEMENT PARTS LIST (Continued)

SECTION 2—AUDIO CIRCUITS

Reference Symbol	Description	Service Part No.
C200	Condenser, d-c blocking, .006 mf.	45-3500-7*
C201	Condenser, r-f by-pass, 100 mmf.	60-10105407*
C202	Condenser, tone control, .01 mf.	61-0120*
C203	Condenser, d-c blocking, .006 mf.	45-3500-7*
C204	Condenser, tone compensation, 100 mmf.	60-10105407*
C205	Condenser, tone compensation, .006 mf.	45-3500-7*
C206	Condenser, d-c blocking, .006 mf.	45-3500-7*
C207	Condenser, bias filter, .1 mf.	61-0113*
C208	Condenser, d-c blocking, .006 mf.	45-3500-7*
C209	Condenser, d-c blocking, .006 mf.	45-3500-7*
C210	Condenser, parasitic suppressor, .006 mf.	61-0153*
C211	Condenser, parasitic suppressor, .006 mf.	61-0153*
J200	Test socket	27-6180
J201	Cable and plug, phono input	41-3735-16
LS200	Loud-speaker	36-1611-3
R200	Volume control, 2 megohms	33-5535-16
R201	Tone control, 4 megohms	33-5538-29
R202	Resistor, crystal load, 1 megohm	66-5103340*
R203	Resistor, plate load, 220,000 ohms	66-4223340*
R204	Resistor, grid return, 10 megohms	66-6103340*
R205	Resistor, cathode bias, 4700 ohms	66-2473340*
R206	Resistor, cathode load, 47,000 ohms	66-3473340*
R207	Resistor, grid return, 1 megohm	66-5103340*
R208	Resistor, tone compensation, 33,000 ohms.	66-3333340*
R209	Resistor, voltage divider (negative feedback), 4.7 ohms	66-9474360
R210	Resistor, voltage divider (negative feedback), 68 ohms	66-0683340*
R211	Resistor, plate load, 56,000 ohms	66-3563340*
R212	Resistor, bias filter, 100,000 ohms	66-4103340*
R213	Resistor, grid return, 330,000 ohms	66-4333340*
R214	Resistor, grid return, 330,000 ohms	66-4333340*
T200	Transformer, output	32-8274
WS-3 (R)	Switch-wafer section	Part of 42-1846

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

Reference Symbol	Description	Service Part No.
C300A	Condenser, shunt	Part of Z300
C300B	Condenser, shunt	Part of Z300
C301A	Condenser, shunt	Part of Z301
C301B	Condenser, shunt	Part of Z301
C302A	Condenser, shunt	Part of Z302
C302B	Condenser, shunt	Part of Z302
C302C	Condenser, r-f by-pass	Part of Z302
C302D	Condenser, r-f by-pass	Part of Z302
C303	Condenser, plate by-pass, .01 mf.	61-0120*
C304	Condenser, a-v-c by-pass, .01 mf.	61-0120*
C305	Condenser, screen by-pass, .01 mf.	61-0120*
C306	Condenser, r-f by-pass, .01 mf.	61-0120*
C307	Condenser, a-v-c by-pass, .01 mf.	61-0120*
C308	Condenser, d-c blocking, 100 mmf.	62-110009001*
C309	Condenser, cathode by-pass, .05 mf.	61-0122*
C310	Condenser, screen by-pass, .01 mf.	61-0120*
C311	Condenser, plate by-pass, .05 mf.	61-0122*
C312	Condenser, r-f by-pass, 100 mmf.	62-110009001*
L300A	Transformer primary, 1st i-f	Part of Z300
L300B	Transformer tertiary, 1st i-f	Part of Z300
L300C	Transformer secondary, 1st i-f	Part of Z300
L301A	Transformer primary, 2nd i-f	Part of Z301
L301B	Transformer secondary, 2nd i-f	Part of Z301
L302A	Transformer primary, 3rd i-f	Part of Z302
L302B	Transformer secondary, 3rd i-f	Part of Z302
R300	Resistor, plate decoupling, 47,000 ohms	66-3473340*
R301	Resistor, a-v-c decoupling, 1 megohm	66-5103340*
R302	Resistor, cathode bias, 150 ohms	66-1153340*
R303	Resistor, screen drooping, 47,000 ohms	66-3473340*
R304	Resistor, a-v-c filter, 3.3 megohms	66-5333340*
R305	Resistor, a-v-c diode load, 1 megohm	66-5103340*
R306	Resistor, cathode bias, 180 ohms	66-1183340*
R307	Resistor, screen drooping, 68,000 ohms	66-3683340*
R308	Resistor, plate decoupling, 1000 ohms	66-2103340*
R309	Resistor, diode load, 330,000 ohms	66-4333340*

SECTION 3—I-F, DETECTOR, AND A-V-C CIRCUITS (Cont.)

Reference Symbol	Description	Service Part No.
R310	Resistor, r-f filter, 47,000 ohms	66-3473340*
WS-2 (R)	Switch-wafer section	Part of 42-1846
Z300	Transformer, 1st i-f	32-4258
Z301	Transformer, 2nd i-f	32-4160-3
Z302	Transformer, 3rd i-f	32-4240-2

SECTION 4—R-F AND CONVERTER CIRCUITS

Reference Symbol	Description	Service Part No.
C400	Condenser, tuning gang	31-2728
C400A	Condenser, tuning (osc. section)	Part of C400
C400B	Condenser, tuning (aerial section)	Part of C400
C401	Condenser, trimmer, 3-section	31-6477-10
C401A	Condenser, trimmer, SW aerial	Part of C401
C401B	Condenser, trimmer, SW osc.	Part of C401
C401C	Condenser, trimmer, BC osc. (series)	Part of C401
C402	Condenser, trimmer, 2-section	31-6476-16
C402A	Condenser, trimmer, BC aerial	Part of C402
C402B	Condenser, trimmer, BC osc. (shunt)	Part of C402
C403	Condenser, d-c blocking, 240 mmf.	60-10245307*
C404	Condenser, stabilizing, 12 mmf.	30-1224-33
C405	Condenser, grid return, 240 mmf.	60-10245307*
C406	Condenser, cathode by-pass, .01 mf.	61-0120*
C407	Condenser, fixed padder (SW osc.), 4700 mmf.	60-20515304*
C408	Condenser, d-c blocking, 240 mmf.	60-10245307*
C409	Condenser, r-f by-pass, 100 mmf.	62-110009001*
J400	Socket, external aerial	27-6214-1
L400	Coil, BC aerial	32-4033-7
L401	Coil, SW aerial	32-4050-10
L402	Coil, BC osc.	32-4221-2
L403	Coil, SW osc.	32-4280
LA400	Loop aerial	76-3583-1
R400	Resistor, grid return, 15,000 ohms	66-3153340*
R401	Resistor, cathode bias, 2200 ohms	66-2223340*
R402	Resistor, grid return, 1 megohm	66-5103340*
R403	Resistor, plate load, 15,000 ohms	66-3153340*
R404	Resistor, plate load, 33,000 ohms	66-3333340*
TB400	Terminal panel, aerial	38-9942
WS-1 (F)	Switch-wafer section	Part of 42-1846
WS-2 (F)	Switch-wafer section	Part of 42-1846
WS-3 (F)	Switch-wafer section	Part of 42-1846

MISCELLANEOUS

Description	Service Part No.
Cabinet (less scale)	10705
Baffle and cloth	40-6998
Baffle, wood	219110
Bezel, metal	56-4878
Bin mechanism (L.H.)	76-3223-5
Bin mechanism (R.H.)	76-3223-6
Bullet catch	45-6002
Cabinet back, binder's board	54-7552
Cabinet back, Masonite	54-7555
Dial scale	76-3187-5
Dome	45-6190
Door pull	56-5272
Frame assembly	76-3222-1
Knife hinge (with stop arm)	56-4882
Knife hinge	
Scale strap	56-4916
Spring, changer mounting	56-3043FA15
Cable and plug, speaker	41-3734-8
Dial-backplate assembly	76-3716
Dial cord (25-ft. spool)	45-8750*
Dial pointer	56-3179
Spring (pointer drive cord)	28-8953
Spring (tuning-condenser drive cord)	56-2617
Tuning shaft	76-3820
Knob	54-4486
Shield, pilot lamp	56-2194FA3
Socket, Loktal	27-6138*
Socket, octal	27-6174
Socket assembly, pilot lamp	27-6233-16
Water, condenser mounting	27-9508

REVISIONS AND ADDITIONS TO 48-1284 SERVICE MANUAL

Reference Symbol	Description	Service Part No.
Parts List Additions		
	Cabinet parts for blond cabinet	
	Baffle-and-cloth assembly	40-6998-1
	Doors, matched set	45-6446
	Door pull	56-5272-1
	Instrument panel	45-6488
	Knife hinge (3)	56-5522-1
	Knife hinge	56-4882
Parts List Corrections		
I100	Pilot lamp	34-2064
I101	Pilot lamp	34-2064
R100	Resistor, filter, 15,000 ohms, 2 watts	66-3153340*
	Knife hinge (3)	56-5522

PRODUCTION CHANGES

Run 2		
J201	Socket, phono input, 3-prong, was added	27-6126
	Cable-and-plug assembly, phono input, was changed	41-3863-1
	The above changes were made to accommodate the Philco Album-Length Record Player, Model M-15.	
	NOTE: The Model M-15 album Length Record player can be directly attached to this radio, when this change was made. However, if the Philco Adapter Control Unit Part No. 45-1594 is used, a permanent connection for both the standard record player and the Model M-15 will be provided.	
	Complete installation instructions are supplied with the Adapter Control Unit.	
Run 3		
R302	Resistor, cathode bias, 150 ohms, was changed to 180 ohms	66-1188340*
	The above change was made to eliminate the possibility of oscillation in the 1st i-f stage.	
Run 4		
C303	Condenser, plate by-pass, .01 mf., was changed to 600 working volts	61-0120*
	The above change was made to prevent failure. (The part number given in the manual is correct for this part.)	

CRITICAL LEAD DRESS

1. The green lead from lug 3 of T400, and the white lead from lug 2 of T400, should be dressed over the tuning shaft.
2. The white-green lead from lug 4 of WS-3(R) to C400B should be dressed over the tuning shaft.
3. The blue lead from lug 2 of WS-2(F) to C408 should be dressed between C401B and C401C.
4. The white a-c leads from lugs 9 and 10 of WS-1(F) should be dressed away from R200.
5. Condenser C206 should be dressed as far as possible from the bare wire from the FM test socket, J200.