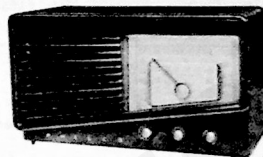


PHILCO RADIO MODEL 50-925

SPECIFICATIONS

CABINET	Plastic, brown finish
CIRCUIT	6-tube superheterodyne, plus selenium rectifier
FREQUENCY RANGES	
Broadcast	540—1620 kc.
FM	88—108 mc.
AUDIO OUTPUT	1 watt
OPERATING VOLTAGE	105—120 volts, a.c. or d.c.
POWER CONSUMPTION	35 watts
AERIALS	Built-in high-impedance loop for AM, line cord for FM; also connector for external aerial
INTERMEDIATE FREQUENCIES	
Broadcast	455 kc.
FM	9.1 mc.
PHILCO TUBES (6)	12BA6(3), 12BA7, 19T8, 50C5



MODEL 50-925

TP-8091

Circuit Description

Philco Radio Model 50-925 is a superheterodyne employing six tubes plus a selenium rectifier. Reception is provided in the standard-broadcast and FM bands. A built-in high-impedance loop is used as the aerial for the broadcast band, and the line cord is used as the aerial for the FM band. These aerials normally provide adequate signal pickup; if additional pickup is required on the FM band, Philco Dipole Aerial Part No. 45-1462 may be used. If it is desired to use the FM dipole aerial to provide additional AM as well as FM pickup, Aerial Coupler Part No. 45-1598 and Aerial Coupler Cable Part No. 45-1652 should be used in conjunction with the dipole aerial. The purpose of the cable is to permit the isolation of the coupler from the chassis, since the coupler must not be connected directly to the "hot" chassis.

A 12BA6 pentode is used as an r-f amplifier, for FM only. This stage is capacity-coupled to a 12BA7, which is employed as a mixer and oscillator for both bands, by switching the mixer grid and common cathode to the proper circuits.

For broadcast reception, the i-f signal is transformer-coupled to a 12BA6 i-f amplifier. The output of this stage is transformer-coupled to a diode section of the 19T8, which provides detection and a-v-c action.

For FM reception, an additional i-f-amplifier stage, which employs another 12BA6, is used to provide adequate gain and stability. The 12BA6 is transformer-coupled to two diode sections of the 19T8, in a ratio-detector circuit. The proper detector for AM or FM is selected by the band switch at the detector output circuits.

In the i-f circuits, two sets of i-f transformers are used. One set is tuned to 455 kc., for standard broad-

cast, and the other set is tuned to 9.1 mc., for FM. The use of two sets of transformers makes better shielding possible, so that undesirable beat signals and interaction between transformers are eliminated. In switching bands, the band switch shorts the primary of the 1st i-f transformer for the undesired band.

The triode section of the 19T8 is employed as the first audio amplifier; this section is resistance-coupled to the 50C5 output tube, which supplies an audio output of approximately one watt to the permanent-magnet speaker.

The power supply utilizes a selenium rectifier in a half-wave-rectifier circuit, and operates from a line voltage of 105—120 volts, a.c. or d.c.

Philco TROUBLE SHOOTING Procedure

For rapid trouble shooting, the radio circuit is divided into four sections, with test points specified for each section; these sections and test points are indicated in the schematic diagram. The trouble-shooting procedure given for each section includes a simplified test chart and a bottom view of the chassis showing the locations of the test points and the components of that section.

In each chart, the first step is a master check for determining whether trouble exists in that section, without going through the entire test procedure.

Failure to obtain the "NORMAL INDICATION" in any given step indicates trouble within the circuit under test.

After isolating the trouble to a single stage, the defect is located by: first, testing the tube; second, measuring tube electrode voltages; third, measuring circuit resistances; fourth, substituting condensers. The trouble revealed should be corrected before testing further.

Preliminary Checks

To avoid possible damage to the radio, the following preliminary checks should be made before it is turned on:

1. Inspect both the top and the bottom of the chassis. Make sure that all tubes are secure in the proper sockets, and look for any broken or shorted connections, burned resistors, or other obvious indications of trouble.
2. Measure the resistance between B+ (test point B)

and the chassis (test point C). When the ohmmeter test leads are connected in the proper polarity, the highest resistance reading will be obtained. If the reading is lower than 1500 ohms, check condensers C102A, C102B, C102C, and C309 for leakage or shorts. The resistance value given is much lower than normal, and is not intended as a quality check of these condensers; the value given is the lowest at which the rectifier will operate safely while the voltage checks of Section 1 (power supply) are performed.

Section 1 TROUBLE SHOOTING

POWER SUPPLY

CAUTION—One side of the power line is connected directly to the chassis. Do not connect chassis to ground. Use all precautions to avoid shock.

For the tests in this section, use a d-c voltmeter. Connect the negative lead to the chassis, test point C; connect the positive lead to the test points indicated in the chart. The voltage readings given were taken with a

20,000-ohms-per-volt meter, at a line voltage of 117 volts, a.c.

Turn on the power, and set the volume control to minimum. Set the band switch for broadcast reception.

If the "NORMAL INDICATION" is obtained in step 1, proceed with the tests for Section 2 (audio circuits); if not, isolate and correct the trouble in this section.

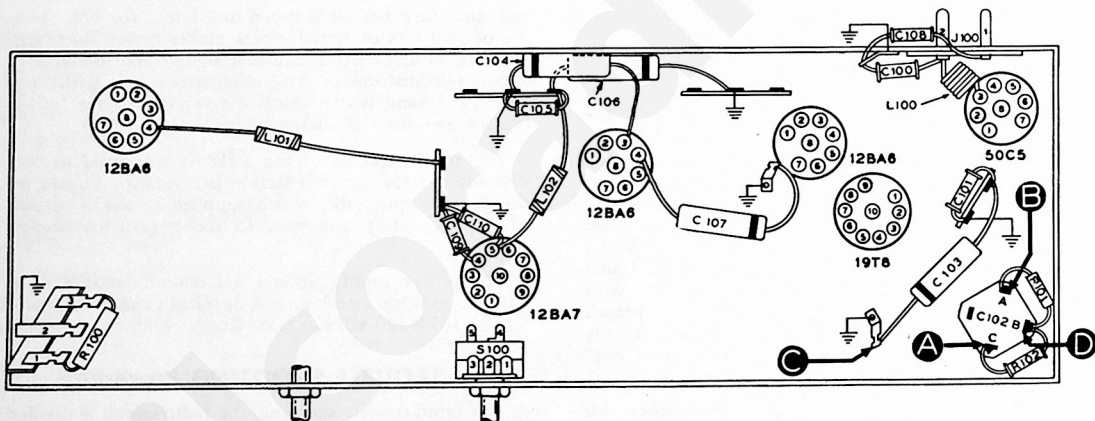


Figure 1. Bottom View, Showing Section 1 Test Points

TP-8455A

STEP	TEST POINT	NORMAL INDICATION	ABNORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	A	100v		Trouble in this section. Isolate by the following tests.
2	B	135v	No voltage Low voltage High voltage	Defective: CR100. Open: R100. Shorted: C102A. Defective: CR100. Shorted: C102A, C102B, C102C, C309*, C310*. Open: R101.
3	D	120v	No voltage Low voltage High voltage	Shorted: C102B. Open: R101. Leaky: C102B. Shorted: C102A, C102C. Open: R102, T200* (primary), R204*.
4	A	100v	No voltage Low voltage	Open: R102. Shorted: C102C. Shorted: C102B. Leaky: C102C.

Listening Test: Abnormal hum may be caused by open C102A, C102B, or C102C.

* This part, located in another section, may cause abnormal indication in this section.

Section 2

TROUBLE SHOOTING

AUDIO CIRCUITS

For the tests in this section, use an audio-frequency signal generator. Connect the generator ground lead to the chassis, test point C; connect the output lead through a .1-mf. condenser to the test points indicated in the chart.

(except for test point E), set the volume control to maximum.

If the "NORMAL INDICATION" is obtained in step 1, proceed with the tests for Section 3 (i-f, detector, and a-v-c circuits); if not, isolate and correct the trouble in this section.

With the band switch set for broadcast reception

STEP	TEST POINT	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	A E (Band switch in FM position)	Loud, clear speaker output with weak generator input.	Trouble in this section. Isolate by the following tests.
2	B	Loud, clear output with strong input.	Defective: 50C5. Open: R204, R203, C207, T200. Shorted: C205, C206, C207, C208. Leaky: C205, C206, C208.
3	D	Same as step 1.	Defective: 19T8 (triode section). Open: R201, R202, C205. Shorted or leaky: C204, C205.
4	A	Same as step 1.	Open: WS-1(F), R200, C203. Shorted: C202, C307*.
5	E (Band switch in FM position)	Same as step 1.	Open: C200, WS-1(F). Shorted: C201, C202.

Listening Test: Distortion may be caused by shorted or leaky C205 or by shorted, leaky, or open C207.

* This part, located in another section, may cause abnormal indication in this section.

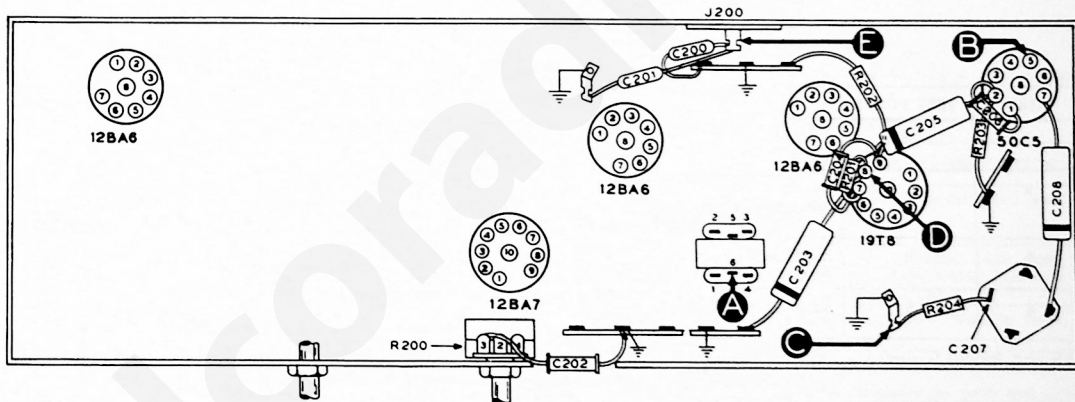


Figure 2. Bottom View, Showing Section 2 Test Points

TP-8455B

Section 3

TROUBLE SHOOTING

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

AM Circuits

For the AM tests in this section, use an AM r-f signal generator, with modulated output, set at 455 kc. Connect the generator ground lead to the chassis, test point C; connect the output lead through a .1-mf. condenser to the test points indicated in the chart.

If the "NORMAL INDICATION" is obtained in step 1, proceed with the FM tests; if not, isolate and correct the trouble in the AM circuits.

With the volume control set to maximum, and the band switch set for broadcast reception, rotate the tuning control until the tuning condenser is fully meshed.

To provide a complete i-f-amplifier check, test point A for this section is placed at the grid of the mixer in Section 4; therefore, the effectiveness of step 1 as a master check is dependent upon the condition of certain parts in the mixer circuit. These parts are listed on next page under "POSSIBLE CAUSE OF ABNORMAL INDICATION."

Section 4

TROUBLE SHOOTING

R-F AND CONVERTER CIRCUITS

AM Circuits

For the AM tests in this section, with the exception of the oscillator test, use an AM r-f signal generator with modulated output. Connect the generator ground lead to the chassis, test point C; connect the output lead through a .1-mf. condenser to the test points indicated in the chart.

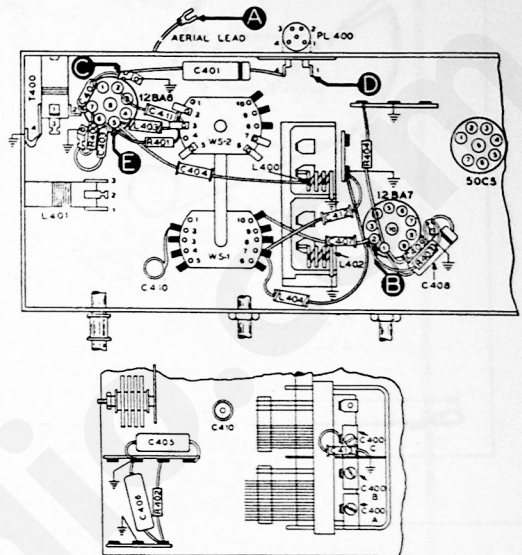
With the volume control set to maximum, set the band switch for broadcast reception, and set the tuning control and signal-generator frequency as indicated in the chart.

If the "NORMAL INDICATION" is obtained in step 1, proceed with the tests for the FM circuits; if not, isolate and correct the trouble in the AM circuits.

FM Circuits

For the FM tests in this section, follow the preliminary instructions for the AM tests, except set the band switch for FM reception.

If the "NORMAL INDICATION" is obtained in step 1, further tests should be unnecessary; if not, isolate and correct the trouble in this section. If the trouble is not corrected by the tests for this section, check the alignment.



TP-8455D

Figure 4. Bottom View. Showing Section 4 Test Points

AM Chart

STEP	TEST POINT	SIG. GEN. FREQ.	RADIO TUNING	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	A	1000 kc.	Tune to signal	Loud, clear speaker output with weak generator input.	Trouble in AM circuits. Isolate by the following tests.
2	B (Osc. test; see note below.)		Tune through range.	Negative .8 to 2.4 volts.	Open: WS-1(F), L401, C407, R403, R404, C408, C409. Shorted: C400C, C407, C304*, C408, C409. Defective: 12BA7 (osc. section). Misaligned: L401.
3	A	1000 kc.	Tune to signal	Same as step 1.	Open: T401, WS-2(F), R404, R300*, WS-1(F), R402. Shorted: C406, C408, C409.

* This part, located in another section, may cause abnormal indication in this section.

OSCILLATOR TEST: Connect the positive lead of a high-resistance voltmeter to the chassis, test point C; connect the prod end of the negative lead through a 100,000-ohm isolating resistor to the oscillator grid (pin 2) of the 12BA7, test point B. Use a suitable meter range, such as 0-10 volts. Proper operation of the oscillator is indicated by negative voltage of approximately the value given in the chart (measured with 20,000-ohms-per-volt meter) throughout the tuning range.

FM Chart

STEP	TEST POINT	SIG. GEN. FREQ.	RADIO TUNING	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	D	100 mc.	Tune to signal	Loud, clear speaker output with weak generator input.	Trouble in FM circuits. Isolate by the following tests.
2	B (Osc. test; see note above.)		Tune through range.	Negative .4 to 1.5 volts.	Defective: 12BA7 (osc. section). Open: WS-1(F), C407, R403, C410, R404, R300*. Shorted: C410, C407, C408, C409, C304*. Misaligned: L402.
3	E	100 mc.	Tune to signal	Loud, clear output with moderate input.	Defective: 12BA7. Open: C404, L400, WS-2(F). Shorted: C404, C400. Misaligned: L400.
4	D	100 mc.	Tune to signal	Loud, clear output with very weak input.	Defective: 12BA6. Open: T400, C401, C402, R400, R401, L403. Shorted: C402, C403, C309*, C310*.

* This part, located in another section may cause abnormal indication in this section.

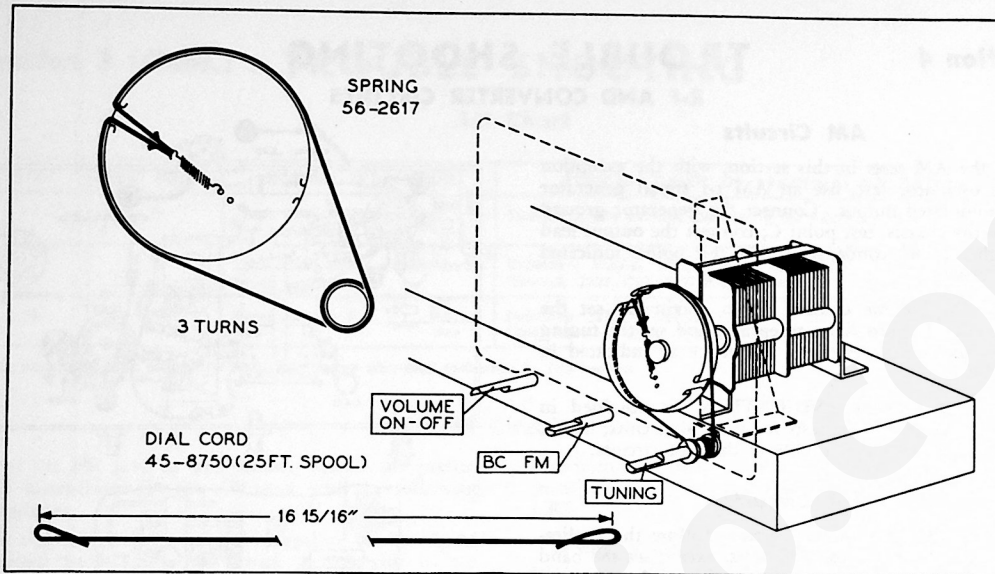


Figure 5. Drive-Cord Installation Details

TP-5686E-1

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, line filter, 100 μmf	62-110009001*
C101	Condenser, line filter, 100 μmf	62-110009001*
C102	Condenser, electrolytic, 4 sections	30-2570-43
C102A	Condenser, filter, 40 mf. , 150v	Part of C102
C102B	Condenser, filter, 70 mf. , 150v	Part of C102
C102C	Condenser, filter, 40 mf. , 150v	Part of C102
C103	Condenser, line by-pass, .04 μf	45-3500-2*
C104	Condenser, line by-pass, .01 μf	61-0120*
C105	Condenser, line by-pass, 100 μmf	62-110009001*
C106	Condenser, line by-pass, .01 μf	61-0120*
C107	Condenser, line by-pass, .01 μf	61-0120*
C108	Condenser, r-f by-pass, 100 μmf	62-110009001*
C109	Condenser, r-f by-pass, 100 μmf	62-110009001*
C110	Condenser, r-f by-pass, 100 μmf	62-110009001*
CR100	Selenium rectifier	
J100	Jack, male, a-c	27-4785-7
L100	Choke, line filter	32-4089-3
L101	Choke, filament	32-4061-2
L102	Choke, filament	32-4061-2
PL100	Plug, a-c	27-6200-1
R100	Resistor, current limiting, 20 ohms	33-1345
R101	Resistor, filter, 150 ohms	66-1154340*
R102	Resistor, filter, 470 ohms	66-1474340*
S100	Switch, a-c, on-off	Part of R200
W100	Line cord	L-2183

SECTION 2 AUDIO CIRCUITS

Reference Symbol	Description	Service Part No.
C200	Condenser, FM coupling, .01 μf	61-0120*
C201	Condenser, de-emphasis, 2200 μmf	60-20225014
C202	Condenser, r-f by-pass, 100 μmf	62-110009001*
C203	Condenser, d-c blocking, .02 μf	61-0108*
C204	Condenser, parasitic suppressor, 680 μmf	62-168001001
C205	Condenser, audio coupling, .006 μf	45-3500-7*
C206	Condenser, r-f by-pass, 100 μmf	62-110009001*
C207	Condenser, electrolytic, cathode by-pass, 25 μf , 25v	Part of C102
C208	Condenser, tone compensating	
J200	Jack, FM test	27-6180
LS200	Speaker, permanent-magnet	36-1614
R200	Volume control (with off-on switch) 500,000 ohms	33-5566-8
R201	Resistor, grid return, 10 megohms	66-6108340*
R202	Resistor, plate load, 470,000 ohms	66-4478340*
R203	Resistor, grid return, 470,000 ohms	66-4478340*
R204	Resistor, cathode bias	
T200	Transformer, output	Part of LS200
WS-1(F)†	Switch-wafer section	Part of 42-1896

SECTION 3

I-F, DET., AND A-V-C CIRCUITS

C300A	Condenser, fixed trimmer	Part of Z300
C300B	Condenser, fixed trimmer	Part of Z300

REPLACEMENT PARTS LIST (Continued)

SECTION 3 (Continued)

I-F, DET., AND A-V-C CIRCUITS

Reference Symbol	Description	Service Part No.
C301A	Condenser, fixed trimmer	Part of Z301
C301B	Condenser, fixed trimmer	Part of Z301
C302A	Condenser, fixed trimmer	Part of Z302
C302B	Condenser, fixed trimmer	Part of Z302
C303A	Condenser, fixed trimmer	Part of Z303
C303B	Condenser, fixed trimmer	Part of Z303
C303C	Condenser, i-f by-pass	Part of Z303
C303D	Condenser, i-f by-pass	Part of Z303
C304	Condenser, screen by-pass, .01 μ f	61-0120*
C305	Condenser, screen by-pass, .003 μ f	61-0120*
C306	Condenser, a-v-c filter, .01 μ f	61-0120*
C307	Condenser, r-f by-pass, 100 μ f	62-110009001*
C308	Condenser, a-v-c filter, .01 μ f	61-0120*
C309	Condenser, i-f by-pass, .01 μ f	61-0120*
C310	Condenser, r-f by-pass, 100 μ f	62-110009001*
C311	Condenser, cathode by-pass, .01 μ f	61-0120*
C312	Condenser, screen by-pass, .002 μ f	61-0062*
C313	Condenser, i-f by-pass, .01 μ f	61-0120*
C314	Condenser, electrolytic filter, 2 μ f, 50v	30-2417-7
C315	Condenser, r-f by-pass, 100 μ f	62-110009001*
L300A	Coil, 1st FM i-f primary	Part of Z300
L300B	Coil, 1st FM i-f secondary	Part of Z300
L301A	Coil, 1st AM i-f primary	Part of Z301
L301B	Coil, 1st AM i-f secondary	Part of Z301
L302A	Coil, 2nd FM i-f primary	Part of Z302
L302B	Coil, 2nd FM i-f secondary	Part of Z302
L303A	Coil, 2nd AM i-f primary	Part of Z303
L303B	Coil, 2nd AM i-f secondary	Part of Z303
L304A	Coil, FM discriminator transformer primary	Part of Z304
L304B	Coil, FM discriminator transformer secondary	Part of Z304
L304C	Coil, FM discriminator transformer tertiary	Part of Z304
R300	Resistor, plate load, 1000 ohms	66-2108340*
R301	Resistor, cathode bias, 47 ohms	66-0478340*
R302	Resistor, a-v-c filter, 1 megohm	66-5108340*
R303	Resistor, plate load, 1000 ohms	66-2108340*
R304	Resistor, cathode bias, 68 ohms	66-0688340*
R305	Resistor, r-f filter, 47,000 ohms	66-3478340*
R306	Resistor, a-v-c filter, 1 megohm	66-5108340*
R307	Resistor, isolating, 470,000 ohms	66-4478340*
R308	Resistor, plate load, 470 ohms	66-1478340*
R309	Resistor, isolating, 47,000 ohms	66-3478340*
R310	Resistor, FM detector load, 47,000 ohms	66-3478340*
TC300A	Tuning core	Part of Z300
TC300B	Tuning core	Part of Z300
TC301A	Tuning core	Part of Z301
TC301B	Tuning core	Part of Z301
TC302A	Tuning core	Part of Z302
TC302B	Tuning core	Part of Z302
TC303A	Tuning core	Part of Z303
TC303B	Tuning core	Part of Z303
TC304A	Tuning core	Part of Z304
TC304B	Tuning core	Part of Z304
WS-2(R)†	Switch-wafer section	Part of 42-1896
Z300	Transformer, 1st FM i-f	32-4372A
Z301	Transformer, 1st AM i-f	32-4160A
Z302	Transformer, 2nd FM i-f	32-4372-1A
Z303	Transformer, 2nd AM i-f	32-4240A
Z304	Transformer, 3rd FM i-f	32-4310

SECTION 4

R-F AND CONVERTER CIRCUITS

C400	Condenser, tuning gang	31-2733-1
C400A	Condenser, trimmer, aerial	Part of C400
C400B	Condenser, trimmer, FM r-f	Part of C400
C400C	Condenser, trimmer, AM osc.	Part of C400
C401	Condenser, aerial isolating, .01 μ f	61-0120*
C402	Condenser, cathode by-pass, 100 μ f	62-110009001*

SECTION 4 (Continued)

R-F AND CONVERTER CIRCUITS

Reference Symbol	Description	Service Part No.
C403	Condenser, screen by-pass, 1500 μ f	62-215001011*
C404	Condenser, d-c blocking, 220 μ f	62-122001001
C405	Condenser, aerial isolating, .01 μ f	61-0120*
C406	Condenser, r-f by-pass, .05 μ f	61-0122*
C407	Condenser, d-c blocking, 22 μ f	62-022009001*
C408	Condenser, AM i-f by-pass, .01 μ f	61-0120*
C409	Condenser, FM i-f by-pass, 100 μ f	62-110009001*
C410	Condenser, FM osc. trimmer	31-6495-3
C411	Condenser, r-f by-pass, 100 μ f	62-110009001*
C412	Condenser, r-f by-pass, 6.5 μ f	30-1224-6*
C413	Condenser, fixed trimmer, 13 μ f	62-015200001*
J400	Jack, FM aerial	27-6214-8
L400	Coil, FM r-f	
L401	Coil, AM osc.	
L402	Coil, FM osc.	
L403	Coil, r-f choke	32-4061-2
L404	Coil, r-f choke	32-4111
LA400	Loop aerial	
PL400	Plug, wire-and-lug assembly, FM line-cord aerial (part of W100)	41-3791-1
R400	Resistor, cathode bias, 47 ohms	66-0478340*
R401	Resistor, screen dropping, 1000 ohms	66-2108340*
R402	Resistor, a-v-c voltage dropping, 33,000 ohms	66-3338340*
R403	Resistor, grid return, 22,000 ohms	66-3228340*
R404	Resistor, screen dropping, 1000 ohms	66-2108340*
T400	Transformer, FM aerial	32-4390
WS-2(F)†	Switch-wafer section	Part of 42-1896
WS-1(F)†	Switch-wafer section	Part of 42-1896
	†Water switch, 2 sections (band switch)	42-1896

MISCELLANEOUS

Description	Service Part No.
Cabinet	10714-2
Back	54-7819
Baffle-and-cloth assembly	40-7535-1
Window, acetate	
Dial Scale	54-5011-1
Drive cord, 25-foot spool	45-8750*
Spring, gang drive	56-2617
Pointer	
Drive Shaft	76-4034
Bushing	27-9437
Spring, retaining (2)	
Insulator, volume-control shaft	
Knob, "TUNING"	54-4527-1
Knob, "FM-AM"	54-4527-21
Knob, "VOLUME-ON-OFF"	54-4527
Shield, rectifier	54-7818
Shield, tube base	56-3978-1FA3
Socket, 7-pin miniature (3)	27-6203
Socket, 7-pin miniature, 12BA6 r-f amp.	27-6203-1
Socket, 9-pin miniature, 19T8	27-6203-6
Socket, 9-pin miniature, 12BA7	27-6203-5

PRODUCTION CHANGES

Run 2

To improve conversion gain, the AM oscillator coil was changed to Part No. 32-4153-5.

Run 3

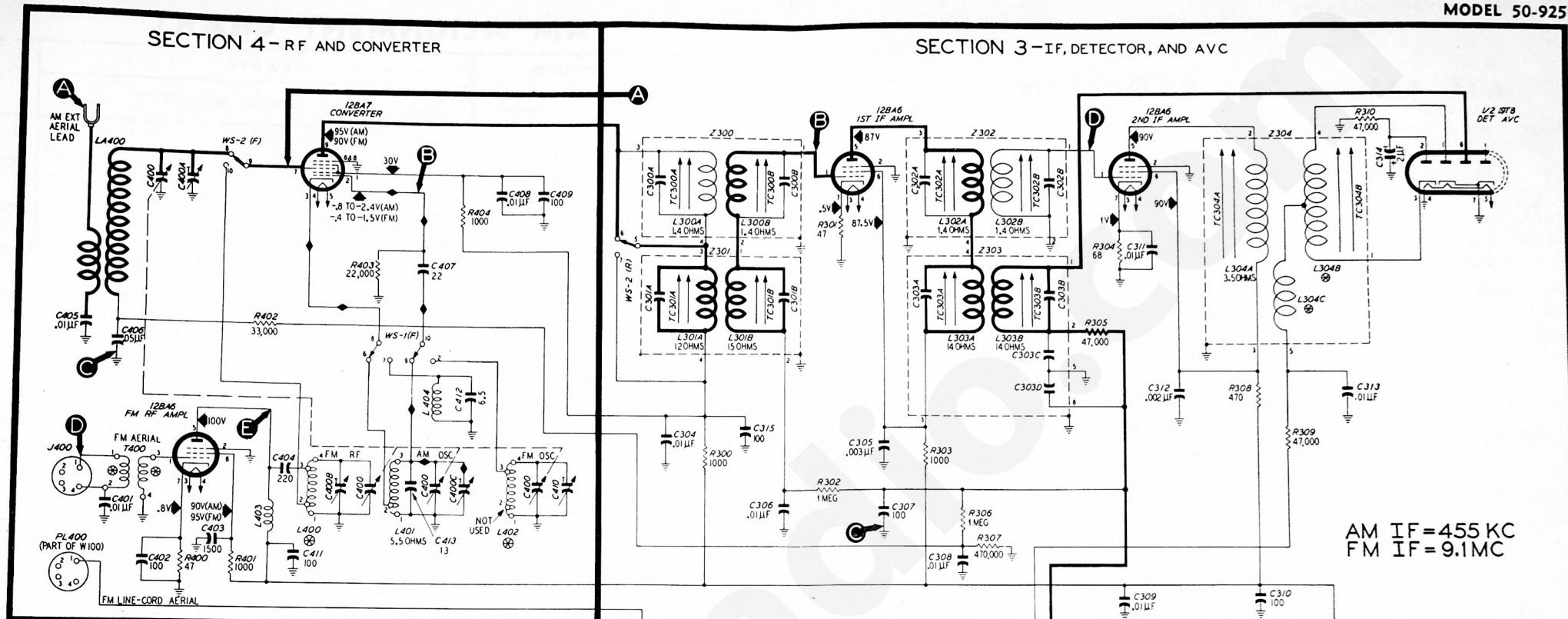
Change made to facilitate production.

Run 4

To limit the surge current, a 20-ohm current-limiting resistor, Part No. 33-1345, was added, in series with R100, at the junction of C103 and I100

SECTION 4 - RF AND CONVERTER

SECTION 3 - IF, DETECTOR, AND AVC



AM IF = 455 KC
FM IF = 9.1 MC

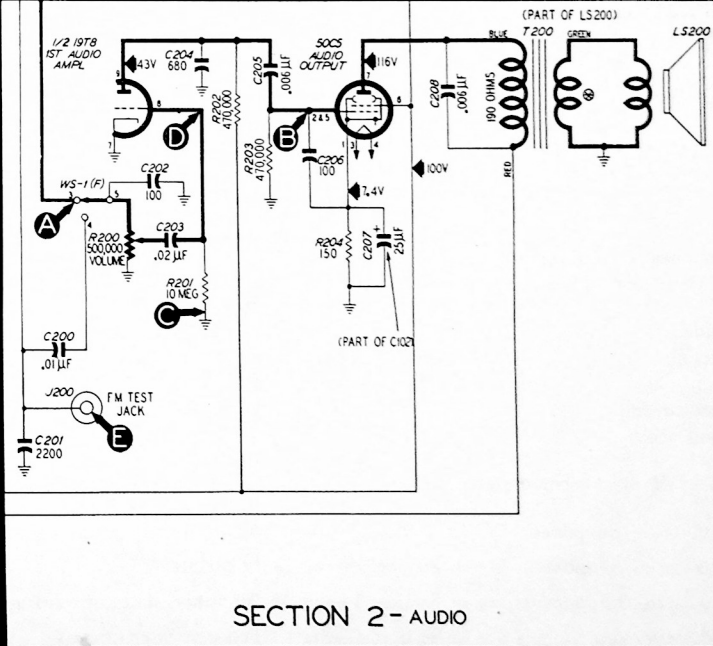
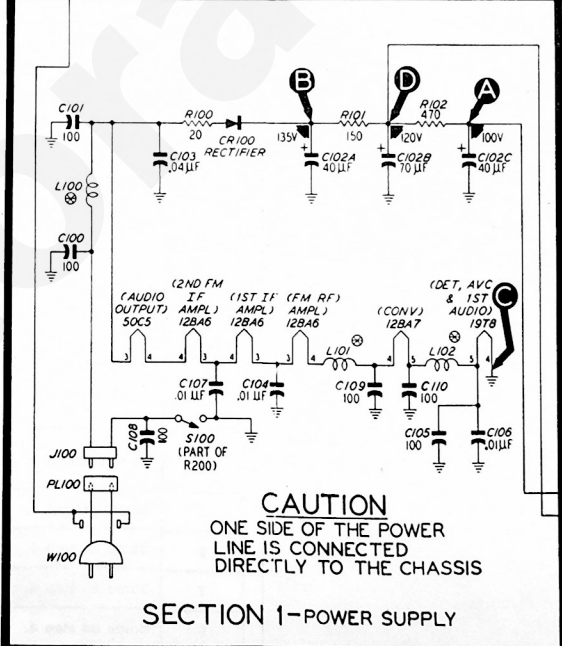
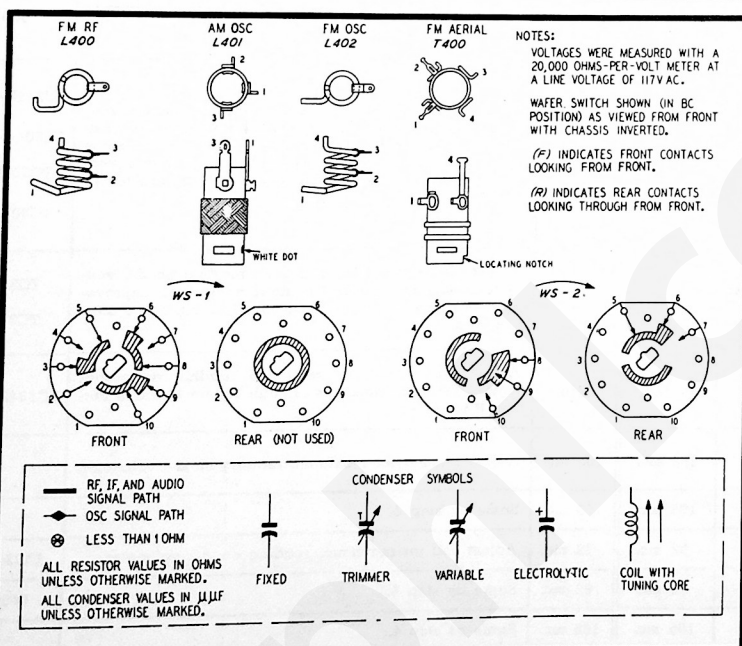


Figure 6. Philco Radio Model 50-925, Sectionalized Schematic Diagram, Showing Test Points

AM ALIGNMENT PROCEDURE

Make alignment with loop aerial connected to radio. The AM alignment should be completed before the FM alignment is made.

DIAL POINTER — With tuning-condenser plates fully meshed, adjust pointer to coincide with index mark at low-frequency end of scale.

RADIO CONTROLS — Set volume control to maximum, set band switch for broadcast reception, and set tuning control as indicated in chart.

OUTPUT METER — Connect across voice-coil terminals.

SIGNAL GENERATOR — Use AM r-f signal generator, with modulated output. Connect generator and set frequency as indicated in chart.

OUTPUT LEVEL — During alignment, signal-generator output must be attenuated to hold output-meter reading below 1.25 volts.

FM ALIGNMENT PROCEDURE

Make AM alignment first.

RADIO CONTROLS — Set volume control to maximum, set band switch for FM reception, and set tuning control as indicated in chart.

OUTPUT METER — Connect across voice-coil terminals. (This meter is used only for step 3.)

D-C VOLTMETER — Connect negative lead of d-c voltmeter (resistance of at least 20,000 ohms per volt) to pin 2 of 19T8 tube, and positive lead to chassis. Use 0—10-volt range.

SIGNAL GENERATOR — Use AM r-f signal generator, with modulated output. Connect ground lead to chassis. Connect output lead and set frequency as indicated in chart. Generator must have sufficient output to give reading of approximately 8.5 volts on d-c voltmeter; during alignment, generator output must be attenuated to hold meter reading at this value.

NOTE: Before starting FM alignment, allow radio and signal generator to warm up for 15 minutes.

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 parts, as follows:

C—Condenser	LS—loud-speaker	T—transformer
CR—rectifier	PL—plug	W—line cord
J—jack	R—resistor	WS—wafer switch
L—choke or coil	S—switch	Z—electrical assembly
LA—loop aerial		

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, amplifier, detector, and a-v-c circuits
- 400-series components are in Section 4—the r-f and converter circuits

AM ALIGNMENT CHART

MODEL 50-925

STEP	SIGNAL GENERATOR		RADIO		ADJUST TRIMMER
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Ground lead to chassis. Output lead through a .1-mf. condenser to mixer grid (pin 7) of 12BA7.	455 kc.	540 kc. (gang fully meshed)	Adjust for maximum output.	TC303B—2nd AM i-f sec. TC303A—2nd AM i-f pri. TC301B—1st AM i-f sec. TC301A—1st AM i-f pri.
2	Radiating loop. (See note below.)	1600 kc.	1600 kc.	Adjust for maximum output.	C400C—osc. trimmer
3	Same as step 2.	1500 kc.	1500 kc.	Adjust for maximum output.	C400A—aerial trimmer

NOTE:- TC301A AND TC303A ARE LOCATED ON UNDERSIDE OF CHASSIS

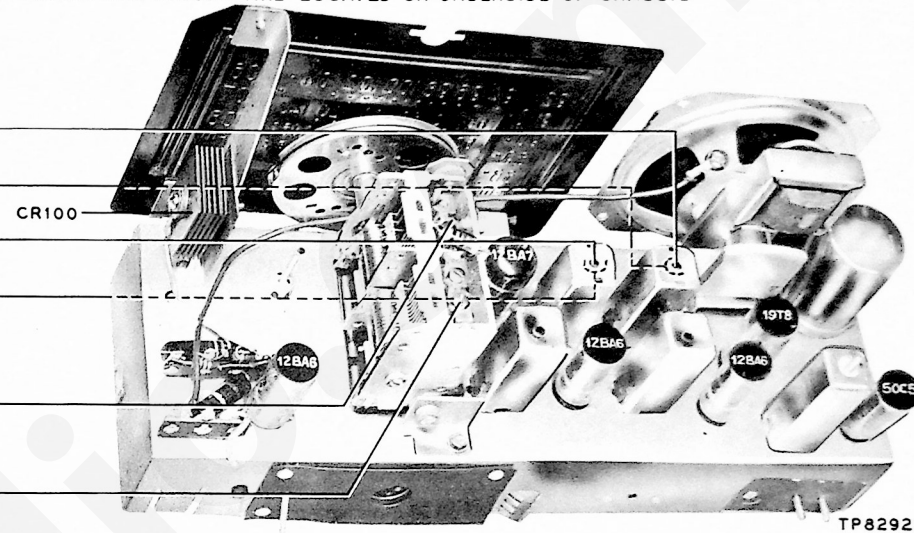


Figure 7. Top View, Showing AM Trimmer Locations

RADIATING LOOP: Make up a six-to-eight-turn, 6-inch-diameter loop from insulated wire; connect to generator terminals, and place near radio loop aerial. Radio loop aerial must be connected.

FM ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO		ADJUST TRIMMER
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through a .1-mf. condenser to control grid (pin 1) of 12BA6 1st i-f amp.	9.1 mc.	88 mc.	Adjust tuning cores for maximum reading on d-c voltmeter. Attenuate signal generator to maintain a reading of approximately 10 volts. Repeat adjustments until no further improvement is noted. After this step, do not disturb these tuning cores except as directed in step 3.	TC304B—discriminatorsec. TC304A—discriminatorpri. TC302B—FM 2nd i-f sec. TC302A—FM 2nd i-f pri.
2	Through .1-mf. condenser to pin 7 of 12BA7.	9.1 mc.	88 mc.	Adjust tuning cores for maximum reading on d-c voltmeter. Repeat adjustments until no further improvement is noted. Do not disturb these tuning cores after this step.	TC300B—FM 1st i-f sec. TC300A—FM 1st i-f pri.
3	Same as step 1.	9.1 mc.	88 mc.	Adjust tuning core for minimum reading on output meter. This adjustment is critical; repeat to make certain it is correct.	TC304B—discriminatorsec.
4	To terminal 1 of J400.	105 mc.	105 mc.	Adjust trimmer for maximum reading on d-c voltmeter.	C410—FM osc.
5	Same as step 4.	105 mc.	105 mc.	Same as step 4.	C400B—FM r-f
6	Same as step 4.	92 mc.	92 mc.	Adjust coil for maximum reading on d-c voltmeter.	L402—FM osc. (tracking)
7	Same as step 4.	92 mc.	92 mc.	Same as step 6.	L400—FM r-f (tracking)
8	Same as step 4.	105 mc.	105 mc.	Same as step 4.	C410—FM osc.
9	Repeat steps 4 through 8 until no further improvement is noted.				

NOTE:- TC300A, TC302A, TC304A, L402 AND L400 ARE LOCATED ON UNDERSIDE OF CHASSIS

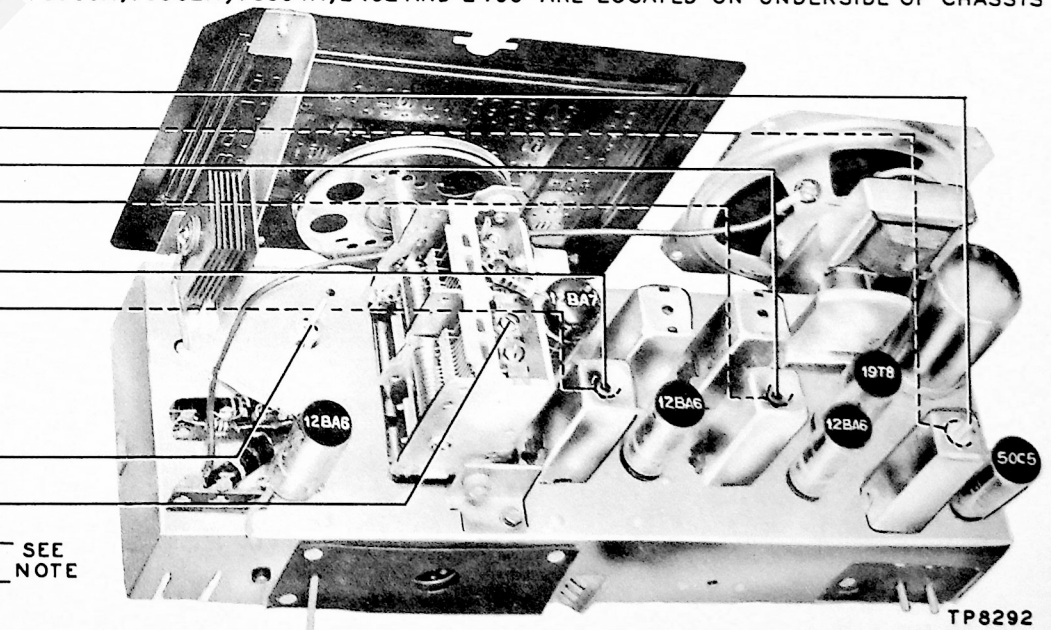


Figure 8. Top View, Showing FM Trimmer Locations