

Figure 5. Philco Model 50-620, Sectionalized Schematic Diagram, Showing Test Points

OSCILLATOR TEST. Connect the positive lead of a high-resistance voltmeter to test point D: connect the prod end of the negative lead through a 1110,000-obm isolating resistor to the oscillator grid (pin 1 of the 1R5), test point C. Use a suitable meter range, such as 0-10 volts. Proper operation of the oscillator is indicated by negative voltage within the range given in the chart (measured with a 20,000-obms-per-volt meter) throughout the tuning range.

### Section I—Power Supply

Make the tests for this section with a d-c voltmeter. Connect the negative lead to B-, test point B; 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.

Set the volume control to minimum.

The battery pack should be replaced when the "A" voltage drops below 5 volts, or the "B" voltage drops below 60 volts.

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.

# TROUBLE SHOOTING

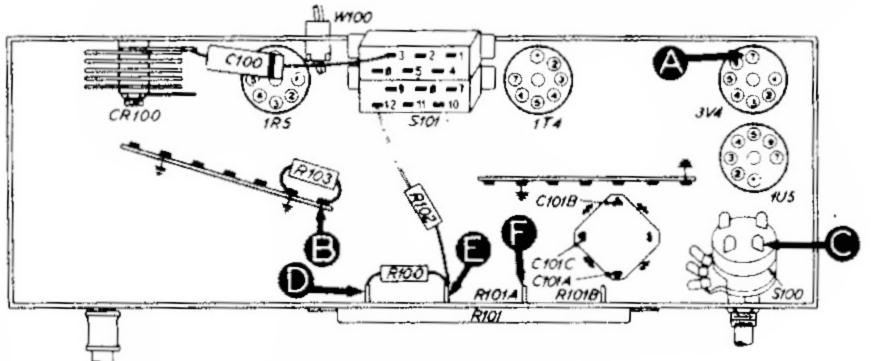


Figure 1. Bottom View. Showing Section 1 Test Points

STEP	TEST POINT	NORMAL INDICATION	ABNORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
l(n) l(b)	A C	7.5 <b>∀</b> 80 <b>∀</b>		Trouble in this section. Isolate by the following tests.
2	D	125*	Low voltage Nn voltage	Defective: CR100. Open C101A. Defective: CR100. Open: S100. S101.

A C D	7.5¥ 80¥ 125¥	Low voltage Nn voltage	Trouble in this section. Isolate by the following tests.  Defective: CR100. Open C101A.	
D E				
E	120-		Defective: CR100. Open C101A. Defective: CR100. Open: S100. S101.	
	, 1204	Low vnltage No voltage	Changed resistance: R100. Lenky: C101A.  Open: R100. Shorted: C101A.	
F	65*	Low voltage No voltage	Changed resistance: R101A. Leaky: C101B.  Open: R101A. Shnrted: C101B.	
A	7.5₩	Low vnlinge High voltage Nn vollage	Changed resistance: R101B.  Open: One nr more filaments. R205.  Open: R101B. S101.	
С	00₩	Low voltage High voltage Nn voltage	Changed resistance: R102. Leaky: C101C.  Open: R205'. T200', B100.  Open: R102. S101. Shorted: C101C.	
		A 7.5¥	No voltage  A 7.5v Low vnlinge High voltage Nn voltage C 00v Low voltage High voltage	

'This part, located in another section, may cause ubnnrmal indication in this section.

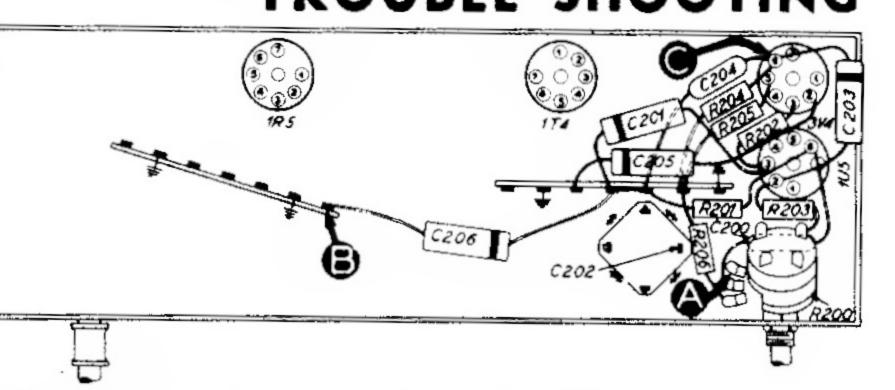
# Section 2—Audio Circuits

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

points indicated in the chart. Set the radio volume control to maxi-

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.

## TROUBLE SHOOTING



Figere 2. Bottom Vlew, Showing Section 2 Test Points

BTEP	TEST POINT NORMAL INDICATION		POSSIBLE CAUSE OF ABNORMAL INDICATION		
1	Ä	Loud, clear speaker oulput with moderate generator input.	Trouble in this section. Isolate by the following tests.		
2	С	Clear speaker output with strong genntator input.	Delective: 3V4. LS200. Open: R204, T200. Bhnrted: C203. C204. C205. T200.		
3	٨	Same as stsp 1.	Delective: 1U5. R200 (rotnte). Open: C200. R201. R202, R20 C203. Shorted: C201. C301C*.		

'This part, located in another section, may cause ubnormal indication in this section.

Philco Model 50-620 is a portable four-tube superheterodyne providing reception on the standard-broadcast band. A high-impedance loop within the cabinet normally provides adequate signal pickup.

signais may be caused by leaky ar sherted C200.

POWER CONSUMPTION

AERIAL .

OPERATING VOLTAGES Battery: "B", 90 volts: "A", 7.5 volts. A.c./d.c.: 105-120 volts

Battery: "B". 13 ma, at 90 volts; "A". 50 ma. at 7.5 volts. A.c./d.c.: Built in high impedance loop: teralso provided for external

#### Section 3—I-F, Detector, And A-V-C Circuits

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

Set the radio volume control to maxi-

If the "NORMAL INDICATION" is obtained in step 1, proceed with the tests for Section 4 (r-f and converter circuits); if not, isolate and correct the trouble in this section.

TROUBLE SHOOTING

Figere 3. Bottom View. Skowing Section 3 Test Points

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 below under "POSSIBLE CAUSE OF ABNORMAL INDICATION."

STEP	TEST POINT	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION	
i	A	Loud, clear speaker output with weak generator input.	Trouble in this section, isninte by the following lesis.	
2	С	Loud, cinar output with moderate input.	Defective: 1T4. 1U5 (diode section). Misnligned: Z301. Ope R300, C303, L301A, R301, L301B, C301A, Shnrted: C300B, C30 L301A, L301B, C301A, C301B.	
3	A	Same as etep 1.	Delective: 1R5'. Misnligned: Z300. Cpen: C300A, L300A, L300 C300B, T400'. Shorted: C400A', C400B', C300A, L300A, L300 C300B.	

'This part, located in another section, may cause abanamal Indication in this section.

#### Section 4-R-F And Converter Circuits

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

Set the radio volume control to maximum. Set the tuning control and signalgenerator frequency as indicated in the chart.

If the "NORMAL INDICATION" is obtained in step 1, further tests should be unnecessary; if not, isolate and correct the

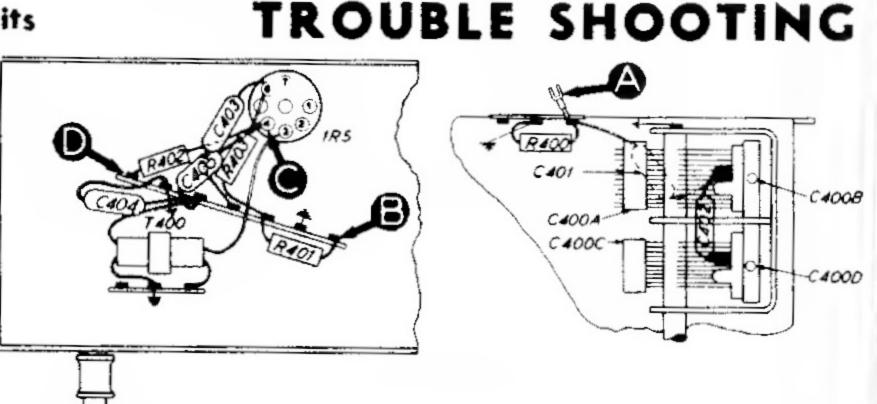


Figure 4. Bottom View, Showing Section 4 Test Points

trouble in this section. If the trouble is not revealed by the tests for this section, check the alignment.

BTEP	TEST POINT	BIGNAL GEN. FREQUENCY	RADIO TUNING	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	A	1900 kc.	Tune to signal.	Loud. clear speaker output with weak generator input.	Trouble in this section. Isolate by the Inliawing tests.
2	C to D lOsc. lest: see note below.)		Rotate through range.	Negative 5 to 10 volts.	Delective: 1R5, Open: R402, T400, C405. Shorted: C402, C400C, C400D.
3	A	1000 kc.	Tune to signal.	Same as step 1.	Opeo: C401, C403, R401, R403, LA400.



MODEL 50-620