# PHILCO RADIO MODEL 48-461

### Section 1

## TROUBLE SHOOTING

For the tests in this section, use a d-c voltmeter; connect negative lead to test point B-, and positive lead to test points indicated in 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 volume control to minimum.

Follow steps in sequence. If the "NOR-MAL INDICATION" is obtained in step 1, proceed with the tests for Section 2; if not, isolate and correct the trouble in this section.

It will be noted that certain parts in other sections of the radio are listed under "POS-SIBLE CAUSE OF ABNORMAL INDICATION", since they may cause abnormal voltage readings in this section.

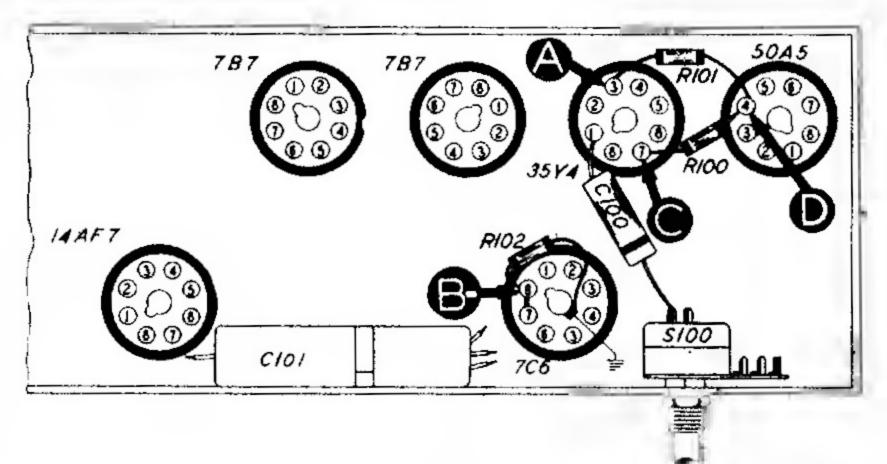


FIGURE 1. BOTTOM VIEW, SHOWING SECTION 1 TEST POINTS.

STEP	POINT	NORMAL INDICATION	ABNORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	λ	100*		Trouble in this section. Isolate by the following tests.
2	С	125v	Low voltage No voltage	Delective 35Y4. Leaky or open C101A. Shorted C101E C101C. C203. or \$100. Delective 35Y4. Shorted C101A.
3	D	112*	Low voltage Leaky C101B or C101C. Defective R100. Shorted C303. No voltage Shorted C101B. Open R100.	
4	A	100₹	Low voltage No voltage	Leaky CiviC. Defective Rivi. Shorted C302, Shorted CiviC. Open Rivi.

### Section 2

## TROUBLE SHOOTING

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

Set radio volume control to maximum. Adjust signal-generator output as required for each step.

If the "NORMAL INDICATION" is obtained in step 1, proceed with the tests for Section 3; if not, isolate and correct the trouble in this section.

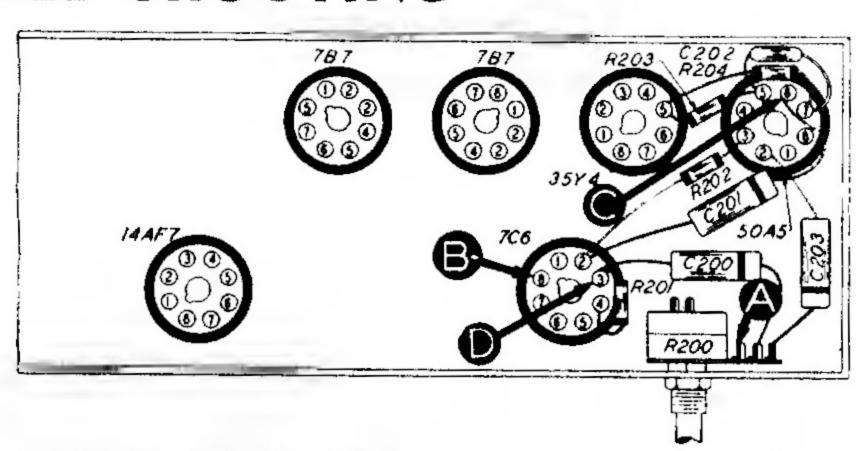


FIGURE 2. BOTTOM VIEW. SHOWING SECTION 2 TEST POINTS.

STEP	TEST POINT NORMAL INDICATION		POSSIBLE CAUSE OF ABNORMAL INDICATION	
1	A	Loud, clear signal with weak sig- ual input.	Trouble in this oscilon. Isolate by the following tests.	
2	С	Moderate, clear signol with strong signal input.	Defective 50A5, LS200, T200, R204, or R203, Leaky C201 or C302.	
3	D	Loud, clear signal with weak sig- aal input.	Defective 7C0, R202, or R201. Open, shorted, or leaky C201.	
4 A Loud, clear signal with weak sig- aal input.			Defective R200. Opea C300.	

#### Section 3

## TROUBLE SHOOTING

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

Set radio volume control to maximum.

If the "NORMAL INDICATION" is obtained in the first step, proceed with the tests for Section 4; if not, isolate and correct the trouble in this section.

It will be noted that for this section the circuit location of the test point for step 1 (the master check), and also for step 4, is the same as for test point C in Section 4; there-

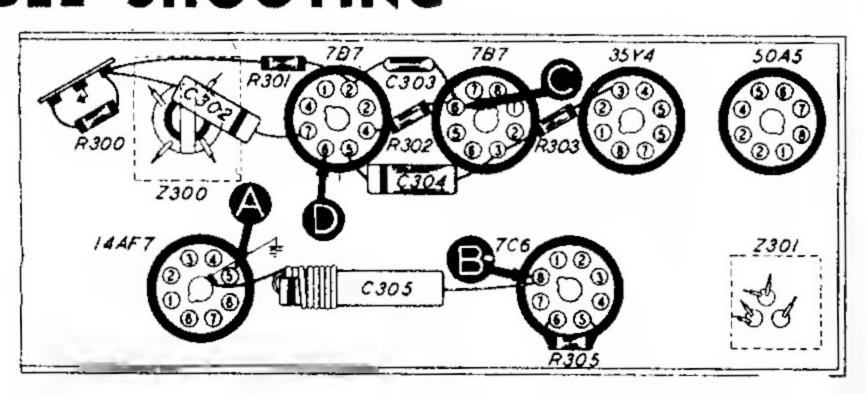


FIGURE 3. BOTTOM VIEW, SHOWING SECTION 3 TEST POINTS.

the same as for test point C in Section 4; therefore, certain components in Section 4 may cause an abnormal indication. These components are listed under "POSSIBLE CAUSE OF ABNORMAL INDICATION".

STEP	TEST POINT	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION		
i	A	Lond, clear signal with weak sig- nal input.	Trouble in this section. Isolate by the following tests.		
2	С	Loud, clear signal with mederate signal input,	Delective 7B7 (2ad 1-f ampl.) or R305. Open R303. Shorted C304. Misaligned Z301.		
3	D	Loud, clear signal with weak sig- aai input.	Defective 7B7 (1st 1-f ampl.). Open or leaky C303. Shorted C302. Open R300 or R301.		
4	A	Loud, clear signal with weak sig- aal input.	Deisctive 14AF7. Defective or misaligned Z300. Open C302. R300, R401, or R403. Shorted C302.		

#### Section 4

## TROUBLE SHOOTING

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

Set radio volume control to maximum.

Set tuning control and signal-generator frequency as indicated in chart.

If the "NORMAL INDICATION" is not obtained in step 1, isolate the trouble by proceeding with the remaining steps.

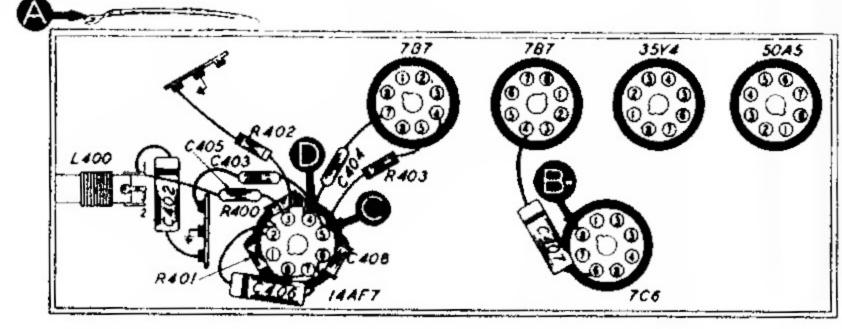


FIGURE 4. BOTTOM VIEW, SHOWING SECTION 4 TEST POINTS.

	Maga Botte	DIAL SETTINGS			
STEP	TEST POINT	SIG. GEN.	RADIO	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATIO
i	A	1000 kc	1000 kc	Loud, clear signal with weak signal input.	Troubis in this section. Isolate by the following tests.
2	С	1000 kc	1000 kc	Loud, clear signal with weak signal input.	Defective 14AF7. Open C400. Shorted or leaky C400. Trouble in oscillator circuit (see step 3).
3	D Osc. jest (See uote below.)		Turn tuning control through range.	Negativs i to 2 volts.	Defective 14AF7 or L400. Open or shorted C404 or C405. Open R400, R402, or C402. Shorted plates of tuning condenser (osc. section).
4	A	1000 kc	1000 kc	Loud, clear signal with weak signal input.	Defective T400 or LA400. Open C403 or C400. Shorted plates of tuning condenser (ant. section).

NOTE: Connect positive isad of high-resistance d-c voltmeter to test point B-; connect prod end of negative lead through 100,000 ohm isolating resistor to oscillator grid, test point D. Use suttable meter range, such as 0—10 volts. Proper operation ef oscillator is indicated by negative voltage throughout range of tuning condenser.

