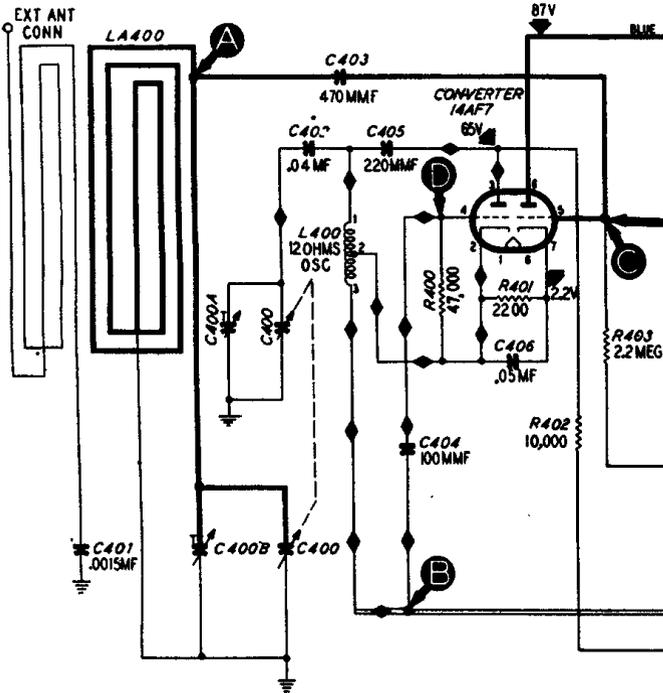
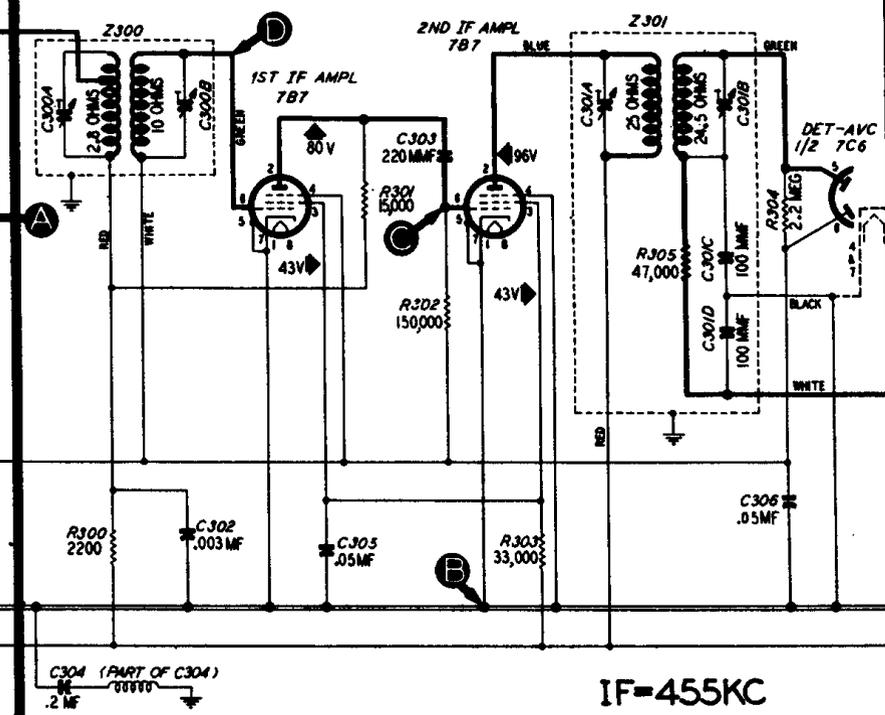


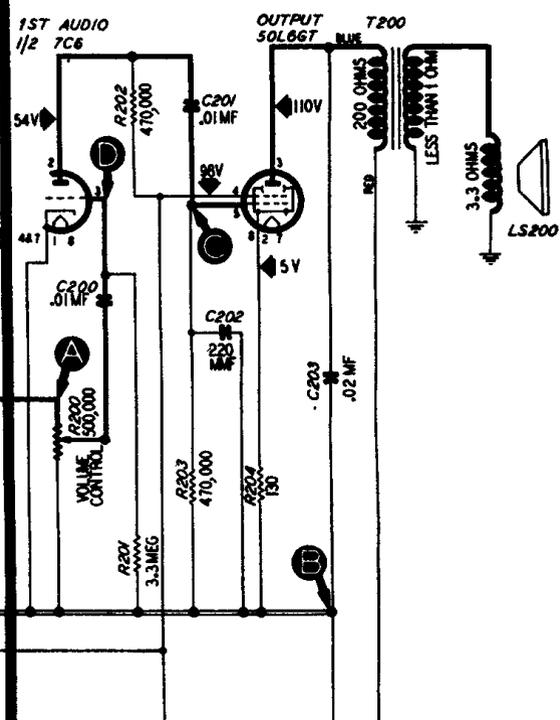
SECTION 4 - RF AND CONVERTER



SECTION 3 - IF, DETECTOR, AND AVC

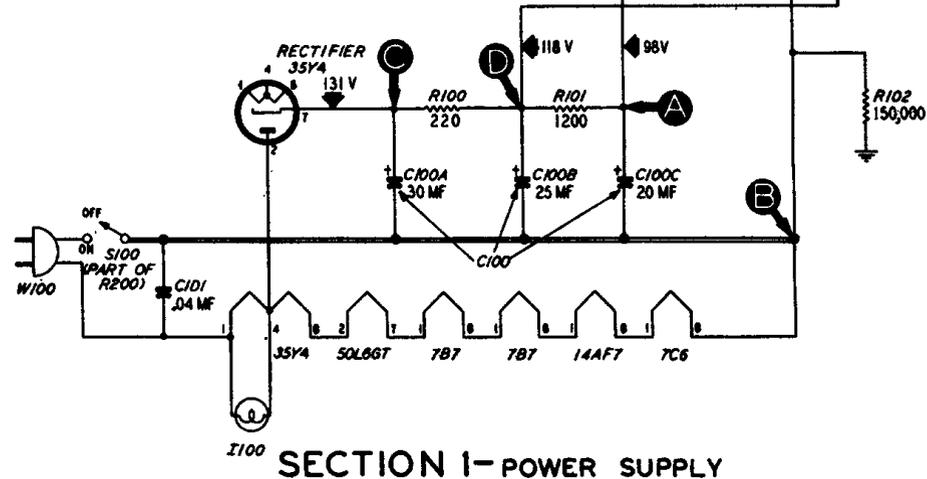
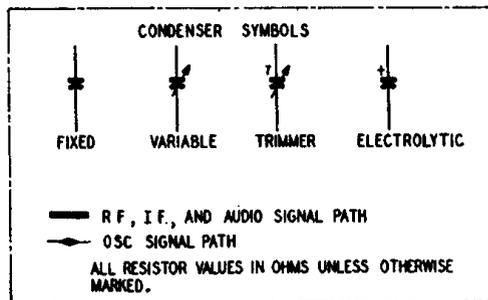
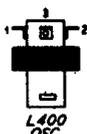


SECTION 2 - AUDIO



MODELS 49-900-E AND 49-900-I

VOLTAGES WERE MEASURED BETWEEN THE POINTS INDICATED AND B-USING A 20,000-OHMS-PER-VOLT METER WITH AN INPUT OF 117V AC



Section 1

TRUBLE SHOOTING

For the tests in this section, use a d-c voltmeter. Connect the negative lead to the B- bus, 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.

Turn the power switch "on," and set the volume control to minimum.

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

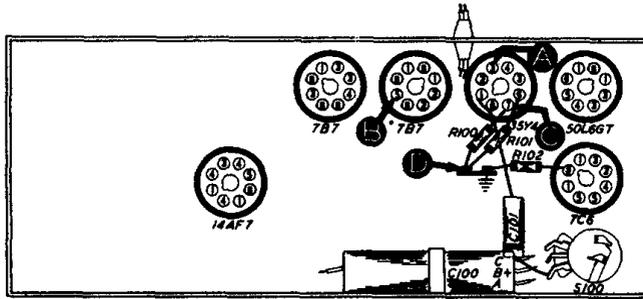


FIGURE 1. BOTTOM VIEW, SHOWING SECTION 1 TEST POINTS

STEP	TEST POINT	NORMAL INDICATION	ABNORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	A	88 volts		Trouble within this section. Isolate by the following tests.
2	C	191 volts	No voltage. Low voltage. High voltage.	Defective: 35Y4, W100, S100. Shorted: C100A. Defective: 35Y4. Open: C100A, I100. Leaky: C103A. Open: R100.
3	D	110 volts	No voltage. Low voltage. High voltage.	Shorted: C103B. Leaky: C100B, C100C, C203*. Open: R101, T203*, R204*.
4	A	03 volts	No voltage. Low voltage. High voltage.	Shorted: C100C. Open: R101. Leaky: C100C. Open: R204*.

Listening Test: Abnormal hum may be caused by open C103A, C103B, C100C, or R102.

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

Section 2

TRUBLE SHOOTING

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 maximum. Adjust the 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.

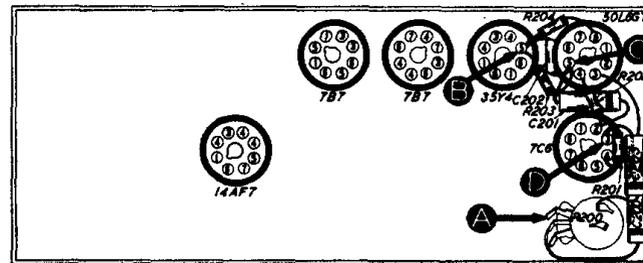


FIGURE 2. BOTTOM VIEW, SHOWING SECTION 2 TEST POINTS

STEP	TEST POINT	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	A	Load, clear signal with weak signal input.	Trouble within this section. Isolate by the following tests.
2	C	Clear signal with strong signal input.	Defective: 50L8GT, T203, L3203. Shorted or leaky: C203, C300. Open: R204, R203.
3	D	Same as step 1.	Defective: 7C8. Shorted or leaky: C201. Open: R201, R202, C201.
4	A	Same as step 1. Note: Rotate R203 through range.	Defective: R203. Shorted or leaky: C200. Open: R201, C203.

Listening Test: Distortion on strong signals may be caused by leaky C203 or open R201.

Section 3

TRUBLE SHOOTING

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 chart.

Set the radio volume control to maximum.

If the "NORMAL INDICATION" is obtained in step 1, proceed with the tests for Section 4; if not, isolate and correct the trouble in this section.

Since the circuit location of test point A for this section is the same as that of test point C for Section 4, the effectiveness of step 1 as a master check is dependent upon the condition of certain parts in Section 4; these parts are listed under "POSSIBLE CAUSE OF ABNORMAL INDICATION."

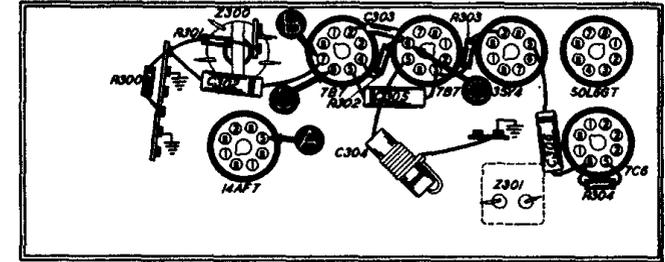


FIGURE 3. BOTTOM VIEW, SHOWING SECTION 3 TEST POINTS

STEP	TEST POINT	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	A	Load, clear signal with weak signal input.	Trouble within this section. Isolate by the following tests.
2	C	Load, clear signal with strong signal input.	Defective: 7B7 (2nd I.L.), 7C8 (diode section), Z301. Shorted or leaky: C306. Open: R303. Misaligned: Z301.
3	D	Load, clear signal with moderate signal input.	Defective: 7B7 (1st I.L.). Shorted or leaky: C303, C302. Open: R301, R300, R300, C304, C302.
4	A	Load, clear signal with weak signal input.	Defective: 14AF7*, Z300. Open: R401*, R403*. C306. Shorted or leaky: C306. Misaligned: Z300.

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

Section 4

TRUBLE SHOOTING

For the tests in this section, 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.

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

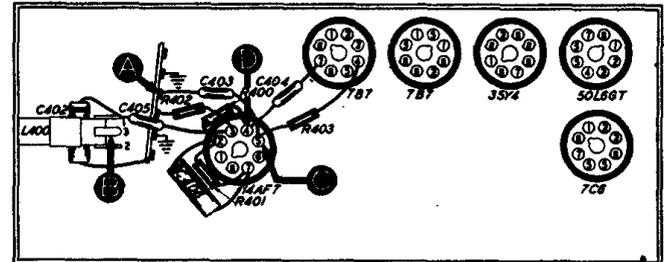


FIGURE 4. BOTTOM VIEW, SHOWING SECTION 4 TEST POINTS (LOCATION OF C401 SHOWN IN FIGURE 4)

STEP	TEST POINT	DIAL SETTINGS		NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
		SIG. GEN.	RADIO		
1	A	540 kc.	540 kc.	Load, clear signal with weak signal input.	Trouble within this section. Isolate by the following tests.
2	C	540 kc.	540 kc.	Same as step 1.	Defective: 14AF7. Open: C406, R402. Trouble in oscillator circuit. See step 3.
3	D (Osc. Test (See note below))		540 kc. to 1820 kc.	Negative voltage 1.8 volts to 1.8 volts.	Defective: L400. Open: R400, R402, C405, C404. Shorted: C402, C405, C405, C404, C400A.
4	A	540 kc.	540 kc.	Same as step 1.	Defective: L400, C405, C406B. Open or shorted: C403.

OSCILLATOR TEST: Connect positive lead of a high-resistance voltmeter to B-, test point B; connect prod end of negative lead through a 100,000-ohm isolating resistor to 14AF7 oscillator grid, test point D. Use a suitable range, such as 0-10 volts. Proper operation of oscillator is indicated by negative voltage of 1.6v to 1.8v (measured with 20,000-ohms-per-volt meter) throughout range of tuning condensers.