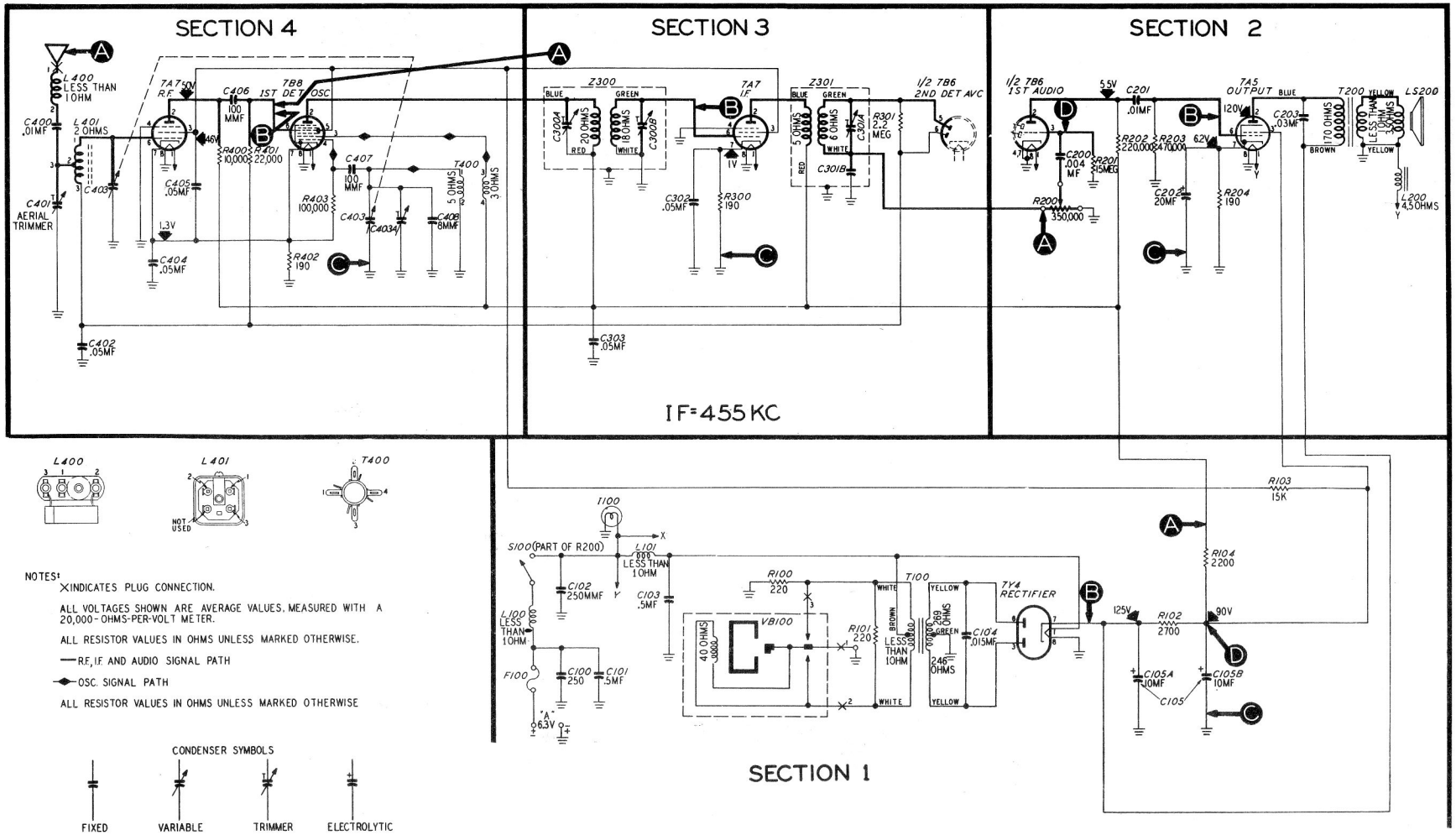


NOTES:

×INDICATES PLUG CONNECTION.

ALL VOLTAGES SHOWN ARE AVERAGE VALUES, MEASURED WITH A 20,000-OHMS-PER-VOLT METER.

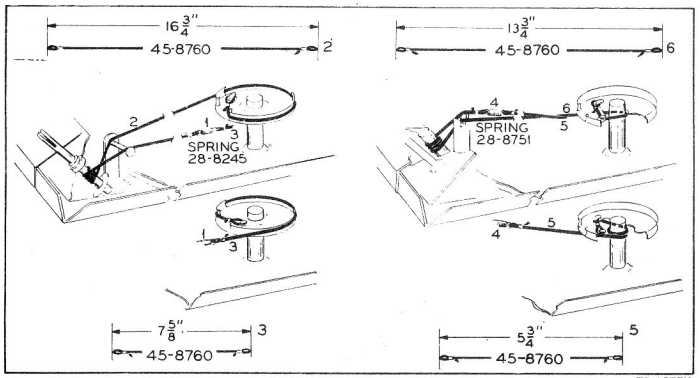
ALL RESISTOR VALUES IN OHMS UNLESS MARKED OTHERWISE.

—RF, I.F. AND AUDIO SIGNAL PATH

—●—OSC. SIGNAL PATH

ALL RESISTOR VALUES IN OHMS UNLESS MARKED OTHERWISE

1948-49 I.F. 455 KC.



TP-1275K

Figure 7. Drive-Cord Installation Details

AUTO RADIO MODEL CR-2

FURTHER DATA ON SHEETS 177, 179, 180.

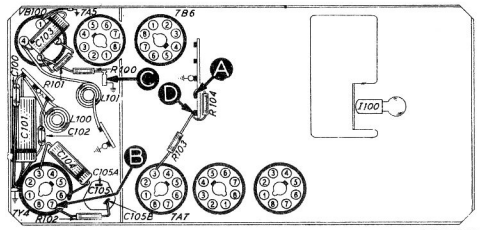
PHILCO

Section 1 TROUBLE SHOOTING

For the tests in this section, use a d-c voltmeter. Connect the negative lead to the radio 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 with an "A" supply voltage of 6.3 volts, d.c.

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

Follow the steps in sequence; 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.



TP-1275B

Figure 1. Bottom View, Showing Section 1 Test Points

STEP	TEST POINT	NORMAL INDICATION	ABNORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	A	70v		Trouble within this section. Isolate by the following tests.
2	B	125v	Low voltage	Defective: 7Y4, VB100, T100, C104. Leaky: C105A, C105B.
			No voltage	Defective: 7Y4, VB100, T100, S100. Shorted: C104, C105A. Open: fuse.
3	D	90v	Low voltage	Defective: 7A5, R102. Leaky: C105B, C303*. Shorted: C303*.
			No voltage	Open: R102. Shorted: C105B.
4	A	70v	Low voltage No voltage	Defective: 7A7, 7A8, R104. Leaky: C303*. Open: R104. Shorted: C303*.

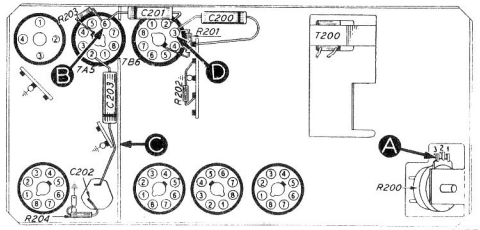
* This part, located in another section, may cause abnormal indication in this section.

Section 2 TROUBLE SHOOTING

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

Turn the radio volume control to maximum, and 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.



TP-1275C

Figure 2. Bottom View, Showing Section 2 Test Points

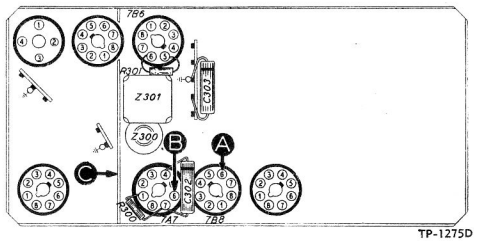
STEP	TEST POINT	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	A	Loud, clear signal with moderate signal input.	Trouble within this section. Isolate by the following tests.
2	B	Clear signal with strong signal input.	Defective: 7A5, T200, LS200, R203, R204. Open: C202. Shorted: C202, C203. Leaky: C202, C203.
3	D	Loud, clear signal with moderate signal input.	Defective: 7B6, R201, R202. Open: C201. Shorted: C201. Leaky: C201.
4	A	Loud, clear signal with moderate signal input.	Defective: Z301, R200. Open: C200.
Listening Test: If C200 is shorted or leaky, distortion will occur with moderate or strong signal input.			

Section 3 TROUBLE 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 the radio chassis, test point C; connect the generator output lead through a .1-mf. condenser to the test points indicated in the chart.

Turn 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.



TP-1275D

Figure 3. Bottom View, Showing Section 3 Test Points

NOTE: Since the circuit location of test point A for this section is the same as that of test point B 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 below under "POSSIBLE CAUSE OF ABNORMAL INDICATION."

STEP	TEST POINT	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	A	Loud, clear signal with moderate signal input.	Trouble within this section. Isolate by the following tests.
2	B	Loud, clear signal with strong signal input.	Defective: 7A7, R300, Z301. Misaligned: Z301. Open: R103*. Shorted: C302, C405*. Leaky: C302.
3	A	Loud, clear signal with moderate signal input.	Defective: 7B8*, Z300. Misaligned: Z300. Open: C303, R402*.

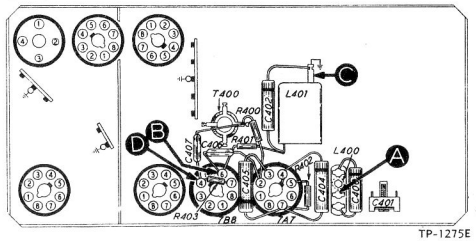
* This part, located in another section, may cause abnormal indication in this section.

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 the generator ground lead to the radio chassis, test point C; connect the generator output lead through a .1-mf. condenser to the test points indicated in the chart.

Turn the radio volume control to maximum.

Except as noted for the oscillator test, set the radio and signal generator dials to 1000 kc.



TP-1275E

Figure 4. Bottom View, Showing Section 4 Test Points

STEP	TEST POINT	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
1	A	Loud, clear signal with weak signal input.	Trouble within this section. Isolate by the following tests.
2	B	Loud, clear signal with moderate signal input.	Defective: 7B8, Osc. circuit. Shorted: C405. Open R401, R402.
3	D (Osc. test.)	Negative 10—18 volts. See note below.	Defective: 7B8, T400, C408, C407, R403. Shorted: C403A, C403 (Osc. section).
4	A	Loud, clear signal with weak signal input.	Defective: 7A7, L400, L401, R400. Open: C400, C401, C404, C406. Shorted: C401, C406. Leaky: C406.
Listening Test: If C402 is open, oscillation or hum modulation, or both, may occur.			

OSCILLATOR-TEST NOTE: Connect positive lead of high-resistance d-c voltmeter to radio chassis, test point C; connect prod end of negative lead through 100,000-ohm isolating resistor to oscillator grid, test point D. Use suitable meter range, such as 0—50 volts. Proper operation of oscillator is indicated by negative voltage of 10—18 volts (measured with 20,000-ohms-per-volt meter) throughout range of tuning control.

1948-49
I.F. = 455 KC.

FURTHER DATA ON SHEETS 177, 178, 180.

AUTO RADIO
MODEL
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PHILCO DATA SHEET 179

ALIGNMENT PROCEDURE

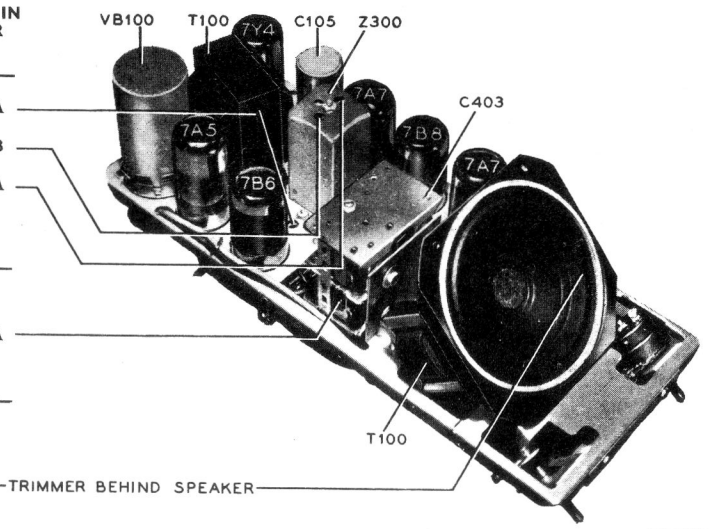
TURN ON RADIO AND SET VOLUME CONTROL FULLY ON.

DIAL—With tuning-condenser plates fully meshed, set dial pointer to index dot at low-frequency end of scale.

OUTPUT METER—Connect output meter across loud-speaker voice-coil terminals. Use lowest range of meter. During alignment process, keep signal-generator output low enough to produce less than 2-volt output indication.

SIGNAL GENERATOR—Connect signal-generator ground lead to radio chassis; for step 1, connect output lead through .05-mf. condenser to aerial receptacle; for steps 2 and 3, connect output lead through 30-mmf. condenser to aerial lead (Philco Part No. 95-0185) plugged into aerial receptacle. If aerial lead is not available, connect generator output lead through 30-mmf. condenser directly to aerial receptacle, and connect another 30-mmf. condenser from aerial receptacle to radio chassis. Use modulated output.

STEP	DIAL SETTINGS		SPECIAL INSTRUCTIONS	ADJUST IN ORDER
	SIG. GEN.	RADIO		
1	455 kc.	550 kc.	Ground oscillator grid (pin 4) of 7B8. Adjust trimmers for maximum output and then repeat.	C301A C300B C300A
2	1600 kc.	1600 kc.	Remove ground from oscillator grid. Adjust trimmer for maximum.	C403A
3	1400 kc.	1400 kc.	Adjust for maximum. Final adjustment to be made after radio is installed in car and aerial is connected.	C401 –TRIMMER BEHIND SPEAKER



TP-1275

Figure 6. Top View, Showing Trimmer Locations

SYMBOLIZATION AND TERMINOLOGY

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

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 aerial, r-f, and oscillator circuits.

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

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FURTHER DATA ON SHEETS 177,178,179