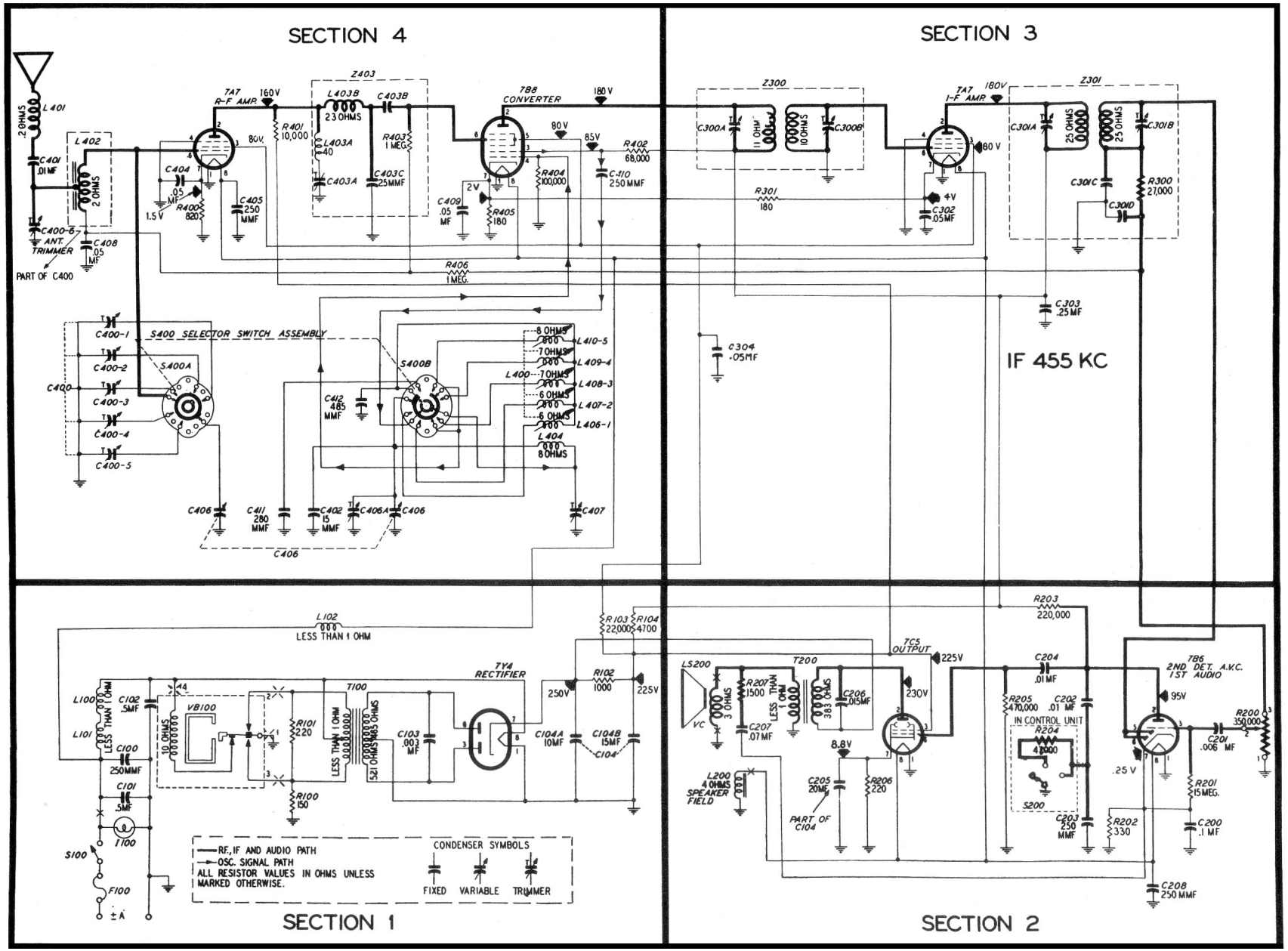

Figure 12. Complete schematic.

TP-1596A

NOTE: All voltage, capacity, and resistance values shown are average. The voltages shown were measured with a 20,000-ohms-per-volt meter between the indicated test points and chassis (B–), and are for normal operation with an input supply of 6.3 volts. d.c.

IF=455 KC 1948-49

TROUBLE SHOOTING DATA ON SHEETS 223 to 227

ALIGNMENT DATA ON SHEET 228

AUTO RADIO MODEL UN6-500

PHILCO DATA SHEET 222

PHILCO TROUBLE-SHOOTING PROCEDURE

In this manual, the receiver circuit is divided into four sections, as shown in figure 1. One test point is designated for each section, as shown in figure 2. Normal indications, secured when checking at these points, eliminate the section under test as a source of trouble. Isolation of the faulty part is accomplished by testing in the order shown in the sectional test charts. A high-quality signal generator and volt-ohmmeter, and a source of 6.3 volts d.c. are required. The voltage readings shown were taken with a 20,000-ohms-per-volt meter.

To localize trouble, connect the receiver to the power supply; turn the receiver volume control to maximum; see that all tube filaments are lighted; then proceed in the order given in the following chart. Remedy any defect encountered before proceeding to the next check.

When using the signal generator, always connect a condenser (.01 to .25 mf.) in series with the output lead.

IMPORTANT

The aerial and aerial lead-in form part of the r-f tuning circuit. When testing or aligning this receiver on the bench it is important that an aerial dummy load of equal capacity be used.

TESTS TO LOCALIZE TROUBLE TO ONE SECTION

SECTION	TEST	NORMAL RESULTS
1	Measure the voltage between point 1 and chassis (B—).	80 volts.
2	Apply an audio signal between point 2 and B—.	Loud, clear signal from speaker.
3	Apply a weak, modulated 455-kc. signal between point 3 and B—.	Loud, clear signal.
4	Apply a weak, modulated, r-f signal (approx. 1000 kc.) between point 4 and B—. Set selector switch to "DIAL",* and tuning condenser to half-meshed; tune signal generator until a signal is heard. Test also in "AUTOMATIC" positions 1—5 inclusive.	Loud, clear signal.

* To set the selector switch in "DIAL" position, unscrew the locking screw (see figure 11, page 6) until it protrudes ½" from the outside of the case. Then rotate the selector switch until it locks. This will be the "DIAL" position, and the "AUTOMATIC" positions 1 to 5 may be found by releasing the lock and rotating the switch clockwise, while watching the rotor arm contact on the rear of the switch wafer nearest the side of the chassis.

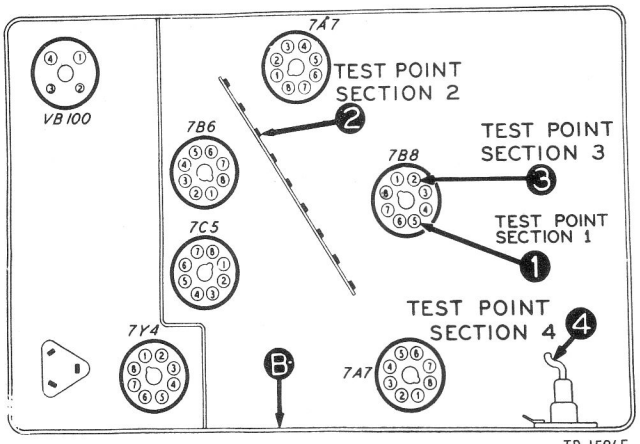

Figure 2. Bottom view, showing test points.

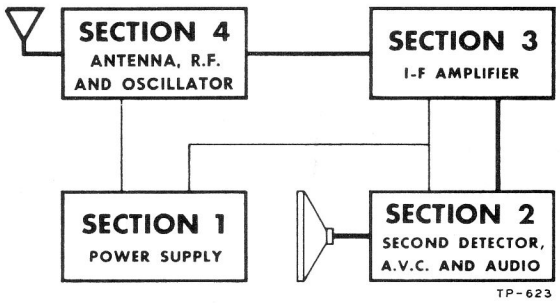

Figure 1. Block diagram
(Heavy lines indicate signal path)

CIRCUIT ON SHEET 222
ALIGNMENT DATA ON SHEET 228
FURTHER DATA ON SHEETS 224 to 227

Model UN6-500

IF = 455KC

AUTO RADIO MODEL UN 6-500

PHILCO

DATA SHEET 223

TESTS TO ISOLATE TROUBLE WITHIN SECTION 1

Make all measurements for this section with a high-quality volt-ohmmeter, using the applicable d-c range. All voltages given in this manual are average values, measured with the set operating on 6.3 volts d-c input to the power supply, with the volume control set at minimum. All voltages given were measured with a 20,000 ohms-per-volt meter.

WARNING: If the 7Y4 rectifier is found to be defective, check C104A and C104B for shorts before inserting a new tube. If the vibrator is found to be defective, check C103 for a short before inserting a new vibrator.

TEST POINTS	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
A to B—	250 volts	Defective 7Y4, VB100, T100, C103, or C104.
C to B—	225 volts	Defective R102, C104B, or C303 (see Section 3 for location).
D to B—	180 volts	Defective R104 or C303.
E to B—	80 volts	Defective R103 or C304 (see Section 3 for location).

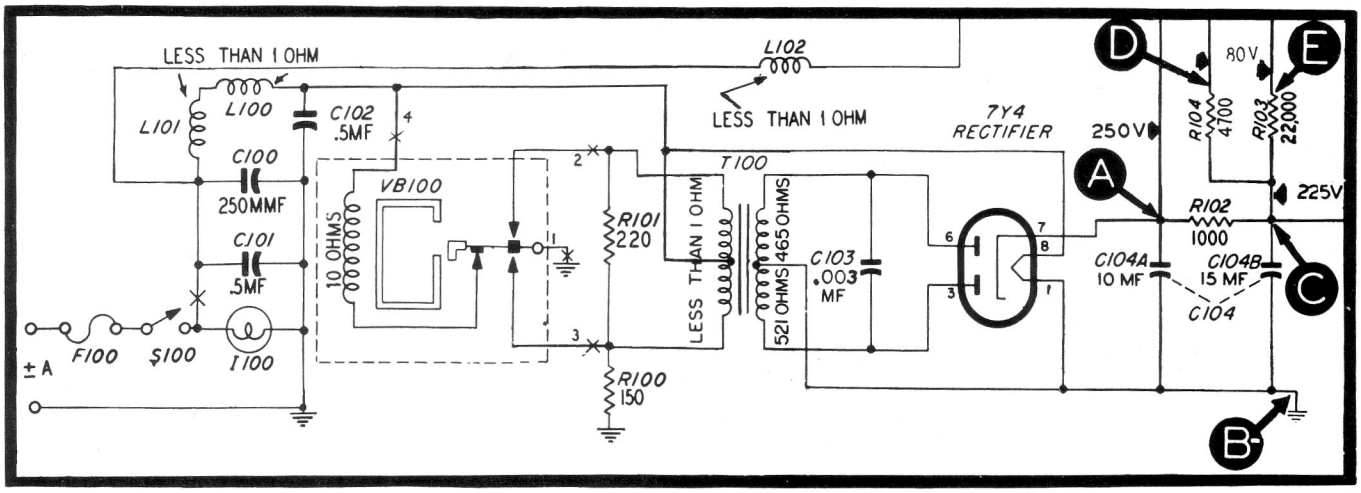

Figure 3. Section 1 schematic. TP-1596G

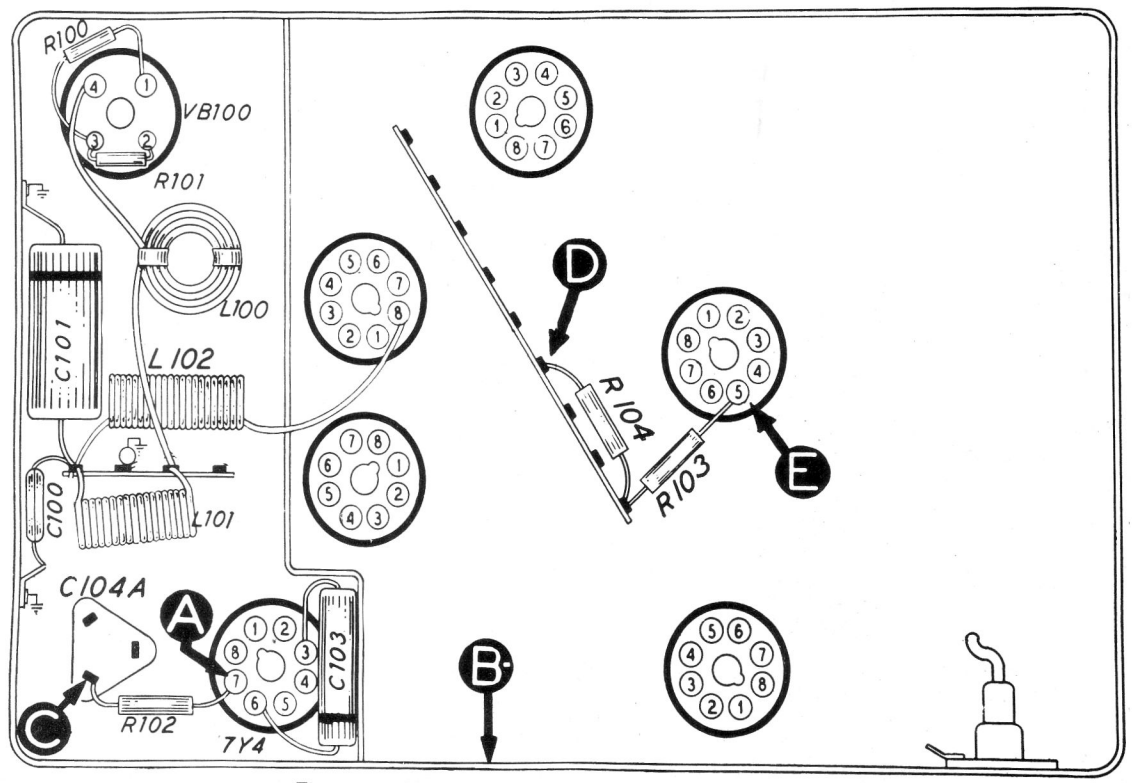

Figure 4. Bottom view, showing Section 1 test points TP-1596B

CIRCUIT DATA ON SHEET 222
FURTHER TROUBLE SHOOTING DATA ON SHEETS 223 to 227
ALIGNMENT ON SHEET 228

TROUBLE SHOOTING DATA

TESTS TO ISOLATE TROUBLE WITHIN SECTION 2

For all tests in this section, use an audio signal. Connect the signal-generator output lead through a condenser (.01 to .25 mf.) to the test points indicated: connect the ground lead to the receiver chassis (B—). Set the receiver volume control at maximum, and adjust the signal-generator output for a loud, clear signal.

TEST POINTS	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
F to B—	Loud, clear signal.	Defective 7C5, T200, LS200, C206, C205, C204, R205, or R206.
G to B—	Loud, clear signal.	Open C204.
H to B— (Short out C203.)	Clear signal, much louder than preceding test.	Defective 7B6, R201, R202, R203, C200, C201, or C202.
J to B—	Loud, clear signal.	Defective C201 or R200 (Rotate R200 through its entire range for complete check).

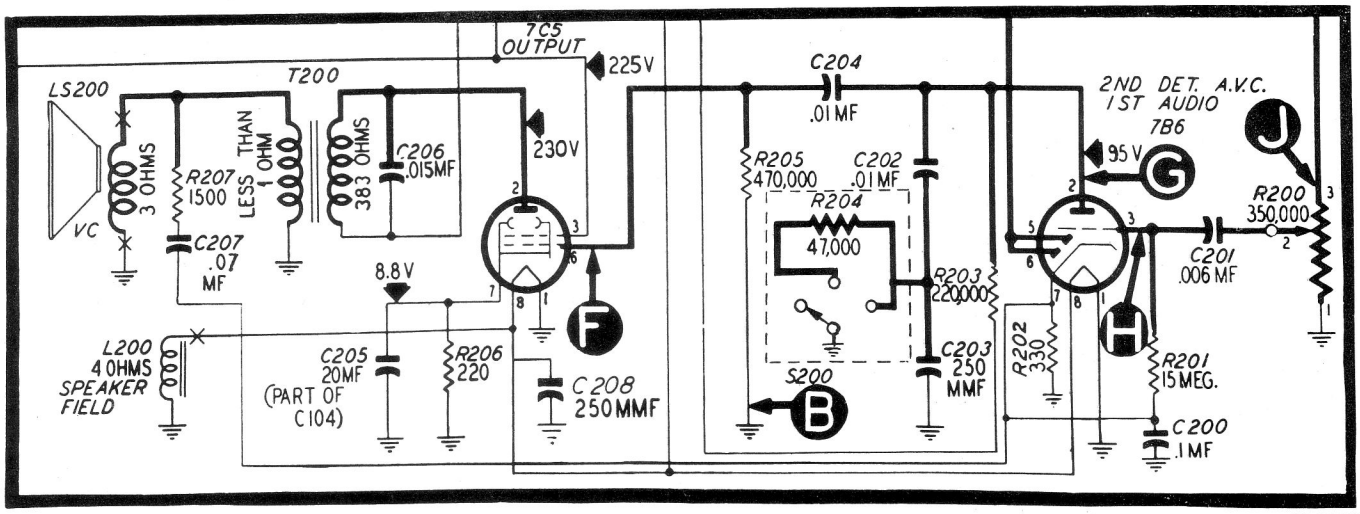

Figure 5. Section 2 schematic. TP-1596H

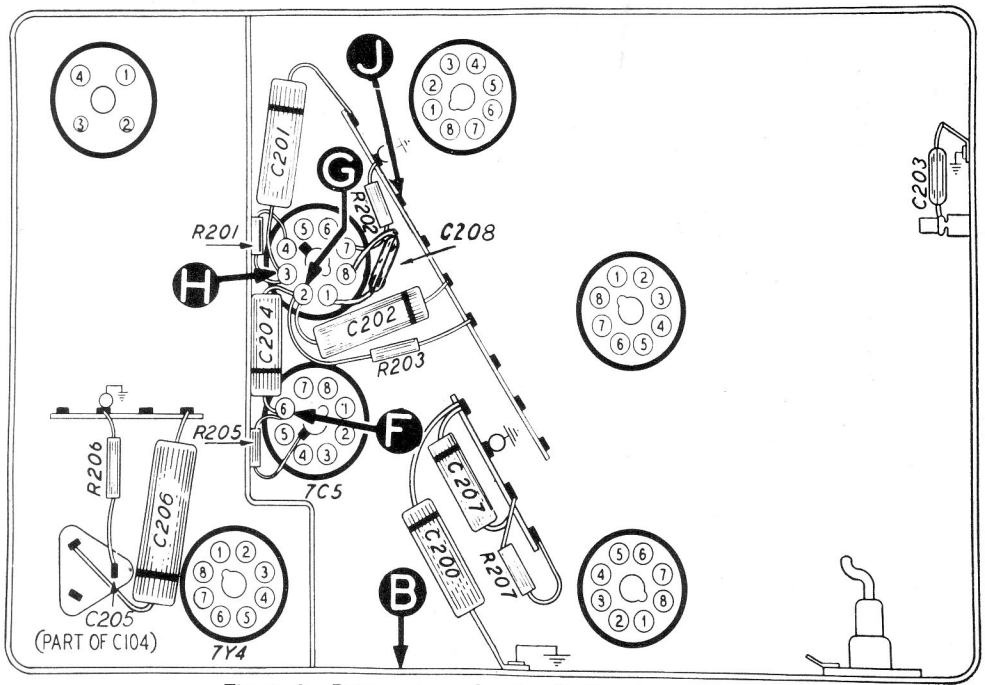

Figure 6. Bottom view, showing Section 2 test points. TP-1596C

AUTO RADIO MODEL UN 6-500

1948-49

CIRCUIT DATA ON SHEET 222
ALIGNMENT DATA ON SHEET 228
FURTHER DATA ON SHEETS 223 to 227

PHILCO

DATA SHEET 225

TESTS TO ISOLATE TROUBLE WITHIN SECTION 3

For all tests in this section, set the signal-generator at 455 kc., with modulation on. Connect the generator output lead through a condenser (.01 to .25mf.) to the points indicated: connect the generator ground lead to the receiver chassis (B–). Set the receiver volume control at maximum, and adjust the signal-generator output for a loud, clear signal.

TEST POINTS	NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
K to B–	Loud, clear signal from speaker.	Defective 7A7, C302, C303, Z301, R104 (see Section 1 for location), R301, or R405 (see Section 4 for location).
L to B–	Loud, clear signal.	Defective Z300.

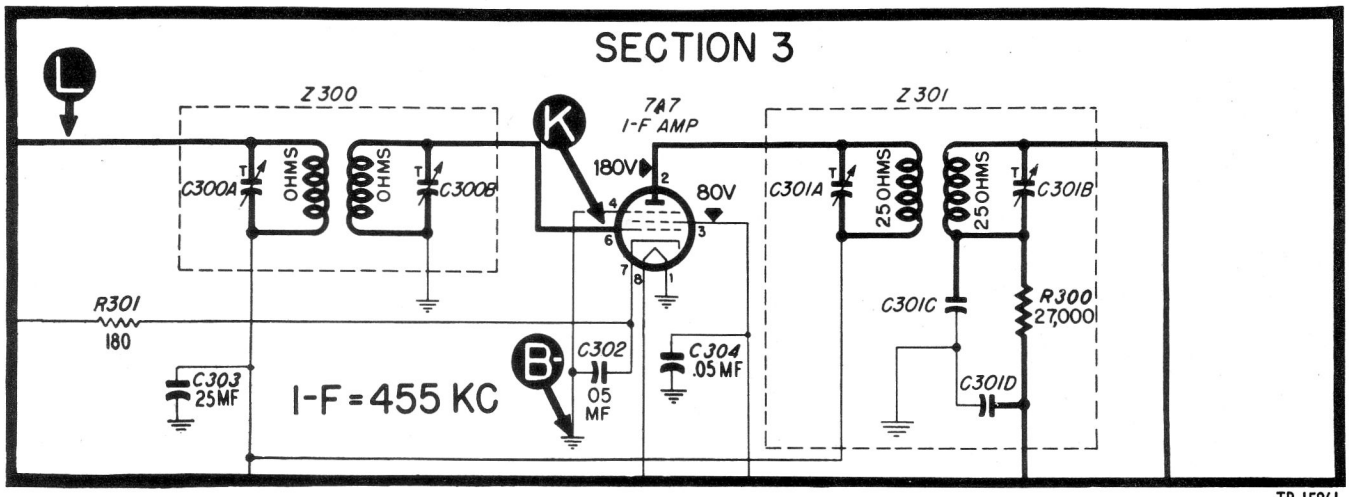

Figure 7. Section 3 schematic.

TP-1596I

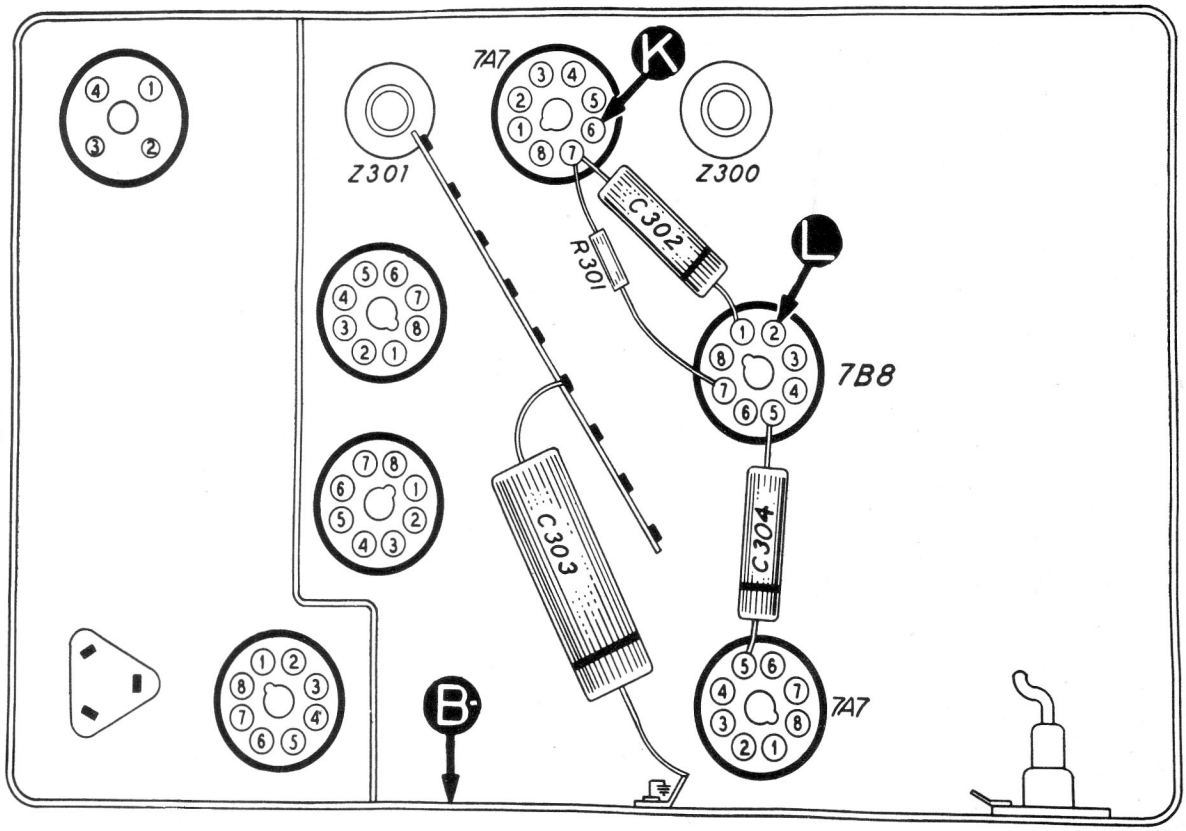

Figure 8. Bottom view, showing Section 3 test points.

TP-1596D

TROUBLE SHOOTING DATA
AUTO RADIO
MODEL UN6-500
1948-49
CIRCUIT DATA ON SHEET 222
ALIGNMENT ON SHEET 228
FURTHER DATA ON SHEETS
223 to 227

TROUBLE SHOOTING DATA

AUTO RADIO
MODEL
UN 6-500

1948-49

CIRCUIT DATA ON SHEET 222
ALIGNMENT ON SHEET 228
FURTHER DATA ON SHEETS
223 TO 226

TESTS TO ISOLATE TROUBLE WITHIN SECTION 4

1. Attach the positive lead of a 20,000-ohms-per-volt meter to the receiver chassis, and the prod end of the negative lead through a 50,000-ohm-resistor to point R. Set the meter on a 10-volt or similar range, and rotate the tuning condenser through its entire range on each position of the band switch. Absence of voltage indicates that the oscillator is not functioning. If so, check the components indicated in column 3 of the first test below, in the order listed.

2. Connect the signal-generator output lead through a condenser (.01 to .25 mf.) to the test points indicated, with modulation on. Set the receiver volume control at maximum, and proceed as below. The normal indication in each case will be a loud, clear signal, when the signal-generator is tuned to the same frequency as the receiver.

1. TEST POINTS	2. SELECTOR SWITCH	3. POSSIBLE CAUSE OF ABNORMAL INDICATION
M to B– (chassis)	Dial	Defective 7B8, R402, R405, L404, C402, C406, C406A, C407, C410, C411, or S400B.
M to B–	Automatic Positions 1—5.	Defective L406-1, L407-2, L408-3, L409-4, L410-5, or S400B.
N to B–	Dial	Defective Z403.
P to B–	Dial	Defective 7A7, R400, R401, C406, C404, or S400A.
Q to B–	Dial	Defective L401, L402, C400-6, C406, or C401.
Q to B–	Automatic Positions 1—5.	Defective C400-1, C400-2, C400-3, C400-4, C400-5, or S400A.

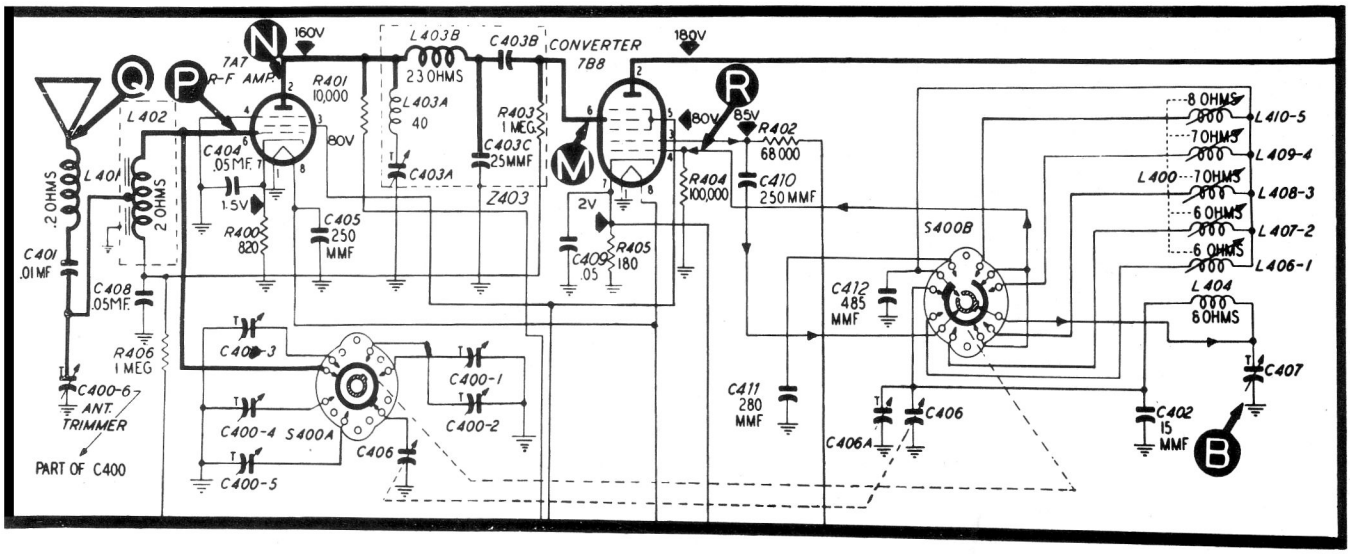

Figure 9. Section 4 schematic. TP-1596J

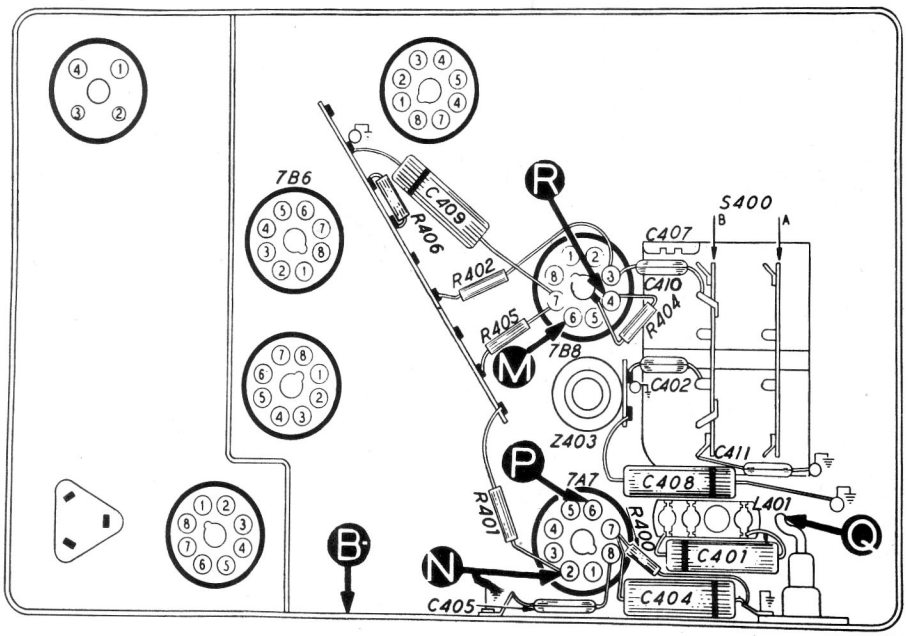

Figure 10. Bottom view, showing Section 4 test points. TP-1596E

PHILCO

DATA SHEET 227

ALIGNMENT DATA — CIRCUIT ON SHEET 222 — FURTHER DATA ON SHEETS 223 to 227

IF - 455 KC

1948-49

AUTO RADIO MODEL UN6-500

ALIGNMENT PROCEDURE

OUTPUT METER: Connect to the voice-coil lugs on the speaker.
SIGNAL GENERATOR: Connect the output lead as indicated in the chart below; connect the ground lead to the receiver chassis. Set the receiver volume control at maximum. Then adjust the signal-generator output to give a readable deflection on the output meter, using the meter range that best indicates small changes in output. Reduce the signal-generator output as alignment progresses, to prevent the meter needle from going off scale.

DIAL CALIBRATION: When the radio is re-installed in the car, the dial pointer must be set to coincide with the index dot at the low-frequency end of the dial, with the tuning condenser fully meshed.

NOTE: Instructions for setting up the automatic push-button tuning control may be found in the UN6-500 Operating and Installation Instructions, Philco Part No. 39-7842.

ALIGNMENT CHART

	SIGNAL GENERATOR		RECEIVER		
	Connections to Receiver	Dial Setting	Tuning-Condenser Setting	Special Instructions	Adjust Trimmers
1	Through .05 mf. to the antenna receptacle.	455 kc.	Fully meshed.	Preset C403A fully tight.	C403A (fully tight)
				Lock station-selector switch in "DIAL" position (see instructions at bottom of page 1); ground stator of oscillator section of gang. Adjust for maximum in given order; then repeat procedure.	C301B C301A C300B C300A
2	Same as 1.	455 kc.	Fully meshed.	Adjust for minimum; then remove ground from oscillator section of gang.	C403A
3	Through 30 mmf. in series with antenna lead, Philco Part No. 95-0185 to the antenna receptacle.	1580 kc.	Fully open.	Adjust for maximum.	C406A
4	Same as 3.	1400 kc.	Tune to maximum signal.	Adjust for maximum. Final adjustment must be made after radio has been re-installed in car with antenna connected.	C400-6
5	Same as 3.	580 kc.	Tune to maximum signal.	Adjust while rocking tuning gang.	C407
6	Same as 3.			Repeat steps 3, 4, and 5.	

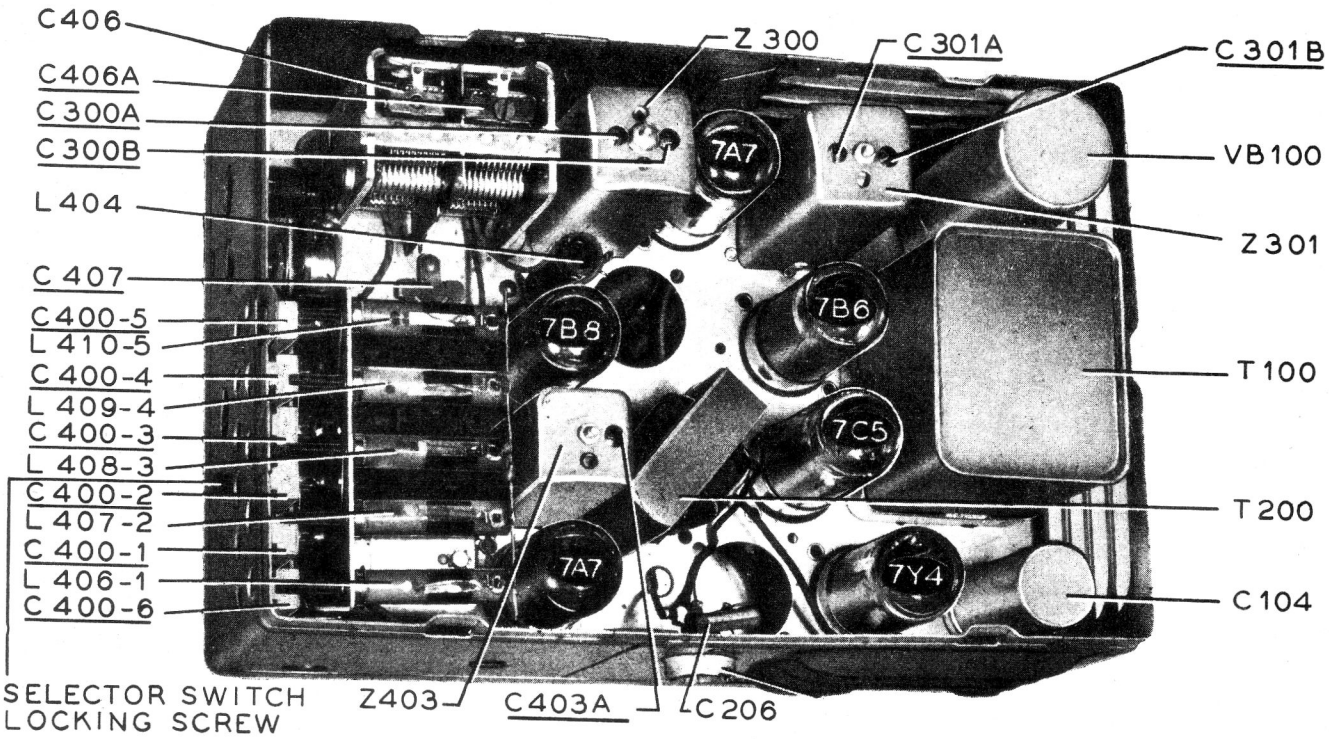

Figure 11. Top view, showing trimmer-condenser locations.

PHILCO DATA SHEET 228