

Figure 12. Complete schematic.

AUTO RADIO
MODEL UN-6-550

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, volt-ohmmeter, ammeter (0 to 30 amps., d.c.), 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 next check.

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

TESTS TO LOCALIZE TROUBLE TO ONE SECTION

| SECTION | T E S T | NORMAL RESULTS |
|---------|--|----------------------------------|
| 1 | Place ammeter in series with power source, and measure current drain of set. | Approximately 8.3 amps. |
| 2 | Apply audio signal between point 2 and chassis (C). | Loud, clear signal from speaker. |
| 3 | Apply weak, modulated 455-kc. signal between point 3 and C. | Loud, clear signal. |
| 4 | Apply weak, modulated, r-f signal (approx. 1000 kc.) between point 4 and C. Set selector switch to "DIAL",* and tuning cond. to half-meshed; tune sig. gen. 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 $\frac{1}{2}$ " 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.

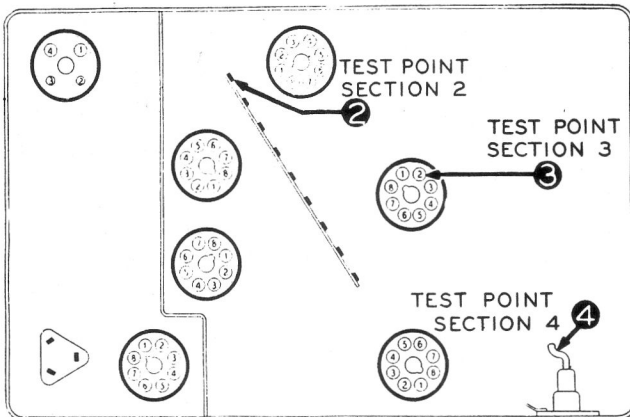


Figure 2. Bottom view, showing test points.

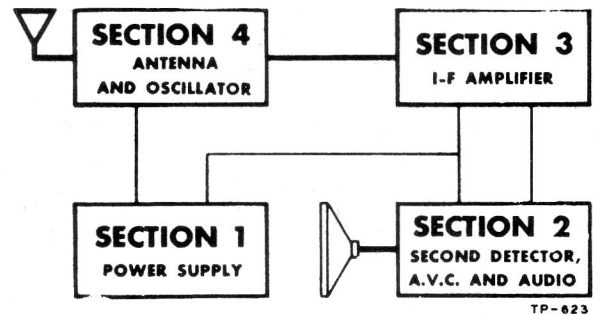


Figure 1. Block diagram
(Heavy lines indicate signal path)

CIRCUIT ON DATA SHEET 229
ALIGNMENT DATA ON SHEET 235
FURTHER DATA ON SHEETS 231 to 234



1948-49
AUTO RADIO
MODEL
UN 6-550

PHILCO

DATA SHEET 230

CIRCUIT DATA ON SHEET 229
ALIGNMENT DATA ON 235
FURTHER DATA ON SHEETS 230 to 234
1948-49 AUTO RADIO MODEL

TESTS TO ISOLATE TROUBLE WITHIN SECTION 1

With the exception of the first test, all measurements in this section should be made with a volt-ohmmeter, using the applicable d-c range. The voltages given were taken with the set operating and the volume control at minimum. See figures 3 and 4 for location of test points.

NOTE: If the 7Y4 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 |
|--------------------------------------|-------------------|--|
| Ammeter in series with power source. | 8.3 amps. | Excessively high or low current indicates defective VB100, T100, C103, or 7Y4. |
| A to C | 240 volts | Defective 7Y4, C104A, or C104B. |
| B to C | 220 volts | Defective R102, C104B, or C304 (see Section 3 for location). |

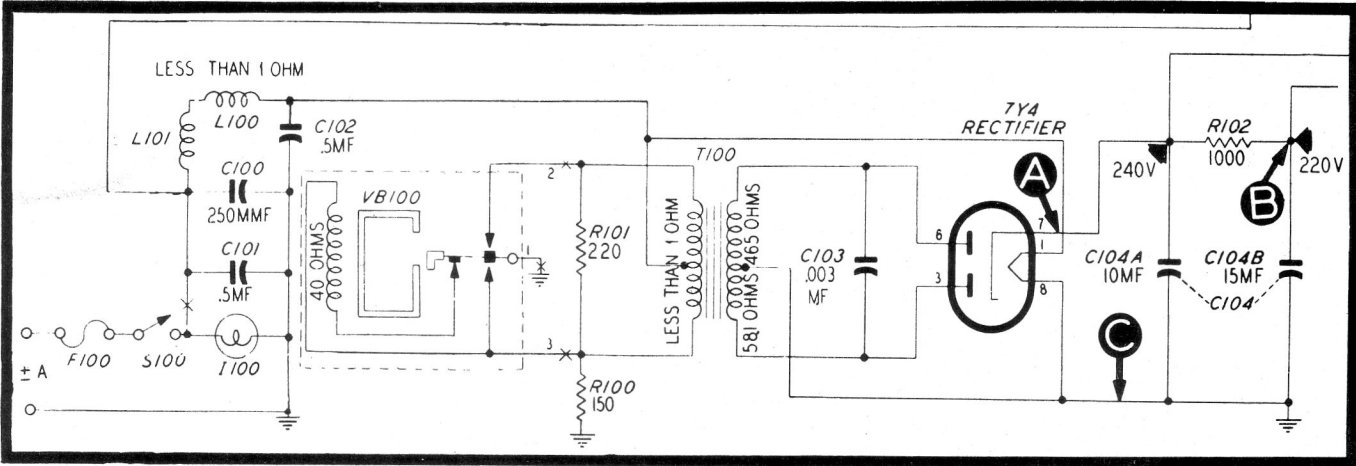


Figure 3. Section 1 schematic

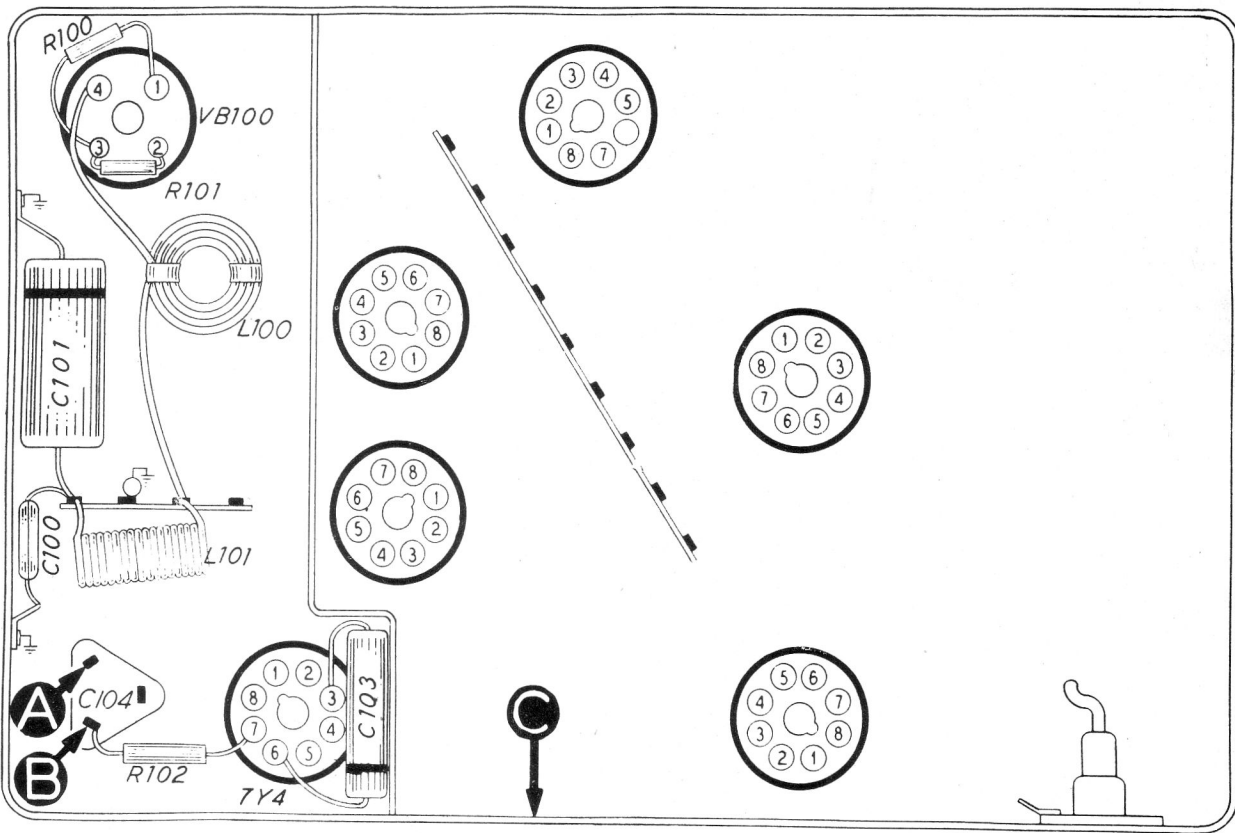


Figure 4. Bottom view, showing Section 1 test points.

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 (C). 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 |
|------------------------------------|--|---|
| D to C | Loud, clear signal from speaker. | Defective 7C5, T200, LS200, C207, C206, C204, or R206. |
| E to C | Loud, clear signal. | Open C204. |
| F to C (Short out C203) | Clear signal, noticeably louder than preceding test. | Defective 7B6, open R202, R203, R303, or shorted C202. |
| G to C (Remove short from C203) | Loud, clear signal. | Defective C201 or R200 (Rotate R200 through its entire range for complete check). |

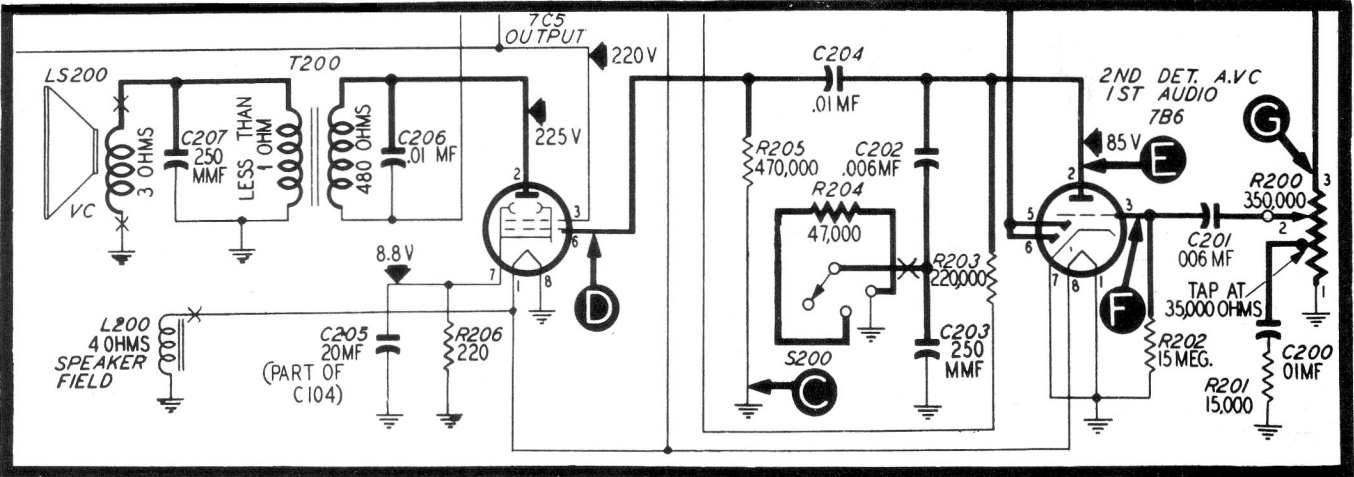


Figure 5. Section 2 schematic.

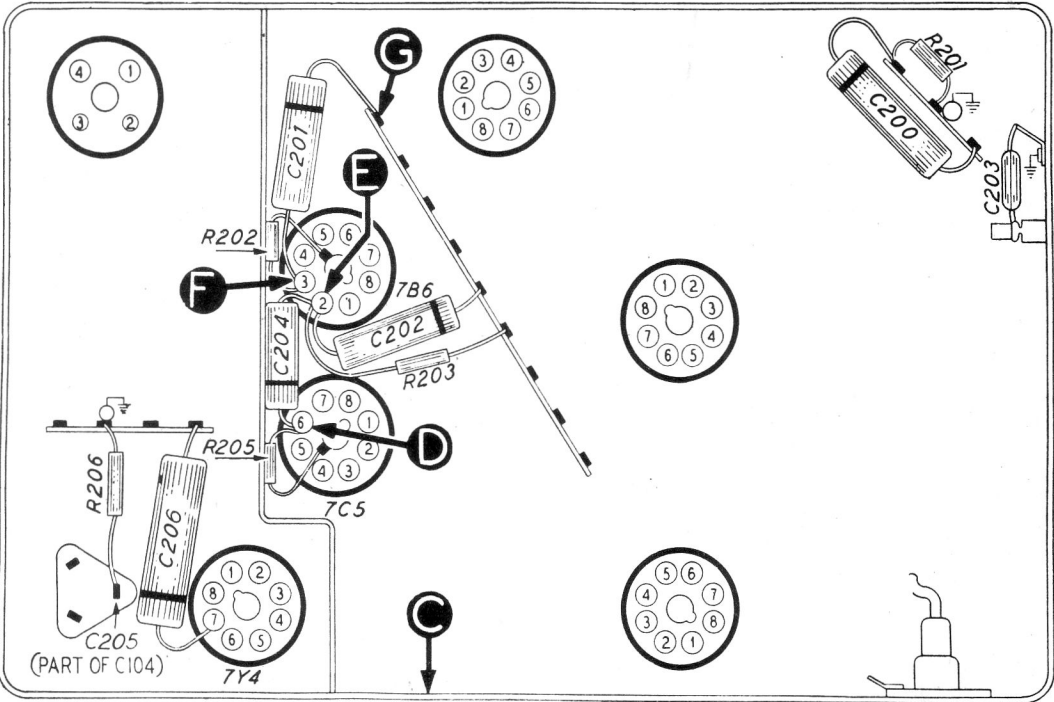


Figure 6. Bottom view, showing Section 2 test points.

1948-49 AUTO RADIO
MODEL
UN 6-550
CIRCUIT DATA ON SHEET 229
ALIGNMENT DATA ON SHEET 235
FURTHER DATA ON SHEETS 230 TO 234

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 .25 mf.) to the points indicated; connect the generator ground lead to the receiver chassis (C). 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 |
|-------------|----------------------------------|---|
| H to C | Loud, clear signal from speaker. | Defective 7A7, C302, C304, Z301, R301, or R303. |
| J to C | Loud, clear signal. | Defective Z300. |

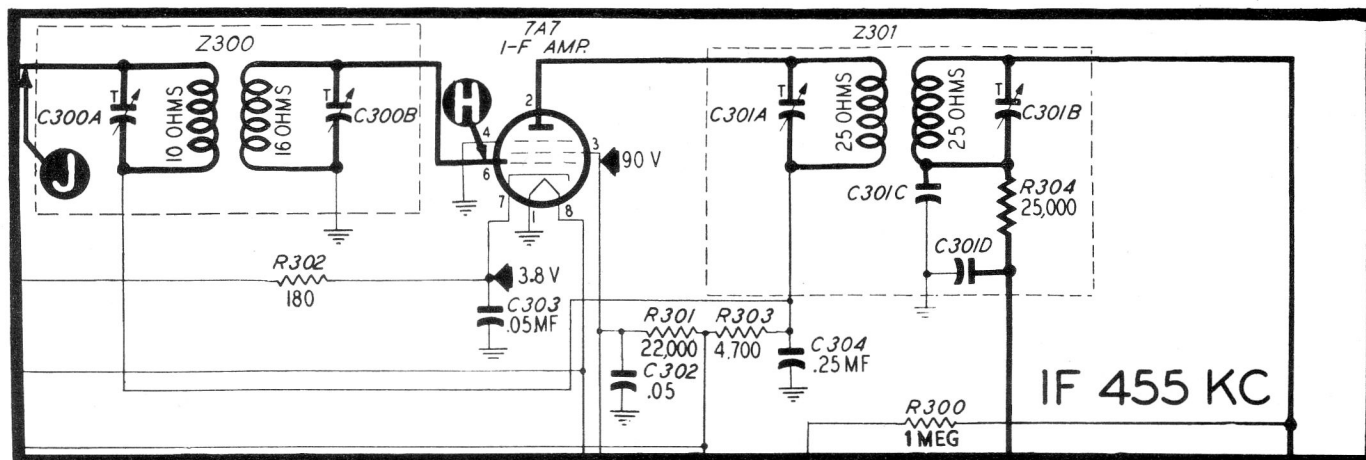


Figure 7. Section 3 schematic.

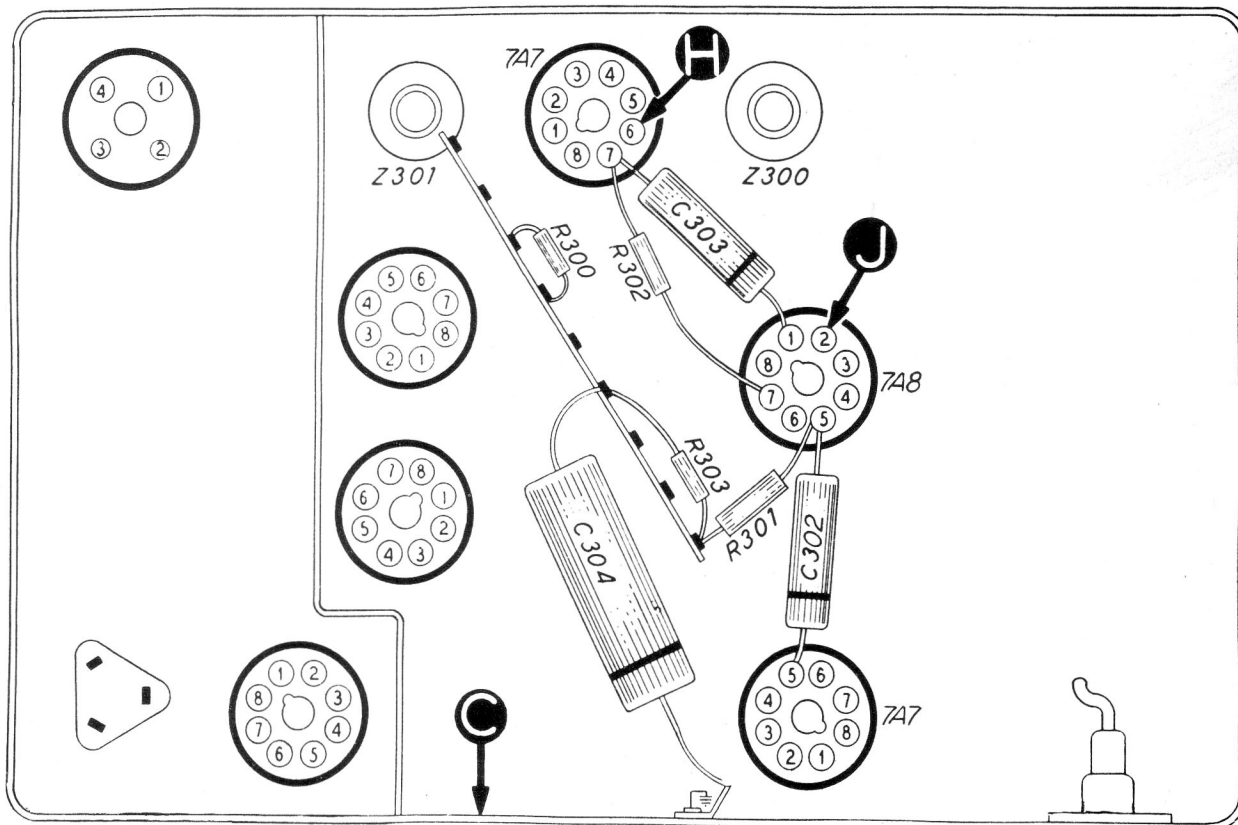


Figure 8. Bottom view, showing Section 3 test points.

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 P. 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. 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 |
|-------------------|--------------------------|---|
| K. to C (chassis) | Dial | Defective 7B8, R402, R405, L404, or S400B. |
| K to C | Automatic Positions 1—5. | Defective L406-1, L407-2, L408-3, L409-4, L410-5, or S400B. |
| L to C | Dial | Defective Z403. |
| M to C | Dial | Defective 7A7, R400, or R401. |
| N to C | Dial | Defective L401, L402, C401, C406, or S400B. |
| N to C | Automatic Positions 1—5. | Defective C400-1, C400-2, C400-3, C400-4, C400-5, or S400A. |

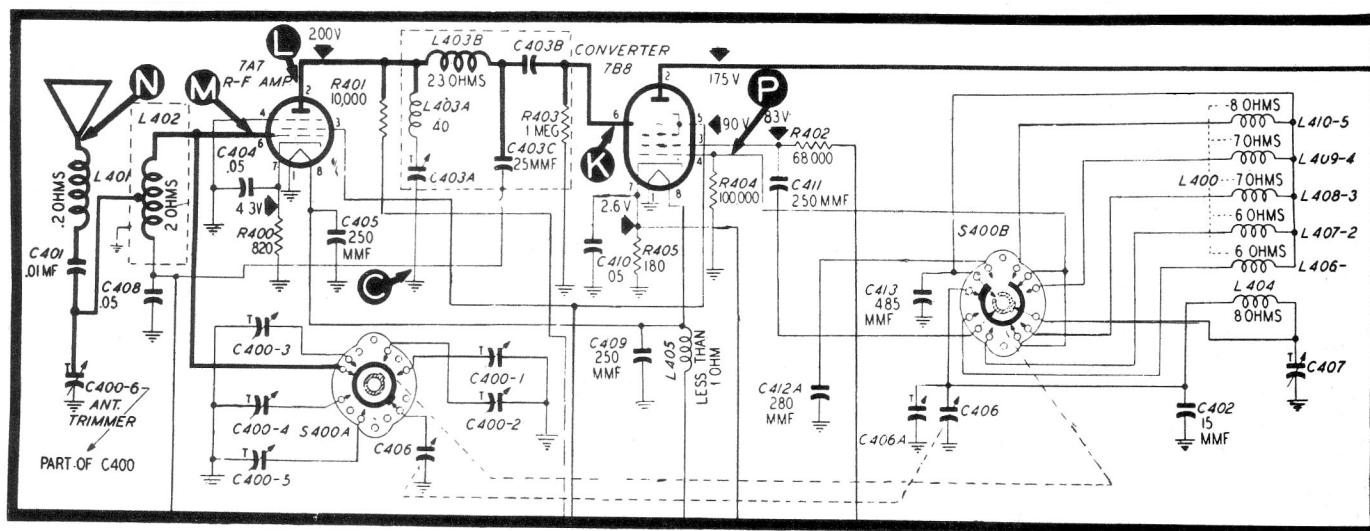


Figure 9. Section 4 schematic.

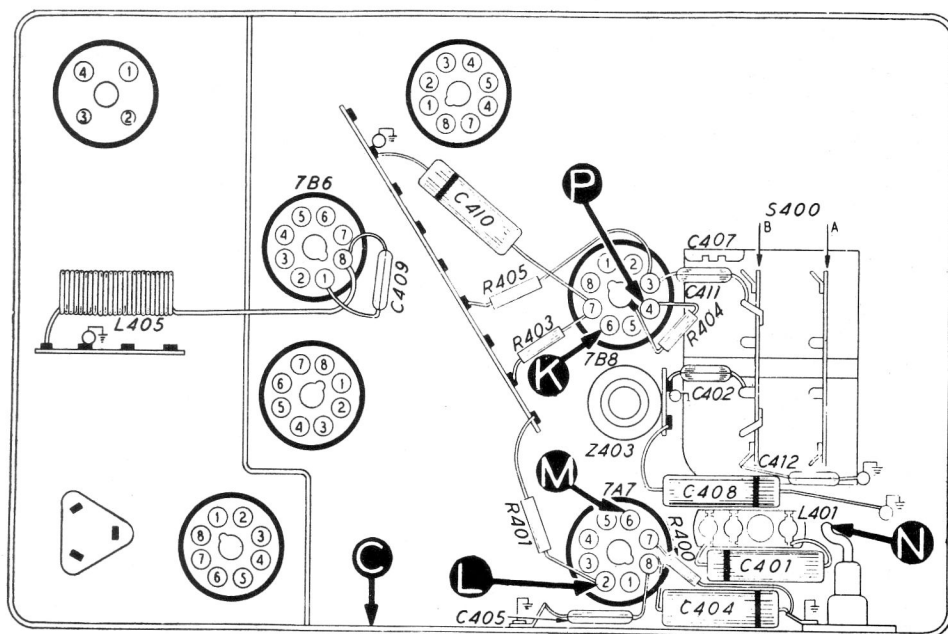


Figure 10. Bottom view, showing Section 4 test points.

AUTO RADIO
MODEL
UN 6-550

1948-49

CIRCUIT DATA ON SHEET 289
ALIGNMENT DATA ON SHEET 235
FURTHER DATA ON SHEETS 230+233

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. Adjust all trimmers listed for maximum output.

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 UN6-550 Operating and Installation Instructions, Philco Part No. 39-7882.

ALIGNMENT CHART

| | SIGNAL GENERATOR | | RECEIVER | | |
|---|--|--------------|--------------------------|---|---|
| | Connections to Receiver | Dial Setting | Tuning-Condenser Setting | Special Instructions | Adjust Trimmers |
| 1 | Through .05 mf. to pin 6 of the 7B8. | 455 kc. | Fully meshed. | Preset C403A fully tight. Lock station-selector switch in "DIAL" position; ground stator of oscillator section of gang. Adjust for maximum in given order; then repeat this procedure. | C403A (fully tight) 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 antenna connector. | 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. | C400A |
| 5 | Same as 3. | 580 kc. | Tune to maximum signal. | Adjust while rocking tuning gang. | C 407 |
| 6 | Same as 3. | | | Repeat steps 3, 4, and 5. | |

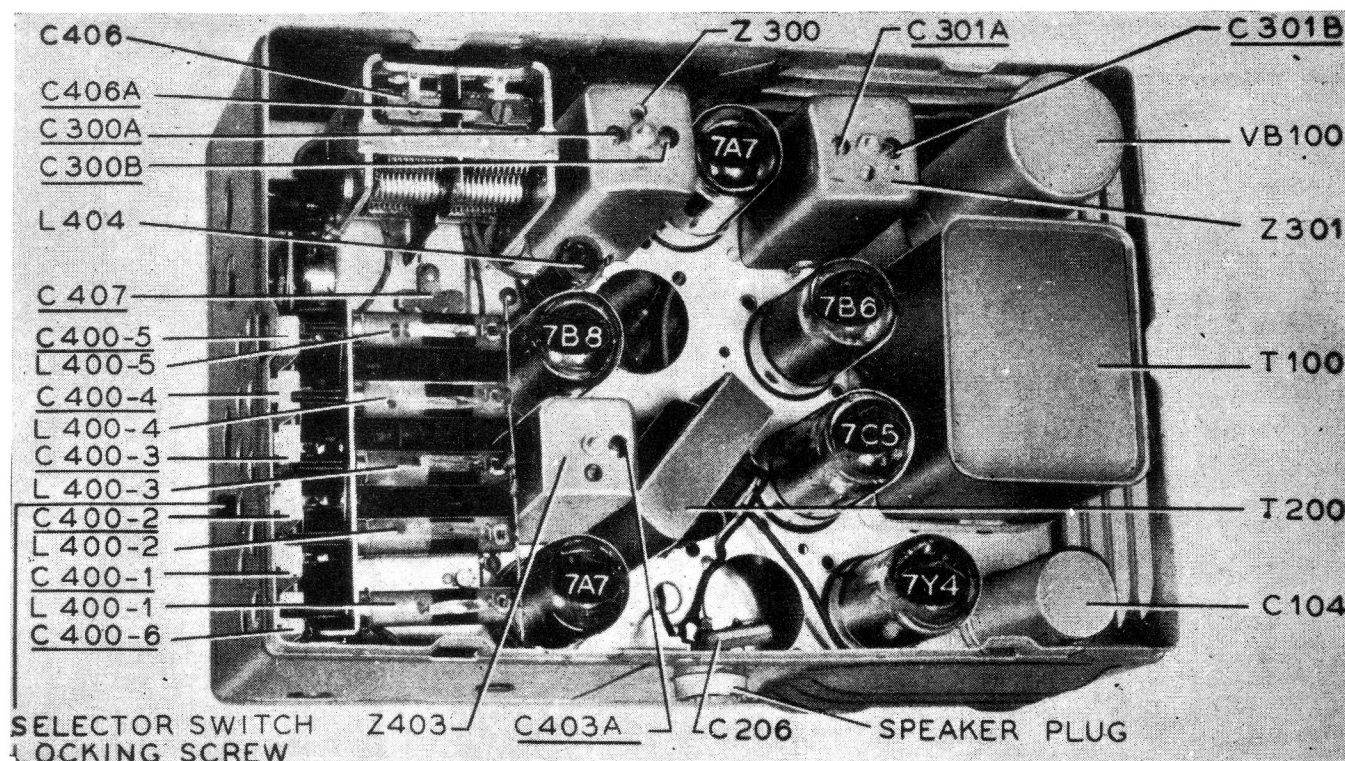


Figure 11. Top view, showing trimmer-condenser locations.