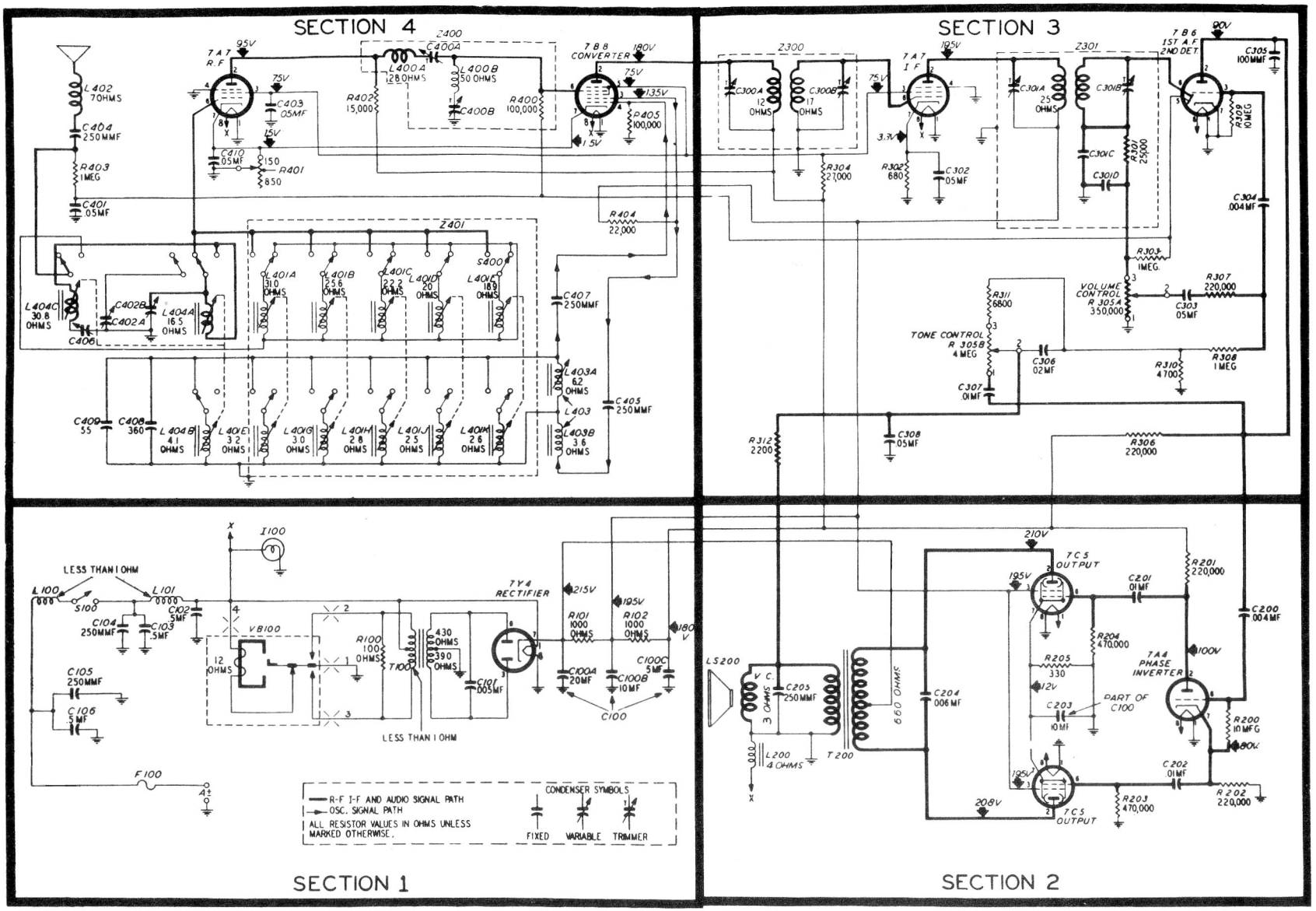


**Figure 10. Complete schematic.**

NOTE: All voltage, capacity, and resistance values shown are average. The voltages between B— (chassis) and other points indicated were measured with a 20,000 ohms-per-volt meter, with the volume control at minimum and the tuning controls at 550 kc.

FURTHER DATA ON SHEETS 188, 189, 190.

1948-49

IF = 460 KC.

# AUTO RADIO MODEL C-4608

PHILCO

MAKE TEST ★ FIRST
If the "NORMAL INDICATION" is obtained, proceed to the next section. If not, isolate and remedy the trouble in this section.

## TESTS TO ISOLATE TROUBLE WITHIN
# SECTION 1

With the exception of the first, make all measurements for this section with high-quality volt-ohmmeter, using the applicable d-c range. All voltages given in this manual are average, and were measured with the volume control set at minimum.

NOTE: If the vibrator (VB100) is found to be defective, check C101 and C100 for shorts before inserting a new vibrator.

| TEST POINTS | NORMAL INDICATION | POSSIBLE CAUSE OF ABNORMAL INDICATION |
|---|---|---|
| Ammeter (0-30 amps, d-c) in series with power source. | 9.2 amps | Defective power-supply components (Isolate by following tests) |
| A to B— | 215 volts | Defective 7Y4, VB100, C100, C101, T100. |
| C to B— | 195 volts | Open R101, leaky C100B, C100C. |
| D to B— | 180 volts | Open R102, leaky C100C. |

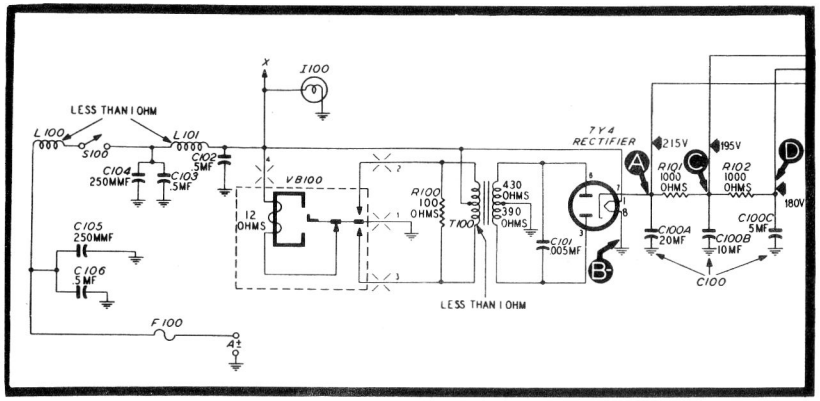


Figure 1. Section 1 schematic.

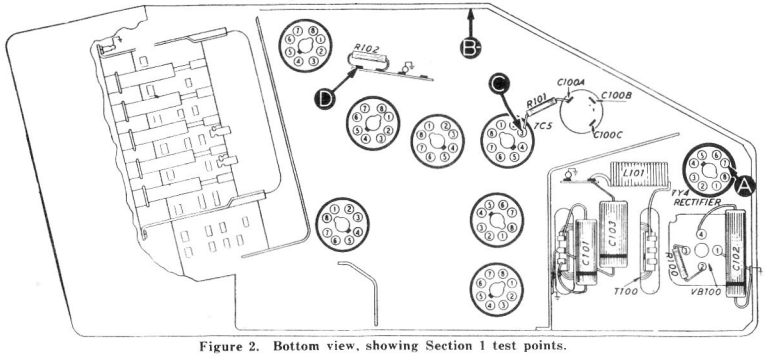


Figure 2. Bottom view, showing Section 1 test points.

MAKE TEST ★ FIRST
If the "NORMAL INDICATION" is obtained, proceed to the next section. If not, isolate and remedy the trouble in this section.

## TESTS TO ISOLATE TROUBLE WITHIN
# SECTION 2

For all tests in this section, use an audio signal. Connect the generator output lead through a condenser (.01 to .25 mf.) to the test 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 on the first test.

| TEST POINTS | NORMAL INDICATION | POSSIBLE CAUSE OF ABNORMAL INDICATION |
|---|---|---|
| E to B— (Remove 7A4) | Loud, clear signal from speaker. | Defective 7C5, T200, LS200; open R205; leaky C201. |
| F to B— (7A4 removed) | Loud, clear signal same as previous test. | Defective 7C5, T200; leaky C202. |
| G to B— (7A4 removed) | Loud, clear signal. | Open C201. |
| H to B— (7A4 removed) | Loud, clear signal. | Open C202. |
| J to B— (Replace 7A4) | Clear signal, louder than previous tests. | Defective 7A4, C200; open R202, R201. |

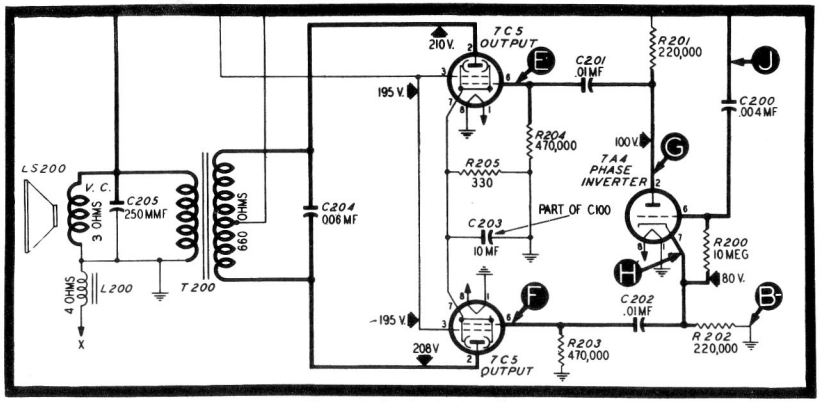


Figure 3. Section 2 schematic.

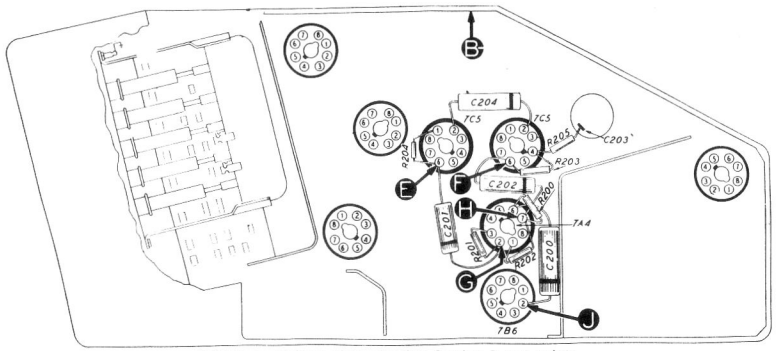


Figure 4. Bottom view, showing Section 2 test points.

### PHILCO TROUBLE-SHOOTING PROCEDURE

In this manual, the circuit is divided into four sections, with a schematic and chassis layout, showing test points, for each section. The trouble-shooting procedure for each section is outlined in a chart. Tests indicated by a large asterisk (*) provide sectional master checks, making it possible to eliminate each section as a source of trouble without going through its entire test chart. Wherever trouble is found (indicated by failure to get a "Normal Indication" on any test) it should be isolated by voltage and resistance checks of the parts associated with the point under test, and remedied before testing further.

All components in the receiver circuit are symbolized and located as follows:

C—condenser LS—loud speaker T—transformer
I—pilot lamp R—resistor VB—vibrator
L—choke or coil S—switch Z—electrical assembly

100-series components are in section 1—the power supply.
200-series components are in section 2—the audio system.
300-series components are in section 3—the i-f and second detector.
400-series components are in section 4—the r-f and first detector.

Before starting the trouble-shooting procedure, the following steps are recommended:

1. Before connecting the receiver to a source of power, inspect both sides of the chassis. Make sure that all tubes are securely in their sockets, and look for any broken or shorted connections, burned resistors, or other obvious sources of trouble.

2. Connect the receiver to the power source (6.3 volts, d.c.), and ascertain that all the tube filaments are lighted. If the 7Y4 rectifier is observed to be defective, check the filter condensers (C100 A, B, and C) for short circuits before inserting a new tube.

3. Turn the volume control fully on and set the sensitivity control (shown in figure 9, page 6) at maximum. Connect an antenna or a signal generator to the antenna receptacle, and ascertain that the receiver definitely does not operate properly.

NOTE: Further information on the C4608, covering installation, setting-up of push-buttons, and operating instructions, will be found in the Owner's Manual for this model—Philco Part No. 39-7913, or Chrysler Part No. D11049.

IF = 460 KC
1948-49
FURTHER DATA ON SHEETS 187, 189, 190.

AUTO RADIO MODEL
C-4608

PHILCO DATA SHEET 188

MAKE TEST ★ FIRST
If the "NORMAL INDICATION" is obtained, proceed to the next section. If not, isolate and remedy the trouble in this section.

## TESTS TO ISOLATE TROUBLE WITHIN
# SECTION 3

For the first two tests in this section, use an audio signal. For the last two, use a modulated 460-kc. signal. Connect the signal-generator output lead through a condenser (.01 to .25 mf.) to the test 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 on the first test.

| TEST POINTS | NORMAL INDICATION | POSSIBLE CAUSE OF ABNORMAL INDICATION |
|---|---|---|
| K to B— (audio sig.) | Loud, clear signal. | Defective 7B6; open R306, C304; shorted C305. |
| L to B— (audio sig.) | Loud, clear signal. | Open R307, C303; defective volume control (rotate through entire range for complete check.) |
| ★ M to B— (460-kc. sig.) | Loud, clear signal. | Defective 7A7, Z301; open R302, R304; shorted C403 (see Section 4 for location.) |
| N to B— (460-kc. sig.) | Loud, clear signal. | Defective Z300. |

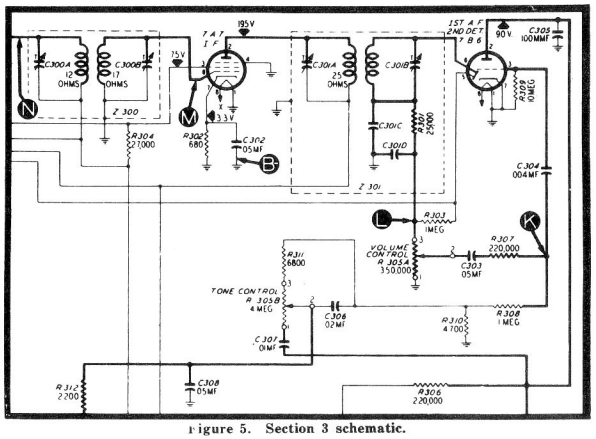

Figure 5. Section 3 schematic.

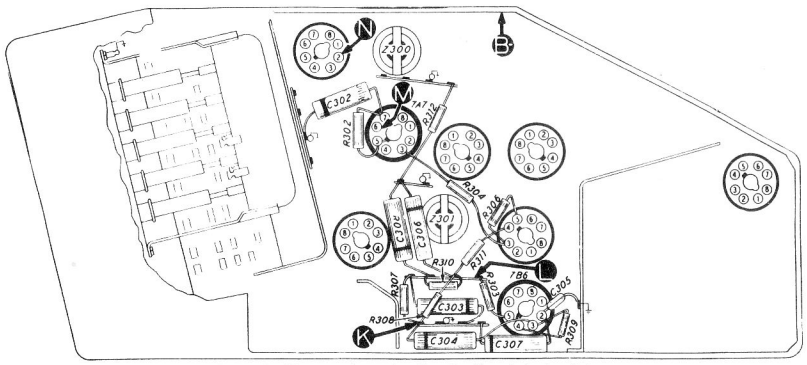

Figure 6. Bottom view, showing Section 3 test points.

## TESTS TO ISOLATE TROUBLE WITHIN
# SECTION 4

MAKE TEST ★ FIRST
If the "NORMAL INDICATION" is not obtained, isolate and remedy the trouble in this section.

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 S. Set the meter on a 10-volt or similar range. Depress the "Dial" push-button, and rotate the tuning control through its entire range. Absence of voltage at any point indicates that the oscillator is not functioning. If so, check the components listed in the first test in the chart below.

2. Set the volume and sensitivity controls at maximum. Proceed through the chart tests below, connecting the signal-generator output lead through a condenser (.01 to .25 mf.) to test points indicated. The "NORMAL INDICATION" in each test will be a loud, clear signal when the signal generator is tuned to the same frequency as the receiver.

| TEST POINTS | PUSH-BUTTON SETTING | POSSIBLE CAUSE OF ABNORMAL INDICATION |
|---|---|---|
| P to B— | "DIAL" | Defective 7B8, L403, L404A, or push-button switch; open R404, C405, C407, C408, C409. |
| P to B— | pre-tuned, 1 to 5 | Defective oscillator coils L401E to K, or push-button switches. |
| Q to B— | "DIAL" | Defective 7A7, Z400, L404A, L404C, or push-button switch; open R402, R401 (rotate R401 through its entire range for complete check.) |
| Q to B— | pre-tuned, 1 to 5 | Defective r-f coils L401 A to E, or push-button switches. |
| ★ R to B— | "DIAL" | Defective L402, C404, L404A, L404C, or push-button switch. |
| R to B— | pre-tuned, 1 to 5 | Defective r-f coils L401A to E, or push-button switches. |

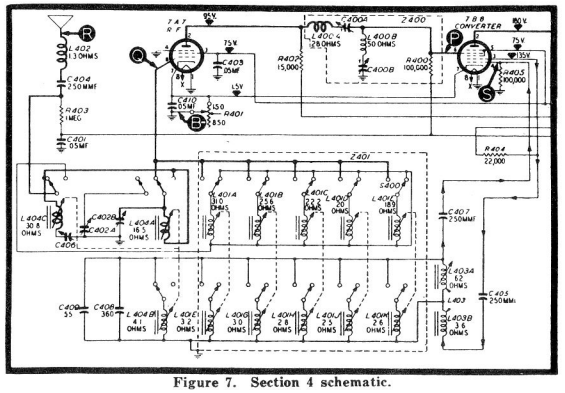

Figure 7. Section 4 schematic.

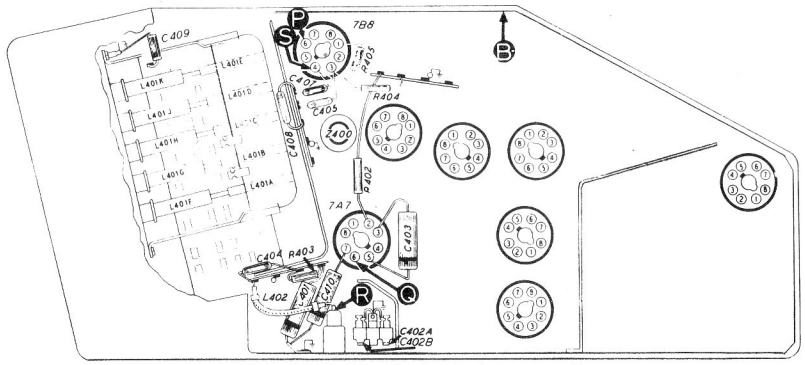

Figure 8. Bottom view, showing Section 4 test points.

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FURTHER DATA ON SHEETS 187 188 190

IF.= 460 KC.

# AUTO RADIO MODEL C-4608

PHILCO DATA SHEET 189

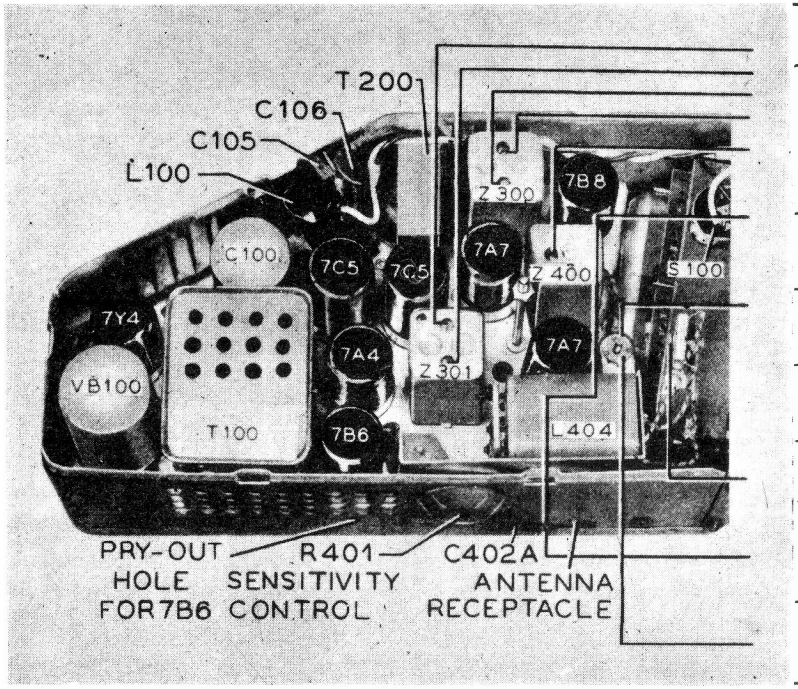
# ALIGNMENT PROCEDURE

CONNECT THE OUTPUT METER between the voice-coil lug on the speaker and ground.

CONNECT THE SIGNAL-GENERATOR output lead as follows: For the i-f alignment (the first step in the chart), connect through a 20-mmf. condenser to pin 6 of the 7B8 converter. For the r-f alignment (all steps after the first), connect through a 20-mmf. condenser in series with an antenna lead (Part No. 95-0181) to the antenna receptacle. If the antenna lead is not available, connect a 30-mmf. condenser from the antenna receptacle to ground.

CALIBRATE THE DIAL as follows: Turn the tuning control to its maximum clockwise position. The pointer should then be at 1600 kc. If not, insert a stiff rod 2¼" into the small hole on the left side of the control head, near the number 8 on the dial scale. Rotate the tuning control until the pointer mechanism is stopped by the rod, and continue rotating the control for a fraction of a turn, to slide the pointer mechanism a short distance along the drive cord. Repeat this operation until the pointer coincides with the 1600-kc. mark on the dial when the tuning control is fully clockwise.

SET THE RECEIVER CONTROLS as follows: Set the tone control at "VOICE" (maximum high position). Set the volume and sensitivity controls at maximum. Adjust the signal-generator output as alignment progresses to keep the meter needle near center scale.




| ADJUST IN ORDER | SPECIAL INSTRUCTIONS | DIAL SETTINGS SIG. GEN. | DIAL SETTINGS RECEIVER |
|---|---|---|---|
| C301B Max.<br>C301A Max.<br>C300B Max.<br>C300A Max.<br>C400B Min. | Ground pin 4 of the 7B8. Adjust the i-f trimmers for maximum in the order listed. Then adjust the i-f trap condenser (C400B) for minimum output. | 460 kc. | 1600 kc. |
| C402B Max. | Remove the ground from pin 4 of the 7B8. Adjust for maximum output. | 1500 kc. | 1500 kc. |
| L403A Max. | Adjust for overall maximum while rocking the tuning control. | 580 kc. | 580 kc. |
| | Tune the receiver for maximum output with the tuning control set at 550 kc. | 550 kc. | 550 kc. (approx.) |
| C406 Min. | Adjust for minimum output. | 1460 kc. | 550 kc. |
| C402B Max. | Adjust for maximum output. Final adjustment to be made after re-installing the set in the car. | 1500 kc. | Tune in 1500 kc. signal |
| L403A Max. | Adjust for overall maximum while rocking the tuning control. | 580 kc. | 580 kc. |

Figure 9. Chassis view, showing trimmer locations.

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IF. = 460 KC.

FURTHER DATA ON SHEETS 187, 188, 189.

AUTO RADIO MODEL C 4608

DATA SHEET 190

PHILCO