

PHILCO RADIO MODELS 48-460 and 48-460-1



MODEL 48-460 (Brown)
MODEL 48-460-1 (Ivory)

SPECIFICATIONS

CABINET

Model 48-460 Plastic, brown

Model 48-460-1 Plastic, ivory
CIRCUIT 6-tube superheterodyne
FREQUENCY RANGE 540—1620 kc.
AUDIO OUTPUT 1 watt
OPERATING VOLTAGE 105—120 volts, a.c. or d.c.
POWER CONSUMPTION 30 watts
AERIAL... Built-in loop; terminal also provided for external aerial
INTERMEDIATE FREQUENCY 455 kc.
PHILCO TUBES (6) 14AF7, 7B7 (2), 7C6, 50L6GT, 35Y4

TP-3184A

SYMBOLIZATION

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 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.

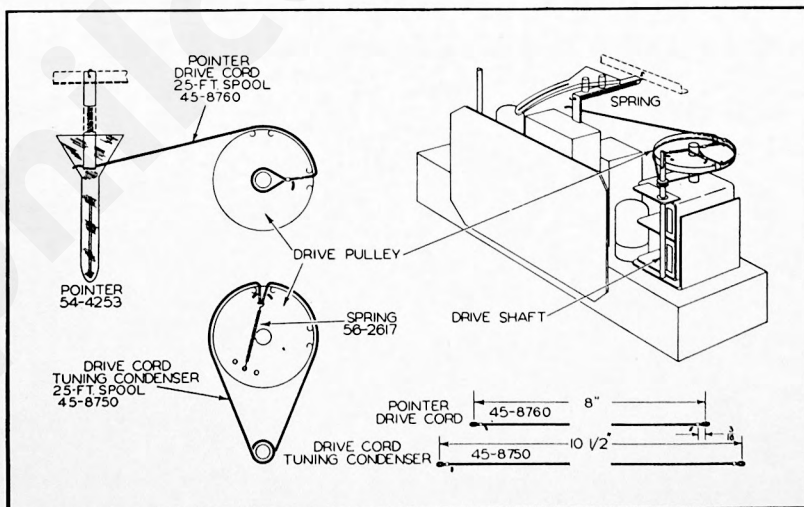


Figure 1. Drive-Cord Installation Details

TP-4060E

ALIGNMENT PROCEDURE

SET RADIO VOLUME CONTROL TO MAXIMUM

SIGNAL GENERATOR—Connect as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, adjust signal-generator output to maintain an output-meter indication below 1.25 volts.

| STEP | SIGNAL GENERATOR | | RADIO | | ADJUST |
|------|---|--------------|--------------|---|----------------------------------|
| | CONNECTIONS TO RADIO | DIAL SETTING | DIAL SETTING | SPECIAL INSTRUCTIONS | |
| 1 | | | | Turn C300B down tight. | |
| 2 | (Chassis out of cabinet). Ground lead to B-; output lead through .1 mf. condenser to Pin #5 of 14AF7 | 455 kc. | 540 kc. | Adjust trimmers, in the order given for maximum output. | C301B C301A C300B C300A |
| 3 | (Chassis in cabinet). Radiating loop. (See note below.) | 1600 kc. | 1600 kc. | Adjust for maximum output. | C400B |
| 4 | Same as step 3. | 1500 kc. | 1500 kc. | Adjust for maximum output. | C400A |

RADIATING LOOP: Make up a six-to-eight-turn, 6-inch-diameter loop, using insulated wire; connect to signal-generator leads and place near radio loop.

DIAL POINTER—Turn tuning condensers to full-mesh position. Adjust dial pointer to coincide with index dot, located to left of "55."

OUTPUT METER—Connect to left-hand (output) and center (chassis) lug of terminal panel, shown in Figure 3.

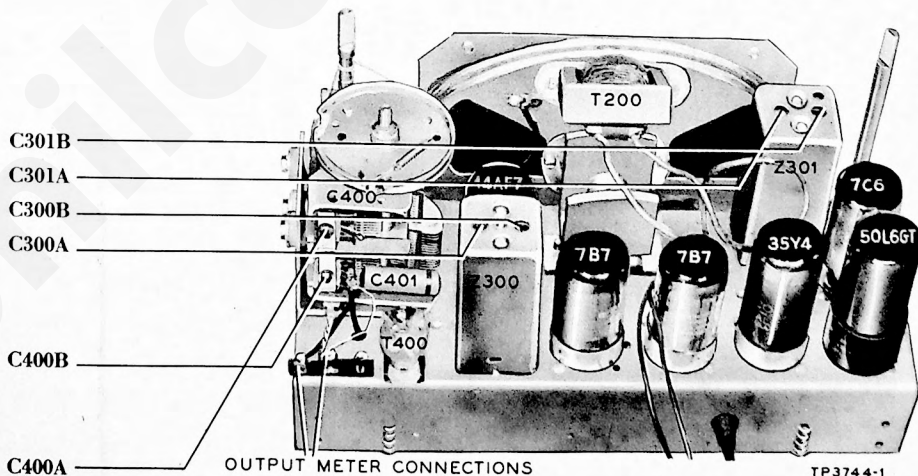


Figure 3. Top View, Showing Trimmer Locations

REPLACEMENT PARTS LIST

NOTE

Part numbers marked with an asterisk (*) are general replacement items. These numbers may not be identical with those on factory assemblies; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the radio will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

SECTION 1

| Reference Symbol | Description | Service Part No. |
|------------------|------------------------------------|------------------|
| C100 | Condenser, electrolytic, 3-section | 30-2540-1 |
| C100A | Condenser, filter, 30 mf. | Part of C100 |
| C100B | Condenser, filter, 25 mf. | Part of C100 |
| C100C | Condenser, filter, 20 mf. | Part of C100 |
| C101 | Condenser, line filter, .04 mf. | 45-3500-2* |
| I100 | Panel lamp | 34-2068 |
| R100 | Resistor, filter, 220 ohms | 66-1224340 |
| R101 | Resistor, filter, 1200 ohms | 66-2123340 |
| R102 | Resistor, leakage, 150,000 ohms | 66-4153340* |
| S100 | Switch, a-c power | Part of R200 |
| W100 | Power cord and plug | L3199 |

SECTION 2

| | | |
|-------|--|---------------|
| C200 | Condenser, coupling, .01 mf. | 61-0120* |
| C201 | Condenser, coupling, .01 mf. | 61-0120* |
| C202 | Condenser, by-pass, 220 mmf. | 62-122001001 |
| C203 | Condenser, plate, .02 mf. | 61-0108* |
| LS200 | Loud-speaker | 36-1615 |
| R200 | Volume control (with a-c power switch) | 33-5491 |
| R201 | Resistor, grid load, 3.3 megohms | 66-5333340* |
| R202 | Resistor, plate load, 470,000 ohms | 66-4473340* |
| R203 | Resistor, grid leak, 470,000 ohms | 66-4473340* |
| R204 | Resistor, bias, 130 ohms | 66-1123340* |
| T200 | Transformer, output | Part of LS200 |

SECTION 3

| | | |
|-------|--|---------------|
| C300A | Condenser, trimmer | Part of Z300 |
| C300B | Condenser, trimmer | Part of Z300 |
| C301A | Condenser, trimmer | Part of Z301 |
| C301B | Condenser, trimmer | Part of Z301 |
| C301C | Condenser, i-f by-pass | Part of Z301 |
| C301D | Condenser, i-f by-pass | Part of Z301 |
| C302 | Condenser, by-pass, .003 mf. | 61-0109* |
| C303 | Condenser, coupling, 220 mmf. | 62-122001001* |
| C304 | | |
| C305 | | |
| C306 | Condenser, screen by-pass, .05 mf. | 61-0122* |
| C307 | Condenser, a-v-c by-pass, .05 mf. | 61-0122* |
| R300 | Resistor, dropping, 2200 ohms | 66-2223340 |
| R301 | Resistor, plate load, 15,000 ohms | 66-3153340 |
| R302 | Resistor (code 121), grid load, 470,000 ohms | 66-4473340* |
| R302 | | |
| R303 | Resistor, screen, 33,000 ohms | 66-3333340* |
| R304 | Resistor, a-v-c, 2.2 megohms | 66-5223340* |

SECTION 3 (Continued)

| Reference Symbol | Description | Service Part No. |
|------------------|---|------------------|
| R305 | Resistor, diode load, 47,000 ohms | 66-3473340 |
| Z300 | Transformer, 1st i-f, including C300A and C300B | 32-4151 |
| Z301 | Transformer, 2nd i-f, including C301A, C301B, C301C and C301D | 32-4152 |

SECTION 4

| | | |
|-------|--|---------------|
| C400 | | |
| C400A | Condenser, trimmer | Part of C400 |
| C400B | Condenser, trimmer | Part of C400 |
| C401 | Condenser, series blocking, .0015 mf. | 45-3500-6* |
| C402 | Condenser, isolating, .04 mf. | 45-3500-2* |
| C403 | Condenser, coupling, 470 mmf. | 62-147001001* |
| C404 | Condenser, osc. grid, 100 mmf. | 60-10105407* |
| C405 | Condenser, osc. plate, 220 mmf. | 62-122001001* |
| C406 | Condenser, by-pass, .05 mf. | 61-0122* |
| C407 | | |
| L400 | Coil, oscillator | 32-4153 |
| LA400 | | |
| R400 | Resistor, oscillator grid, 47,000 ohms | 66-3473340* |
| R401 | Resistor, bias, 2200 ohms | 66-2223340 |
| R402 | Resistor, dropping, 10,000 ohms | 66-3103340* |
| R403 | Resistor, grid, 2.2 megohms | 66-5223340* |
| T400 | Transformer, aerial | 32-3394 |

MISCELLANEOUS

| Description | Service Part No. |
|---|------------------|
| Cabinet (less scale) | |
| Model 48-460 | 10629B |
| Model 48-460-I | 10629C |
| Back, cabinet | |
| Model 48-460 | 54-7096 |
| Model 48-460-I | 54-7097 |
| Clip, dial-scale mounting | 56-3290 |
| Fastener, cabinet back | 56-2726 |
| Pointer | 54-4253 |
| Scale, dial | 27-5916 |
| Clip, coil mounting | 28-5002FCP |
| Cord, pointer drive (25-ft. spool) | 45-8760* |
| Cord, tuning-condenser drive (25-ft. spool) | 45-8750 |
| Knob | 54-4218 |
| Socket assembly, panel lamp | 76-1981 |
| Socket, Loktal | 27-6138 |
| Socket, octal | 27-6174 |
| Speed nut | 1W56919FE7 |
| Spring, tuning-condenser drive cord | 56-2617 |

**REVISIONS AND ADDITIONS TO 48-460 AND 48-460-I
SERVICE MANUAL**

| Reference Symbol | Description | Service Part No. |
|-------------------------------|--|------------------|
| Parts List Additions | | |
| | Bracket assembly, pointer | 76-1654-2 |
| | Shield, 7C6 tube | 56-2731 |
| | NOTE: This shield was added, to help eliminate harmonic whistle. | |
| | Spring, pointer | 56-3059 |
| Parts List Corrections | | |
| C304 | Condenser, special i-f filter, .2 mf. | 30-4644 |
| C305 | Not used. | |
| R302 | Resistor, grid load, 150,000 ohms | 66-4153340* |
| C400 | Condenser, tuning (Code 121), 2-section | 31-2636-1 |
| C400 | Condenser, tuning (Code 122), 2-section | 31-2737 |
| C407 | Not used. | |
| LA400 | Loop aerial (Code 121) | 32-4052-7 |
| LA400 | Loop aerial (Code 122) | 32-4052-14 |

PRODUCTION CHANGES

Code 122, Run 2

The wiring of C202 was changed to go from lug 5 (grid) to lug 8 (cathode) of the 50L6GT socket.