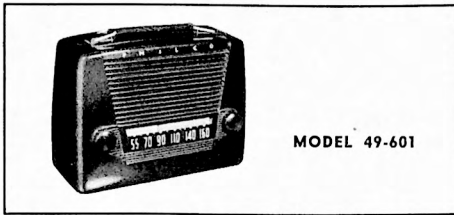


PHILCO RADIO MODEL 49-601



MODEL 49-601

- CIRCUITFour-tube superheterodyne
- FREQUENCY RANGE...540—1600 kc.
- AUDIO OUTPUT160 milliwatts
- OPERATING VOLTAGES“B”; 90 volts; “A”, 7.5 volts
- POWER CONSUMPTION“B”, 13 ma. at 90 volts; “A”, 50 ma. at 7.5 volts
- AERIALBuilt-in high-impedance loop; terminal also provided for external aerial
- INTERMEDIATE FREQUENCY455 kc.
- PHILCO TUBES (4)1R5, 1T4, 1U5, 3V4
- BATTERY TYPEPhilco P-361

SPECIFICATIONS

CABINETMolded Polystyrene (maroon, tan, ivory, or green)

TP-4523

CALIBRATING DIAL BACKPLATE

When the radio chassis has been removed from the cabinet, dial calibration and alignment points may be marked on the dial (chassis) backplate at the end of the pointer with a pencil. The method of measuring for these points is illustrated in figure 1.

With the tuning gang fully meshed, the pointer should be adjusted on the dial-drive cord to coincide with the index mark.

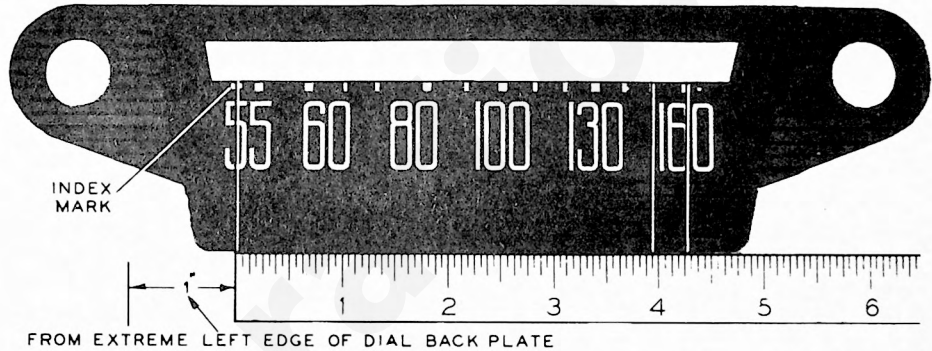


Figure 1. Dial-Backplate Calibration Measurements

TP-5776

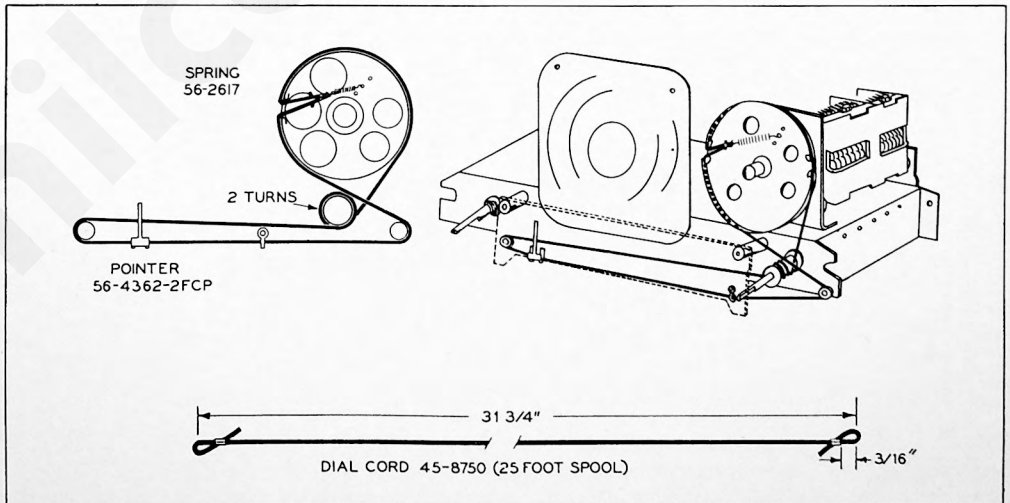


Figure 2. Drive-Cord Installation Details

TP-5354E

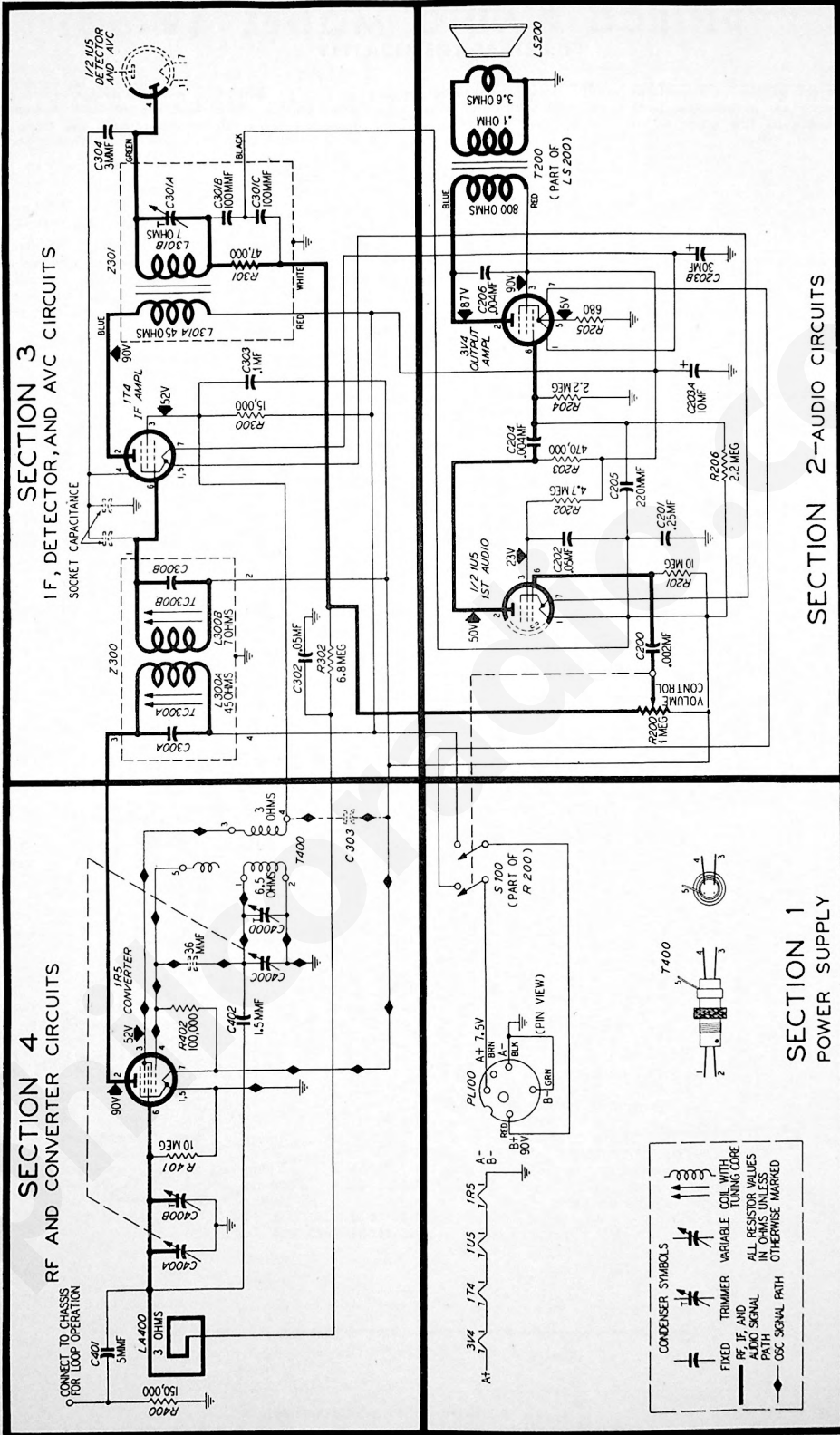


Figure 3. Philco Model 49-601, Sectionalized Schematic Diagram.

OSCILLATOR TEST: Connect the positive lead of a high-resistance voltmeter to the chassis, test point C; connect the negative lead through a 100,000-ohm isolating resistor to the oscillator grid (pin 4 of the 1R5), test point D. Use a suitable meter range, such as 0-10 volts. Proper operation of the oscillator is indicated by negative voltage within the range given in the chart (measured with a 25,000-ohm-impedance meter) throughout the tuning range.

ALIGNMENT PROCEDURE

DIAL—Calibration and pointer-index measurements are shown in figure 1. With tuning condenser fully meshed, set pointer to index mark.

RADIO CONTROLS—Set volume control to maximum.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Use modulated output.

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Ground lead to chassis. Positive lead through .05-mf. condenser to external-aerial lead. Make sure that radio loop aerial is connected to radio.	455 kc.	Tuning condenser fully meshed.	Adjust, in order given, for maximum output.	C301A—2nd i-f sec. TC300B—1st i-f sec. TC300A—1st i-f pri.
2	Radiating loop (see note below).	1600 kc.	1600 kc.	Adjust for maximum output.	C400D—osc.
3	Same as step 2.	1500 kc.	1500 kc.	Adjust for maximum output while rocking tuning condenser.	C400B—aerial

RADIATING LOOP: Make up a 6—8-turn, 6-inch-diameter loop, using insulated wire; connect to signal-generator leads and place near radio loop aerial. Make sure that radio loop aerial is connected to radio.

OUTPUT LEVEL—During alignment, adjust signal-generator output to maintain output-meter indication below .5 volt.

SPECIAL NOTE—The orientation of the loop with respect to the chassis is critical for correct tracking. During alignment, with the cabinet back (containing the loop) laid down on the bench, the chassis should be laid on its back, in approximately its normal relation to the loop.

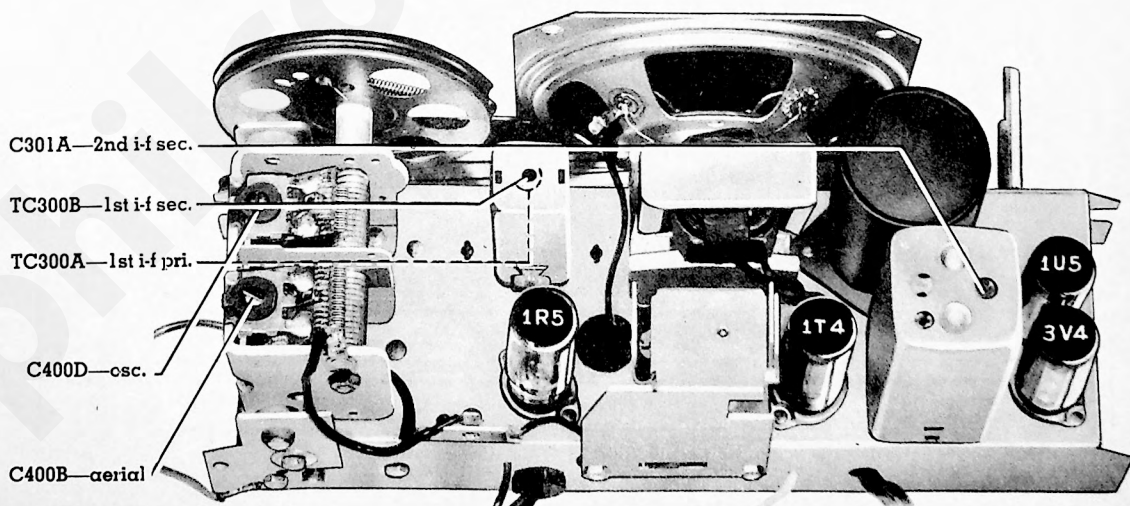


Figure 4. Top View, Showing Trimmer Locations
309

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

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, detector, and a-v-c circuits.
- 400-series components are in Section 4—the r-f and converter circuits.

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

REPLACEMENT PARTS LIST

NOTE: Part numbers identified by 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 I
POWER SUPPLY**

Reference Symbol	Description	Service Part No.
PL100	Battery-cable-and-plug assembly	41-3712-3
S100	Switch, on-off	Part of 33-5538-28

**SECTION II
AUDIO CIRCUITS**

C200	Condenser, d-c blocking, .002 mf.	61-0162*
C201	Condenser, filament by-pass, .25 mf.	61-0125*
C202	Condenser, screen by-pass, .05 mf.	61-0122*
C203	Condenser, electrolytic, 2-section	30-2575-21
C203A	Condenser, by-pass, 10 mf.	Part of C203
C203B	Condenser, filament by-pass, 30 mf.	Part of C203
C204	Condenser, d-c blocking, .004 mf.	61-0179*
C205	Condenser, r-f by-pass, 220 mmf.	62-122001001*
C206	Condenser, tone compensation, .004 mf.	61-0179*
LS200	Loud-speaker, p-m	36-1627-1
R200	Volume control, 1 megohm	33-5538-28
R201	Resistor, grid return, 10 megohms	66-6103340*
R202	Resistor, screen dropping, 4.7 megohms	66-5473340*
R203	Resistor, plate load, 470,000 ohms	66-4473340*
R204	Resistor, grid return, 2.2 megohms	66-5223340
R205	Resistor, bias, 680 ohms	66-1683340*
R206	Resistor, bias voltage divider, 2.2 megohms	66-5223340
T200	Transformer, output	Part of LS200

**SECTION III
I-F, DETECTOR, AND A-V-C CIRCUITS**

C300A	Condenser, shunt	Part of Z300
C300B	Condenser, shunt	Part of Z300
C301A	Condenser, trimmer	Part of Z301
C301B	Condenser, filter	Part of Z301
C301C	Condenser, filter	Part of Z301
C302	Condenser, a-v-c filter, .05 mf.	61-0122*
C303	Condenser, screen by-pass, .1 mf.	61-0113*
C304	Condenser, neutralizing, 3 mmf.	30-1221
L300A	Transformer primary, 1st i-f	Part of Z300
L300B	Transformer secondary, 1st i-f	Part of Z300
L301A	Transformer primary, 2nd i-f	Part of Z301
L301B	Transformer secondary, 2nd i-f	Part of Z301
R300	Resistor, screen dropping, 15,000 ohms	66-3153340*

**SECTION III (Continued)
I-F, DETECTOR, AND A-V-C CIRCUITS**

Reference Symbol	Description	Service Part No.
R301	Resistor, filter, 47,000 ohms (Part of Z301)	66-3473340*
R302	Resistor, a-v-c filter, 6.8 megohms	66-5103340*
Z300	Transformer, 1st i-f	32-4160-4
Z301	Transformer, 2nd i-f	32-3987-3

**SECTION IV
R-F AND CONVERTER CIRCUITS**

C400	Condenser, tuning gang	31-2727-2
C400A	Condenser, tuning, aerial section	Part of C400
C400B	Condenser, trimmer, aerial	Part of C400
C400C	Condenser, tuning, oscillator section	Part of C400
C400D	Condenser, trimmer, oscillator	Part of C400
C401	Condenser, isolating, 5 mmf.	30-1224-5*
C402	Condenser, neutralizing, 1.5 mmf.	30-1221-3
LA400	Loop aerial	32-4274
R400	Resistor, leakage, 150,000 ohms	66-4153340*
R401	Resistor, grid return, 10 megohms	66-3103340*
R402	Resistor, oscillator bias, 100,000 ohms	66-4103340*
T400	Transformer, oscillator	32-4282

MISCELLANEOUS

Description	Service Part No.
Cabinet and Cabinet Parts	
Baffle	54-7577
Cabinet, brown	10703D
Cabinet (M), maroon	10703
Cabinet (T), tan	10703A
Cabinet (I), ivory	10703B
Cabinet (G), green	10703C
Handle	76-3742
Terminal, aerial strip	76-3674
Dial-Scale Hardware	
Dial-backplate assembly	56-5425FCP
Drive cord, 25-foot spool	45-8750*
Pointer	56-4362-2FCP
Pulley and shaft assembly	76-3671-1
Spring, drive-cord	56-2617
Knob (M)	54-4557
Knob (T)	54-4557-1
Knob (I)	54-4557-2
Knob (G)	54-4557-3
Socket, tube, miniature	27-6203