

# PHILCO-TROPIC RADIO-PHONOGRAPH MODELS 3400 AND 3401

Models 3400 and 3401 are identical, with the exception of the record-changer section—Model 3400 has the

M-9 Record Changer, while Model 3401 has the M-9C Record Changer and Record Player Combination.

## SPECIFICATIONS

CABINET .....	Brown bakelite, table-model radio-phonograph
CIRCUIT .....	5-tube, 3-band superheterodyne
AUDIO OUTPUT .....	2 watts
FREQUENCY RANGES	
Standard broadcast .....	540—1620 kc.
Short Wave 1 .....	2.3—7 mc.
Short Wave 2 .....	7—22 mc.
INTERMEDIATE FREQUENCY .....	455 kc.
OPERATING VOLTAGES .....	105—125 volts, or 220—250 volts, a.c.
POWER CONSUMPTION	
Radio .....	50 watts
Phonograph .....	15 watts
AERIAL .....	100-ft. conventional L-type, such as Philco Part No. 45-1494
PHILCO TUBES (5) .....	7Q7 converter, 7B7 i-f ampl., 7B6 det.-a.v.c.-1st audio ampl., 7C5 output, 7Y4 rectifier
PHONOGRAPH	
Model 3400 .....	M-9 Record Changer; for service information, refer to Page 493
Model 3401 .....	M-9C Record Changer and Record Player Combination; for service information, refer to Page 511

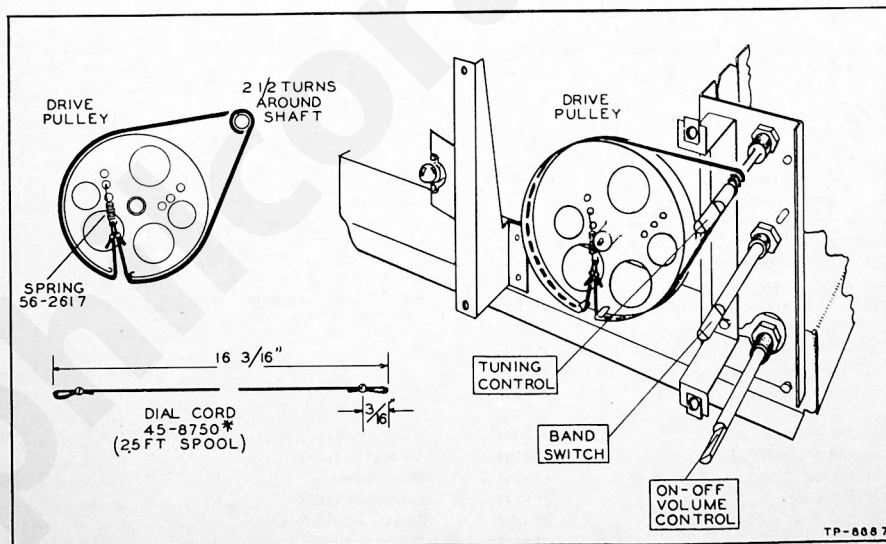


Figure 1. Drive-Cord-Installation Details



# ALIGNMENT PROCEDURE

**CAUTION:** Before connecting the radio to the power source, make certain that the voltage change-over switch (S2) is correctly set for the line voltage.

**DIAL POINTER**—With the tuning-condenser plates fully meshed, adjust the dial pointer so that it is perfectly horizontal.

**SIGNAL GENERATOR**—Connect the ground lead to the chassis, and the output lead as indicated in the chart. Use modulated output.

STEP	SIGNAL GENERATOR		RADIO			ADJUST
	CONNECTION TO RADIO	DIAL SETTING	BAND SWITCH	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through .1- $\mu$ f. condenser to mixer (lower) section of tuning condenser.	455 kc.	BC	580 kc.	Adjust, in order given, for maximum output; then repeat.	TC2B—2nd i-f sec. TC2A—2nd i-f pri. TC1B—1st i-f sec. TC1A—1st i-f pri.
2	Through 400-ohm non-inductive resistor to aerial lead.	21 mc.	SW2	21 mc.	Adjust, in order given, for maximum output.	C5A—SW2 osc. C5B—SW2 aerial
3	Same as step 2.	6 mc.	SW1	6 mc.	Adjust for maximum while rocking tuning control.	C5C—SW1 osc.
4	Through 200- $\mu$ f. condenser to aerial lead.	1500 kc.	BC	1500 kc.	Adjust for maximum while rocking tuning control.	C5D—BC osc. (shunt)
5	Same as step 5.	580 kc.	BC	580 kc.	Adjust for maximum while rocking tuning control.	C5E—BC osc. (series)
6	Repeat steps 4, 5, and 4 until no further improvement is obtained.					

**CONTROLS**—Set the radio volume control to maximum. Set the band switch, tuning control, and signal-generator frequency as indicated in the chart.

**OUTPUT METER**—Connect across the voice coil.

**OUTPUT LEVEL**—During alignment, the signal-generator output must be attenuated to hold the output-meter reading below 1.5 volts.

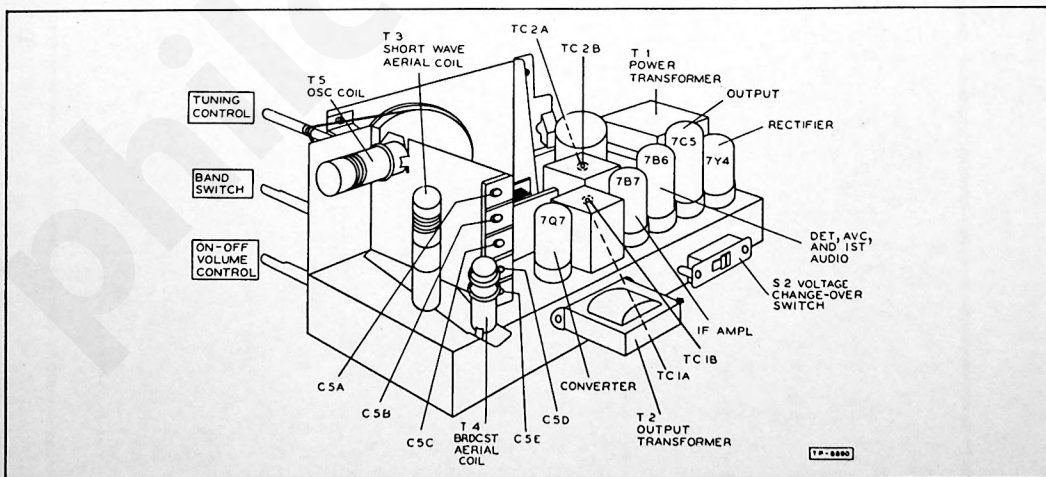


Figure 3. Top View, Showing Trimmer Locations

# REPLACEMENT PARTS LIST

NOTE: Part numbers identified by an asterisk (\*) are general replacement items. These numbers may not be identical with those on factory parts; 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."

Reference Symbol	Description	Service Part No.	Reference Symbol	Description	Service Part No.
C1	Condenser, tuning gang, 2-section	31-2745	R7	Volume control, with off-on switch, 2 megohms (tap at 1 megohm)	33-5566-6
C2	Condenser, fixed trimmer, 47 $\mu$ f.	60-00515307*	R8	Resistor, bias, 470,000 ohms	66-4478340*
C3	Condenser, fixed trimmer, 5 $\mu$ f.	60-90505007*	R9	Resistor, grid return, 10 megohms	66-6108340*
C4	Condenser, fixed trimmer, 18 $\mu$ f.	60-00185317*	R10	Resistor, plate load, 470,000 ohms	66-4478340*
C5	Condenser assembly, trimmer, 5-section	31-6414-6	R11	Resistor, grid return, 470,000 ohms	66-4478340*
C5A	Condenser, trimmer, SW2 osc.	Part of C5	R12	Resistor, cathode bias, 220 ohms	66-1228340*
C5B	Condenser, trimmer, SW2 aerial	Part of C5	R13	Resistor, screen dropping, 6800 ohms	66-2688340*
C5C	Condenser, trimmer, SW1 osc.	Part of C5	R14	Resistor, filter, 1000 ohms	66-2108340*
C5D	Condenser, shunt trimmer, BC osc.	Part of C5	R15	Resistor, filter, 560 ohms, 2 watts	66-1565340*
C5E	Condenser, series padder, BC osc.	Part of C5	R16	Resistor, isolating, 180,000 ohms	66-4188340
C6	Condenser, d-c blocking, 100 $\mu$ f.	60-10105407*	R17	Resistor, isolating, 180,000 ohms	66-4188340
C7	Condenser, d-c blocking, 56 $\mu$ f.	60-00605237*	R18	Resistor, tone compensation, 68,000 ohms	66-3688340
C8	Condenser, d-c blocking, SW1, 2400 $\mu$ f.	60-20245304*	S1	Switch, off-on	Part of R7
C9	Condenser, neutralizing, 2.2 $\mu$ f.	30-1221-6	S2	Switch, voltage change-over	42-1569
C10	Condenser, fixed trimmer	Part of Z1	T1	Transformer, power	32-8394
C11	Condenser, fixed trimmer	Part of Z1	T2	Transformer, output	32-8395
C12	Condenser, a-v-c filter, .05 $\mu$ f.	61-0122*	T3	Transformer, SW1 and SW2 aerial	32-4204-2
C13	Condenser, screen by-pass, .05 $\mu$ f.	61-0122*	T4	Transformer, BC aerial	32-4205-1
C14	Condenser, fixed trimmer	Part of Z2	T5	Transformer, BC, SW1, and SW2 osc.	32-4387
C15	Condenser, fixed trimmer	Part of Z2	TC1A	Tuning core, 1st i-f pri.	Part of Z1
C16	Condenser, i-f filter, 100 $\mu$ f.	Part of Z2	TC1B	Tuning core, 1st i-f sec.	Part of Z1
C17	Condenser, i-f filter, 100 $\mu$ f.	Part of Z2	TC2A	Tuning core, 2nd i-f pri.	Part of Z2
C18	Condenser, bias filter, 220 $\mu$ f.	62-122001001	TC2B	Tuning core, 2nd i-f sec.	Part of Z2
C19	Condenser, d-c blocking, .006 $\mu$ f.	45-3500-7*	W1	Line cord	L-2183*
C20	Condenser, d-c blocking, .005 $\mu$ f.	45-3500-7*	WS	Wafer switch (2-section), band change, phono pickup, and motor on-off	42-1892
C21	Condenser, by-pass, 220 $\mu$ f.	62-122001001	Z1	Transformer, 1st i-f	32-4377
C22	Condenser, tone compensation, .01 $\mu$ f.	61-0120*	Z2	Transformer, 2nd i-f	32-4378
C23	Condenser, d-c blocking, .005 $\mu$ f.	45-3500-7*	Cabinet		
C24	Condenser, tone compensation .008 $\mu$ f.	61-0174*		Baffle-and-cloth assembly	40-7679
C25	Condenser, electrolytic, 4-section	30-2570-32		Bottom cover	54-7745
C25A	Condenser, filter, 40 $\mu$ f., 250v	Part of C25		Foot (4)	54-4645-1
C25B	Condenser, filter, 30 $\mu$ f., 250v	Part of C25		Window, acetate	54-4665
C25C	Condenser, filter, 20 $\mu$ f., 250v	Part of C25		Continental adapter plug	I-3275
C25D	Condenser, cathode by-pass, 10 $\mu$ f., 25v	Part of C25		Dial cord (25-ft. spool)	45-8750*
C26	Condenser, line filter, .01 $\mu$ f.	61-0120*		Dial scale	54-5061
C27	Condenser, line filter, .01 $\mu$ f.	61-0120*		Drive shaft	31-2742
I1	Pilot lamp, 6.3v	34-2040		Grommet, speaker mounting (4)	27-4610
LS1	Speaker, p-m, 5"	36-1625-8		Knob (2)	54-4557
R1	Resistor, grid return, 1 megohm	66-5108340*		Knob (1)	54-4557-5
R2	Resistor, grid return, 33,000 ohms	66-3338340*		Pointer	56-6868FCP
R3	Resistor, screen dropping, 15,000 ohms, 1 watt	66-3154340*		Socket, Loktal (5)	27-6207
R4	Resistor, cathode bias, 15 ohms	66-0158340*		Socket assembly, pilot lamp	76-1236-1
R5	Resistor, a-v-c filter, 2.2 megohms	66-5228340*		Spring, changer mounting (6)	56-3043FA15
R6	Resistor, i-f filter, 47,000 ohms (Part of Z2)	66-3478340*		Spring, gang drive	56-2617