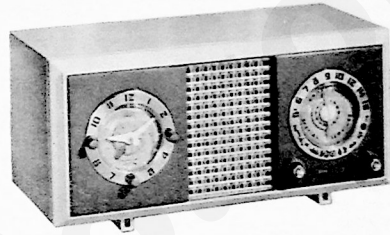


# PHILCO RADIO-CLOCK MODEL 53-804

## SPECIFICATIONS

CABINET ..... Molded plastic  
 CIRCUIT ..... Five-tube superheterodyne (plus rectifier)  
 FREQUENCY RANGE  
   Broadcast ..... 540 kc. to 1620 kc.  
   Special Services ..... 1700 kc. to 3400 kc.  
 AUDIO OUTPUT ..... 1 watt  
 OPERATING VOLTAGE ..... 105—120 volts, a.c.  
 POWER CONSUMPTION ..... 30 watts  
 ANTENNA ..... Built-in, high-impedance loop  
 INTERMEDIATE FREQUENCY ..... 455 kc.  
 PHILCO TUBES ..... 6BJ6 r-f ampl.; 12BE6 converter;  
                           6BJ6 i-f ampl.; 6AQ6 detector, a.v.c., 1st  
                           audio; 35C5 output; 35W4 rectifier



MODEL 53-804

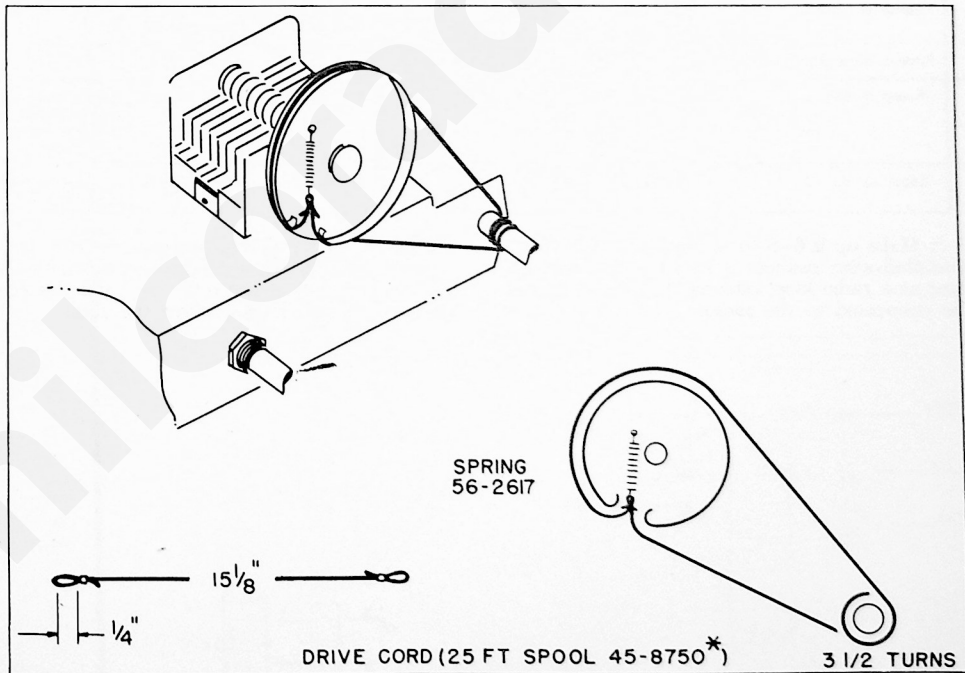


Figure 1. Drive-Cord Installation Details

TP2-1405A

## ALIGNMENT PROCEDURE

## GENERAL

**RADIO CONTROLS**—Set volume control for maximum output and tuning control as given in the alignment chart. Set band switch to broadcast position for first 5 steps, and to special services position for steps 6 and 7.

**OUTPUT INDICATOR**—Connect output indicator (either on oscilloscope or a 1000-ohms-per-volt, a-voltmeter) across voice-coil terminals.

**SIGNAL GENERATOR**—Use an AM r-f generator, connected as indicated in the alignment chart.

**OUTPUT LEVEL**—During alignment, attenuate signal-generator output to maintain output indication below 1 volt.

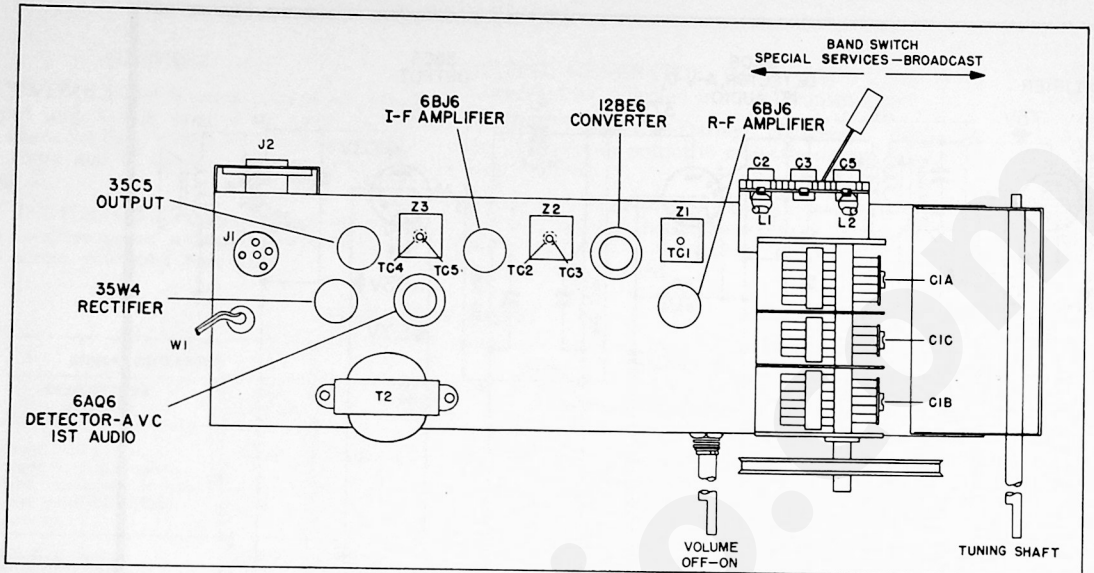
**DIAL POINTER**—Before the alignment is started, the dial pointer should be set to coincide with the dial scale mark to the left of "55" when the tuning gang is fully meshed.

## ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Ground lead to B-. Output lead through a .01- $\mu$ f. condenser to pin 7 (mixer grid) of 12BE6, converter.	455 kc.	Tuning gang fully open.	Adjust, in order given in next column, for maximum output.	TC5—2nd i-f sec. TC4—2nd i-f pri. TC3—1st i-f sec. TC2—1st i-f pri.
2	Radiating loop. See Note 1 below.	1620 kc.	1620 kc. See Note 2 below.	Adjust for maximum output.	C1C—osc. trimmer
3	Same as step 2.	1520 kc.	Tune radio to generator signal.	Adjust for maximum output. (High-frequency adjustment)	C1B—mixer-grid trimmer C1A—r-f trimmer
4	Same as step 2.	580 kc.	Same as step 3.	Adjust for maximum output. (Low-frequency adjustment)	TC1—r-f transformer
5	Repeat steps 3 and 4 until no further improvement is obtained.				
6	Same as step 2.	3200 kc.	Same as step 3.	Adjust for maximum output.	C5—special-services mixer-grid trimmer C2—special-services r-f trimmer
7	Same as step 2.	1800 kc.	Same as step 3.	Adjust for maximum output.	C3—special-services r-f padder

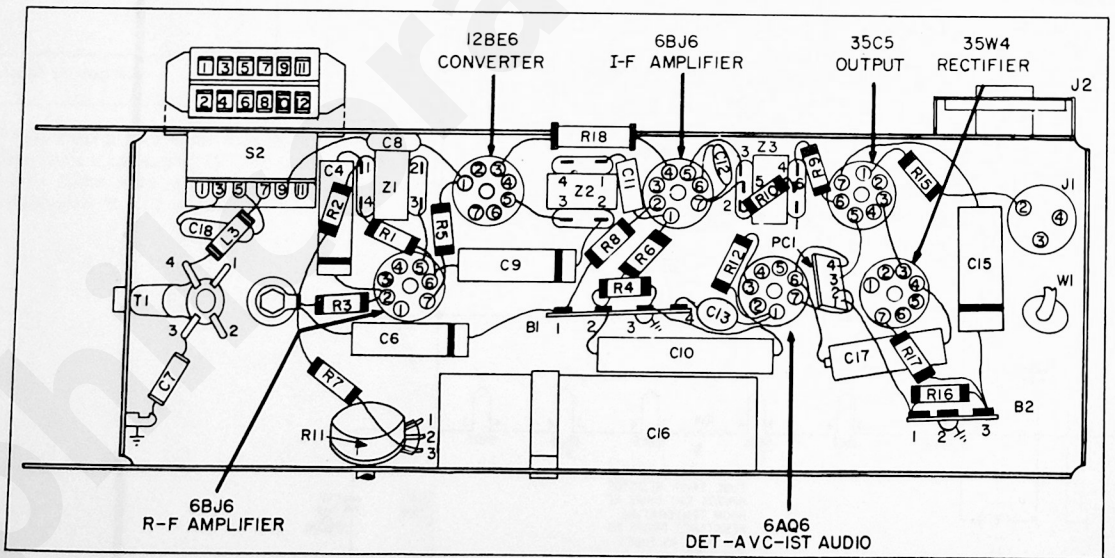
**NOTE 1:** Make up a 6–8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place near radio loop antenna. The loop antenna must be connected to the radio.

**NOTE 2:** To set the tuning gang to 1620 kc., place a piece of 6-mil flat shim stock beneath the heel of the rotor, and turn the rotor until it holds the shim firmly in place. Then remove the shim.



TP2-2655A

Figure 2. Top View, Showing Tuning Adjustments



TP2-2653A

Figure 3. Base View, Showing Parts Placement



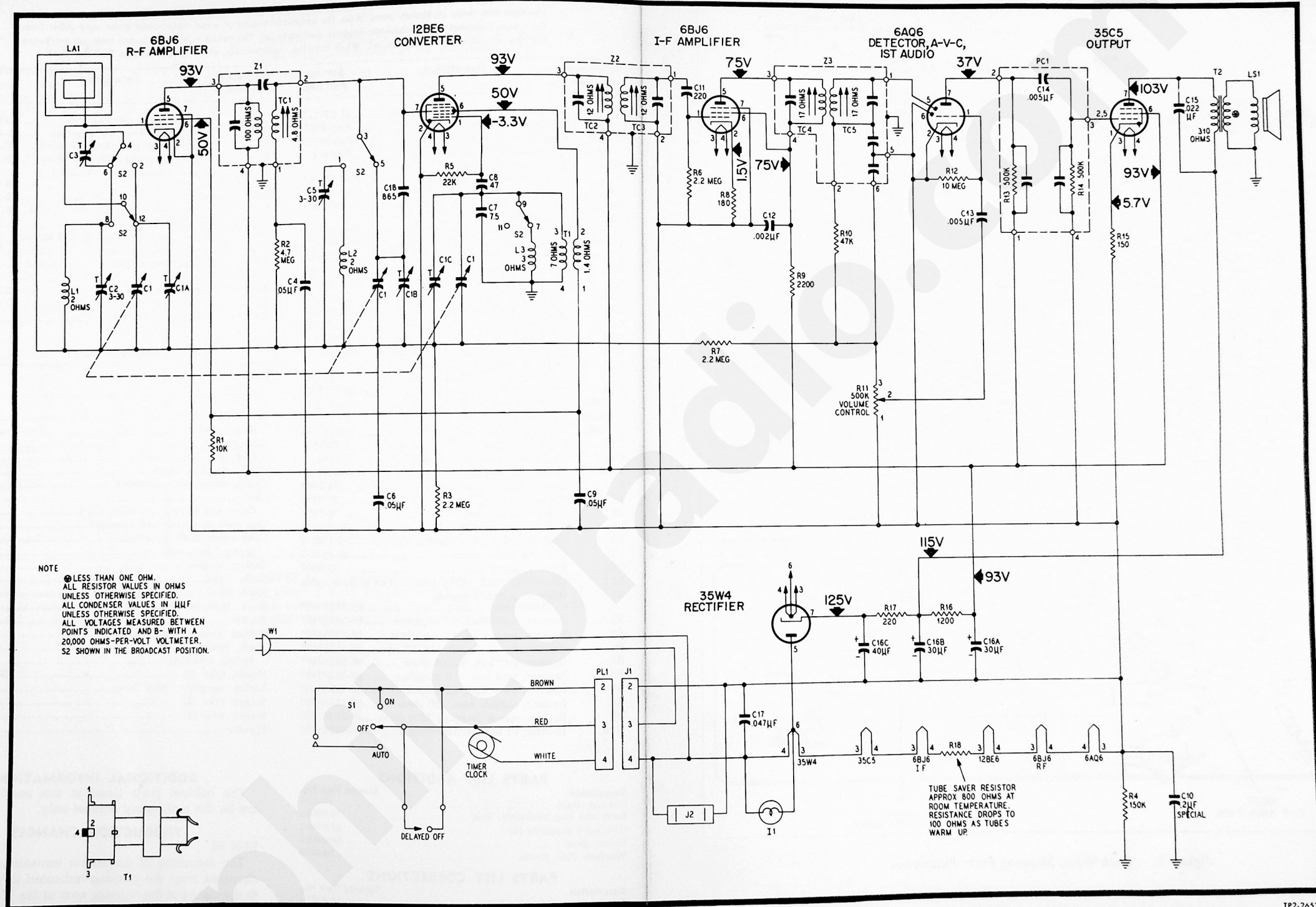


Figure 4. Philco Radio Model 53-804, Schematic Diagram

## 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 will be unchanged. 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, 3-section	31-2771-2	R11	Volume control, 500,000 ohms	33-5565-51
C1A	Condenser, trimmer, antenna	Part of C1	R12	Resistor, grid leak, 10 megohms	66-6108340*
C1B	Condenser, trimmer, r-f	Part of C1	R13	Resistor, plate load, 500,000 ohms	Part of PC1
C1C	Condenser, trimmer, oscillator	Part of C1	R14	Resistor, grid leak, 500,000 ohms	Part of PC1
C2	Condenser, trimmer, special services r-f	Part of CA1	R15	Resistor, cathode bias, 150 ohms, 1 watt	66-1154340*
C3	Condenser, padder, special services r-f	Part of CA1	R16	Resistor, B+ filter, 1200 ohms	66-2128340*
C4	Condenser, r-f by-pass, .05 $\mu$ f.	30-4650-45°	R17	Resistor, B+ filter, 220 ohms, 1 watt	66-1224340*
C5	Condenser, trimmer, special services mixer-grid	Part of CA1	R18	Resistor, tube saver, 100 ohms	33-1343-3
C6	Condenser, a-v-c by-pass, .05 $\mu$ f.	30-4650-45°	S2	Switch, band, broadcast-special services	42-1893-3
C7	Condenser, fixed trimmer, 7.5 $\mu$ f.	30-1224-65	T1	Transformer, oscillator	32-4453-2
C8	Condenser, d-c blocking, 47 $\mu$ f.	60-00475420	T2	Transformer, output	32-8310-3
C9	Condenser, screen by-pass, .002 $\mu$ f.	30-4650-45°	W1	Line cord	L-2183*
C10	Condenser, special, B- to chassis, .2 $\mu$ f.	30-4644	Z1	Transformer, r-f	32-4399-7A
C11	Condenser, i-f coupling, 220 $\mu$ f.	62-122001001°	Z2	Transformer, 1st i-f	32-4160A
C12	Condenser, screen by-pass, .002 $\mu$ f.	30-1238-8°	Z3	Transformer, 2nd i-f	32-4240A
C13	Condenser, audio coupling, .005 $\mu$ f.	30-1238-1°			
C14	Condenser, d-c blocking, .005 $\mu$ f.	Part of PC1			
C15	Condenser, tone compensation, .022 $\mu$ f.	30-4650-60°			
C16	Condenser, electrolytic filter	30-2575-27			
C16A	Condenser, filter, 30 $\mu$ f., 150v	Part of C16			
C16B	Condenser, filter, 30 $\mu$ f., 150v	Part of C16			
C16C	Condenser, filter, 40 $\mu$ f., 150v	Part of C16			
C17	Condenser, line by-pass, .047 $\mu$ f.	30-4650-45°			
C18	Condenser, fixed padder, 865 $\mu$ f.	30-1220-68			
CA1	Condenser assembly, trimmer	31-6477-17			
I1	Lamp, pilot	34-2068			
J1	Connector, clock cable, female	27-6273			
J2	Connector, appliance	76-3931			
L1	Coil, special services r-f	32-4561-4			
L2	Coil, special services mixer-grid	32-4561-4			
L3	Coil, oscillator shunt	32-4562-1			
PC1	Printed circuit	30-6001			
PL1	Connector, clock cable, male	Part of clock cable			
R1	Resistor, screen dropping, 10,000 ohms	66-3108340°			
R2	Resistor, a-v-c load, 4.7 megohms	66-5478340°			
R3	Resistor, a-v-c load, 2.2 megohms	66-5228340°			
R4	Resistor, B- to chassis, 150,000 ohms	66-4158340°			
R5	Resistor, grid leak, 22,000 ohms	66-3228340°			
R6	Resistor, grid leak, 2.2 megohms	66-5228340°			
R7	Resistor, a-v-c load, 2.2 megohms	66-5228340°			
R8	Resistor, cathode bias, 180 ohms	66-1188340°			
R9	Resistor, screen dropping 2200 ohms	66-2228340°			
R10	Resistor, i-f filter, 47,000 ohms	66-3478340°			

### MISCELLANEOUS

Description	Service Part No.
Bezel, radio	28-9039
Ring, bezel	28-9171
Cabinet	10965
Back and loop assembly	76-8098
Cable assembly, clock	41-3909-4
Clamp, electrolytic condenser	56-1466
Clock	41-2044-1
Cover and bracket assembly, clock	76-8095
Dial scale and backplate assembly	76-8094
Drive cord, 25-ft. spool	45-8750°
Spring, drive-cord	56-2617°
Gasket, speaker	54-8871
Grille	54-6023
Knob (2)	76-6373-2
Knob, band switch	54-4998
Pointer	
Rubber mount, gang mounting	27-4596
Shaft, tuning	56-9807-3
Spring, retaining	28-8610
Shield, tube (2)	56-5629FA3
Socket assembly, pilot lamp	27-6233-6
Socket, tube (2)	27-6203-14
Socket, tube (4)	27-6265
Speaker	36-1627-21

### PARTS LIST ADDITIONS

Description	Service Part No.
Cabinet, light	10965-1
Back and loop assembly, light	76-8098-1
Clip, back mounting (2)	56-2726-1
Cover, clock	54-4989-1
Window, dial, plastic	54-8638

### PARTS LIST CORRECTIONS

Description	Service Part No.
Pointer assembly	76-8327-1

### ADDITIONAL INFORMATION

The cabinet parts listed in this service manual are for the mahogany cabinet only.

### PRODUCTION CHANGES

#### RUN 51

The mounting of the output transformer, T2, was changed from the position indicated in the manual to the center of the chassis, next to the 12BE6 converter tube and i-f transformer Z2.