

Figure 2. Symbolized Chassis, Showing Parts Placement

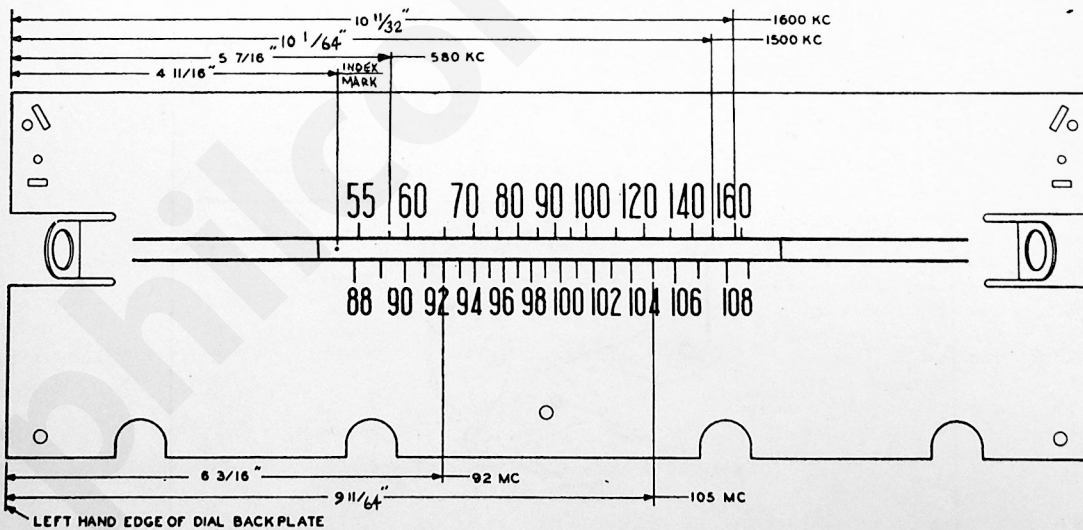


Figure 3. Dial-Backplate Calibration Measurements

# REPLACEMENT PARTS LIST

## NOTE

Part numbers marked with an asterisk (\*) are general replacement items. These numbers may not be identical to 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 instrument 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, 6-gang tuning	31-2750	C46	Condenser, electrolytic, diode load filter, 2 $\mu$ f.	30-2417-7
C2	Condenser, trimmer, ant. shunt	31-6473-6	C47	Condenser, a-v-c filter, .01 $\mu$ f.	61-0120*
C3	Condenser, d-c blocking, 470 $\mu$ f.	62-147001001	C48	Condenser, tone compensation, 100 $\mu$ f.	62-110001001
C4	Condenser, cathode by-pass, 100 $\mu$ f.	60-10105017	C49	Condenser, d-c blocking, .02 $\mu$ f.	61-0108*
C5	Condenser, a-v-c filter, 100 $\mu$ f.	62-110001001	C50	Condenser, bass boost, .03 $\mu$ f.	30-4517
C6	Condenser, filament by-pass, 100 $\mu$ f.	62-110001001	C51	Condenser, d-c blocking, .006 $\mu$ f.	45-3500-7
C7	Condenser, screen by-pass, 1500 $\mu$ f.	62-215001001	C52	Condenser, i-f by-pass, 100 $\mu$ f.	62-110001001
C8	Condenser, plate decoupling, 1500 $\mu$ f.	62-215001001	C53	Condenser, treble out, .006 $\mu$ f.	45-3500-7
C9	Condenser, by-pass, 100 $\mu$ f.	62-110001001	C54	Condenser, plate by-pass, 100 $\mu$ f.	62-110001001
C10	Condenser, d-c blocking, 51 $\mu$ f.	62-051009001	C55	Condenser, d-c blocking, .006 $\mu$ f.	45-3500-7
C11	Condenser, temperature compensating, 10 $\mu$ f.	62-010009001	C56	Condenser, grid by-pass, 220 $\mu$ f.	62-122001001
C12	Condenser, by-pass, .01 $\mu$ f.	61-0120*	C57	Condenser, neutralization, 100 $\mu$ f.	62-110001001
C13	Condenser, plate decoupling, 100 $\mu$ f.	62-110001001	C58	Condenser, tone compensation, .006 $\mu$ f.	45-3500-7
C14	Condenser, d-c blocking, 220 $\mu$ f.	62-122001001	C59A	Condenser, electrolytic, 4-section	30-2570-64
C15	Condenser, d-c blocking, phono coupling, .0033 $\mu$ f.	45-3505-55*	C59B	Condenser, filter, 40 $\mu$ f., 400 wv.	Part of C59
C16	Condenser, plate decoupling, .05 $\mu$ f.	61-0122*	C59C	Condenser, filter, 40 $\mu$ f., 350 wv.	Part of C59
C17	Condenser, grid by-pass, 100 $\mu$ f.	62-110001001	C59D	Condenser, cathode by-pass, 10 $\mu$ f., 25 wv.	Part of C59
C18	Condenser, filament by-pass, 100 $\mu$ f.	62-110001001	C60	Condenser, line by-pass, .01 $\mu$ f.	45-3505-41*
C19	Condenser, cathode by-pass, 100 $\mu$ f.	62-110001001	I1	Pilot lamp	34-2064
C20	Condenser, d-c blocking, 220 $\mu$ f.	62-122001001	I2	Pilot lamp	34-2064
C21	Condenser, d-c blocking, .01 $\mu$ f.	30-1226-10	I3	Bin lamp, model 51-1734 only	34-2064
C22	Condenser, osc. series padder	31-6473-7	J1	Socket, FM aerial	27-6214-1
C23	Condenser, trimmer, FM osc.	31-6511	J2	Socket, AM aerial	27-6214-14
C24	Condenser, phono tone compensation, .001 $\mu$ f.	45-3500-5*	J3	Socket, speaker	27-6214-12
C25	Condenser, line by-pass, .01 $\mu$ f.	45-3505-41*	J4	Socket, FM test	27-6180
C26	Condenser, plate decoupling, 100 $\mu$ f.	62-110001001	J5	Socket, phono input	
C27	Condenser, plate decoupling, .01 $\mu$ f.	61-0120*	J6	Socket, phono power	27-6182
C28	Condenser, a-v-c decoupling, .01 $\mu$ f.	61-0120*	L1	Coil, FM aerial	32-4415
C29	Condenser, a-v-c filter, 100 $\mu$ f.	62-110001001	L2	Coil, FM r-f	32-4416
C30	Condenser, filament by-pass, 100 $\mu$ f.	62-110001001	L3	Coil, FM osc.	32-4414
C31	Condenser, filament by-pass, .01 $\mu$ f.	61-0120*	L4	Coil, AM aerial	32-4413
C32	Condenser, screen by-pass, .002 $\mu$ f.	61-0062*	L5	Coil, AM osc.	32-4153-6
C33	Condenser, plate decoupling, .01 $\mu$ f.	61-0120*	L6	Choke, aerial isolating	32-4061-2
C34	Condenser, cathode by-pass, .01 $\mu$ f.	61-0120*	L7	Choke, plate load	32-4061-2
C35	Condenser, filament by-pass, 100 $\mu$ f.	62-110001001	L8	Choke, plate load	32-4061-2
C36	Condenser, screen by-pass, .002 $\mu$ f.	61-0062*	LA1	Loop aerial, AM	
C37	Condenser, neutralization, .01 $\mu$ f.	61-0120*		Model 51-1733	76-4337-8
C38	Condenser, plate decoupling, 100 $\mu$ f.	62-110001001		Model 51-1734	
C39	Condenser, i-f filter, 220 $\mu$ f.	62-122001001	LA2	Line cord aerial FM	41-3791-1
C40	Condenser, i-f filter, 100 $\mu$ f.	62-110001001	LS1	Speaker	
C41	Condenser, de-emphasis, .002 $\mu$ f.	61-0062*		Model 51-1733	36-1610-6
C42	Condenser, d-c blocking, a-v-c rectifier coupling, 15 $\mu$ f.	62-015400021*		Model 51-1734	
C43	Condenser, i-f filter, 100 $\mu$ f.	62-110001001	R1	Resistor, grid return, 2.2 megohms	66-5228340*
C44	Condenser, by-pass, .01 $\mu$ f.	61-0120*	R2	Resistor, cathode bias, 47 ohms	66-0478340*
C45	Condenser, by-pass, 100 $\mu$ f.	62-110001001	R3	Resistor, screen dropping, 10,000 ohms	66-3108340*
			R4	Resistor, plate isolating, 1000 ohms	66-2108340*
			R5	Resistor, plate load, 68,000 ohms	66-3688340*

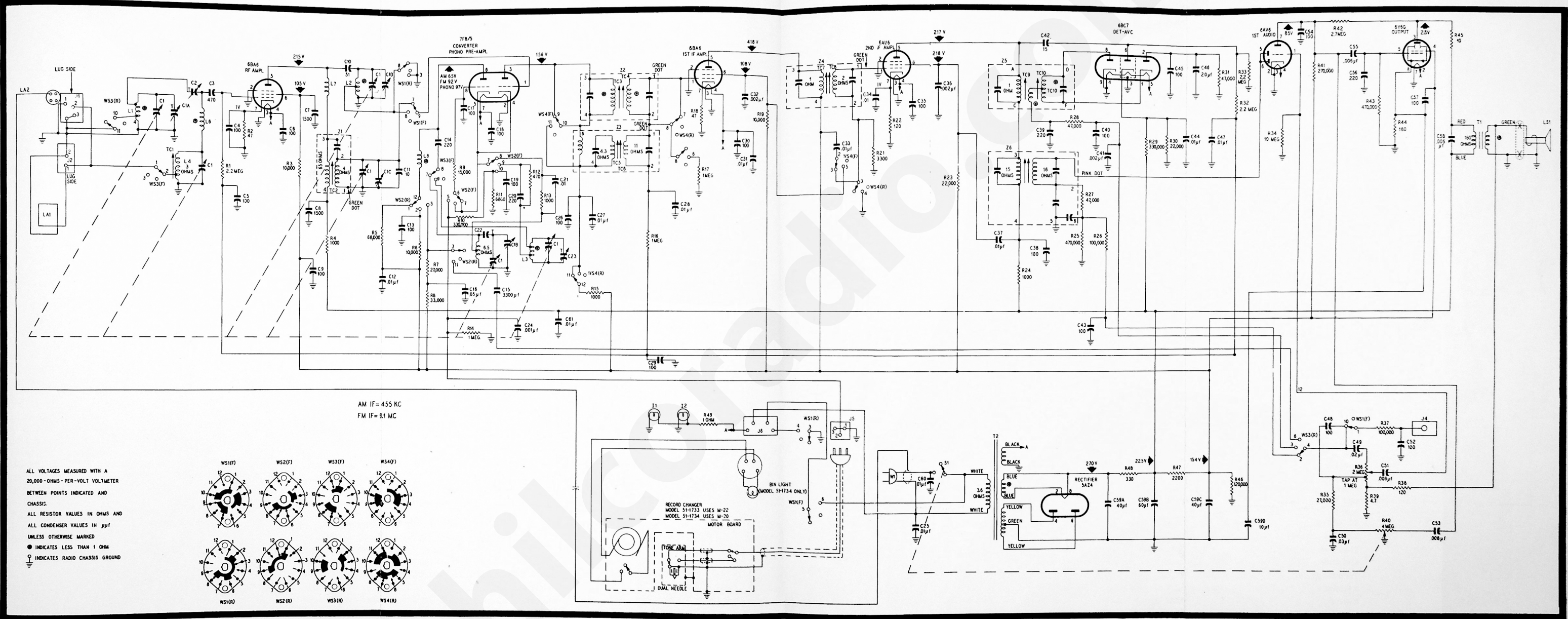


Figure 4. Philco Radio-Phonograph Models 51-1733, 51-1733 (L), and 51-1734, Schematic Diagram

## AM ALIGNMENT PROCEDURE

Make alignment with loop aerial connected to radio. The AM alignment should be made before the FM alignment.

**DIAL POINTER:** Calibration and pointer-index measurements are shown in figure 5. With tuning gang fully meshed, set pointer to index mark.

**OUTPUT METER:** Connect across speaker voice-coil terminals.

**SIGNAL GENERATOR:** Connect AM r-f signal generator as indicated in chart. Use modulated output.

**RADIO CONTROLS:** Set volume control to maximum, tone control counterclockwise, and band switch to broadcast position.

**OUTPUT LEVEL:** During alignment; adjust signal-generator output to hold output-meter indicator below 1.25 volts.

## AM ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through a .1- $\mu$ f. condenser to mixer grid, pin 1, of 7F8/S.	455 kc.	Gang fully meshed	Adjust, in order given, for maximum output.	TC12—2nd AM i-f sec. TC11—2nd AM i-f pri. TC6—1st AM i-f sec. TC5—1st AM i-f pri.
2	Radiating loop. (See note below.)	1600 kc.	1600 kc.	Adjust for maximum.	C1B—AM osc. shunt
3	Same as step 2.	580 kc.	580 kc.	Adjust, in order given, for maximum while rocking tuning control.	C22—AM osc. series TC2—AM r-f tuning core TC1—AM ant. tuning core
4	Same as step 2.	1500 kc.	1500 kc.	Adjust, in order given, for maximum.	C1C—AM r-f shunt C2—AM ant. shunt
5	Repeat steps 2, 3, and 4 until no further increase is obtained.				

**Radiating Loop:** Make up a 6-to-8 turn, 6-inch-diameter loop, using insulated wire; connect to signal generator leads, and place near radio loop aerial.

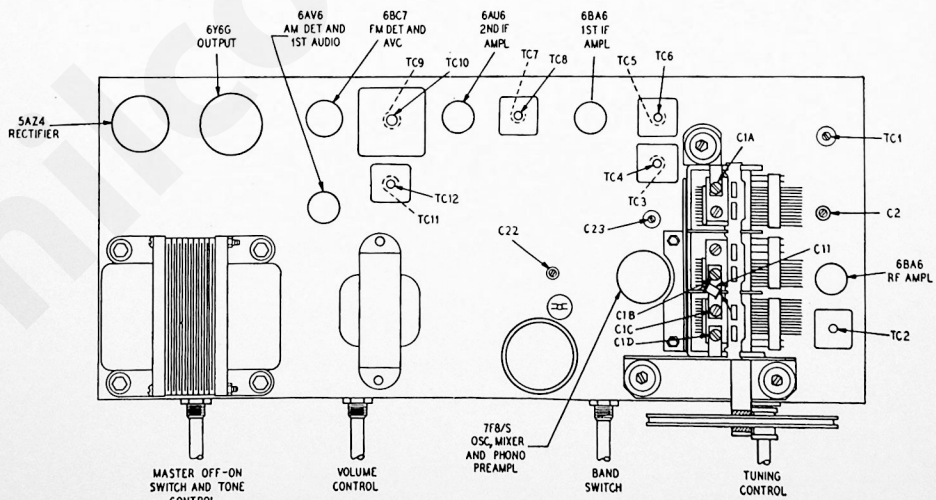


Figure 5. Top View, Showing Trimmer Locations

## REPLACEMENT PARTS LIST (Cont.)

Reference Symbol	Description	Service Part No.
R6	Resistor, plate load, 10,000 ohms	66-3108340*
R7	Resistor, plate load, 27,000 ohms	66-3278340*
R8	Resistor, plate isolating, 33,000 ohms	66-3338340*
R9	Resistor, grid return, 15,000 ohms	66-3158340*
R10	Resistor, grid return (phono), 330,000 ohms	66-4338340*
R11	Resistor, cathode bias, 6800 ohms	66-2688340*
R12	Resistor, parasitic suppressor, 470 ohms	66-1478340*
R13	Resistor, parasitic suppressor, 1000 ohms	66-2108340*
R14	Resistor, crystal load, 1 megohm	66-5108340*
R15	Resistor, plate isolating, 1000 ohms	66-2108340*
R16	Resistor, a-v-c isolating, 1 megohm	66-5108340*
R17	Resistor, grid return, 1 megohm	66-5108340*
R18	Resistor, cathode bias, 47 ohms	66-0478340*
R19	Resistor, screen dropping, 10,000 ohms	66-3108340*
R20	Resistor, plate isolating, 1000 ohms	66-2108340*
R21	Resistor, grid return, 3300 ohms	66-2338340*
R22	Resistor, cathode bias, 120 ohms	66-1128340*
R23	Resistor, screen dropping, 22,000 ohms	66-3228340*
R24	Resistor, plate isolating, 1000 ohms	66-2108340*
R25	Resistor, diode load, 470,000 ohms	66-4478340*
R26	Resistor, audio filter, 100,000 ohms	66-4108340*
R27	Resistor, i-f filter, 47,000 ohms	66-3478340*
R28	Resistor, i-f filter, 47,000 ohms	66-3478340*
R29	Resistor, voltage divider, 330,000 ohms	66-4338340*
R30	Resistor, voltage divider, 22,000 ohms	66-3228340*
R31	Resistor, FM diode load, 47,000 ohms	66-3478340*
R32	Resistor, a-v-c load, 2.2 megohms	66-5228340*
R33	Resistor, a-v-c filter, 2.2 megohms	66-5228340*
R34	Resistor, grid return, 10 megohms	66-6108340*
R35	Resistor, bass boost, 27,000 ohms	66-3278340*
R36	Volume control	33-5535-27
R37	Resistor, isolating, 100,000 ohms	66-4108340*
R38	Resistor, feedback, 120 ohms	66-1128340*
R39	Resistor, voltage divider, feedback, 4.7 ohms	66-9478340*
R40	Tone control, 4 megohms with switch	33-5566-12
R41	Resistor, plate load, 270,000 ohms	66-4278340*
R42	Resistor, inverse feedback, 2.7 megohms	66-5278340*
R43	Resistor, grid return, 470,000 ohms	66-4478340*
R44	Resistor, cathode bias, 180 ohms, 1 watt	66-1184340*
R45	Resistor, parasitic suppressor, 10 ohms	66-0108340*
R46	Resistor, bleeder, 120,000 ohms, 2 watts	66-4125340*
R47	Resistor, filter, 2200 ohms, 2 watts	33-1335-97
R48	Resistor, filter, 330 ohms, 7 watts	33-1335-90
R49	Resistor, pilot lamp dropping, 1 ohm	66-9108340*
S1	Switch, on-off	Part of R40
T1	Transformer, output	32-8407
T2	Transformer, power	32-8406
W1	Line cord	L-2183*
WS	Wafer switch	42-1910
Z1	Transformer, AM r-f	32-4399-3A
Z2	Transformer, 1st FM i-f	32-4372A
Z3	Transformer, 1st AM i-f	32-4258-3A
Z4	Transformer, 2nd FM i-f	32-4372-2A
Z5	Transformer, 3rd FM i-f	32-4417
Z6	Transformer, 2nd AM i-f	32-4240-3A

## MISCELLANEOUS

Description	Service Part No.
Cabinet, Model 51-1733	10825
Cabinet, Model 51-1733 (L)	10825-1
Bullet catch (2)	45-6002
Changer mounting frame	76-6264
Dial scale	54-5103-1
Dome (4)	45-6190
Doors, matched set Model 51-1733	45-6622
Model 51-1733 (L)	45-6623
Door pull	56-7998
Door pull plate	56-7999
Knife hinge (LH) (2), Model 51-1733	56-8479
Model 51-1733 (L)	56-8479-2
Knife hinge (RH) (2), Model 51-1733	56-8479-1
Model 51-1733 (L)	56-8479-3
Phono power cable and plug assembly	41-3944-5
Strike plate, Model 51-1733	45-6003
Model 51-1733 (L)	45-6003-1
Cabinet, Model 51-1734	10847
Bezel	56-5855FPC
Bin light and phono power socket and cable assembly	
Clip, bin light mounting	56-3545-6
Dial scale	54-5108
(Parts common to all models)	
Changer mounting parts	
Bumper (2)	55-0890
Clip, bottom mounting (4)	W2235-1FA9
Drive screws (8)	
Frame, Model 51-1733	76-6257
Model 51-1734	76-6296
Knob, pull	56-8496
Screw, knob mounting	1W10078FA3
Rail assembly, (LH), Model 51-1733	76-6258
Model 51-1734	76-6258-1
Rail Assembly, (RH), Model 51-1733	76-6259
Model 51-1734	76-6259-1
Sleeve, rubber (3)	54-7798
Speed nut (3)	W-2554
Spring, changer mounting (3) top (heavy)	
Spring, changer mounting (3) bottom (light)	56-7059-1FPC
Dial backplate assembly	76-6311
Pilot lamp socket assembly (2)	27-6233-33
Drive shaft assembly	76-5139-1
Bushing, drive shaft	27-9437
Dial cord, 25 foot spool	45-8750*
Spring, drive cords (2)	56-2617
Spring, hairpin, drive shaft retainer	57-1468FA3
Knob (3)	54-4718-6
Knob, band switch	54-4718-12
Pointer	56-5630-18
Scale strap	56-4756FE11
Scale strap (2)	56-2234-2
Socket, Loktal, 5A24	27-6207
Socket, Loktal, 7F8/s	27-6207-1
Socket, miniature, 7 pin (4)	27-6265-1
Socket, miniature, 9 pin	27-6203-5
Socket, octal	27-6174
Speaker bolts (4)	
Washer, fibre, speaker mounting (4)	27-7467

## FM ALIGNMENT PROCEDURE

Make the AM alignment first.

**RADIO CONTROLS:** Set volume control to maximum, tone control counterclockwise, and band switch to FM position. Allow radio and signal generator to warm up for at least 15 minutes before making alignment.

**SIGNAL GENERATOR:** Use a signal generator capable of delivering a 9.1-mc. FM signal with a deviation of  $\pm 80$  kc., and modulated AM signals of 92 mc., 105 mc., and 108 mc. Philco Model 7008 Precision Visual Alignment Generator fulfills these requirements. **NOTE:** Model 7008 must be well bonded to radio chassis.

**OSCILLOSCOPE:** Connect to FM TEST jack. Model 7008 is suggested.

**OUTPUT METER:** Connect across speaker voice-coil terminals.

**R-F COIL NOTE:** Check resonance of circuits containing coils L1, L2, and L3 by inserting each end of a tuning wand, such as Philco Part No. 45-8885, into coil. If signal strength increases when powdered-iron end is inserted, compress turns slightly. If signal strength increases when brass end is inserted, spread turns slightly. If signal strength decreases when each end is inserted, no adjustment is necessary. Do not spread or compress turns excessively; only a small change is required at these high frequencies.

## FM ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through a .1- $\mu$ f. condenser to pin 1 of 6AV6*.	9.1 mc. $\pm 80$ kc. deviation.	Gang fully meshed.	Adjust TC10 for correct crossover. Adjust TC 9 for maximum and equal peaks. Repeat.	TC10—FM det. sec. TC9—FM det. pri.
2	1- $\mu$ f. condenser to pin 1 of 6BA6*.	9.1 mc. $\pm 80$ kc. deviation.	Gang fully meshed.	Adjust, in order given, for maximum and equal peaks. Repeat.	TC8—FM 2nd i-f sec. TC7—FM 2nd i-f pri.
3	Through a .1- $\mu$ f. condenser to pin 1 of 7F8/S*.	9.1 mc. $\pm 80$ kc. deviation.	Gang fully meshed.	Adjust, in order given, for maximum and equal peaks. Repeat.	TC4—FM 1st i-f sec. TC3—FM 1st i-f pri.
4	Through a 300-ohm dummy aerial to FM aerial socket.	108 mc.	108 mc.	Adjust trimmer for maximum reading on output meter.	C23—FM osc.
5	Same as step 4.	105 mc.	105 mc.	Adjust for maximum while rocking gang.	C1D—FM r-f C1A—FM aerial
6	Same as step 4.	92 mc.	92 mc.	Adjust coils, in order given, for proper resonance (see R-F COIL NOTE).	L3—FM osc. coil L2—FM r-f coil L1—FM aerial coil

\*CAUTION: Do not overload! When aligning the i-f stages, the curve will be distorted or destroyed if too great a signal is used. To check, attenuate the signal input. If the curve changes in form, rather than merely decreasing in multitude, the stage is overloaded.

### CORRECTIONS TO PARTS LIST

Reference Symbol	Description	Service Part No.
J5	Socket, phono input .....	27-6252
LA1	Loop aerial, AM, 51-1734 .....	Delete
LS1	Speaker, 51-1734 .....	36-1611-7
	Bin light and phono power socket and cable assembly, 51-1734 .....	41-3944-3
	Drive screw (8) .....	1W19432FA3
	Loop plug, 51-1734 .....	27-4785-11
	Speaker bolt (4) .....	W700-2
	Spring (3) changer mounting, top (light) .....	56-7059-1F147

### PRODUCTION CHANGES

#### Run 2

To increase FM sensitivity, R23 was changed to 1000 ohms, Part No. 66-2108340\*.

#### Run 3

To increase the AM sensitivity of the 7F8 tube, R19 was changed to 1500 ohms, Part No. 66-2158340\*.

#### Run 4

To reduce low-level audio distortion with sensitive 6AV6 at high signal input, a 15- $\mu$ f. ceramic condenser, Part No. 62-015009001\*, was added, from the 6AV6 grid (pin 1) to ground.

#### Run 5

To improve stage tracking at 740 kc., the oscillator coil was changed to Part No. 32-4153-11.

#### Run 6

To stabilize the FM i-f system, condenser C36 was changed to .003  $\mu$ f., Part No. 61-0109\*.