



Model 54

SPECIFICATIONS

TYPE OF CIRCUIT—

Model 54 is an eight (8) tube alternating current super-heterodyne receiver with electric push-button tuning.

The Model 54 radio is designed for operation with standard aerial and ground installation. For demonstration purposes and local reception, a built-in aerial is also provided. The type of aerial recommended for use with this radio is the Philco Safety Aerial Part No. 40-6370.

Other features of design included in this radio are five tuning ranges, covering standard and overseas short wave frequencies; variable tone control; automatic volume control; and a pentode output system. Six (6) electric push buttons are provided for automatic station selection.

TUNING RANGES—

540-1600 K.C.
6-18 M.C.
9.55-9.74 M.C.
11.6-11.9 M.C.
14.9-15.59 M.C.

INTERMEDIATE FREQUENCY—460 K.C.

POWER SUPPLY—115 volts A.C., 25 cycle
115 volts A.C., 60 cycle

AUDIO OUTPUT—5 watts

PHILCO TUBES USED—

1-6J8EG, 1st det. and osc.
1-78E, I.F. Amp.
1-6J5G, 2nd det. A.V.C.
1-6K5G, 1st audio
1-6J5G, phase inverter
2-6F6EG, output
1-80, rectifier

PROCEDURE FOR SETTING AND OPERATING THE ELECTRIC PUSH BUTTON TUNING

The automatic tuning mechanism of this model consists of six (6) electric tuning push buttons, five (5) of the push buttons are used for selecting broadcast stations, and one to switch your set from automatic to manual tuning.

Select five of your favorite nearby broadcast stations and

remove their call letters from the station call letter tab sheets supplied. Place each call letter tab in the tab space above each button which includes the frequencies of the desired stations. The frequency range of the buttons and corresponding padders is as follows:

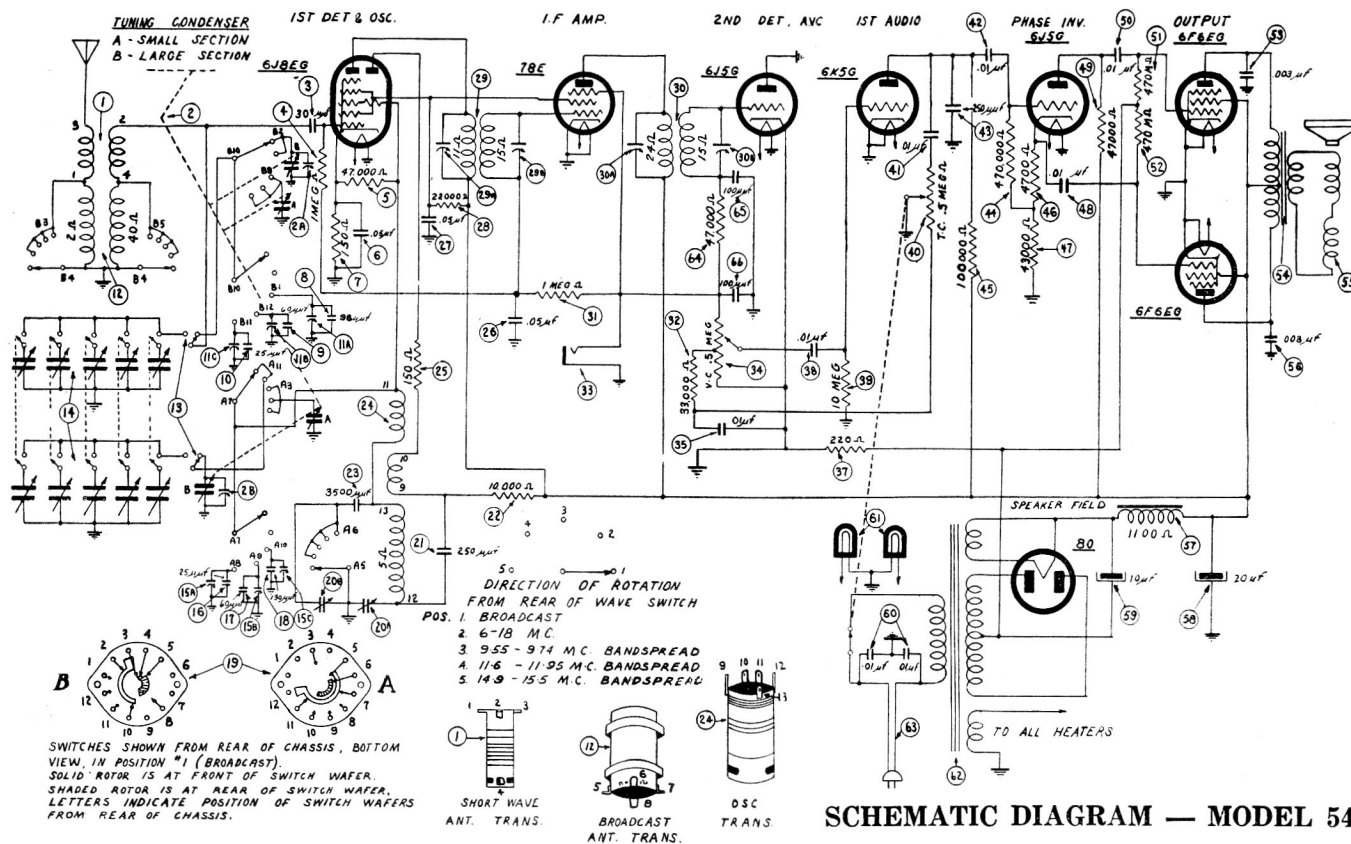
Padders (right to left from rear)	Circuit	Buttons (left to right from front)	Frequency Range
1	Osc }	1	540 to 980 kilocycles
2	Ant }		
3	Osc }	2	540 to 980 kilocycles
4	Ant }		
5	Osc }	3	710 to 1185 kilocycles
6	Ant }		
7	Osc }	4	850 to 1600 kilocycles
8	Ant }		
9	Osc }	5	1185 to 1600 kilocycles
10	Ant }		
		6	Manual Tuning

The second button from the left looking at the front of the cabinet corresponds to the two right-hand padder screws looking at the rear and covers the lowest frequency range.

With the "Tuning Range Selector" in broadcast position, tune in the station whose call letters appear above the second button. Then depressing the second button, tune in this station by rotating the No. 1 "OSC" screw (next to the right end of the unit looking at the rear of the chassis). (NOTE: Inherent characteristics of these padders may cause some of them to cover a lower range than required to cover the broadcast band. This may cause the radio to howl or flutter when a station button is depressed. To correct this, loosen the "ANT" padder corresponding to the depressed station button.) Turn the "OSC" screw slowly and listen carefully or the station may be passed without noticing it. After the "OSC" screw

has been adjusted for maximum volume, the corresponding "ANT" screw should be adjusted for maximum. For some stations, it may be necessary to readjust the "OSC" screw after the "ANT" screw has been set. Pushing the Manual tuning button No. 6 and then returning to the push button you are adjusting will enable you to make sure you have the correct station tuned in. When the first station has been set, the same procedure should be followed for the remaining buttons, first tuning in the desired station by means of the Station Selector.

To tune the set with the "Push Buttons", turn "Tuning Range Selector" to BC position and press in the button which corresponds to the call letters of the desired station. The volume of the program may be controlled with the manual volume control.



SCHEMATIC DIAGRAM — MODEL 54

REPLACEMENT PARTS — MODEL 54

Schem No.	Description	Part No.	Schem No.	Description	Part No.	Schem No.	Description	Part No.
1	S.W. Antenna Coil	12-0021	47	Resistor (43,000 ohms, 1/2 watt)	33-343334	63	Socket (6 prong)	07-0048
2	Tuning Condenser	11-0003	48	Tubular Cond. (.01 mfd, 400v)	30-4572	64	Dial Plate	08-0007
3	Mica Condenser	60-030157	49	Resistor (47,000 ohms, 1/2 watt)	33-347334	65	Pointer	08-0008
4	Resistor (1 meg, 1/2 watt)	33-510254	50	Tubular Cond. (.01 mfd, 400v)	30-4572	66	Tuning Shaft	08-0009
5	Resistor (47,000 ohms, 1/2 watt)	33-347254	51	Resistor (470,000 ohms, 1/2 watt)	33-447254	67	P.B. Bracket	08-0012
6	Tub. Cond. (.05 mfd, 200v)	30-4519	52	Resistor (470,000 ohms, 1/2 watt)	33-447254	68	Drive Cord	11-0004
7	Resistor (150 ohms, 1/2 watt)	33-115336	53	Tubular Cond. (.003 mfd, 1000v)	30-4469	69	Plug (Speaker Cable)	27-4420
8	Silver Mica Cond. (.98 mmfd.)	30-1186	54	Output Transformer	12-0077	70	Pulley (Drive Cord)	27-4981
9	Silver Mica Cond. (.60 mmfd.)	10-0006	55	Bucking Coil (Part of Speaker)		71	Socket (6J8EG)	27-6099
10	Silver Mica Cond. (.25 mmfd.)	30-1145	56	Tubular Cond. (.003 mfd 1000v)	30-4469	72	Contact (Speaker Cable)	28-4528
11a	15 MC Bandsread R.F. Padder	31-6374	57	Speaker Field (not replaceable)		73	Stud (Drive Cord)	28-6886
11b	11.7 MC Bandsread R.F. Padder	31-6374	58	Electrolytic Cond. (20 mfd.)	10-0004	74	Spring (Drive Cord)	28-8954
11c	9.6 MC Bandsread R.F. Padder	31-6374	59	Electrolytic Cond. (10 mfd.)	10-0005	75	Drum Assembly	38-9856
12	Broadcast Antenna Coil	12-0021	60	Tubular Cond. (.01 mfd, 400v)	30-4572	76	Upright Bracket	56-1433
13	Push Button Switch	22-0010	61	Pilot Lamps	34-2064	77	Mounting Foot (Chassis)	56-1802
14	Push Button Padder Strip	31-6316	62	Power Transformer (25 cycle)	12-0031	78	Pilot Lamp Ass'y.	76-1115
15a	15 MC Oscillator Padder	31-6374		(60 cycle)	12-0032	79	P.B. Knob	07-0049
15b	11.7 MC Oscillator Padder	31-6374	63	A.C. Cord	03-0033	80	Dial	07-0050
15c	9.6 MC Oscillator Padder	31-6374	64	Resistor (47,000 ohms, 1/2 watt)	33-347244	81	Dial Clamp	08-0011
16	Silver Mica Cond. (.25 mmfd.)	30-1145	65	Mica Cond. (100 mmfd.)	60-110157	82	Antenna Strip	08-0034
17	Silver Mica Cond. (.60 mmfd.)	10-0005	66	Mica Cond. (100 mmfd.)	60-110157	83	Speaker	16-0007
18	Silver Mica Cond. (.130 mmfd.)	10-0007		Speaker Cable	03-0030	84	Knob	27-4987
19	Wave Switch	22-0009		Socket (Octal)	07-0037	85	Tab Kit	20-0009
20a	600 K.C. Oscillator Padder	11-0007		Socket (4 prong)	07-0046	86	Cone & Voice Coil Assembly	25-0038
20b	1500 K.C. Osc. Padd. (Part of 20a)	11-0007						
21	Mica Cond. (250 mmfd.)	60-125357						
22	Resistor (10,000 ohms, 1/2 watt)	33-310354						
23	Mica Cond. (.3500 mmfd.)	60-235124						
24	Oscillator Coil	12-0022						
25	Resistor (150 ohms, 1/2 watt)	33-115354						
26	Tubular Cond. (.05 mfd, 200v)	30-4519						
27	Tubular Cond. (.05 mfd, 200v)	30-4519						
28	Resistor (22,000 ohms, 1/2 watt)	33-322354						
29	First I.F. Transformer	12-0017						
29a	Padder (Primary) (Part of 29)							
29b	Padder (Secondary) (Part of 29)							
30	Second I.F. Transformer	12-0035						
30a	Padder (Primary) (Part of 30)							
30b	Padder (Secondary) (Part of 30)							
31	Resistor (1 meg, 1/2 watt)	33-510254						
32	Resistor (33,000 ohms, 1/2 watt)	33-332354						
33	Phono Jack	27-6149						
34	Volume Control	13-0001						
35	Tubular Cond. (.01 mfd 400v)	30-4572						
36	Res. (220 ohms 1 watt)	33-122436						
37	Tubular Cond. (.01 mfd, 400v)	30-4572						
38	Resistor (10 meg, 1/2 watt)	33-610254						
39	Tone Control (1/2 meg.)	13-0002						
40	Tubular Cond. (.01 mfd, 400v)	30-4572						
41	Tubular Cond. (.01 mfd, 400v)	30-4572						
42	Mica Cond. (250 mmfd.)	60-125157						
43	Resistor (470,000 ohms, 1/2 watt)	33-447254						
44	Resistor (100,000 ohms, 1/2 watt)	33-410254						
45	Resistor (4700 ohms, 1/2 watt)	33-247334						

PART LOCATIONS—BOTTOM VIEW OF CHASSIS

ALIGNING R.F. AND I.F. COMPENSATORS

EQUIPMENT REQUIRED

1. **SIGNAL GENERATOR:** Covering the frequency range of the receiver, such as Philco Model 070.
2. **ALIGNING INDICATOR:** Either a vacuum tube voltmeter or an audio output meter may be used as an aligning indicator. Philco Model 028 circuit tester contains both these meters.
3. **TOOLS:** Philco Fibre Screw Driver, Part No. 45-2610. Philco Fibre Wrench, Part No. 3164.

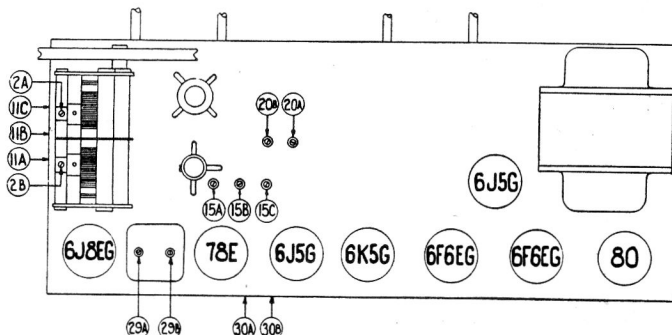
CONNECTING ALIGNING INSTRUMENTS

Either a vacuum tube voltmeter or an audio output meter may be used as a signal indicator when adjusting the receiver.

Vacuum Tube Voltmeter: To use the vacuum tube voltmeter as an aligning indicator, make the following connections: Attach the negative (—) terminal of the voltmeter to any point in the circuit where the A.V.C. voltage can be obtained. Connect the positive (+) terminal of the vacuum tube voltmeter to the chassis.

Audio Output Meter: The audio output meter is connected between the plate of the output tube and the ground of the chassis. When using these connections, the lowest A.C. scale of the meter must be used. (0 to 10 volts).

Signal Generator: When adjusting the "I.F." padders, the high side of the signal generator is connected through a .1 mfd. condenser to the grid cap of the 78E tube. The ground or low side of the signal generator is connected to the ground of the receiver.



LOCATION OF COMPENSATORS

Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	DIAL SETTING	DIAL SETTING	CONTROL SETTING	ADJUST COMPENSATORS	
1	High Side to Grid Cap of 6J8EG	460 K.C.	580 K.C.	Volume Maximum Band SW-Bdct	30B 30A, 29B, 29A	NOTE A
2	High Side to Antenna Lead	15 M.C.	15 M.C.	Volume Maximum Band SW-SW	2B, 2A	NOTE B
3	High Side to Antenna Lead	1500 K.C.	1500 K.C.	Volume Maximum Band SW-Bdct	20B	NOTE D
4	High Side to Antenna Lead	580 K.C.	580 K.C.	Volume Maximum Band SW-Bdct	20A	NOTE C
5	High Side to Antenna Lead	9.6 M.C.	9.6 M.C.	Volume Maximum Band SW-31M	15C, 11A	
6	High Side to Antenna Lead	11.7 M.C.	11.7 M.C.	Volume Maximum Band SW-25M	15B, 11B	
7	High Side to Antenna Lead	15 M.C.	15 M.C.	Volume Maximum Band SW-19M	15A, 11C	
8	High Side to Antenna Lead	1500 K.C.	1500 K.C.	Volume Maximum Band SW-Bdct	2A	Pad to Maximum

NOTE A—DIAL CALIBRATION: In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows: With the tuning condenser closed (maximum capacity), set the dial pointer on the extreme left index line at the low frequency end of the broadcast scale.

NOTE B—For all short wave padding, a 400 ohm non-inductive resistor must be placed between the high side of the signal generator and the antenna lead.

NOTE C—When adjusting the compensator the receiver Tuning Condenser must be adjusted (rolled) as follows: First tune the compensator for maximum output, then vary the tuning condenser of the receiver for maximum output. Now turn the compensator slightly to the right or left and again vary the receiver tuning condenser for maximum output. This procedure of first setting the compensator and then varying the tuning condenser is continued until maximum output reading is obtained.

NOTE D—When adjusting R.F. padders in broadcast position a 200 mmfd. condenser must be placed in series with Ant. lead and generator.