



MODELS 38, 42, 43

SPECIFICATIONS — Models 38, 42, 43

TYPE OF CIRCUIT: Models 38, 42 and 43 are alternating current (A.C.) operated superheterodyne radios incorporating Electric push button and Manual tuning, and the New Philco Built-in Domestic and Overseas Loop Aerial System. In addition these models are designed to receive the sound of a television program tuned in by special type Philco Television Sets.

In general, these models are similar with the exception of the audio circuits, number of tubes used and cabinet design. Models 38 and 42 are eight (8) tube radios employing practically the same chassis but assembled in different cabinets, and Model 43 consists of a ten (10) tube chassis. These differences are shown in the schematic diagram and parts list.

Other features of design included in these models are: Three tuning ranges covering the frequencies listed below; continuously variable tone control; audio bass frequency compensation at low volume; Push-pull pentode audio output circuit; and illuminated frequency range and push button indicators.

ELECTRIC PUSH BUTTON TUNING: The automatic tuning mechanism of each model is identical and consists of eight (8) electric tuning push buttons, seven (7) of which are used for selecting broadcast stations, and the one on the left as the power switch.

The lowest frequency station push button (No. 2) can be adjusted for reception of the sound channel of a television program received by Philco television sets, when available.

AERIAL CONNECTIONS: The built in loop aerial system is designed to operate without an outside aerial or ground, and to give exceptionally sensitive receiving performance of stations on standard and short wave frequencies. Another feature is its noise-reducing characteristic. The loop can be turned to the position in which it picks up minimum amount of interference, or if interference is not present the loop may be set in the position where best reception is obtained.

When operating the radio in steel reinforced buildings and other shielded locations, the Philco 1941 Outdoor Aerial, Part No. 45-2817, is recommended for maximum receiving performance. The outdoor aerial can be easily connected to the radio by inserting the plug attached to the transformer unit into the socket provided at the rear of the chassis. This aerial can be obtained from your local Philco distributor. A ground connection is not required with either type of installation.

POWER SUPPLY: 115 volts; 50-60 cycle A.C.
115 volts; 25-40 cycle A.C.

POWER CONSUMPTION: Models 38 and 42, 55 watts
Model 43, 65 watts

FREQUENCY RANGES: 540 to 1720 K.C.; 2.3 to 7.0 M.C.;
9.0 to 12.0 M.C.

AUDIO OUTPUT: 2 watts

PHILCO TUBES USED: Models 38 and 42; XXL, R.F. mixer; XXL, oscillator; two 7B7E, I.F. amplifiers; 7C6, 2nd detector, A.V.C. and 1st audio; two 41E, audio output; and an 84 rectifier.

Model 43; XXL, R.F. mixer; XXL, oscillator; two 7B7E, I.F. amplifiers; 7A6, 2nd detector; 7C6, A.V.C. and 1st audio; 37, audio phase inverter; two 41E, audio output; and an 84 rectifier.

CABINET DIMENSIONS:

Model	Height	Width	Depth
38	11"	19"	13"
42	39½"	28⅝"	13¾"
43	41"	30⅝"	15⅝"

ADJUSTING ELECTRIC PUSH BUTTON TUNING

In order to adjust the electric push buttons accurately for reception of broadcast stations, a vacuum tube voltmeter such as Philco Model 023 should be used. In addition, an insulated padding screw driver, Part No. 45-2610, and Loktal aligning adaptor, Part No. 45-2767, are required. With this equipment at hand proceed as follows:

Select seven of the most popular stations received in the locality. Insert the station call letters into the windows above the buttons. The station with the lowest frequency is placed in the second button on the left and the highest frequency is placed in the eighth (8) push-button. Each push button is adjusted by two set screws located on the rear of the push button unit. Each set of screws is numbered and covers a frequency range as follows:

Push-Button	Frequency Range
1, 2, 3	540-1060 K.C.
4, 5	650-1110 K.C.
6, 7	920-1600 K.C.

Looking at the front of the cabinet, the second button on the left is adjusted by set screw No. 1. The next push button by set screw No. 2 and the remaining push buttons in order.

1. Remove the 7C6 A.F. tube from its socket and insert the aligning adaptor, then replace the tube in the adaptor. Connect the negative terminal of the vacuum tube voltmeter to the wire which protrudes from the side of the adaptor. Attach the positive terminal of the voltmeter to the chassis.

2. Turn the receiver on by pressing the second push button. Turn range selector to BROADCAST position.

3. Set up the Model 177 Signal Generator about 3 feet from the receiver and connect a loop constructed out of about 2 feet of wire to the high and ground output jacks of the signal generator. Turn the output controls to maximum and set the modulation control to "MOD. ON". Manually tune in the first station to be set up on push button No. 1. After doing this set the indicator of the 177 Signal Generator to the frequency of the station being received. As the indicator approaches the frequency of the station a whistle will be heard; leave the indicator at this point, then press "IN" No. 1 push button. Using the insulated screw driver turn the No. 1 "Osc." screw until the broadcast station identified by the signal generator is heard; at this point, turn the indicator of the signal generator away from the frequency of the station. Readjust No. 1 "Osc." and "Ant." screws for maximum deflection of the vacuum tube voltmeter pointer. Station No. 1 is now adjusted properly. After setting up the first station the same procedure as outlined above is used for the remaining stations.

When this model is to be set up to receive the sound of a television program tuned in by the special type Philco Television Sets when available, push-button No. 2 should be used. To tune in these programs, the same procedure as given for ordinary broadcast stations as outlined above is used.

Further details for setting up this receiver for operation with Philco Television Sets will be supplied with the instruments, when they become available.

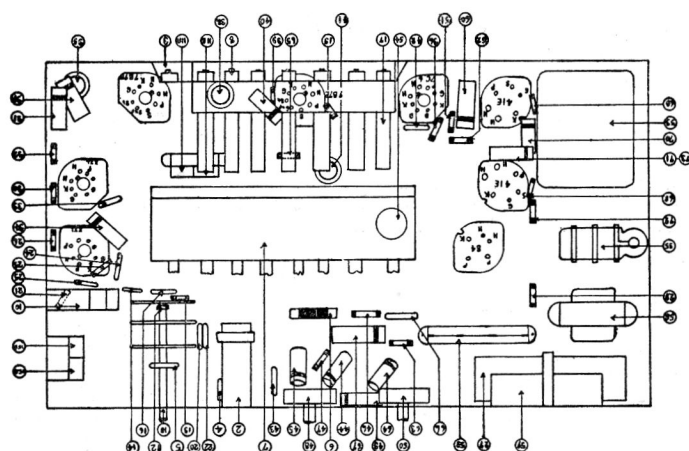


Fig. 2—Part Locations—Models 38 and 42
Under Side of Chassis

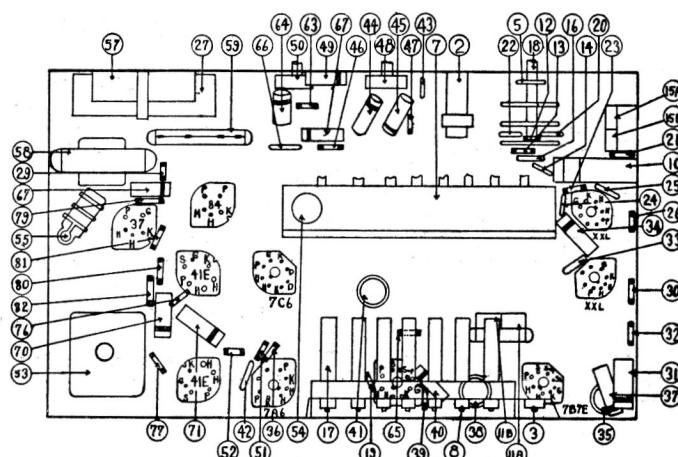


Fig. 3—Part Locations—Model 43
Under Side of Chassis

REPLACEMENT PARTS — MODELS 38, 42 and 43

Schem. No.	Description	Part No.
1	Loop Antenna, Model 38	76-1093
2	Loop Antenna, Models 42 & 43	76-1090
3	Ant. Transformer, Model 38	32-3479
4	Ant. Transformer, Models 42 & 43	32-3485
5	Padding Condenser	31-6308
6	Mica Condenser, (15 mmf)	60-015137
7	Mica Condenser (98 mmf) Model 38	30-1186
8	Mica Cond. (84 mmf) Models 42 & 43	30-1181
9	S.W. Antenna Coil	32-3481
10	Push Button Switch	22-0005
11	Padder Strip	31-6399
12	Tuning Condenser	31-2482
13	Osc. Transformer	32-3478
14	Padding Condenser Dual	31-6298
15	Resistor 22,000 ohms	33-322244
16	Resistor 4,700 ohms	33-247344
17	Mica Condenser, (84 mmf)	30-1181
18	Padding Condenser Dual	31-6355
19	Mica Condenser (1600 mmf)	60-216324
20	Osc. Coil Strip	32-3486
21	Wave Switch	42-1586
22	Resistor, 1.8 ohms	33-918336
23	Mica Condenser (370 mmf)	30-1157
24	Resistor, 10,000 ohms	33-310344
25	Mica Condenser (370 mmf)	30-1157
26	Resistor, 22,000 ohms	33-322244
27	Mica Condenser (250 mmf)	60-125157
28	Mica Condenser (250 mmf)	60-125157
29	Resistor, 33,000 ohms	33-333344
30	Electrolytic Cond. Dual 8-16 mf.-400v	30-2485
31	Pilot Lamp	(4) 34-2064
32		(1) 34-2210
33	Resistor, 18,000 ohms	33-318344
34	Resistor, 4,700 ohms	33-247344
35	Tubular Condenser (.05 mf)	30-4519
36	Resistor, 2.2 meg.	33-522244
37	Mica Condenser (250 mmf)	60-125157
38	Tubular Condenser (.05 mf)	30-4518
39	1st I.F. Transformer	32-3482
40	Resistor 2.2 meg.	33-522244
41	Tubular Condenser (.05 mf)	30-4519
42	2nd I.F. Transformer	32-3483
43	Resistor, 330 ohms	33-133336
44	Tubular Condenser (.05 mf)	30-4519
45	3rd I.F. Transformer	32-3484
46	Mica Condenser (100 mmf)	60-110157
47	Mica Condenser (50 mmf)	60-050137
48	Tubular Condenser (.01 mf)	30-4572
49	Tubular Condenser (.01 mf)	30-4572
50	Resistor, 470,000 ohms	33-447244
51	Resistor, 33,000 ohms	33-333344
52	Volume Control	33-5408
53	Tubular Condenser (.01 mf)	30-4572
54	Tone Control	33-5403
55	Resistor (1 meg)	33-510244
56	Resistor, 470,000 ohms	33-447244
57	Power Trans. 60 cycle, Model 38	32-8121
58	25 cycle, Model 38	12-0012
59	60 cycle, Mod. 42 & 43	32-8122
60	25 cycle, Mod. 42 & 43	12-0010
61	Part of Push Button Switch	
62	Filter Condenser (.05-.05 mf)	3903ODG
63	Line Cord	L-3199C
64	Elect. Cond. (12 mf)	30-2484
65	Output Trans.	32-8120
66	B.C. Resistor	33-3393
67	Tubular Condenser .003	30-4469
68	Phono Jack	27-6149
69	Speaker Field Coil, Model 38	32-9584
70	Model 42	32-9582
71	Model 43	25-0022

Schem. No.	Description	Part No.
63	Resistor, 10 meg.	33-610244
64	Tubular Condenser (.003 mf)	30-4469
65	Resistor, 22,000 ohms	33-322244
66	Mica Condenser (100 mmf)	60-110157
67	Tubular Condenser (.01 mf)	30-4572
68	Resistor, 470,000 ohms	33-447244
69	Resistor, 470,000 ohms	33-447244
70	Tubular Condenser (.01 mf)	30-4572
71	Tubular Condenser (.002 mf)	30-4579
72	Resistor, 3900 ohms	33-239344
73	Tubular Condenser (.003 mf)	30-4469
74	Voice Coil & Cone Ass'y, Model 38	36-4174
75	Model 42	36-4160
76	Model 43	25-0021
76	Resistor (1 meg)	33-510244
77	Resistor (1 meg)	33-510244
78	Tubular Condenser (.01 mf)	30-4572
79	Resistor, 47,000 ohms	33-347344
80	Resistor, 4,700 ohms	33-247344
81	Resistor, 470,000 ohms	33-447244
82	Resistor, 39,000 ohms	33-339344

MISCELLANEOUS PARTS

Bezel	27-4985
Cable (Speaker)	41-3542
Clip (Aerial Coil Mounting)	28-5002
Clip (Osc. Coil Mounting)	28-5003
Clamp (Electrolytic Condenser)	56-1848
Dial Scale (All Models)	27-5655
Dial Scale Rubber Chan. (two required)	54-4854
Dial Pointer	56-1516
Dial Tuning Shaft Assembly	76-1088
Dial Tuning "C" Washer	28-2043
Dial Tuning Spring Washer	56-1659
Drive Cord	31-2502

Schem. No.	Description	Part No.
63	Drum Assembly (Drive Cord)	38-9856
64	Knob (Tuning Volume)	27-4987
65	Knob (Push Buttons)	54-4009
66	Rubber Washer (Chassis Mounting)	27-4571
67	Rubber Corner (Chassis)	27-4564
68	Rubber Grommet (Tun. Cond. Mtg.)	27-4596
69	Speaker, Model 43	36-1523
70	Speaker, Model 42	36-1514
71	Speaker, Model 38	36-1519
72	Spring (Dial Background Plate Mtg.)	28-8908
73	Spring (Drive Cord)	28-8913
74	Socket (Dial Lighting)	76-1080
75	Socket Assembly (Band Ind.)	76-1079
76	Socket Assem. (Pilot Light, Push-buttons)	38-9607
77	Socket (Rectifier)	27-6035
78	Socket Tube (41)	27-6036
79	Socket Tube (Rubber, Osc. Tube)	27-6129
80	Socket Tubes (Bakelite)	27-6131
81	Socket (3 prong, Aerial)	27-6145
82	Tab Kit	40-6604

MOUNTING PARTS

Felt Strip (Push-Button)	27-9689
Screw (P.B. Sw. Mounting)	W-523
Screw (Loop Mounting) Models 42 & 43	W-288
Screw (Loop Mounting) Model 38	W-2071FA9
Screw (Chassis Mounting)	W-1345
Pinnut (Range Sw., Vol. Cont.)	W-2157
Sleeve (P.B. Switch Mounting)	56-1505
Sleeve (Loop Mtg., 2 required)	28-2257
Sleeve (Loop Mtg., 1 required)	56-1907
Spring Washer (Loop Mounting)	28-4186
Washer (Speaker Mounting)	27-7467
Washer (Chassis Mounting)	28-5114
Washer (Loop Mtg., 2 required)	W-151
Washer (Loop Mtg., 1 required)	W-425

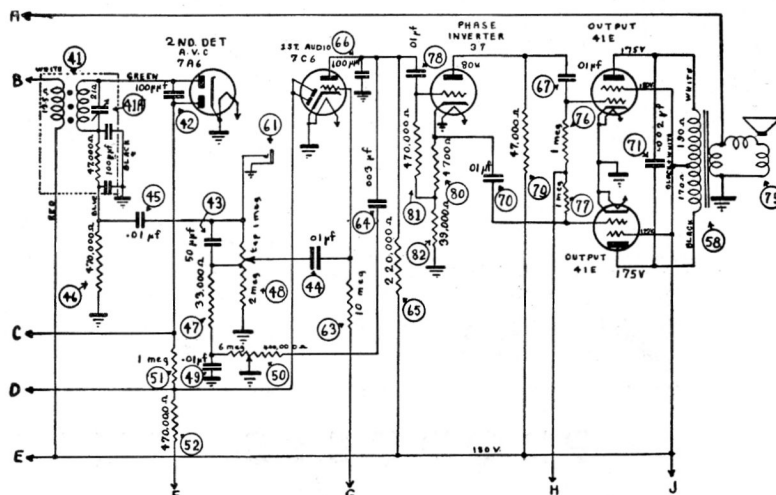


Fig. 4—Audio Circuit—Model 43

ALIGNING OF COMPENSATING CONDENSERS

EQUIPMENT REQUIRED

(1) **Signal Generator.** In order to properly adjust this receiver an accurately calibrated signal generator such as Philco Model 177 is required. This signal generator covers a frequency range of 115 to 32,500 K.C. (2) **Indicating Device.** To obtain maximum signal strength and accurate adjustment of the padders a vacuum tube voltmeter and circuit tester such as Philco Model 028 is recommended. When using the

vacuum tube voltmeter, an aligning adaptor, Philco Part No. 45-2767, is necessary for connecting to the A.V.C. circuit. These testers also contain an audio output meter which may also be used as an indicating device. (3) **Aligning Tools.** Fiber handle screw driver, Philco Part No. 45-2610, and fiber wrench, Philco Part No. 3164.

CONNECTING ALIGNING INSTRUMENTS

VACUUM TUBE VOLTMETER—To use the vacuum tube voltmeter as an alignment indicator make the following connections:

1. Adjusting I.F. Circuit.

Remove the XXL R.F. tube from its socket and insert the aligning adaptor, then replace the tube in the adaptor. Connect the negative terminal of the vacuum tube voltmeter to the wire (light color) which protrudes from the side of the adaptor. Attach the positive terminal of the voltmeter to the black wire.

2. Adjusting R.F. Circuit.

To adjust the R.F. circuit, the aligning adaptor is inserted in the 7C6 A.F. tube socket. The vacuum tube voltmeter remains connected to the adaptor as given in the above paragraph.

With the voltmeter connected in this manner a very sensitive indication of the A.V.C. voltage is obtained when the padders are adjusted. If an audio output meter is used,

connect it to the plate and socket terminals of the 41E output tube and adjust the output meter for the 0 to 30 A.C. scale.

After connecting the aligning indicator, adjust the compensators in the order as shown in the tabulation below. Locations of the compensators are shown on the schematic diagram, page No. 2. If the output meter pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

SIGNAL GENERATOR: When adjusting the I.F. padders, the high side of the signal generator is connected through a .1 mfd. condenser to terminal No. 4 of the loop terminal panel at the rear of the chassis. The ground or low side of the signal generator is connected to the chassis of the receiver.

When aligning the R.F. padders a loop is made from a few turns of wire and connected to the signal generator output terminals; the loop is then placed two or three feet from the loop in the cabinet. Do not remove the receiver loop from the cabinet. It is necessary when adjusting the padders that the receiver be left in the cabinet.

MODELS 38, 42, 43

Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections	Dial Setting	Dial Setting	Control Settings	Adjust Compensators in Order	
1	High side to No. 4 terminal loop panel	460 K.C.	580 K.C.	Vol. Max. Range Sw. "Overseas"	35A, 35B 38A, 41A	Note A
2	Use loop on Generator	1400 K.C.	1400 K.C.	Vol. Max. Range Sw. "Broadcast"	11A, 9A	Note B
3	Use loop on Generator	600 K.C.	600 K.C.	Vol. Max. Range Sw. "Broadcast"	15A	Roll tuning cond. Note C
4	Use loop on Generator	Perform Operation No. 2 Again				
5	Use loop on Generator	6 M.C.	6 M.C.	Vol. Max. Range Sw. "Police"	11B	
6	Use loop on Generator	12 M.C.	12 M.C.	Vol. Max. Range Sw. "Overseas"	15B, 3	Note D

NOTE A—A "Dummy Antenna" consisting of a .1 mfd. condenser is connected in series with the signal generator output lead (high side).

NOTE B—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. The arrangement of the drive cable in this position is shown in the schematic diagram.

NOTE C—When adjusting the low frequency compensator of Range One (Broadcast) or the antenna and R.F. compensators of the high frequency tuning ranges; 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 there is no further gain in output reading.

NOTE D—To accurately adjust the high frequency oscillator compensator to the fundamental instead of the image signal, turn the oscillator compensator (15B) to the maximum capacity position (clockwise). From this position slowly turn the compensator counter-clockwise until a first peak is obtained on the output meter. Adjust the compensator for maximum output at this first peak.

If the above procedure is correctly performed, the image signal will be found (much weaker) by turning the receiver dial 920 K.C. above the frequency being used on the high frequency range.

The aerial padder (3) must be adjusted to maximum by rolling the tuning condenser. If two signal peaks occur when turning the padder, adjust to maximum output on the second signal peak from tight position (screw all the way down) of the padder.

MANY OF THE PARTS IN THIS PHILCO, SUCH AS CONDENSERS AND RESISTORS, ARE HELD TO MUCH CLOSER TOLERANCE THAN STANDARD REPLACEMENT PARTS. GENUINE PHILCO REPLACEMENT PARTS MUST BE USED TO OBTAIN SATISFACTORY PERFORMANCE OF THIS MODEL.

PHILCO PRODUCTS LIMITED

PARTS AND SERVICE DIVISION
TORONTO, ONT.