



## Models 50, 51

### SPECIFICATIONS MODELS 50 and 51

**TYPE OF CIRCUIT:** Models 50 and 51 are alternating current (A.C.) operated superheterodyne radios incorporating Electric Pushbutton and Manual Tuning.

In general these models are similar with the exception of the output circuit, number of tubes used, speaker, and cabinet design. Model 50 is a six (6) tube receiver and Model 51 is a seven (7) tube receiver employing push pull output.

Other features of design included in these models are: Four tuning ranges covering the frequencies listed below; continuously variable tone control; audio bass frequency compensation; and pentode audio output circuit.

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

**POWER CONSUMPTION:** Model 50—60 watts  
Model 51—70 watts

**FREQUENCY RANGES:** 15-18 M.C.  
9.4-12 M.C.  
2.3-7.0 M.C.  
540-1700 K.C.

**AUDIO OUTPUT:** Model 50—2.2 watts  
Model 51—3.5 watts

### PHILCO TUBES USED:

#### Model 50

1-7A7E R.F. Amp.; 1-7J7E Converter; 1-7B7E I.F. Amp.; 1-7C6 2nd Det. 1st Audio; 1-41E Output; 1-80 Rectifier.

#### Model 51

1-7A7E R.F. Amp.; 1-7J7E Converter; 1-7B7E I.F. Amp.; 1-7C6 2nd Det. 1st Audio; 2-41E Output; 1-80 Rectifier.

### CABINET DIMENSIONS:

Model 50—20" x 14" x 10<sup>3</sup>/<sub>4</sub>"  
Model 51—20" x 14" x 11"

### PROCEDURE FOR SETTING AND OPERATING THE ELECTRIC PUSH BUTTON TUNING MODELS 50 and 51

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 as the power control (Off switch).

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:

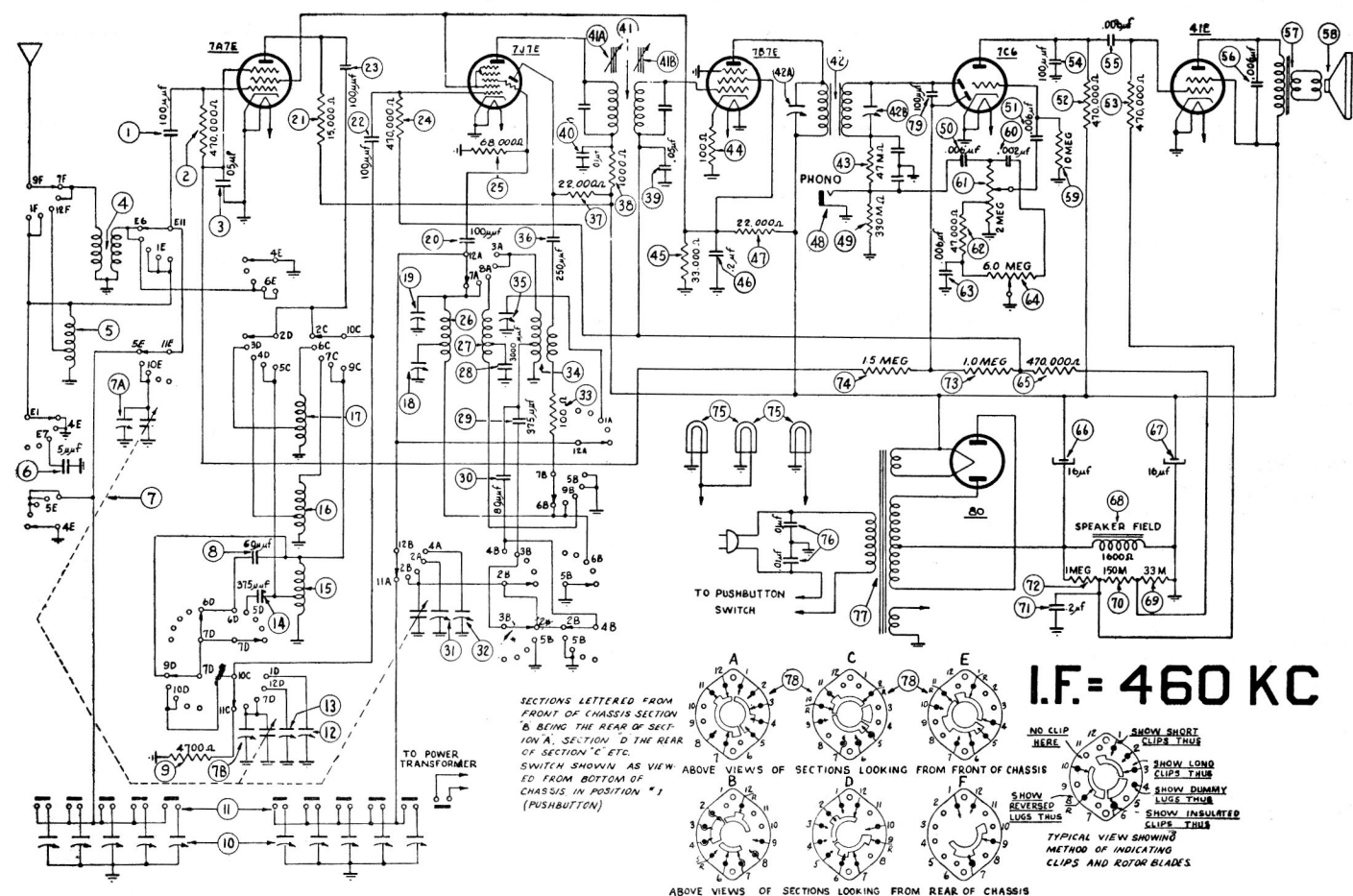
Padders (right to left from rear)	Circuit	Buttons (left to right from front)	Frequency Range
—	—	1	Off Switch
1	Ant }	2	540 to 980 kilocycles
2	Osc }		
3	Ant }	3	540 to 980 kilocycles
4	Osc }		
5	Ant }	4	710 to 1185 kilocycles
6	Osc }		
7	Ant }	5	850 to 1600 kilocycles
8	Osc }		
9	Ant }	6	1185 to 1720 kilocycles
10	Osc }		

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. 2 "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. Switching the "Tuning Range Selector" from broadcast position to the automatic push button position 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 push button 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.

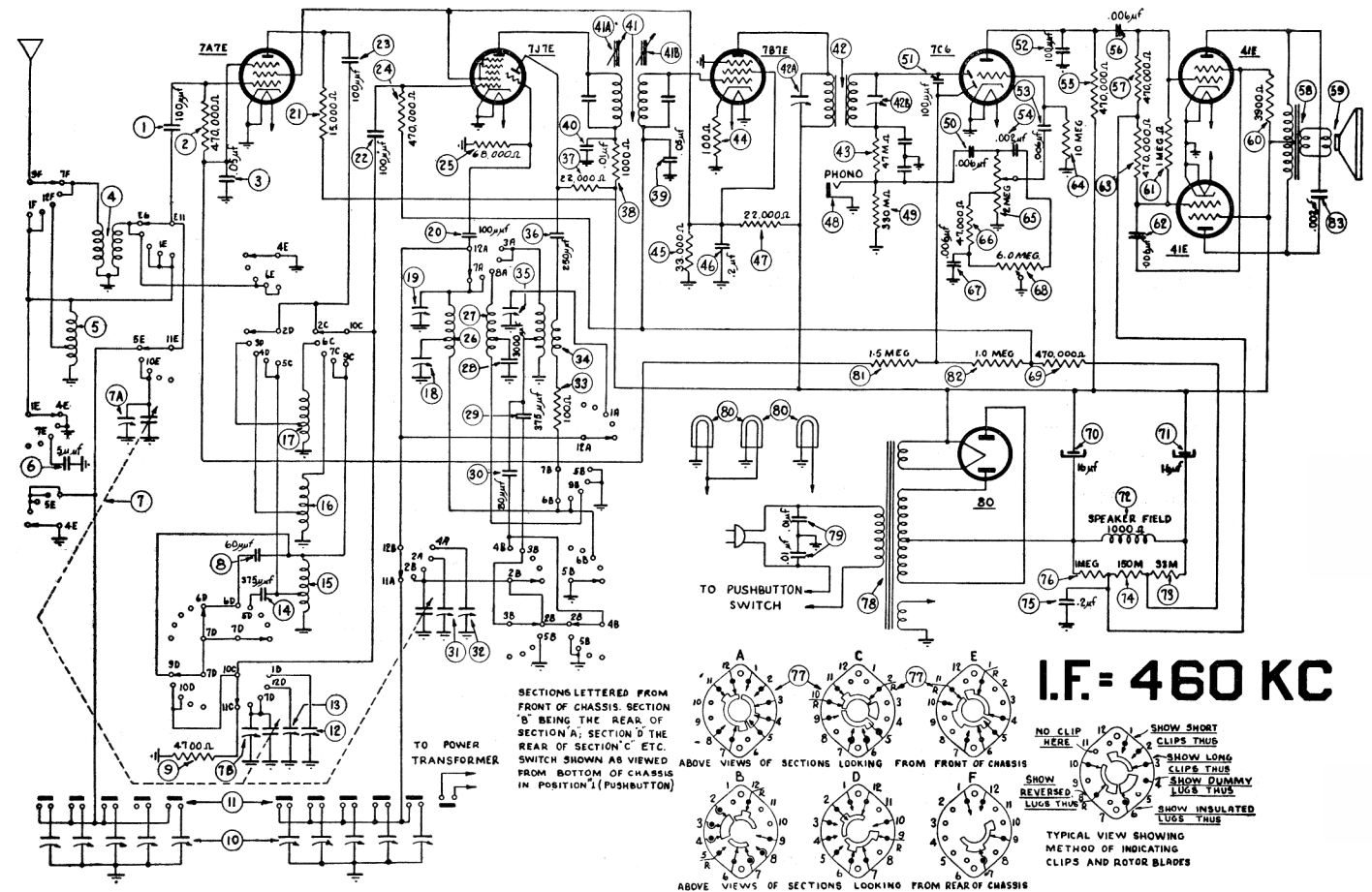


SCHEMATIC DIAGRAM — MODEL 50

## REPLACEMENT PARTS LIST — MODEL 50

Schem. No.	Description	Part No.	Schem. No.	Description	Part No.	Schem. No.	Description	Part No.
1	Mica Condenser (100 mmfd.)	60-110357	46	Tubular Cond. (.2 mfd., 400v)	30-4594		Spring (Drive Cord)	28-8751
2	Resistor (470,000 ohms, 1/3 watt)	33-447254	47	Resistor (22,000 ohms, 1 watt)	33-322454		Drive Cord	31-2550
3	Tubular Cond. (.05 mfd., 200v)	30-4519	48	Phono Jack	27-6149		Switch Cover	38-9660
4	Broadcast Antenna Transformer	32-3422	49	Resistor (330,000 ohms, 1/2 watt)	33-433344		Ant. Panel	38-9729
5	Police Ant. Transformer	32-3693	50	Tubular Cond. (.006 mfd., 400v)	30-4591		L.H. Upright	38-9740
6	Mica Condenser (5 mmfd.)	60-005337	51	Tubular Cond. (.006 mfd., 400v)	30-4591		Pilot Lamp Assembly	38-9796
7	Tuning Condenser	31-2549	52	Resistor (470,000 ohms, 1/3 watt)	33-447254		Pointer	56-1276FCP
8	Silver Mica Cond. (60 mmfd.)	30-1202	53	Resistor (470,000 ohms, 1/3 watt)	33-447254		Ind. Lever	56-2164
9	Resistor (4700 ohms, 1/2 watt)	33-247354	54	Mica Condenser (100 mmfd.)	60-110157		Front Support Bracket	56-2166
10	Push Button Padder Strip	31-6372	55	Tubular Cond. (.006 mfd., 400v)	30-4591		Ind. Link	56-2168
11	Push Button Switch	22-0003	56	Tubular Cond. (.006 mfd., 400v)	30-4591		Rear Support Bracket	56-2175
12	12 M.C. R.F. Padder	31-6421	57	Output Transformer	32-8123		Tun. Cond. Bracket	56-2235
13	12 M.C. R.F. Padder (Part of 12)	31-6421	58	Cone and Voice Coil Assembly (for Speaker 36-4152)	36-4156		R.H. Upright Assembly	76-1035
14	Silver Mica Cond. (375 mmfd.)	20-037517	59	Resistor (10 meg., 1/3 watt)	33-610254		Pilot Light Assembly (Ind.)	76-1178
15	Short Wave R.F. Transformer	32-3692	60	Tubular Cond. (.002 mfd., 400v)	30-4579		Dial Plate Assembly	76-1259
16	Police R.F. Transformer	32-3694	61	Volume Control (2 meg.)	33-5392		Knob	27-4332
17	Broadcast R.F. Transformer	32-3417	62	Resistor (47,000 ohms, 1/3 watt)	33-347254		P.B. Knob	27-4824
18	600 K.C. Osc. Padder (Part of 12)	31-6421	63	Tubular Cond. (.006 mfd., 400v)	30-4591		Speaker	36-1452
19	1500 K.C. Osc. Padder (Part of 12)	31-6421	64	Tone Control	33-5444		P.B. Bezel	56-1893FA9
20	Mica Condenser (100 mmfd.)	60-110357	65	Resistor (470,000 ohms, 1/3 watt)	33-447254			
21	Resistor (15,000 ohms, 1/2 watt)	33-315354	66	Electrolytic Cond. (16 mfd.)	10-0010			
22	Mica Condenser (100 mmfd.)	60-110357	67	Electrolytic Cond. (16 mfd.)	10-0010			
23	Mica Condenser (100 mmfd.)	60-110357	68	Speaker Field (1600 ohms)	32-9576			
24	Resistor (470,000 ohms, 1/3 watt)	33-447254	69	Resistor (33,000 ohms, 1/2 watt)	33-333334			
25	Resistor (68,000 ohms, 1/3 watt)	33-368254	70	Resistor (150,000 ohms, 1/2 watt)	33-415334			
26	Broadcast Oscillator Transformer	32-3423	71	Tubular Cond. (.2 mfd., 200v)	30-4536			
27	Police Oscillator Transformer	32-3695	72	Resistor (1 meg., 1/2 watt)	33-510334			
28	Police Tracking Cond. (3000 mmfd.)	60-230124	73	Resistor (1.0 meg., 1/3 watt)	33-510254			
29	Silver Mica Cond. (375 mmfd.)	20-037517	74	Resistor (1.5 meg., 1/3 watt)	33-515254			
30	Silver Mica Cond. (80 mmfd.)	30-1188	75	Pilot Lamp	34-2064			
31	12 M.C. Osc. Padder (Part of 12)	31-6421	76	Tubular Cond. (.01 mfd., 400v)	30-4572			
32	18 M.C. Osc. Padder (Part of 12)	31-6421	77	Power Transformer, 25 cycle	12-0005			
33	Resistor (100 ohms, 1/2 watt)	33-110334		60 cycle	12-0006			
34	Short Wave Oscillator Coil	32-3691	78	Wave Switch	42-1663			
35	7 M.C. Oscillator Padder (Part of 12)	31-6421	79	Mica Condenser (100 mmfd.)	60-110157			
36	Mica Condenser (250 mmfd.)	60-125357		Speaker Cable	03-0005			
37	Resistor (22,000 ohms, 1/3 watt)	33-322254		Socket (6 prong)	07-0044			
38	Resistor (1,000 ohms, 1/2 watt)	33-210354		Socket (4 prong)	07-0045			
39	Tubular Cond. (.05 mfd., 200v)	30-4519		Dial Scale	07-0062			
40	Tubular Cond. (.01 mfd., 400v)	30-4572		Speaker Plug	27-4419			
41	1st I.F. Transformer	32-3696		Rubber Corner	27-4564			
42	Second I.F. Transformer	32-3657		Loktal Socket	27-6158			
43	Res. (47,000, 1/3 watt) (Part of 42)	33-347254		Band Indicator Dial	27-9881			
44	Resistor (100 ohms, 1/2 watt)	33-110334		Coil Clip	28-6002			
45	Resistor (33,000 ohms, 1/2 watt)	33-333334						

Part Locations from Underside of Chassis  
MODEL 50



SCHEMATIC DIAGRAM — MODEL 51

## REPLACEMENT PARTS LIST — MODEL 51

Schem. No.	Description	Part No.	Schem. No.	Description	Part No.	Schem. No.	Description	Part No.
1	Mica Condenser (100 mmfd.)	60-110357	47	Resistor (22,000 ohms, 1 watt)	33-322454	65	Spring (Drive Cord)	28-8751
2	Resistor (470,000 ohms, 1/3 watt)	33-447254	48	Phono Jack	27-6149	66	Drive Cord	31-2550
3	Tubular Cond. (.05 mfd., 200v)	30-4519	49	Resistor (330,000 ohms, 1/2 watt)	33-433344	67	Switch Cover	38-9660
4	Broadcast Antenna Transformer	32-3422	50	Tubular Cond. (.006 mfd., 400v)	30-4591	68	Ant. Panel	38-9729
5	Police Ant. Transformer	32-3693	51	Mica Condenser (100 mmfd.)	60-110157	69	L.H. Upright	38-9740
6	Mica Condenser (5 mmfd.)	60-005337	52	Mica Condenser (100 mmfd.)	60-110157	70	Pilot Lamp Assembly	38-9796
7	Tuning Condenser	31-2549	53	Tubular Cond. (.006 mfd., 400v)	30-4591	71	Pointer	56-1276FCP
8	Silver Mica Cond. (60 mmfd.)	30-1202	54	Tubular Cond. (.002 mfd., 400v)	30-4579	72	Ind. Lever	56-2164
9	Resistor (4700 ohms, 1/2 watt)	33-247354	55	Resistor (470,000 ohms, 1/3 watt)	33-447254	73	Front Support Bracket	56-2166
10	Push Button Padder Strip	31-6372	56	Tubular Cond. (.006 mfd., 400v)	30-4591	74	Ind. Link	56-2168
11	Push Button Switch	22-0003	57	Resistor (470,000 ohms, 1/3 watt)	33-447254	75	Rear Support Bracket	56-2175
12	18 M.C. R.F. Padder	31-6421	58	Output Transformer	32-8133	76	Tun. Cond. Bracket	56-2235
13	12 M.C. R.F. Padder (Part of 12)	31-6421	59	Cone and Voice Coil Assembly	25-0043-2	77	R.H. Upright Assembly	76-1035
14	Silver Mica Cond. (375 mmfd.)	20-037157	60	Resistor (3900 ohms, 1/2 watt)	33-239334	78	Pilot Light Assembly (Ind.)	76-1178
15	Short Wave R.F. Transformer	32-3692	61	Resistor (1 meg., 1/3 watt)	33-510254	79	Dial Plate Assembly	76-1259
16	Police R.F. Transformer	32-3694	62	Tubular Cond. (.006 mfd., 400v)	30-4591	80	Knob	27-4332
17	Broadcast R.F. Transformer	32-3417	63	Resistor (470,000 ohms, 1/3 watt)	33-447254	81	P.B. Knob	27-4824
18	600 K.C. Osc. Padder (Part of 12)	31-6421	64	Resistor (10 meg., 1/3 watt)	33-610254	82	Speaker	16-0009
19	1500 K.C. Osc. Padder (Part of 12)	31-6421	65	Volume Control (2 meg.)	33-5392		P.B. Bezel	56-1893FA9
20	Mica Condenser (100 mmfd.)	60-110357	66	Resistor (47,000 ohms, 1/3 watt)	33-347254			
21	Resistor (15,000 ohms, 1/2 watt)	33-315354	67	Tubular Cond. (.006 mfd., 400v)	30-4591			
22	Mica Condenser (100 mmfd.)	60-110357	68	Tone Control	33-5444			
23	Mica Condenser (100 mmfd.)	60-110357	69	Resistor (470,000 ohms, 1/3 watt)	33-447254			
24	Resistor (470,000 ohms, 1/3 watt)	33-347254	70	Electrolytic Cond. (16 mfd.)	10-0010			
25	Resistor (68,000 ohms, 1/3 watt)	33-368254	71	Electrolytic Cond. (16 mfd.)	10-0010			
26	Broadcast Oscillator Transformer	32-3423	72	Speaker Field (1000 ohms) (Not Replaceable)				
27	Police Oscillator Transformer	32-3695	73	Resistor (33,000 ohms, 1/2 watt)	33-333334			
28	Police Tracking Cond. (3000 mmfd.)	60-230124	74	Resistor (150,000 ohms, 1/2 watt)	33-415334			
29	Silver Mica Cond. (370 mmfd.)	20-037517	75	Tubular Cond. (.2 mfd., 200v)	30-4586			
30	Silver Mica Cond. (80 mmfd.)	30-1188	76	Resistor (1 meg., 1/2 watt)	33-510334			
31	12 M.C. Osc. Padder (Part of 12)	31-6421	77	Wave Switch	42-1663			
32	18 M.C. Osc. Padder (Part of 12)	31-6421	78	Power Transformer, 25 cycle	12-0037			
33	Resistor (100 ohms, 1/2 watt)	33-110334	79	Tubular Cond. (.01 mfd., 400v)	30-4572			
34	Short Wave Oscillator Coil	32-3691	80	Pilot Lamp	34-2064			
35	7 M.C. Oscillator Padder (Part of 12)	31-6421	81	Resistor (1.5 meg., 1/3 watt)	33-515254			
36	Mica Condenser (250 mmfd.)	60-125357	82	Resistor (1.0 meg., 1/3 watt)	33-510254			
37	Resistor (22,000 ohms, 1/3 watt)	33-322254		Speaker Cable	03-0005			
38	Resistor (1,000 ohms, 1/2 watt)	33-210354		Socket (6 prong)	07-0044			
39	Tubular Cond. (.05 mfd., 200v)	30-4519		Socket (4 prong)	07-0045			
40	Tubular Cond. (.01 mfd., 400v)	30-4572		Dial Scale	07-0062			
41	1st I.F. Transformer	32-3696		Speaker Plug	27-4419			
42	Second I.F. Transformer	32-3657		Rubber Corner	27-4564			
43	Res. (47,000, 1/3 watt) (Part of 42)	33-347254		Loktal Socket	27-6158			
44	Resistor (100 ohms, 1/2 watt)	33-110334		Band Indicator Dial	27-9881			
45	Resistor (33,000 ohms, 1/2 watt)	33-333334		Coil Clip	28-5002			
46	Tubular Cond. (.2 mfd., 400v)	30-4594						

Part Locations from Underside of Chassis  
MODEL 51

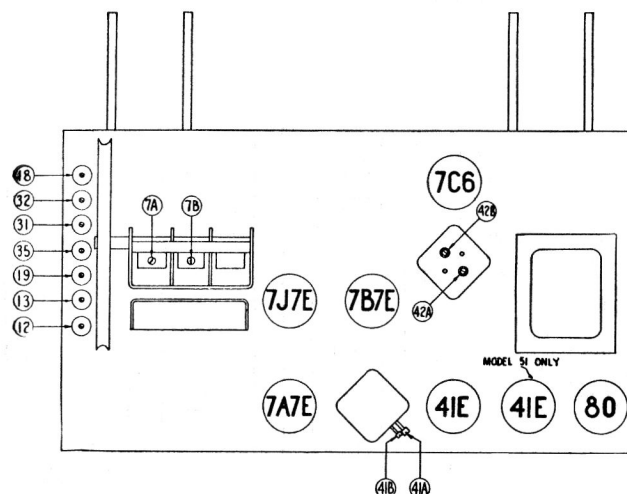
## ALIGNING OF COMPENSATING CONDENSERS

## EQUIPMENT REQUIRED

(1) **Signal Generator.** In order to properly adjust this receiver an accurately calibrated signal generator such as Philco Model 070 is required. This signal generator covers a frequency range of 120 to 70,000 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. 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.



LOCATION OF COMPENSATORS  
MODELS 50 and 51

## CONNECTING ALIGNING INSTRUMENTS

To align the receiver accurately, connect an audio output meter, such as Philco Model 028, to the speaker voice coil terminals or to the plate and screen terminals of the 41E tube. Adjust the compensators as shown in the tabulation

below. If the aligning meter goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

## MODELS 50 and 51

Operations in Order	SIGNAL GENERATOR			RECEIVER			SPECIAL INSTRUCTIONS
	OUTPUT CONNECTIONS	DUMMY ANTENNA NOTE "B"	DIAL SETTING	DIAL SETTING	CONTROL SETTINGS	ADJUST COMPEN. IN ORDER	
1	7J7E Grid	.1 Mfd.	460 K.C.	600 K.C.	Broadcast Band	41A-41 42A-42B	
2	ANTENNA LEAD	200 Mmf.	1500 K.C.	1500 K.C.	Broadcast Band	19	NOTE C
3	ANTENNA LEAD	200 Mmf.	600 K.C.	600 K.C.	Broadcast Band	18	NOTE C
4	ANTENNA LEAD	200 Mmf.	1500 K.C.	1500 K.C.	Broadcast Band	7A-7B	
5	ANTENNA LEAD	400 Ohms	7 M.C.	7 M.C.	SW 1	35	
6	ANTENNA LEAD	400 Ohms	12 M.C.	12 M.C.	12—9.5	31	NOTE C, D
7	ANTENNA LEAD	400 Ohms	12 M.C.	12 M.C.	12—9.5	12	
8	ANTENNA LEAD	400 Ohms	18 M.C.	18 M.C.	15—18	32	NOTE A, C, D
9	ANTENNA LEAD	400 Ohms	18 M.C.	18 M.C.	15—18	12	

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

**NOTE B—**When adjusting the compensators, the high side of the signal generator is connected in series with a suitable dummy as shown in the column headed "Dummy Antenna" to the receiver at the point shown in the column headed "Output Connections". The ground or low side of the generator is connected to the chassis of the receiver.

**NOTE C—**When adjusting the low and high frequency oscillator compensators of Range One (Broadcast), the oscillator compensator of Range Two (Sw 1) or the Antenna and R.F. compensators of the high frequency tuning range (Sw 2), the receiver Tuning Condenser must be adjusted (rolled)

as follows. First tune the compensator for maximum output, then vary the tuning condenser for maximum output. Now turn the compensator slightly to left or right 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 to the maximum capacity position (clockwise). From this position slowly turn the compensator counter-clockwise until a second peak is obtained on the output meter. Adjust the compensator for maximum output at this second peak.

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

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 CORPORATION OF CANADA LIMITED

PARTS AND SERVICE DIVISION  
TORONTO, ONTARIO

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