PHILCO . . . . RADIO SERVICE BULLETIN No. 334

RADIO MANUFACTURERS SERVICE — Your Guarantee of Best Radio Service — A PHILCO SERVICE PLAN

Models 40-81, codes 121, 122
40-88, code 121

SPECIFICATIONS

Models 40-81, Codes 121, 122

Models 40-81, Codes 121 and 122 are 4 tube portable battery operated superheterodyne receivers. These receivers are similar with the exception of the type tubes used. Incorporated in the receivers is a self-contained loop aerial and an extremely sensitive permanent magnet field speaker. In addition terminals are provided for connection an outside aerial and ground. The receiver is operated from a self-contained A-B battery pack.

TUNING RANGE: 540 to 1550 K. C.

INTERMEDIATE FREQUENCY: 455 K. C.

PHILCO TUBES USED: Model 40-81, Code 121: 1-1LA6, 1st Detector and Oscillator; 1-1LN5, I. F. Amplifier; 1-1LH4, 2nd Detector, A. F. Amplifier and Automatic Volume Control; and 1-1LA4, Power Output.
Model 40-81, Code 122: 1-1A7G, 1st Detector and Oscillator; 1-1N5G, I. F. Amplifier; 1-1H5G, 2nd Detector, A. F. Amplifier and Automatic Volume Control; and 1-1A5G, Power Output.

PHILCO BATTERIES REQUIRED: One P-41A-4FL.

BATTERY CURRENT:
"A" Battery, 200 M. A. "B" Battery, 5.6 M. A.

Model 40-88, Code 121

Model 40-88 is a portable 5 tube battery operated superheterodyne receiver for reception of standard and shortwave broadcast stations. Other features of design incorporated in this model are: a self-contained twin loop aerial for standard broadcast and shortwave reception, R. F. stage, extremely sensitive permanent magnet field speaker, and Philco loktal tubes. Outside aerial and ground terminals are provided for locations where signal strength is very weak or for permanent or semi-permanent installations. The receiver is operated from a self-contained A-B battery.

TUNING RANGE:
Broadcast, 540 to 1600 K. C. Shortwave, 5.8 to 18 M. C.

INTERMEDIATE FREQUENCY: 455 K. C.

PHILCO TUBES USED: 1-1LN5, R. F. Amplifier; 1-1LA6, Converter; 1-1LN5, I. F. Amplifier; 1-1LH4, Second Detector, A. F. Amplifier and Automatic Volume Control; and 1-1LA4, Audio Output.

PHILCO BATTERIES USED: One P-60A-4L.

BATTERY CURRENT:
"A" Battery, 250 M. A. "B" Battery, 8 M. A.

ALIGNMENT OF COMPENSATORS

EQUIPMENT REQUIRED

1. **Signal Generator** such as Philco Model 077 (A. C. operated) or Model 177 (Battery operated).

2. **Aligning Indicator:** Philco Models 027 or 028 Vacuum Tube Voltmeter and Circuit Tester contain sensitive audio output meters. Either of these instruments can be used as an aligning indicator and are connected as indicated below.

3. **Tools:** Aligning screw driver, Philco Part No. 45-2610.

CONNECTING THE ALIGNING METERS

Audio Output Meter: If an audio output meter is used, connect it across the plate and screen terminals of the output tubes. Adjust the meters to use the 0 to 10 scale.

Vacuum Tube Voltmeter: If a vacuum tube voltmeter is used as an aligning indicator, the negative (—) terminal is connected to the A. V. C. circuit of the receiver through a 2 meg. resistor. The positive (+) terminal is connected to the chassis or ground.

Signal Generator: When adjusting the I. F. padders the high side of the signal generator is connected through a .1 mfd. condenser to the loop tuning condenser stator lug which connects to the grid of the first tube. 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 aerial is made from a few turns of wire and connected to the signal generator output terminals. The signal generator is then placed a few feet from the set. The loop aerial of the receiver must be assembled in the cabinet, together with the battery when adjusting the R. F. padders.

The R. F. padding condensers can be reached from the bottom of the cabinet.

Models 40-81, Codes 121, 122

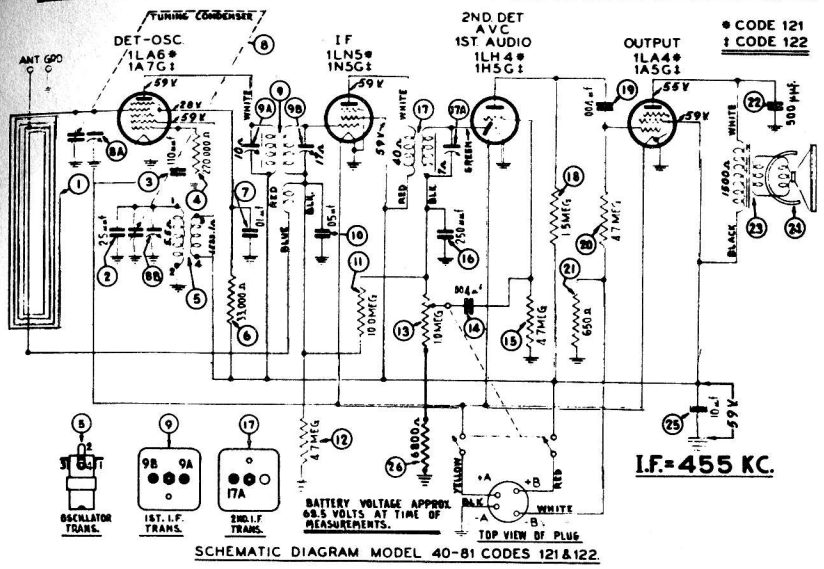
Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting	Adjust Compensators	
1	See Paragraph on Signal Generator above	455 K. C.	580 K. C.	Vol. Max.	17A, 9B, 9A	See Paragraph on Signal Generator above
2	Use Loop on Generator	1500 K. C.	1500 K. C.	Vol. Max.	8B, 8A	Padder location Fig. 1 Note A

Model 40-88, Code 121

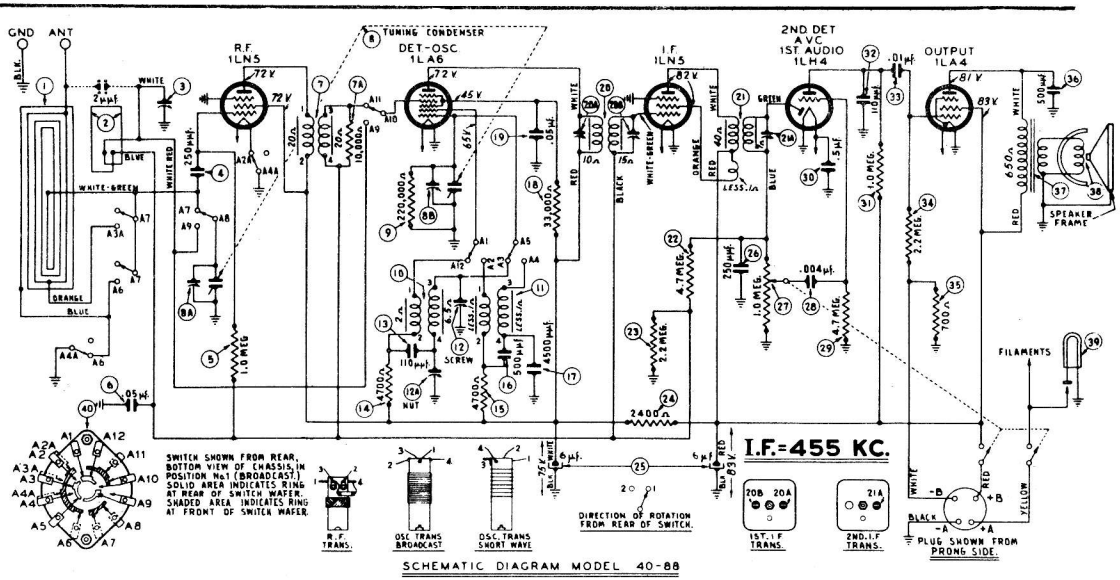
1	See Signal Generator Paragraph above	455 K. C.	580 K. C.	Vol. Max.	21A, 20B, 20A	
2	Use Loop on Generator	18 M. C.	18 M. C.	Vol. Max. Range Switch "S. W."	8B	Note A
3	Use Loop	1400 K. C.	1400 K. C.	Range Switch "Brdcst"	12, Screw, 8A	
4	Use Loop	580 K. C.	580 K. C.	Range Switch "Brdcst"	12A, Nut	Roll Tuning Condenser
5	Use Loop	1400 K. C.	1400 K. C.	Range Switch "Brdcst"	12, Screw, 8A	
6	Use Loop	18 M. C.	18 M. C.	Range Switch "S. W."	3	See Paragraph on Signal Generator above

NOTE A — DIAL CALIBRATION: Before adjusting the R. F. padders the dial must be aligned to track properly with the tuning condenser. To adjust the dial proceed as follows: With the tuning condenser in the closed position (maximum capacity) set the dial pointer on the small dot below 550 K. C.

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.



SCHEMATIC DIAGRAM MODEL 40-81 CODES 121 & 122.



SCHEMATIC DIAGRAM MODEL 40-88

Replacement Parts — Models 40-81, Codes 121, 122

SCHE. No.	DESCRIPTION	PART No.
1	Loop Assembly (Part of Cabinet)	10413A
2	Mica Condenser (15 mmfd.)	61-0038
3	Mica Condenser (110 mmfd.)	30-1031
4	Resistor (220,000 ohms, ½ watt)	33-422339
5	Oscillator Transformer	32-3277
6	Resistor (33,000 ohms, ½ watt)	33-333339
7	Tubular Condenser (.01 mfd.)	30-4572
8	Tuning Condenser Assembly	31-2432
9	1st I. F. Transformer Assembly	32-3265
10	Tubular Condenser (.05 mfd.)	30-4519
11	Resistor (10.0 meg., ½ watt)	33-610339
12	Resistor (4.7 meg., ½ watt)	33-547339
13	Volume Control and On-Off Switch	33-5331
14	Tubular Condenser (.004 mfd.)	30-4578
15	Resistor (4.7 meg., ½ watt)	33-547339
16	Mica Condenser (250 mmfd.)	61-0033
17	2nd I. F. Transformer Assembly	32-3266
18	Resistor (1.5 meg., ½ watt)	33-515339
19	Tubular Condenser (.004 mfd.)	30-4578
20	Resistor (4.7 meg., ½ watt)	33-547339
21	Resistor (650 ohms, ½ watt)	33-165326
22	Mica Condenser (500 mmfd.)	30-1114
23	Output Transformer	32-8062
24	Cone and Voice Coil Assembly (Speaker Part No. 36-1481-3)	36-4121
25	Electrolytic Condenser (10 mfd., 150 V.)	30-2396
26	Resistor (6800 ohms, ½ watt)	33-268339

MISCELLANEOUS PARTS

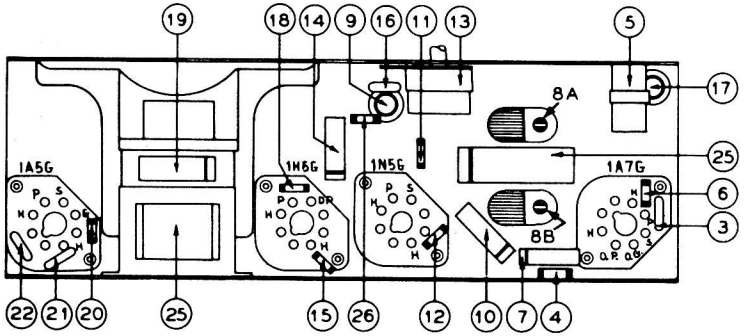
Acetate Window	27-5541
Cabinet	10431A
Clip (Coil Mounting)	28-5002
Drive Cord Assembly	31-2411
Dial	27-5561
Grille Screen	56-1539
Knobs (Volume and Tuning)	27-4876
Pointer	27-4891
Speaker	36-1481
Shield (Tube, Code 122)	56-1566
Sockets (Loktal, Code 121)	55-0575
Sockets (Octal, Code 122)	27-6133
Spring (Drive Cord)	28-8751
Tuning Shaft Assembly	38-9878

Replacement Parts — Model 40-88, Code 121

SCHE. No.	DESCRIPTION	PART No.
1	Loop Assembly (Broadcast)	38-9917
2	Loop Assembly (Short Wave)	38-9865
3	Compensator	31-6288
4	Mica Condenser (250 mmfd.)	61-0033
5	Resistor (1.0 meg., ½ watt)	33-510339
6	Tubular Condenser (.05 mfd.)	30-4519
7	R. F. Transformer Assembly	32-3219
7A	Resistor (10,000 ohms, ½ watt)	33-310339
8	Tuning Condenser Assembly	31-2378
9	Resistor (220,000 ohms, ½ watt)	33-422339
10	Oscillator Transformer (Broadcast)	32-3249
11	Oscillator Transformer (Short Wave)	32-3220
12	Compensator	31-6100
13	Mica Condenser (110 mmfd.)	30-1130
14	Resistor (4700 ohms, ½ watt)	33-247339
15	Resistor (4700 ohms, ½ watt)	33-247339
16	Mica Condenser (500 mmfd.)	30-1114
17	Mica Condenser (4500 mmfd.)	30-1109
18	Resistor (33,000 ohms, ½ watt)	33-333339
19	Tubular Condenser (.05 mfd.)	30-4519
20	1st I. F. Transformer Assembly	32-3222
21	2nd I. F. Transformer Assembly	32-3223
22	Resistor (4.7 meg., ½ watt)	33-547339
23	Resistor (2.2 meg., ½ watt)	33-522339
24	Resistor (2400 ohms, ½ watt)	33-224339
25	Electrolytic Condenser (6-6 mf., 150 V.)	30-2388
26	Mica Condenser (250 mmfd.)	61-0033
27	Volume Control and On-Off Switch	33-5310
28	Tubular Condenser (.004 mfd.)	30-4578
29	Resistor (4.7 meg., ½ watt)	33-547339
30	Tubular Condenser (.5 mfd.)	30-4551
31	Resistor (1.0 meg., ½ watt)	33-510339
32	Mica Condenser (110 mmfd.)	30-1130
33	Tubular Condenser (.01 mfd.)	30-4572
34	Resistor (2.2 meg., ½ watt)	33-522339
35	Resistor (700 ohms, ½ watt)	33-170339
36	Mica Condenser (500 mmfd.)	30-1114
37	Output Transformer	32-8096
38	Cone and Voice Coil Assembly (Speaker Part No. 36-1482-3)	36-4121
39	Pilot Lamp	34-2246
40	Wave Switch	42-1499

MISCELLANEOUS PARTS

Bezel	27-4855
Cabinet	10414A
Clip (Coil Mounting)	28-5002
Drive Cord Assembly	31-2380
Dial	27-5511
Flag (On-Off Indication)	56-1418
Flag Bearing	56-6045
Flag Spring	28-8947
Flag Cam and Hub Assembly	38-9861
Gasket (Dial Mounting)	27-9472
Knobs (Tuning, Volume and Wave Switch)	27-4862
Pilot Lamp Socket Assembly	38-9839
Pointer	27-4868
Pushbutton (Pilot Lamp)	27-4844
Operating Finger (Pilot Lamp)	56-1487
Speaker	36-1482
Speaker Grille	56-1255
Spring (Pilot Lamp)	28-8952
Spring (Drive Cord)	28-8882
Spring (Wave Switch Centering)	28-8665
Snap Fastener (Dial Mounting)	28-4342
Sockets (Loktal)	55-0575
Tuning Shaft	56-6070
Tuning Drum	56-1486



PART LOCATIONS, UNDERSIDE OF CHASSIS, MODEL 40-81

PHILCO

Parts and Service Division

Philadelphia, Pa.

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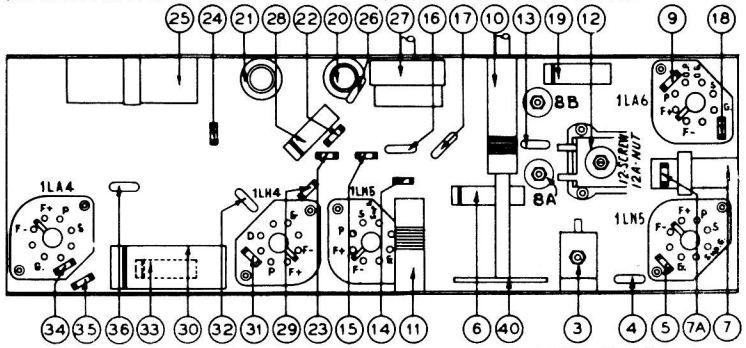

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