MODEL 40-748, Code 121---PHILCO-TROPIC

SPECIFICATIONS

TYPE CIRCUIT: Model 40-748, code 121 is a 7 tube battery operated radio receiver employing a superheterodyne circuit with 3 tuning ranges for reception of standard, police, and shortwave broadcast stations. Connections are also provided for attaching an external high impedance electric phonograph pick-up. In addition other features of design are automatic volume control, continuously variable tone control, BASS compensation, and a push pull pentode audio output circuit. A vibrator is used for supplying the "B" voltage from the 6 volt storage battery.

POWER SUPPLY: 6 volt storage battery.

TUNING RANGES: 530-1720 K. C. 2.3-7.4 M. C. 7.3-22 M. C.

INTERMEDIATE FREQUENCY: 455 K. C.

PHILCO TUBES USED: 6S7EG, R. F. Amplifier; 6D8EG, Converter; 6S7EG, I. F. Amplifier; 6T7G, Second Detector A. V. C. and First Audio; 6G6EG, Second Audio; two 49, Output.

AUDIO OUTPUT: 2.5 watts.

AERIAL & GROUND: To obtain maximum performance from this receiver, the Philco Safety aerial, Part No. 40-6370 should be used. A good ground source to the nearest water pipe or any other grounding connection should be used.

CABINET DIMENSIONS: Height, 14⅝"; Width, 20"; Depth, 10¼".

ALIGNMENT OF COMPENSATORS

EQUIPMENT REQUIRED

Signal Generator: In order to properly adjust the receiver, a calibrated signal generator such as Philco Model 077 A. C. operated or Model 177 battery operated is required. These signal generators cover a frequency range from 115 to 36000 K. C.

Indicating Device: To obtain maximum signal strength and accurate adjustment of the padders, a vacuum tube voltmeter or audio output meter should be used. Philco Models 027 and 028 vacuum tube voltmeters are recommended. These testers also contain an audio output meter which may be used as an indicating device.

Aligning Tools: Fibre handle screw driver, Philco Part No. 45-2610.

CONNECTING THE ALIGNING METERS

Vacuum Tube Voltmeter: To use the vacuum tube voltmeter as an aligning meter, it should be connected to the A. V. C. circuit as follows:

1. Connect the negative terminal of the voltmeter through a 2 meg. resistor to any point in the circuit where the A. V. C. voltage can be read such as the grids of the 6S7EG tube or resistors 46 and 48.

2. The positive terminal of the vacuum tube voltmeter is connected to the ground or chassis of the receiver.

Audio Output Meter: If this type of meter is used as an aligning indicator, it should be connected between the plate of the one 49 tube and ground. Adjust the meter to use the 0 to 30 volt A. C. scale.

After connecting the aligning meters as described above, adjust the compensators in the order as shown in the tabulation below. Locations of the compensators are shown in Fig. 1. If the pointer of the aligning meter goes off scale when adjusting the compensators, reduce the strength of the signal from the signal generator.

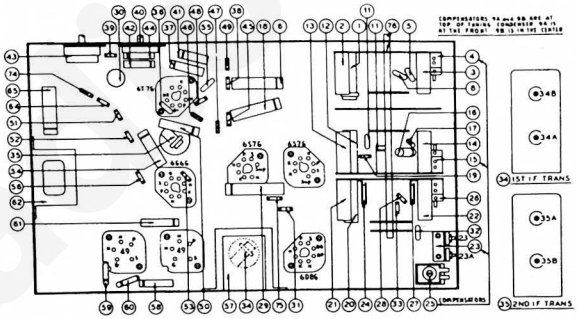


FIG. 1. PART LOCATIONS—UNDERSIDE OF CHASSIS.

Operations in Order	SIGNAL GENERATOR			RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dummy Antenna Note A	Dial Setting	Dial Setting	Control Settings	Adjust Compensators	
1	6D8EG Grid and Ground	.1 mfd.	455 K. C.	580 K. C.	Vol. Max. Tone-Treble Range Switch "Brdcst"	35A, 35B 34A, 34B	
2	Ant. & Grd.	200 mmfd.	1500 K. C.	1500 K. C.	Vol. Max. Range Switch "Brdcst"	23, 9B, 9A	Note B
3	Ant. & Grd.	200 mmfd.	580 K. C.	580 K. C.	Vol. Max.	25	Roll Gang
4	Ant. & Grd.	200 mmfd.	1500 K. C.	1500 K. C.	Vol. Max. Range Switch "Brdcst"	23, 9B, 9A	Note B
5	Ant. & Grd.	400 ohms	6.0 M. C.	6.0 M. C.	Vol. Max. Tone-Treble Range Switch "S. W. 1"	23A	Roll Gang
6	Ant. & Grd.	400 ohms	21 M. C.	21 M. C.	Vol. Max. Tone-Treble Range Switch "S. W. 2"	26, 15, 4	Note C

NOTE A — The "Dummy Antenna" consists of a condenser or resistance connected in series with the signal generator output lead (high side). Use the capacity or resistance as specified in each step of the above procedure.

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 first mark on the left edge (low frequency end) of the broadcast scale.

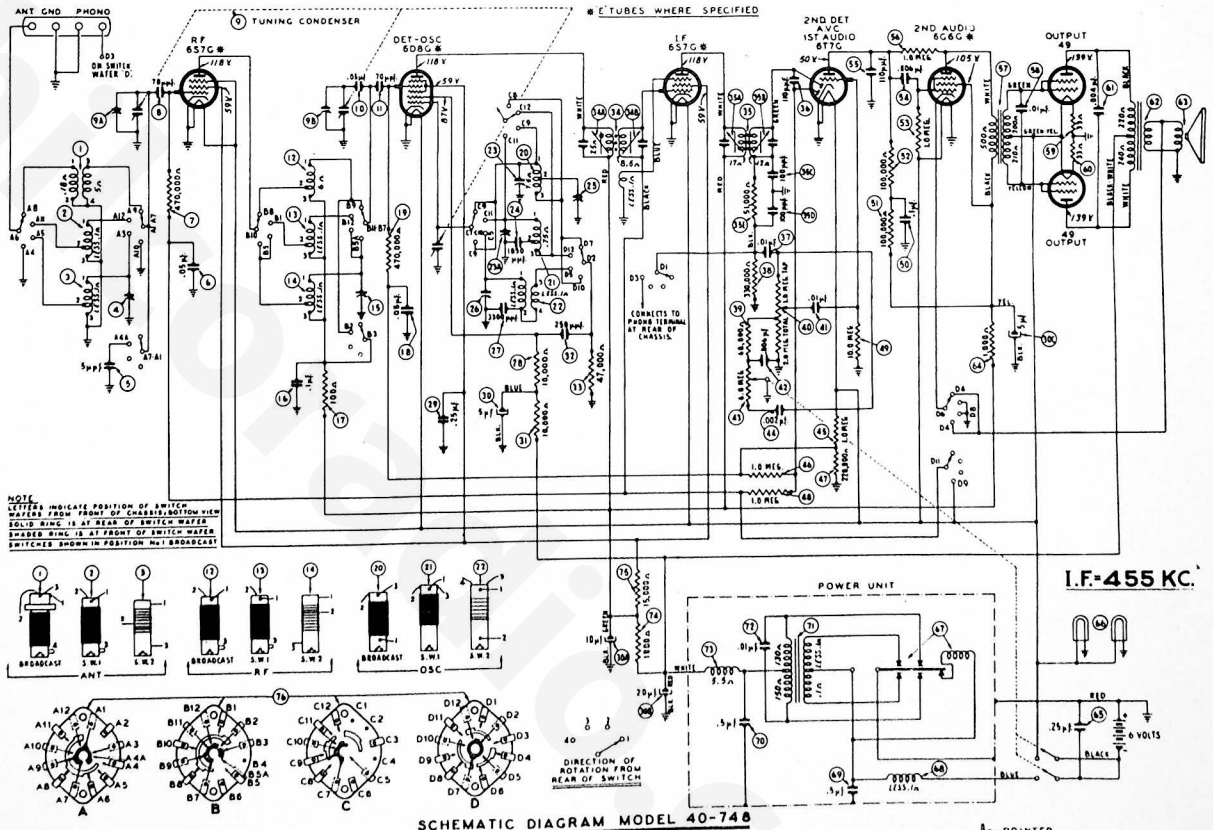
NOTE C — When adjusting compensator (26) be sure to tune in the fundamental signal (21 M. C. — second signal from tight position of padder) instead of the image signal. If the compensator is correctly adjusted, the image signal will be found by turning the receiver dial 910 K. C. below the fundamental signal.

PRODUCTION CHANGES

To increase the efficiency of the oscillator at the low frequency end of the short wave band, resistor (33) 47000 ohms, Part Number 33-347339 was changed to 100,000 ohms, Part Number 33-410339.

Replacement Parts
Model 40-748

SCHE. No.	DESCRIPTION	PART No.
1	Antenna Transformer (Broadcast)	32-2588
2	Antenna Transformer (S. W. 1)	32-3191
3	Antenna Transformer (S. W. 2)	32-3196
4	Compensator	31-6288
5	Mica Condenser (5 mmfd.)	30-1120
6	Tubular Condenser (.05 mfd.)	30-4609
7	Resistor (470,000 ohms, ½ watt)	33-447339
8	Mica Condenser (70 mmfd.)	30-1117
9	Tuning Condenser Assembly	31-2386
10	Tubular Condenser (.05 mfd.)	30-4519
11	Mica Condenser (70 mmfd.)	30-1117
12	R. F. Transformer (Broadcast)	32-3189
13	R. F. Transformer (S. W. 1)	32-3190
14	R. F. Transformer (S. W. 2)	32-3197
15	Compensator	31-6288
16	Tubular Condenser (.1 mfd.)	30-4611
17	Resistor (100 ohms, ½ watt)	33-110336
18	Tubular Condenser (.05 mfd.)	30-4609
19	Resistor (470,000 ohms, ½ watt)	33-447339
20	Oscillator Transformer (Broadcast)	32-2120
21	Oscillator Transformer (S. W. 1)	32-3094
22	Oscillator Transformer (S. W. 2)	32-2889
23	Compensator (2 section)	31-6287
24	Tracking Condenser (1850 mmfd.)	31-6310
25	Compensator	31-6289
26	Compensator	31-6288
27	Tracking Condenser (3300 mmfd.)	31-6311
28	Resistor (10,000 ohms, ½ watt)	33-310339
29	Tubular Condenser (.25 mfd.)	30-4586
30	Electrolytic Condenser (5 mfd., 150 V.)	30-2374
30A	Part of 30 (10 mfd., 150 V.)	
30B	Part of 30 (20 mfd., 150 V.)	
30C	Part of 30 (5 mfd., 150 V.)	
31	Resistor (10,000 ohms, ½ watt)	33-310339
32	Mica Condenser (250 mmfd.)	30-1119
33	Resistor (47,000 ohms, ½ watt)	33-347339
34	1st I. F. Transformer Assembly	32-3328
35	2nd I. F. Transformer Assembly	32-3188
36	Mica Condenser (110 mmfd.)	30-1118
37	Tubular Condenser (.01 mfd.)	30-4581
38	Resistor (330,000 ohms, ½ watt)	33-433339
39	Resistor (68,000 ohms, ½ watt)	33-368339
40	Volume Control (2.0 meg.)	33-5298
41	Tubular Condenser (.01 mfd.)	30-4581
42	Tubular Condenser (.006 mfd.)	30-4583
43	Tone Control and On-Off Switch	33-5303
44	Tubular Condenser (.002 mfd.)	30-4579
45	Resistor (1.0 meg., ½ watt)	33-510339
46	Resistor (1.0 meg., ½ watt)	33-510339
47	Resistor (220,000 ohms, ½ watt)	33-422339
48	Resistor (1.0 meg., ½ watt)	33-510339
49	Resistor (10.0 meg., ½ watt)	33-610339
50	Tubular Condenser (.1 mfd.)	30-4586
51	Resistor (100,000 ohms, ½ watt)	33-410339
52	Resistor (100,000 ohms, ½ watt)	33-410339
53	Resistor (1.0 meg., ½ watt)	33-510339
54	Tubular Condenser (.006 mfd.)	30-4610
55	Mica Condenser (110 mmfd.)	30-1118
56	Resistor (1.0 meg., ½ watt)	33-510339
57	Driver Transformer	32-3027
58	Tubular Condenser (.01 mfd.)	30-4581
59	Resistor (33 ohms, 1 watt)	33-033436
60	Resistor (33 ohms, 1 watt)	33-033436
61	Tubular Condennser (.004 mfd.)	30-4578
62	Output Transformer	32-3026
63	Cone and Voice Coil Assembly (Speaker Part No. 36-1456-3)	36-4108
	(Speaker Part No. 36-1455-3)	36-4107
64	Resistor (1,000 ohms, ½ watt)	33-210339
65	Tubular Condenser (.25 mfd.)	30-4588
66	Pilot Lamps	34-2558X
67	Vibrator	41-3222
68	"A" Choke	32-1954
69	Tubular Condenser (.5 mfd., metal case)	30-4296
70	Tubular Condenser (.5 mfd., metal case)	30-4296
71	Power Transformer	32-7682
72	Tubular Condenser (.01 mfd.)	30-4598
73	"B" Choke	32-2925
74	Resistor (1,000 ohms, ½ watt)	33-210339
75	Resistor (15,000 ohms, ½ watt)	33-315339
76	Wave Switch	42-1504



SCHEMATIC DIAGRAM MODEL 40-748

MISCELLANEOUS PARTS

SCHE. No.	DESCRIPTION	PART No.
	Bezel	50-1222
	Cable (Battery)	41-3472
	Cable (Speaker)	41-3468
	Cabinet (T Model)	10418A
	Cabinet (XX Model)	10420A
	Dial	27-8844
	Drive Cord Assembly	31-2330
	Gasket (Dial Mounting)	27-9358
	Knob (Tuning)	27-4330
	Knob (Vernier)	27-4862
	Knob (Volume and Wave Switch)	27-4332
	Knob (Tone Control)	27-4872
	Pointer	50-1276

SCHE. No.	DESCRIPTION	PART No.
	Speaker (T Cabinet)	36-1485
	Speaker (XX Cabinet)	36-1486
	Spring Clip (Coil Mounting)	28-5002
	Spring (Drive Cord)	28-8913
	Station Card Holder	50-1273
	Socket (6 prong, type 49 tube)	27-6036
	Socket (6 prong, vibrator)	27-6038
	Socket (Loktal tubes)	27-6058
	Shield (Tube, Half)	50-1072
	Shield Cap	50-1073
	Shield Base	50-1074
	Rubber Cushion (Vibrator Mounting)	27-4287
	Rubber Washer (Vibrator Unit Mounting)	27-4307
	Rubber Corner (Chassis)	27-4864
	Tuning Drum and Coupling Assembly	27-2327
	Vernier Drive (Tuning)	31-2329

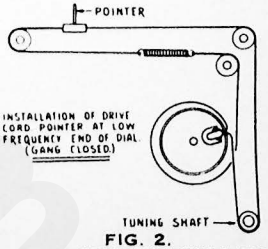


FIG. 2.
INSTALLATION OF DRIVE CORD.