

Philco Radio & Television Corp.

Model: 40-120

Chassis:

Year: Pre August 1939

Power:

Circuit:

IF:

Tubes:

Bands:

Resources

[Riders Volume 10 - PHILCO 10-16](#)

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MODELS 39-30,39-35
 MODELS 40-150,40-155
 MODEL 40-160
 MODELS 40-180,40-185,40-190
 MODELS 40-195,40-200

PHILCO RADIO & TELEV. CORP.

MODEL 108
 Tuner Data
 MODELS 40-120,40-125
 Alignment, Trimmers

EQUIPMENT REQUIRED: MODELS 40-120,40-125.

- (1) Signal Generator; Philco Model 077 Signal Generator which has a fundamental frequency range from 115 to 36,000 K. C. is the correct instrument for this purpose.
- (2) Output Meter; Philco Models 027 or 028 Vacuum Tube Voltmeters and Circuit Testers incorporate a sensitive output meter and are recommended.
- (3) Philco Fiber Handle Screw Driver, Part No. 45-2610. Aligning adapter Part No. 45-2767.

OUTPUT METER: The Philco 027 or 028 Output Meter is connected to the plate and screen terminals of the type 35A5 tube and adjusted for the 0 to 30 V. A. C. scales.

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

Remove the 7C6 tube from its socket and insert the aligning adapter, Part No. 45-2767, then replace the tube in the adapter. Connect the negative terminal of the vacuum tube voltmeter to the wire which protrudes from the side of the adapter. Attach the positive terminal of the voltmeter to the chassis. The positive terminal is connected to the chassis. After connecting the output meter, adjust the compensators in the order as shown in the tabulation below. Locations of the compensators are shown on Fig. 2. If the output meter pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

Operations in Order	SIGNAL GENERATOR			RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dummy Antenna Note A	Dial Setting	Dial Setting	Control Settings	Adjust Compensators in Order	
1	7C7 See Note C	.1 mf.	455 K. C.	550 K. C.	Vol. Cont. Max.	14A, 14B, 15A	Push "IN" Manual Button Model 40-125
2	Ant. Ter.	10 mmf.	1600 K. C.	1600 K. C.	Vol. Cont. Max.	2B	See Note B See Note C
3	Ant. Ter.	10 mmf.	1400 K. C.	1400 K. C.	Vol. Cont. Max.	2A	

NOTE A — The "Dummy Antenna" consists of a condenser 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 do this, proceed as follows: Turn the tuning condenser to the maximum capacity position (plates fully meshed). With the condenser in this position, the tuning pointer is set horizontal at the low frequency end of the scale (540 K. C.).

NOTE C — Compensators 2A and 2B are at the top of the tuning condenser. Compensator 2A is on the front section and compensator 2B on the rear section. When padding the I. F. the signal generator can be attached to the 7C7 grid on the front section of the tuning condenser.

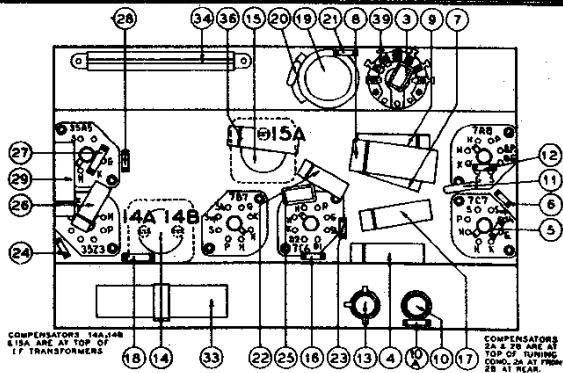


Fig. 1

Adjusting Push Button Tuning - MODELS 39-30,39-35,108 (CODE 121); 40-150,40-155; 40-160; 40-195,40-200;40-180,40-185,40-190.(FOR BUTTON ADJUSTMENT FREQUENCIES FOR MODELS 39-30,39-35, & 108 (CODE 121); SEE PARTS LISTS OF THESE MODELS).

In order to adjust the electric push buttons accurately for reception of broadcast stations, a vacuum tube voltmeter such as Philco Model 027 and 028 should be used. In addition, an insulated padding screw driver part No. 45-2610 and Loktal aligning adapter part No. 45-2767 are required. With this equipment at hand proceed as follows:

Insert the station call letters into the windows above the buttons. The station with the lowest frequency is placed in the first button on the left and the highest frequency is placed in the button on the extreme right. 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:

MODEL 40-160

Push Button	Frequency Range
1	540-1000 K. C.
2	650-1100 K. C.
3	740-1300 K. C.
4	900-1500 K. C.
5	1100-1600 K. C.

MODELS 40-195, 40-200

Push-Button	Frequency Range
1, 2, 3	540-1030 K. C.
4, 5	670-1160 K. C.
6, 7, 8	900-1600 K. C.

MODELS 40-150,40-155,40-180,40-185,40-190.

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 first 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.

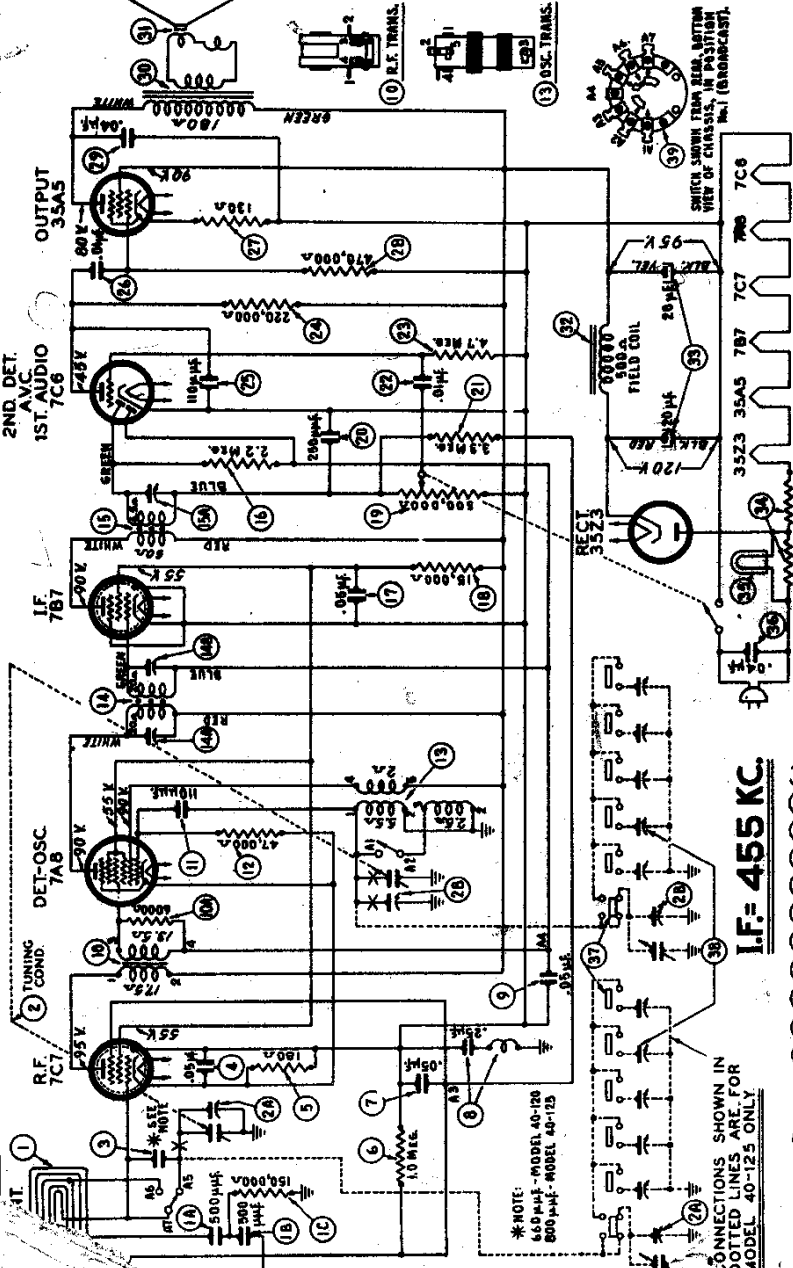
1. Remove the 7C6 A.F. tube from its socket and insert the aligning adapter, then replace the tube in the adapter. Connect the negative terminal of the vacuum tube voltmeter to the wire which protrudes from the side of the adapter. Attach the positive terminal of the voltmeter to the chassis.

2. Turn the receiver on and set the tuning range disc to "Broadcast" (Manual Tuning).

3. Set up the Model 077 Station Setter about 3 feet from the receiver and connect a loop constructed out of about 6 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 077 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. Turn the receiver tuning range disc to "Push Button" and press in No. 1 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 or when it is to be used in conjunction with a Philco Record Player, push-button No. 1 should be used. To tune in these programs, the same procedure as given for ordinary broadcast stations as outlined above is used.

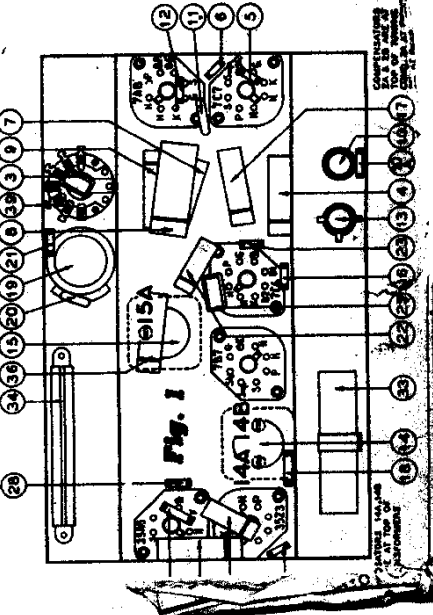
SCH. No.	DESCRIPTION	PART No.
1	Loop Antenna Assy. (Model 40-120)	34-0889
1A	Miss Cond. (500 mmfd.)	34-0890
1B	Miss Cond. (500 mmfd.)	34-1114
1C	Miss Cond. (150,000 ohms, 1/2 watt)	32-115329
2	Tuning Cond. Assy. (Model 40-120)	31-3260
3	Miss Cond.	31-3267
4	500 mfd. Model 40-120	34-1126
5	500 mfd. Model 40-120	34-1128
6	Tubular Cond. (.05 mfd.)	34-0819
7	Resistor (150 ohms, 1/2 watt)	32-163339
8	Tubular Cond. (.05 mfd.)	32-163339
9	Tubular Cond. (.05 mfd.)	34-0819
10	Tubular Cond. (.05 mfd.)	34-0819
11	Resistor (500 ohms, 1/2 watt)	32-2973
12	Resistor (110 mmfd.)	34-1130
13	Resistor (47,000 ohms, 1/2 watt)	32-347239
14	Oscillator Trans. (Model 40-120)	32-3888
15	1st I. F. Trans. Assy.	32-3236
16	2nd I. F. Trans. Assy.	32-3236
17	Resistor (2.2 meg., 1/2 watt)	32-022239
18	Tubular Cond. (.05 mfd.)	34-0819
19	Resistor (15,000 ohms, 1/2 watt)	32-318339
20	Resistor (200 ohms, 1/2 watt)	32-3236
21	Resistor (200 ohms, 1/2 watt)	32-3236
22	Resistor (200 ohms, 1/2 watt)	32-3236
23	Resistor (200 ohms, 1/2 watt)	32-3236
24	Resistor (200 ohms, 1/2 watt)	32-3236
25	Resistor (200 ohms, 1/2 watt)	32-3236
26	Resistor (200 ohms, 1/2 watt)	32-3236
27	Resistor (200 ohms, 1/2 watt)	32-3236
28	Resistor (200 ohms, 1/2 watt)	32-3236
29	Resistor (200 ohms, 1/2 watt)	32-3236
30	Resistor (200 ohms, 1/2 watt)	32-3236
31	Output Trans. (.05 mfd.)	34-1110
32	Capacitor (Part No. 34-1400-1)	34-0844
33	Capacitor (Part No. 34-1400-2)	34-0844
34	Capacitor (Part No. 34-1400-3)	34-0844
35	Capacitor (Part No. 34-1400-4)	34-0844
36	Capacitor (Part No. 34-1400-5)	34-0844
37	Capacitor (Part No. 34-1400-6)	34-0844
38	Capacitor (Part No. 34-1400-7)	34-0844
39	Capacitor (Part No. 34-1400-8)	34-0844
40	Capacitor (Part No. 34-1400-9)	34-0844
41	Capacitor (Part No. 34-1400-10)	34-0844
42	Capacitor (Part No. 34-1400-11)	34-0844
43	Capacitor (Part No. 34-1400-12)	34-0844
44	Capacitor (Part No. 34-1400-13)	34-0844
45	Capacitor (Part No. 34-1400-14)	34-0844
46	Capacitor (Part No. 34-1400-15)	34-0844
47	Capacitor (Part No. 34-1400-16)	34-0844
48	Capacitor (Part No. 34-1400-17)	34-0844
49	Capacitor (Part No. 34-1400-18)	34-0844
50	Capacitor (Part No. 34-1400-19)	34-0844



Models 40-120 and 40-125 are six (6) tube super-heterodyne receivers employing the new Philco built-in super aerial system which eliminates an outside aerial, and Philco High-Efficiency Loktal tubes. In addition, other features of design are: two tuning ranges; special high gain R. F. stage; automatic volume control and a Beam power audio output stage. In general, these models are similar but differ in their tuning mechanisms and cabinets.

Model 40-120 is dial tuned and assembled in cabinet type "C".

Model 40-125 is equipped with six electric push buttons for automatically selecting stations in addition to dial tuning. Five push buttons are used for stations one of which is used in combination with a Special type Push Button used in combination with a Special type Push Button for reception of television. The sixth push button selects dial tuning.



MISCELLANEOUS PARTS—MODEL 40-125

Part No.	Description
34-1126	Capacitor (500 mfd.)
34-1128	Capacitor (500 mfd.)
34-0819	Tubular Cond. (.05 mfd.)
32-163339	Resistor (150 ohms, 1/2 watt)
32-2973	Resistor (500 ohms, 1/2 watt)
34-1130	Resistor (110 mmfd.)
32-347239	Resistor (47,000 ohms, 1/2 watt)
32-3888	Oscillator Trans. (Model 40-120)
32-3236	1st I. F. Trans. Assy.
32-3236	2nd I. F. Trans. Assy.
32-022239	Resistor (2.2 meg., 1/2 watt)
34-0819	Tubular Cond. (.05 mfd.)
32-318339	Resistor (15,000 ohms, 1/2 watt)
32-3236	Resistor (200 ohms, 1/2 watt)
32-3236	Resistor (200 ohms, 1/2 watt)
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32-3236	Resistor (200 ohms, 1/2 watt)
32-3236	Resistor (200 ohms, 1/2 watt)
32-3236	Resistor (200 ohms, 1/2 watt)
34-1110	Output Trans. (.05 mfd.)
34-0844	Capacitor (Part No. 34-1400-1)
34-0844	Capacitor (Part No. 34-1400-2)
34-0844	Capacitor (Part No. 34-1400-3)
34-0844	Capacitor (Part No. 34-1400-4)
34-0844	Capacitor (Part No. 34-1400-5)
34-0844	Capacitor (Part No. 34-1400-6)
34-0844	Capacitor (Part No. 34-1400-7)
34-0844	Capacitor (Part No. 34-1400-8)
34-0844	Capacitor (Part No. 34-1400-9)
34-0844	Capacitor (Part No. 34-1400-10)
34-0844	Capacitor (Part No. 34-1400-11)
34-0844	Capacitor (Part No. 34-1400-12)
34-0844	Capacitor (Part No. 34-1400-13)
34-0844	Capacitor (Part No. 34-1400-14)
34-0844	Capacitor (Part No. 34-1400-15)
34-0844	Capacitor (Part No. 34-1400-16)
34-0844	Capacitor (Part No. 34-1400-17)
34-0844	Capacitor (Part No. 34-1400-18)
34-0844	Capacitor (Part No. 34-1400-19)

FOR ALIGNMENT AND
TUNING OF MODEL 40-125

MODELS 40-120

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MODELS 40-120

RECEIVER

Table with columns: Operates in Order, Signal Generator, Receiver, Special Instructions. Rows 1, 2, 3.

Turn the tuning condenser to the maximum capacity position (plates fully extended). With the indicator in this position...

NOTE A - The "Dummy Antenna" consists of a condenser connected in series with the signal generator output lead...

NOTE B - DIAL CALIBRATION: In order to adjust the receiver correctly, the dial must be aligned to track properly...

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.
2. Adjusting R. F. Circuit.
3. Adjusting R. F. Circuit.
4. Adjusting R. F. Circuit.

MODELS 40-150, 40-155, 40-180, 185, 190

Table with columns: Operations, Signal Generator, Receiver, Remarks. Rows 1-6.

NOTE A - "Dummy Antenna" consisting of a .1 ufd. condenser is connected in series with the signal generator output lead...

ALIGNING PROCEDURE MODELS 40-81, 40-82, 40-83, 40-84, 40-88, 40-90, 40-95, 40-100, 40-105, 40-110

CONNECTING THE ALIGNING METERS. When aligning the R. F. padders of the portable models a dummy antenna must be connected to the signal generator...

Table with columns: Operates in Order, Signal Generator, Receiver, Special Instructions. Rows 1, 2.

Table with columns: Operates in Order, Signal Generator, Receiver, Special Instructions. Rows 1-6.

Table with columns: Operates in Order, Signal Generator, Receiver, Special Instructions. Rows 1-3.

Table with columns: Operates in Order, Signal Generator, Receiver, Special Instructions. Rows 1-5.

Table with columns: Operates in Order, Signal Generator, Receiver, Special Instructions. Rows 1-5.

NOTE A - DIAL CALIBRATION: Before adjusting the R. F. padders, the tuning condenser must be set to the maximum capacity position...

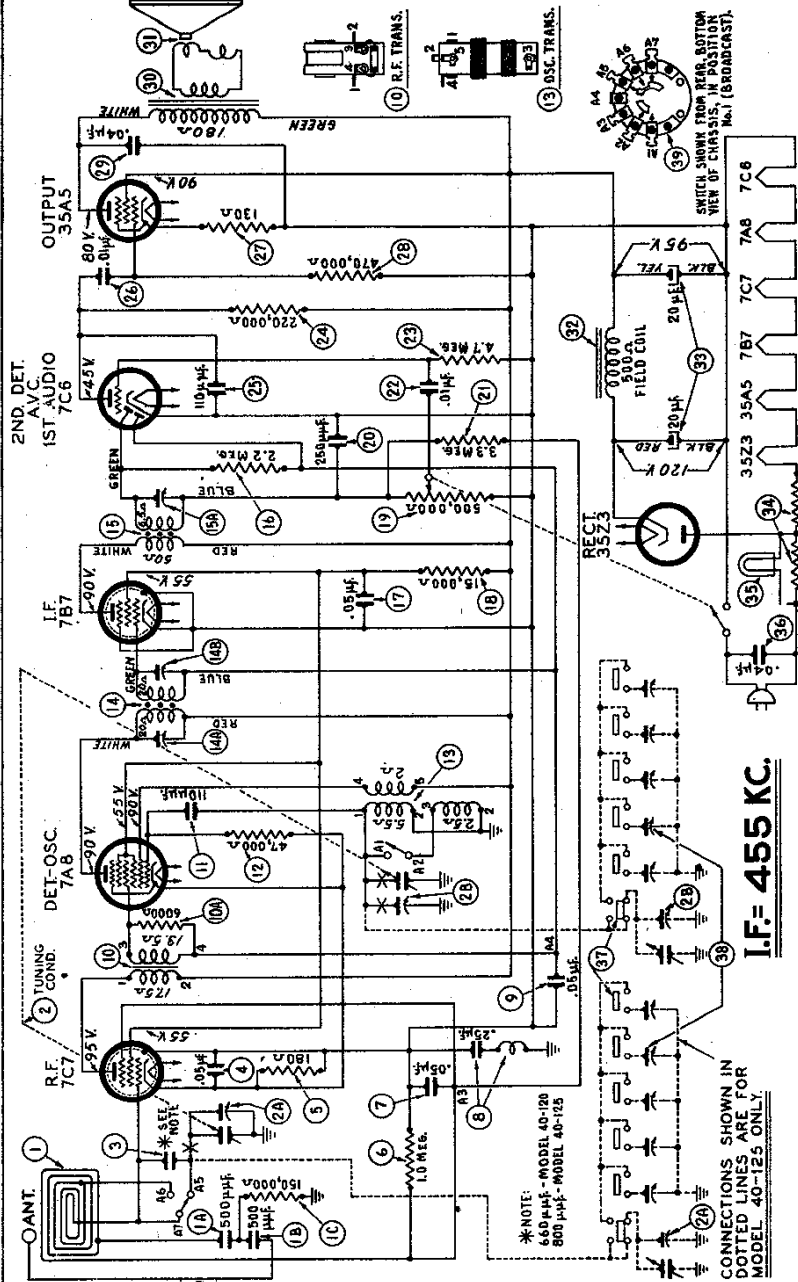
NOTE B - DIAL CALIBRATION: In order to adjust the receiver correctly, the dial must be aligned to track properly...

PRODUCTION CHANGES

MODEL 40-120. Tuning condenser (2) changed from Part No. 31-2287 to Part No. 31-2288...

MODEL 40-125. Tuning condenser (2) changed from Part No. 31-2287 to Part No. 31-2288...

MODELS 40-120, 40-125
Schematic, Voltage
Parts List
PHILCO RADIO & TELEV. CORP.



May, 1939.

adjusting and operating push button tuning will be found in the instructions supplied with each receiver. Instructions for setting up the television push button is supplied with Philco Television Receivers. This model is assembled in special type "C" cabinet.

TUNING RANGE: 540 to 1600 K. C. 1.6 to 3.3 M. C.
INTERMEDIATE FREQUENCY: 455 K. C.
POWER SUPPLY: 115 volts A. C. or D. C. current.
POWER CONSUMPTION: 28 watts.
AUDIO OUTPUT: 1 watt.

PHILCO TUBES USED:
7C7, R. F.; 7A8, oscillator and first detector; 7B7, I. F.; 7C6, second detector, first audio; 35A5, output; 35Z3, rectifier.

CABINET DIMENSIONS: Height 1 1/8", Width 6 3/16", Depth 6 3/16".
Model 40-120: Height 69/16", Width 1 1/8", Depth 7 7/16".
Model 40-125: Height 69/16", Width 1 1/8", Depth 7 7/16".

Fig. 2 SCHEMATIC DIAGRAM MODELS 40-120 & 40-125

TYPE OF CIRCUIT: FOR ALIGNMENT, SEE INDEX

Models 40-120 and 40-125 are six (6) tube super-heterodyne receivers employing the new Philco built-in super aerial system which eliminates an outside aerial, and Philco High-Efficiency Loktal tubes. In addition, other features of design are: two tuning ranges; special high gain R. F. stage; automatic volume control and a Beam power audio output stage. In general, these models are similar but differ in their tuning mechanisms and cabinets.

Model 40-120 is dial tuned and assembled in cabinet type "C".

Model 40-125 is equipped with six electric push buttons for automatically selecting stations in addition to dial tuning. Five push buttons are used for stations one of which can be used in combination with a Special type PHILCO TELEVISION receiver for reception of television sound programs. The sixth push button selects dial tuning. The procedure for

SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.
1	Loop Antenna Assy. (Model 40-120)	35-9889	16	Resistor (2.2 meg., 1/2 watt)	33-522339	34	Tubular Cond. (.04 mfd.)	30-4119
1A	Mica Cond. (500 mmfd.)	30-1134	17	Tubular Cond. (.05 mfd.)	30-4519	35	Push Button Switch (Model 40-125)	40-1512
1B	Mica Cond. (500 mmfd.)	30-1114	18	Resistor (15,000 ohms, 1/2 watt)	33-315339	36	Padder Strip (Model 40-125)	31-4312
2	Tuning Cond. Assy. (Model 40-120)	31-2368	19	Volume Control & On-Off Switch	33-5306	37	Wave Switch	42-1505
3	Mica Cond. (600 mmfd., Model 40-120)	30-1136	20	Mica Cond. (250 mmfd., 1/2 watt)	30-1074	38	Cable & Plug (Factory Supply)	1-3199
4	Tubular Cond. (.05 mfd.)	30-4519	21	Resistor (3.3 meg., 1/2 watt)	33-533339		Cabinet (Model 40-120)	10359A
5	Resistor (180 ohms, 1/2 watt)	33-118339	22	Tubular Cond. (.01 mfd.)	30-4479		Clip (Cell Mfg.)	38-5002
6	Resistor (15,000 ohms, 1/2 watt)	33-415339	23	Resistor (4.7 meg., 1/2 watt)	33-547339		Dial	37-5517
7	Tubular Cond. (.05 mfd.)	30-4519	24	Resistor (220,000 ohms, 1/2 watt)	33-425339		Drive Card Assy.	31-2387
8	Tubular Cond. & Choke Assy. (.25 mfd.)	38-9851	25	Mica Cond. (.110 mmfd.)	30-1130		Drive Shaft Assy.	31-2370
9	Tubular Cond. (.05 mfd.)	30-4519	26	Tubular Cond. (.01 mfd.)	30-4572		Knobs (Volume-Tuning-Wave Switch)	37-4808
10	R. F. Trans. Assy.	32-3273	27	Resistor (130 ohms, 1/2 watt)	33-112339		Pilot Lamp Socket Assy.	38-9825
10A	Resistor (6000 ohms, 1/2 watt)	33-260339	28	Resistor (470,000 ohms, 1/2 watt)	33-471339		Pointer (Dial)	37-4805
11	Mica Cond. (.110 mmfd.)	30-1130	29	Tubular Cond. (.04 mfd.)	30-4119		Pointer (Knob)	38-1465
12	Resistor (47,000 ohms, 1/2 watt)	33-347339	30	Output Trans. (Spkr. Part No. 36-1469-1)	32-8047		Spring (Drive Cord Assy.)	38-9954
13	Oscillator Trans. (Model 40-120)	32-3258	31	Cone & Voice Coil Assy. (Spkr. Part No. 36-1469-9)	32-8044		Speaker Assy.	38-1469
14	1st I. F. Trans. Assy.	32-3237	32	Field Coil (Replace Spkr. Part No. 36-1469)	30-2403		Sockets (Loktal)	35-0575
15	2nd I. F. Trans. Assy.	32-3238	33	Electrolytic Cond. (20-20 mfd.)	30-2403	MISCELLANEOUS PARTS—MODEL 40-125		
			34	Filament Resistor	33-3375		Cabinet	10390A
			35	Pilot Lamp	34-2068		Escutcheons Plate (Pushbutton)	28-8742
							Escutcheon Pin	36-1074
							Knob (Pushbutton)	37-4824
							Tab (Dial)	37-5826
							Tab Kit	40-8473