

# PHILCO . . . . . Model 38-14, Codes 121 & 124



## SERVICE BULLETIN No. 288 for members of RADIO MANUFACTURERS SERVICE

A PHILCO Service Plan

### Electrical Specifications

**TYPE OF CIRCUIT:** A. C. or D. C. operated superheterodyne with automatic volume control, pentode audio output, and covers the standard broadcast, municipal and state police frequencies, first class amateur (night) and many night foreign and American short-wave stations.

Code 121 & 124 chassis of this Model are identical with the exception of electrolytic condensers, speaker and cabinets. These differences are listed on the part list.

**POWER SUPPLY:** Voltage 115 Power Consumption 55 watts

**INTERMEDIATE FREQUENCY:** 470 K. C.

**R. F. TUNING RANGES:** 540 to 1720 K. C.  
2.3 to 7.4 M. C.

**AUDIO OUTPUT:** 1 watt

**PHILCO TUBES USED:** Five: one 6A7, Det. osc.; one 78, I. F.; one 75, 2nd Det., 1st Audio; one 43, Output, and one 25Z5 Rectifier.

**TUNING MECHANISM:** 12 to 1 Ratio using Pulley and Cord.

**CABINET:** Type "T," Code 121  
Type "CS," Code 124

### Alignment of Compensators

**EQUIPMENT REQUIRED:** (1) Signal Generator, using a fundamental frequency range covering the tuning and intermediate frequencies of the receiver. 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 Model 026 circuit tester incorporates a sensitive output meter and is recommended; (3) Philco Fibre Handle Screw Driver, Part No. 27-7059 and Fibre Wrench, Part No. 3164.

**OUTPUT METER:** The 026 Output Meter is connected to the plate and cathode terminals of the 43 tube. Adjust the meter to use the (0-30) volt scale and advance the attenuator control of the generator until a readable indication is noted on the output meter after signal is applied.

**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:

1. Turn the tuning condenser to maximum capacity position (plates fully meshed).
2. Holding the tuning condenser in this position, turn the pointer until it is parallel with the index lines (see Fig. 3). This is the correct position of pointer at maximum capacity of tuning condenser.

#### INTERMEDIATE FREQUENCY CIRCUIT

When adjusting the following compensators, a Philco Set Transformer Part No. 32-2763 must be connected in the signal generator output circuit as follows:

Insert the signal generator output lead into the "Med" jack and the ground lead into the "Gnd" jack of the signal generator.

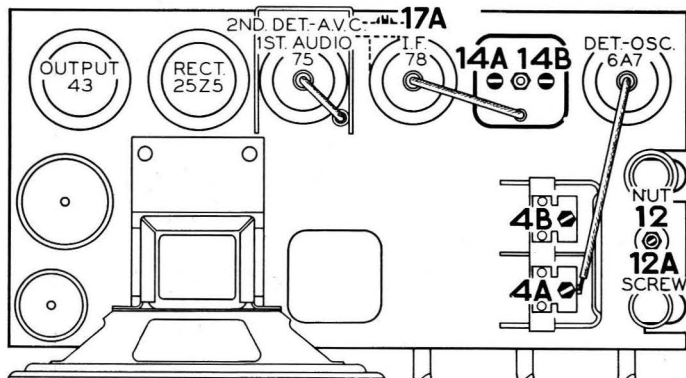


Fig. 2. Locations of Compensators—Top of Chassis

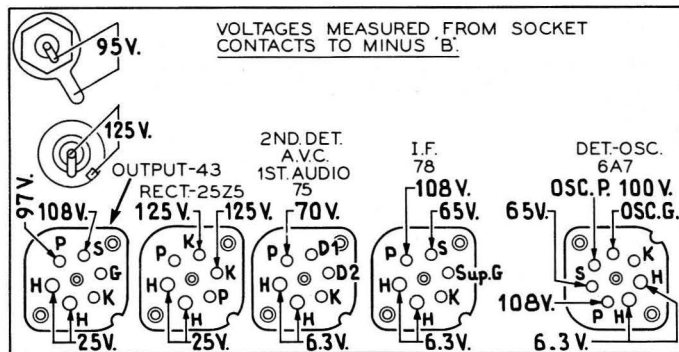
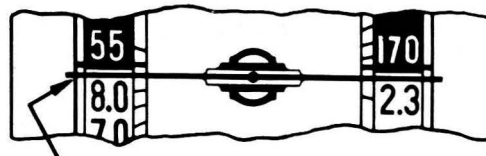


Fig. 1. Socket Voltage—Underside of Chassis View

The voltages indicated by arrows were measured with a Philco 026 Circuit Tester, which contains a sensitive voltmeter. Volume Control at minimum—Tuning Condenser set for no signal—line voltage 115 A. C.

Connect the other end of the output lead to terminal No. 1 on the Set Transformer and the cable ground to Terminal No. 2. No. 3 and 4 terminals of Set Transformer are then connected to the chassis and 6A7 grid respectively of the receiver with short pieces of wire. Insert a 0.1 mfd. in series with the No. 4 lead which connects to the grid.



SET POINTER PARALLEL WITH INDEX LINES

Fig. 3. Dial Pointer Calibration

Set the signal generator and receiver controls and adjust the I. F. compensators as follows:

1. Set Signal Generator at 470 K. C. Turn "Multiplier" Control to 1000 and the "Attenuator" for maximum output.
2. Turn the receiver dial to 580 K. C.
3. Range Switch Broadcast position.
4. Receiver volume control maximum.
5. Adjust compensators, (17A), (14A), for maximum output. If the output meter goes off scale when adjusting the compensators, retard the signal generator attenuator.

#### RADIO FREQUENCY CIRCUIT

**Tuning Range: 2.3 to 7.4 M. C.**

1. Remove terminal No. 4 lead of set transformer from the 6A7 grid and connect to the aerial wire of the receiver through a 400 ohm resistor. Remove the .1 mfd. condenser when using the 400 ohm resistor.
2. Set the controls and adjust the R. F. compensators as follows:
 

Range Switch	Volume Control	Signal Generator and Receiver Dial	R. F. Compensators
Shortwave	Max.	6 M. C.	(4B)

**Tuning Range: 530 to 1720 K. C.**

1. Remove the 400 ohm resistor from the No. 4 lead and replace with a 100 mmfd. condenser and reconnect to the aerial wire.

Set the controls and adjust the R. F. compensators as follows:

Range Switch	Volume Control	Signal Generator and Receiver Dial	R. F. Compensators in Order
Broadcast	Max.	1550 K. C.	(12A), (4A)
	Max.	580 K. C.	(12) Roll Tuning Condenser
	Max.	1550 K. C.	(12A), (4A)

Replacement Parts

Schem. No.	Description	Part No.	List Price
1	Cond. (tubular .001 mf.)	30-4453	\$0.20
2	Ant. Trans. (Range 2)	32-2720	
3	Ant. Trans. (Range 1)	32-2718	
4	Tuning Cond. Assembly	31-2094	
5	Cond. (tubular .15 mf.)	30-4191	.25
6	Cond. (tubular .05 mf.)	30-4519	.20
7	Resistor (120,000 ohm 1/2 watt)	33-412399	.20
8	Cond. (mica 250 mmf.)	30-1032	.25
9	Cond. (tubular .05 mf.)	30-4444	.20
10	Resistor (5000 ohm 1/2 watt)	33-250339	.20
11	Osc. Trans.	32-2719	
12	Compensator	31-6209	
13	Cond. (mica 1650 mmf.)	5877	.35
14	I. F. Trans. (1st)	32-2672	2.20
15	Resistor (25,000 ohm 1/2 watt)	33-325339	.20
16	Resistor (2 meg. 1/2 watt)	33-520339	.20
17	I. F. Trans. (2nd)	32-2674	1.50
18	Resistor (51,000 ohm 1/2 watt)	33-351339	.20
19	Cond. (tubular .01 mf.)	30-4479	.20
20	Volume Control	33-5236	
21	Resistor (4.0 meg. 1/2 watt)	33-540339	.20
22	Resistor (120,000 ohm 1/2 watt)	33-412339	.20
24	Resistor (490,000 ohm 1/2 watt)	33-449339	.20
25	Cond. (tubular .02 mf.)	30-4215	.20
26	Output Trans. (B 0-2)	32-7874	
	Output Trans. (S-18)	32-7395	1.10
27	Cone and Voice Coil Assembly (S-18)	36-3014	
	Cone and Voice Coil Assembly (B-0-2)	36-3981	
28	Electrolytic Cond. (20 mf. Code 121)	30-2245	.95
	Electrolytic Cond. (Code 124)	30-2275	
29	Resistor (27 ohm 1/2 watt)	33-027339	.20
30	Cond. (tubular .05 mf.)	30-4444	.20
31	Resistor (300 ohm, 2 watt)	33-1258	
32	Electrolytic Cond. (16 mf. Code 121)	30-2246	.90
	Electrolytic Cond. (Code 124)	30-2277	
33	Choke	32-7868	
34	Field Coil and Pot. Assembly (S-18)	36-3985	
	*Field Coil and Pot. Assembly (B 0-2) ... (See Speaker Note below).		
35	Condenser (tubular .01 mf.)	30-4169	.20
36	Filament Resistor (133 ohm-15 ohm)	33-3322	.65
37	Pilot Lamp	34-2068	.12
38	Range Switch	42-1366	.70
	Cable Speaker (Code 124)	L-2984	
	Cable (Power)	L-2778	.40
	Clip, Small (Mtg. R. F. Coil)	28-5002	.02
	Clip, Large (Mtg. R. F. Coil)	28-5003	.03
	Dial Ass'y.	31-2098	
	Dial Pointer	28-5201	.20
	Dial Drive Cord	31-2096	.10
	Dial Drive Shaft	38-9001	
	Insulator Washer (Electrolytic)	27-8882	
	Insulator Washer (Electrolytic)	27-8883	
	Insulator Cover 1 1/4" (Elec. Cond. 32)	27-8800	
	Insulator Cover, 2 1/4" (Elec. Cond. 32)	27-8905	

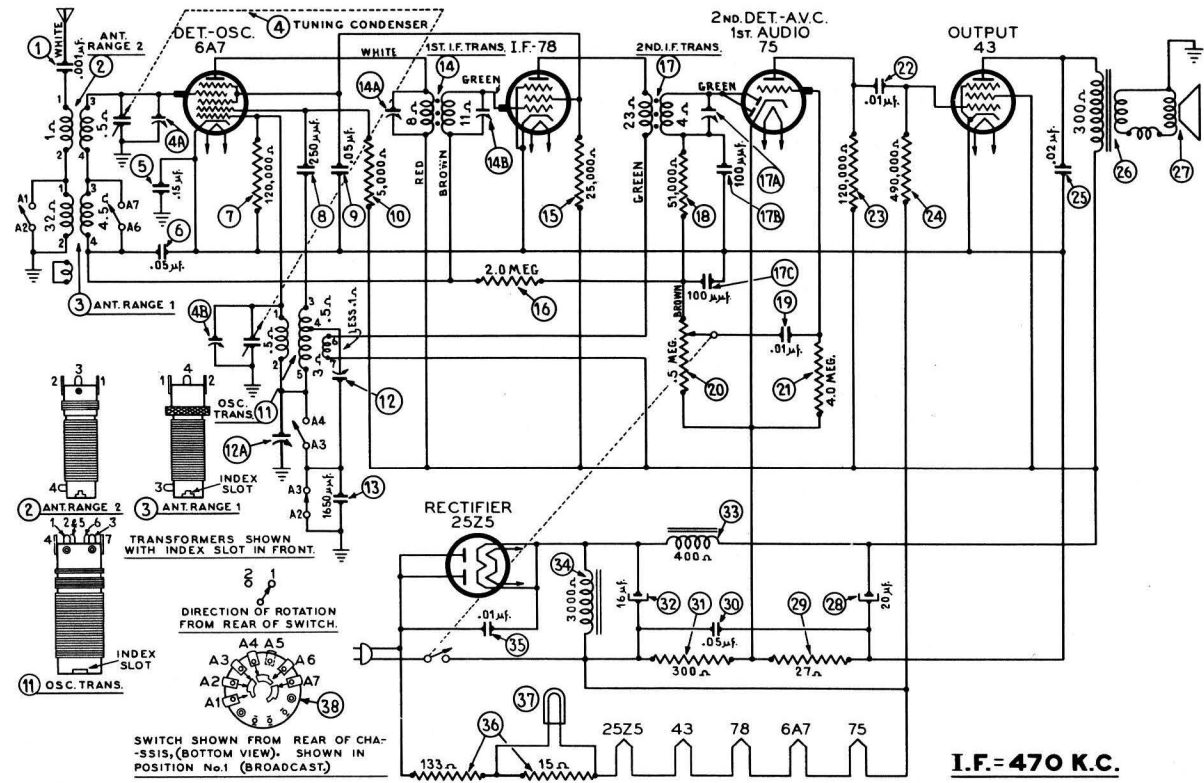


Fig. 4. Schematic Diagram, Model 38-14, Code 121

Schem. No.	Description	Part No.	List Price
	Knob Ass'y	27-4604	
	Mtg. Rubber Dial	27-4150	\$0.01
	Mtg. Rubber (Tuning Condenser)	27-4596	
	Pilot Lamp Ass'y	38-9127	
	Pilot Lamp	34-2068	.12
	Pully (Tuning Condenser)	31-1283	.30
	Speaker (B 0-2, Code 121)	36-1367	
	Speaker (S-18, Code 124)		
	Socket (6 prong)	27-6036	.11
	Socket (7 prong)	27-6037	.11
	Washer "C" (Tuning Shaft)	28-3904	.01
	Bezel and Glass (Code 121)	40-6158	
	Bezel and Glass (Code 124)	40-6264	
	Bezel Clamp	28-5153	.02

\*Entire Speaker must be replaced when field coil is open or damaged.

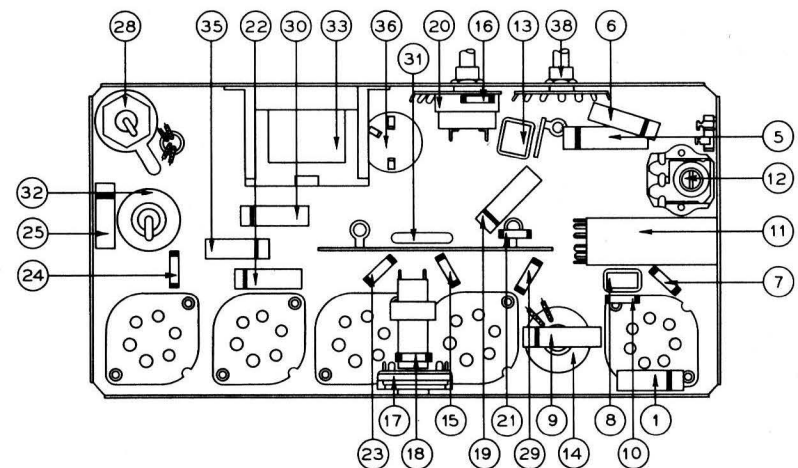


Fig. 5. Part locations, Underside of Chassis

PHILCO RADIO AND TELEVISION CORPORATION

Parts and Service Division Philadelphia, Pa. Printed in U. S. A.