



SERVICE BULLETIN No. 283 for members of RADIO MANUFACTURERS SERVICE

A PHILCO Service Plan

Electrical Specifications

TYPE OF CIRCUIT: Five tube, A.C. operated superheterodyne circuit with features, such as two tuning ranges covering the frequencies shown under "Tuning Ranges"; Automatic Volume Control; and Pentode Audio Output Stage.

POWER SUPPLY:	Voltage	Frequency Cycles	Power Consumption
	115	50 to 60	60 watts
	115	25 to 40	60 watts
	115/230	50 to 60	60 watts

Different transformers are required to operate the receiver on the voltage and frequency ratings listed above. The part number of these transformers are shown on the Parts List Page 2.

INTERMEDIATE FREQUENCY: 470 K. C.

TUNING RANGES: Two—Range 1, 540 to 1720 K. C.
Range 2, 5.7 to 18 M. C.

UNDISTORTED OUTPUT: 3 watts.

PHILCO TUBES USED: Five—one 6A8G, Det. osc.; one 6K7G, I. F.; one 6Q7G, 2nd Det. 1st audio; one 6F6G, output, and one 5Y4G, Rectifier.

TONE CONTROL: Two position with A.C. switch attached.

SPEAKERS: Type S7 in T Cabinet, HS in F Cabinet.

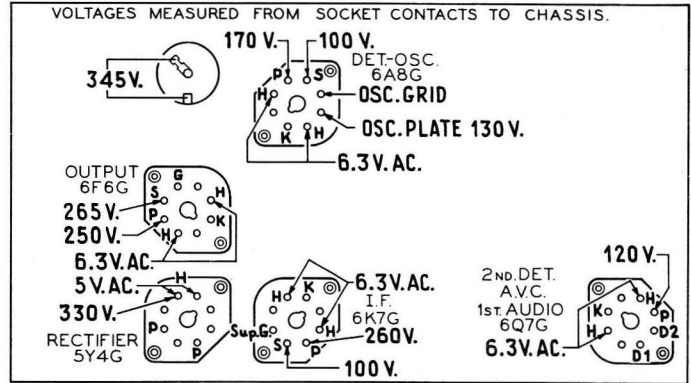


Fig. 1. Socket Voltages, Underside of Chassis

The voltages indicated by arrows were measured with a Philco 026 Circuit Tester which contains an accurate voltmeter. Volume Control at minimum, range switch in broadcast position, line voltage 115 A. C.

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 6F6G tubes. 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 (plate fully meshed).
2. Holding the tuning condenser in this position, loosen the clamp and turn the dial until the indicator is centered on the middle index line (See Fig. 3). Tighten clamp with dial in this position.

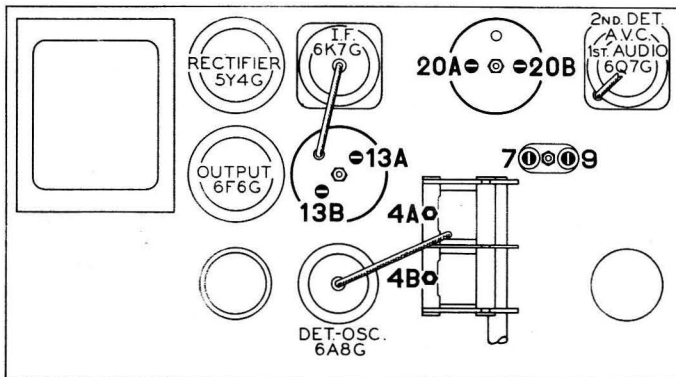


Fig. 2. Locations of Compensators—Top of Chassis

INTERMEDIATE FREQUENCY CIRCUIT

Insert the signal generator shielded output lead into the "Med" jack on the panel of the generator. Connect the other end of the output lead through a .1 mfd. condenser to the grid of the 6A8G, det. osc. tube and the ground connection of the signal generator to the chassis. 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. Receiver volume control maximum.
4. Range Switch Broadcast Position.
5. Adjust compensators (20B), (20A), (13B), (13A) for maximum output.

If the output meter goes off scale when adjusting the compensators retard signal generator attenuator.

RADIO FREQUENCY CIRCUIT

Tuning Range: 5.7 to 18 M. C.

1. With one end of the shielded lead of the signal generator output lead in the "Med" jack, connect the other end through the .1 mfd. condenser to the "Red" terminal of the aerial panel of the receiver. The output lead ground must be connected to the black terminal or to the chassis.

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

Volume Control	Range Switch	Signal Generator and Receiver Dial	Compensators in Order
Max.	2	18 M. C.	4B

Tuning Range: 530 to 1720 K. C.

Range Switch	Signal Generator and Receiver Dial	Compensators in Order
1	1500 K. C.	7, 4A
1	580 K. C.	(9)
1	1500 K. C.	7, 4A

NOTE A—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 counterclockwise until a second maximum peak is obtained on the output meter. Adjust the compensator for maximum output using this second peak. The first peak from maximum capacity position of the compensator is the image signal, and must not be used in adjusting this compensator.

If the above procedure is correctly performed, the image signal will be found (much weaker) by turning the receiver dial 940 K. C. below the frequency being used on the high frequency range.

Replacement Parts

Schem. No.	Description	Part No.	List Price
1	Antenna Transformer (range 2)	32-2558	\$0.70
2	Antenna Transformer (range 1)	32-2557	1.25
3	Condenser (0.05 mfd. tubular)	30-4519	.20
4	Tuning Condenser Assembly	31-2026	5.00
5	Osc. Transformer (range 2)	32-2560	
6	Osc. Transformer (range 1)	32-2559	.50
7	Compensators (dual, 1500 K. C.)	31-6188	.50
8	Range Switch	42-1325	.75
9	Compensator (Part of 7, 580 K. C.)		
10	Condenser (3500 mmfd., mica)	30-1094	.40
11	Resistor (70,000 ohms, 1/2 watt)	33-370339	.20
12	Condenser (dual electrolytic 4 and 8 mfd.)	30-2217	
13	1st I. F. Transformer	32-2580	
14	Condenser (250 mmfd.) Part of 7		
15	Resistor (5,000 ohms, 1/2 watt)	33-250339	.20
16	Resistor (10,000 ohms, 3/4 watt)	33-310639	.30
17	Condenser (0.1 mfd., tubular)	30-4455	.25
18	Resistor (1.0 megohm, 1/2 watt)	33-510339	.20
19	Resistor (10,000 ohms, 1 watt)	33-310439	.20
20	2nd I. F. Transformer	32-2582	
21	Resistor (51,000 ohms, 1/2 watt)	33-351339	.20
22	Condenser (110 mmfd., mica)	30-1031	.20
23	Condenser (100 mmfd.) part of No. (20)		
24	Condenser (100 mmfd.) part of No. (20)		
25	Volume Control	33-5215	
26	Resistor (51,000 ohms, 1 watt)	33-351439	.20
27	Resistor (1.0 megohm, 1/2 watt)	33-510339	.20
28	Condenser (0.015 mfd. tubular)	30-4358	.20
29	Resistor (1.0 megohm, 1/2 watt)	33-510339	.20
30	Condenser (0.1 mfd. tubular)	30-4499	.20
31	Resistor (1.0 megohm, 1/2 watt)	33-510339	.20
32	Resistor (330,000 ohms, 1/2 watt)	33-433339	.20
33	Condenser (0.015 mfd. tubular)	30-4515	.20
34	Resistor (490,000 ohms, 1/2 watt)	33-449339	.20
35	Condenser (0.02 mfd., tubular)	30-4215	.20
36	Resistor (99,000 ohms, 1/2 watt)	33-399339	.20
37	Tone Control off-on switch	42-1326	
38	Condenser (0.03 mfd., tubular)	30-4447	.20
39	Condenser (0.008 mfd. tubular)	30-4112	.20
40	Output Transformer	32-7019	.85
41	Cone and Voice Coil Assembly (S-7)	36-3157	1.00
41	Cone and Voice Coil Assembly (HS)	36-3796	1.20
42	Pilot Lamp	34-2064	.09
43	Bias Resistor	33-3316	.35
44	Field Coil Assembly (S7)	36-3039	3.50
44	Field Coil Assembly (HS)	36-3990	3.50
45	Condenser (electrolytic, 12 mfd.)	30-2210	1.20
46	Power Transformer		
	110 volt, 50 to 60 cycle	32-7833	4.00
	110 volt, 25 to 40 cycle	32-7627	5.50
	Power Trans. 115/230, 50 to 60 cycles	32-7835	
47	Condenser (0.015 mfd., dual bakelite)	3793DG	.40
	Cable (Power)	L-2778	.40
	Cable (Speaker)	L-2840	
	Dial	27-5327	
	Dial Washer	27-4598	
	Dial Clamp	28-5089	.03
	Knob (Tuning)	27-4330	.10
	Knob (Vernier)	27-4331	.10
	Knob (Tone & Volume)	27-4332	.10
	Mtg. Cushions (Tuning Condenser)	27-4599	.20
	Mtg. Rubber (Chassis)	27-4504	.10
	Pilot Lamp Assembly	38-8844	
	Screen Bracket Assembly	31-2047	
	Socket (6 prong)	27-6086	.11
	Socket (7 prong)	27-6087	.11
	Socket (7 prong)	27-6053	.11
	Socket (7 prong)	27-6057	.11
	Terminal Panel (Ant.)	38-8746	
	Vernier Drive	31-2072	

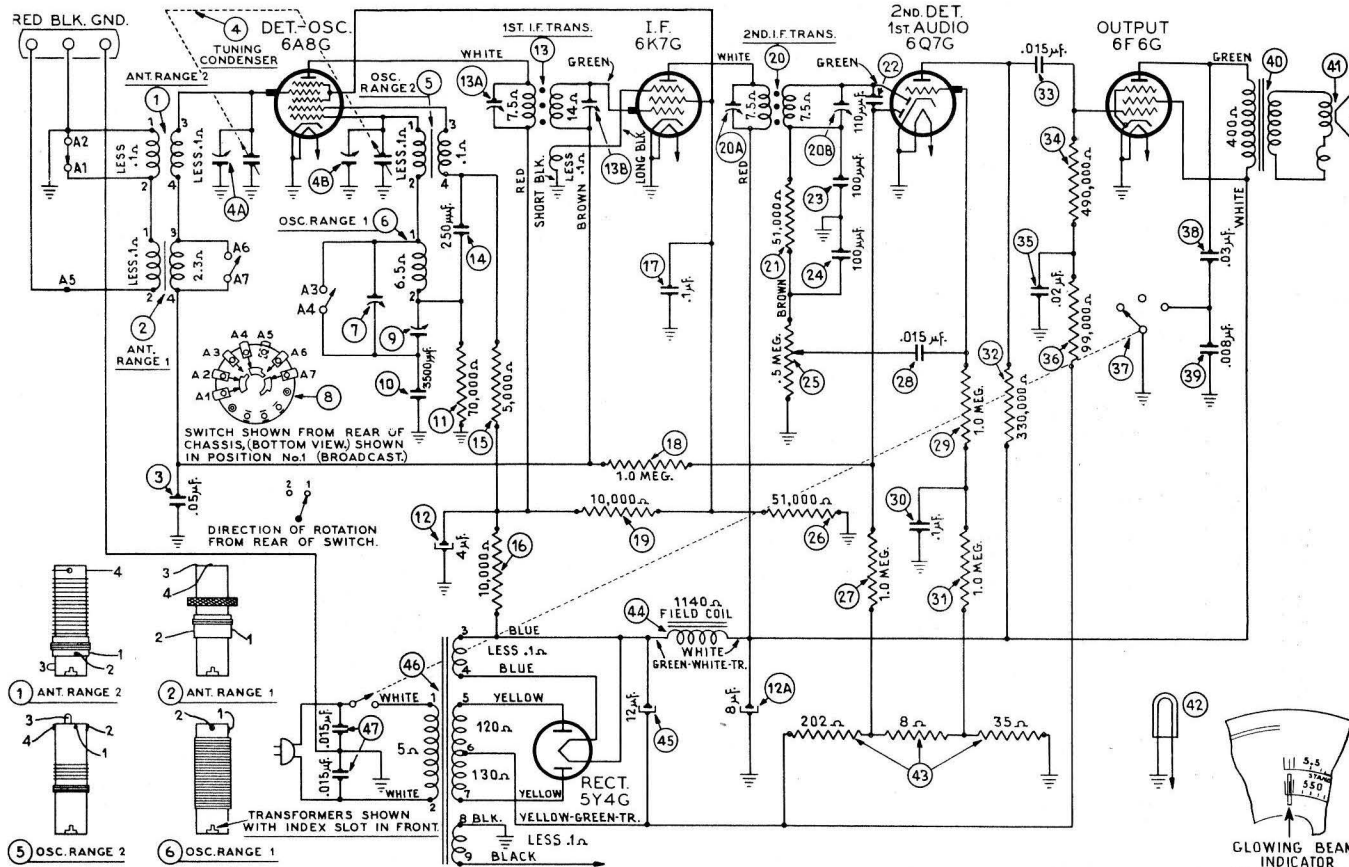


Fig. 3. Schematic Diagram 38-10, Code 121

SCHMATIC MODEL 38-10 I.F. = 470 K.C.
CODE 121

Schem. No.	Description	Part No.	List Price
38-10 F CABINET			
	Speaker (HS)	36-1220	\$6.25
	Bezel Plate & Frame	40-6126	
	Bezel Gasket	27-8312	.01
	Bezel Glass	27-8299	.06
	Bezel Ring	28-5079	.60
38-10 T CABINET			
	Speaker S7	36-1009	5.75
	Bezel Plate & Frame	40-6124	.90
	Bezel Gasket	27-8311	.01
	Bezel Glass	27-8298	.05
	Bezel Ring	28-5078	.55

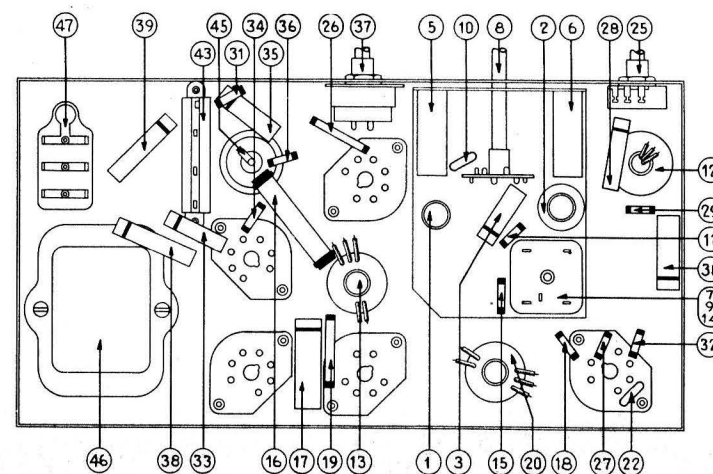


Fig. 4. Part locations, Underside of Chassis

PHILCO RADIO AND TELEVISION CORPORATION

Parts and Service Division

Philadelphia, Pa.