

# PHILCO . . . . . Models 39-30 and 39-35, Code 121



## SERVICE BULLETIN No. 304 for members of RADIO MANUFACTURERS SERVICE

A PHILCO Service Plan

### Specifications

**TYPE OF CIRCUIT:** A. C. operated; superheterodyne circuit with two tuning ranges, covering standard broadcast (540 K. C. to 1720 K. C.) and short-wave (4.9 M. C. to 18.0 M. C.) frequencies; Automatic Volume Control; and pentode output.

The receiver is designed to operate from a "Philco Safety Aerial," Part No. 40-6371. This aerial system should be used to obtain maximum performance from the receiver.

**POWER SUPPLY:** Voltage, 115 volts. Frequency, 50-60 cycles. Power consumption 45 watts.

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

**TUNING RANGES:** 540 K. C. to 1720 K. C.; 4.9 M. C. to 18.0 M. C.

**PHILCO TUBES USED:** 1-6A8G, 1st detector and oscillator; 1-78, I. F.; 1-37, 2nd detector, Automatic Volume Control; 1-75, first audio; 1-41, output; and 1-84, Rectifier.

**TUNING MECHANISM:** Pulley and cable drive for Manual tuning. Electric Push-Button for Automatic tuning.

**CABINETS:** Types: "T" for 39-30 and "XX" for 39-35.

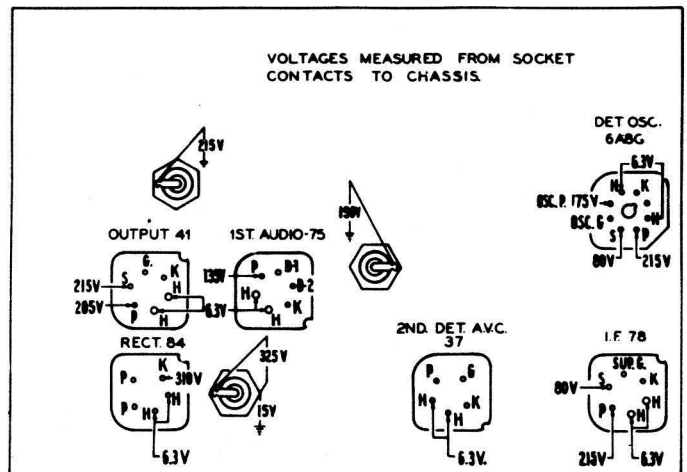


Fig. 1. Socket Voltages—Underside of Chassis

The voltages indicated by arrows were measured with a Philco 027 Circuit Tester which contains an accurate voltmeter. Volume control at minimum, range switch in broadcast position, line voltage 115 A. C.

### Adjusting Push-Button Tuning to Stations

These detailed instructions have been prepared to make sure the correct procedure is followed in setting the stations on the Philco Electric Push-Button Tuning models. The work requires the use of a Philco Model 077 Station Setter and a Part No. 27-7059 Insulated Screw Driver.

(A) Select eight of the most popular stations received in the locality and remove their call letters from the call letter sheets supplied. Place the call letters in the windows above the buttons, making such that each respective button covers the frequency of the station for which it is to be used. The frequency range of the circuits are as follows:

Circuits	Frequency Range
1 and 2	540 to 1030 kilocycles
3 and 4	670 to 1160 kilocycles
5 and 6	900 to 1470 kilocycles
7 and 8	1170 to 1600 kilocycles

These numbers are stamped on the unit as seen from the rear. Looking at the front of the cabinet the numbers read from left to right.

(B) Connect the aerial and ground to the "ANT" and "GND" terminals of the receiver.

(C) Turn the receiver Tuning Range Selector to position two (Manual Tuning) and tune the receiver to the station to be set on the first button.

(D) Plug the output leads of the Station Setter into the "High" and "Gnd" jacks, and turn the output controls to maximum. Turn

the modulation control to "Modulation Off." Connect the output lead of the Station Setter to the "ANT" and "GND" terminals of the receiver and tune to the frequency of the station being received. As the indicator is slowly tuned through the frequency of the station there will be two points at which a high pitched swish will be heard, one above and one below the frequency of the station. When the indicator is on the frequency of the station, minimum high pitched swish will be heard.

(E) Set the modulation control of the Station Setter for "Modulation On." The modulated signal of the Station Setter will then be heard through the receiver.

(F) Turn the receiver Tuning Range Selector to position one (Automatic Tuning) and push in the first button. Using the Part No. 27-7059 Insulated Screw Driver, turn the number 1 "OSC" screw until the modulated signal of the Station Setter is tuned in to maximum volume. Then adjust the number 1 "ANT" screw for maximum signal.

(G) Remove the output lead of the Philco Station Setter from the "ANT" terminal of the receiver and turn its indicator off the frequency of the station. The program of the desired station will then be heard on the receiver.

(H) With the volume of the receiver low, slowly turn the number 1 "OSC" screw back and forth until maximum output is received. Repeat the same procedure for the number 1 "ANT" screw.

After setting up the first station, the same procedure given under (C) to (H) is used for the other stations.

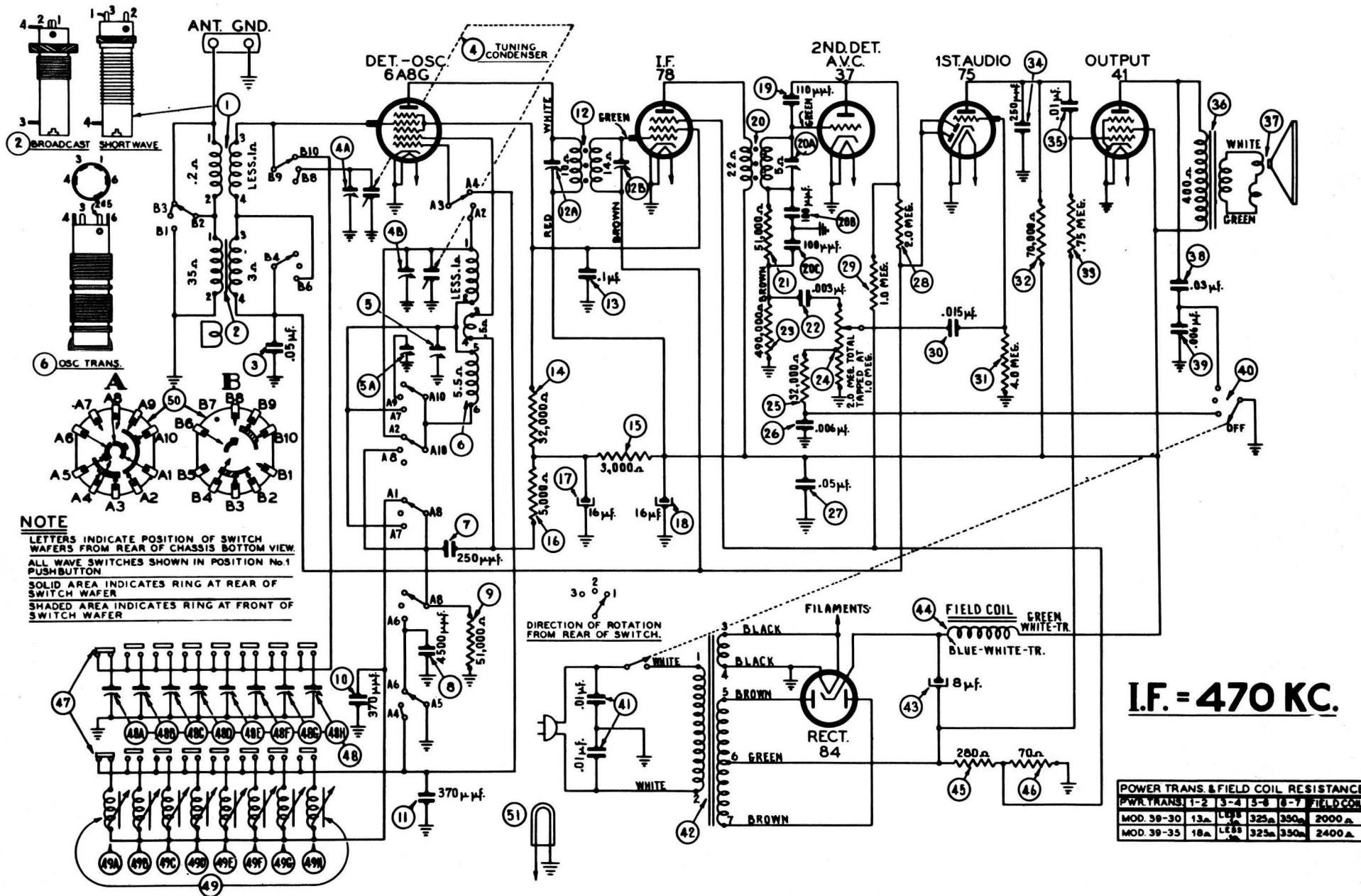


Fig. 2. Schematic Diagram—Models 39-30; 39-35, Code 121

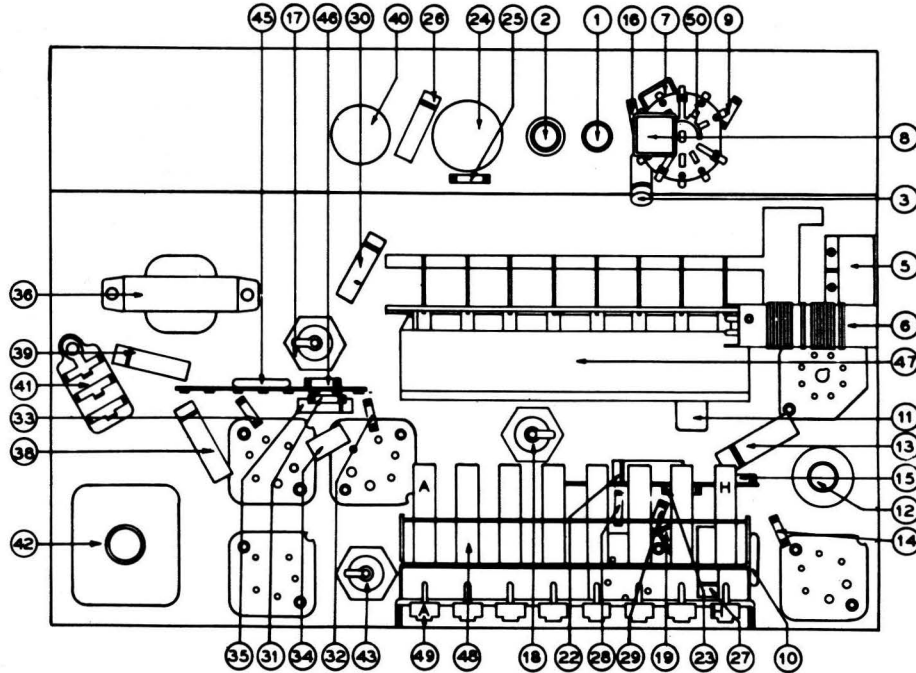


Fig. 3. Parts Locations—Underside of Chassis

## Replacement Parts

Schem. No.	Description	Part No.	Schem. No.	Description	Part No.
1	Antenna Transformer (short wave)	32-3027	47	Push-Button Switch	42-1446
2	Antenna Transformer (broadcast)	32-3026	48	Padder Strip Assembly	31-6256
3	Condenser (.05 mf., tubular)	30-4519	48A	Compensator, No. 1, 540 — 1030 KC.	31-6274
4	Tuning Condenser Assembly	31-2267	48B	Compensator, No. 2, 540 — 1030 KC.	31-6274
5	Dual Padder Unit	31-6255	48C	Compensator, No. 3, 670 — 1160 KC.	31-6276
6	Oscillator Transformer	32-3028	48D	Compensator, No. 4, 670 — 1160 KC.	31-6276
7	Condenser (250 mmf., mica)	30-1032	48E	Compensator, No. 5, 900 — 1470 KC.	31-6278
8	Condenser (4500 mmf., mica)	30-1109	48F	Compensator, No. 6, 900 — 1470 KC.	31-6278
9	Resistor (51,000 ohms, 1/2 watt)	33-351339	48G	Compensator, No. 7, 1170 — 1600 KC.	31-6280
10	Condenser (370 mmf., silver plated mica)	30-1110	48H	Compensator, No. 8, 1170 — 1600 KC.	31-6280
11	Condenser (370 mmf., silver plated mica)	30-1110	49	Electric Push-Button Coil Assembly	32-3031
12	1st I. F. Transformer Assembly	32-3018	49A	Osc. Coil, No. 1, 540 — 1030 KC.	32-3042
13	Condenser (.1 mf., tubular)	30-4455	49B	Osc. Coil, No. 2, 540 — 1030 KC.	32-3042
14	Resistor (32,000 ohms, 1/2 watt)	33-332339	49C	Osc. Coil, No. 3, 670 — 1160 KC.	32-3042
15	Resistor (3000 ohms, 1/2 watt)	33-230339	49D	Osc. Coil, No. 4, 670 — 1160 KC.	32-3042
16	Resistor (5000 ohms, 1/2 watt)	33-250339	49E	Osc. Coil, No. 5, 900 — 1470 KC.	32-3041
17	Electrolytic Condenser (16 mf., 250 V.)	30-2331	49F	Osc. Coil, No. 6, 900 — 1470 KC.	32-3041
18	Electrolytic Condenser (16 mf., 250 V.)	30-2331	49G	Osc. Coil, No. 7, 1170 — 1600 KC.	32-3041
19	Condenser (110 mmf., mica)	30-1031	49H	Osc. Coil, No. 8, 1170 — 1600 KC.	32-3041
20	2nd I. F. Transformer Assembly	32-3030	50	Wave Switch	42-1445
21	Resistor (51,000 ohms, 1/2 watt)	33-351339	51	Pilot Lamp	34-2210
22	Condenser (.003 mf., tubular)	30-4469		Bezel Assembly	40-6365
23	Resistor (490,000 ohms, 1/2 watt)	33-449339		Bezel Gasket	27-9175
24	Volume Control (2.0 megs)	33-5275		Bezel Screw	W-1834
25	Resistor (32,000 ohms, 1/2 watt)	33-332339		Cable (Speaker)	41-3443
26	Condenser (.006 mf., tubular)	30-4467		Cable (Power)	L-2778
27	Condenser (.05 mf., tubular)	30-4518		Dial Scale	27-5403
28	Resistor (2.0 meg., 1/2 watt)	33-520339		Dial Spring	28-8908
29	Resistor (1.0 meg., 1/2 watt)	33-510339		Dial Pointer	28-5941
30	Condenser (.015 mf., tubular)	30-4515		Dial Drive Cord Assembly	31-2269
31	Resistor (4.0 megs., 1/2 watt)	33-540339		Dial Drive Cord Spring	28-8913
32	Resistor (70,000 ohms, 1/2 watt)	33-370339		Dial Drive Drum	31-2281
33	Resistor (750,000 ohms, 1/2 watt)	33-475339		Dial Tuning Shaft Assembly	31-2260
34	Condenser (250 mf., mica)	30-1032		Knob	27-4332
35	Condenser (.01 mf., tubular)	30-4572		Mounting Rubber (Chassis)	27-4571
36	Output Transformer	32-7978		Mounting Rubber (Chassis Corner)	27-4564
37	†Cone and Voice Coil Assembly			Mounting Screw (Chassis)	W-1345
	for 39-30 T, speaker pt. No. 36-1439-3	36-4091		Pilot Lamp Socket Assembly	38-9607
	for 39-30 T, speaker pt. No. 36-1439-2	36-4087		Push-Button	27-4759
	for 39-35 XX, speaker pt. No. 36-1438-2	36-4089		Speaker (T Cabinet 39-30) optional	36-1439-3
38	Condenser (.03 mf., tubular)	30-4449		Speaker (XX Cabinet 39-35)	36-1438
39	Condenser (.006 mf., tubular)	30-4445		Socket (5 Prong)	27-6035
40	Tone Control and On-Off Switch	42-1444		Socket (6 Prong)	27-6036
41	Condenser (.01 mf. - .01 mf., bakelite)	3903 DG		Socket (7 Prong)	27-6099
42	Power Transformer: 115 V., 60 cycle:			Tab Kit	40-6392
	for 39-30	32-7976			
	for 39-35	32-7977			
43	Electrolytic Condenser (8 mf., 400 V.)	30-2330			
44	*Field Coil for Speaker, part No. 36-1439				
	*Field Coil for Speaker, part No. 36-1438				
45	Resistor (280 ohms, wire wound)	33-128431			
46	Resistor (70 ohms, 1/2 watt)	33-070339			

\* Replace Speaker

† Model T Cabinet uses two optional speakers. The part numbers of the speakers are the same with the exception of a dash number (-2 or -3) following the part number. When ordering a Cone and Voice Coil Assembly, the part number as indicated must be specified.

## Alignment of Compensators

### EQUIPMENT REQUIRED:

(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 Model 027 Circuit Tester, incorporates a sensitive output meter and is recommended.

(3) Philco Fiber Handle Screw Driver, Part No. 27-7059, and Fiber Wrench, Part No. 3164.

**OUTPUT METER:** The Philco 027 Output Meter is connected to the plate and cathode terminals of the type 41 tube. After connecting the Output Meter, adjust compensators in the order as given below.

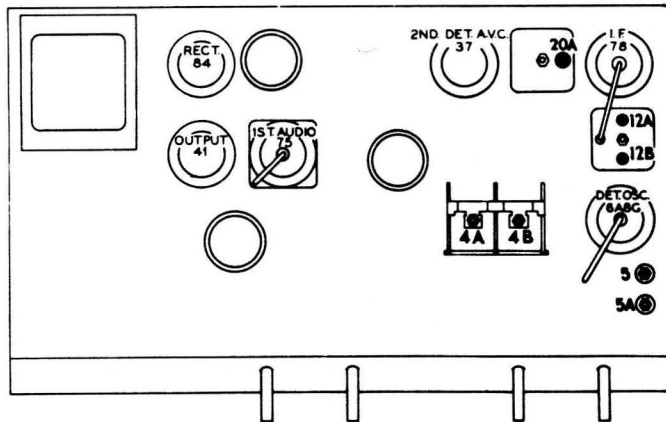


Fig. 4. Locations of Compensators—Top of Chassis

Operations	Signal Generator			Receiver			Special Instructions
	Output Connections To Receiver	Dummy Antenna (Note A)	Dial Setting	Dial Setting	Control Settings	Adjust Compensators In Order	
1	6A8G Grid	.1 mf.	470 K. C.	580 K. C.	Vol. Cont. Max.	(20A) (12B) (12A)	
2	Ant. Ter.	100 mmf.	18.0 M. C.	18.0 M. C.	Vol. Cont. Max.	(4B)	See Note B
3	Ant. Ter.	100 mmf.	1550 K. C.	1550 K. C.	Vol. Cont. Max.	(5) (4A)	
4	Ant. Ter.	100 mmf.	580 K. C.	580 K. C.	Vol. Cont. Max.	(5A)	
5	Ant. Ter.	100 mmf.	1550 K. C.	1550 K. C.	Vol. Cont. Max.	(5)	

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

**NOTE B**—**DIAL CALIBRATION:** In order to adjust the receiver correctly the dial pointer must be aligned to track properly with the tuning condenser. To adjust the dial proceed as follows: With the tuning condenser closed, set the dial pointer on the extreme left index line at the low frequency end of the scale.

**PHILCO RADIOS will give original Quality Performance only when Genuine Philco Replacement Parts are used**

**PHILCO RADIO AND TELEVISION CORPORATION**  
**Parts and Service Division**  
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