

PHILCO Model 39-85, Code 121



SERVICE BULLETIN No. 307 for members of RADIO MANUFACTURERS SERVICE

A PHILCO Service Plan

Adjusting Push-Button Tuning to Stations

In order to set the Electric push-buttons correctly for each station, the procedure as given below should be carefully followed. Accurate adjustment of the buttons requires the use of a Philco Model 077 Station Setter and a Part No. 27-7059 insulated screw driver.

(a) Select six 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 sure that each button covers the frequency of the station for which it is to be used.

Two adjustment screws for each button are located on the rear of the push-button unit. The top row of screws are for the antenna circuit and the bottom row of screws for the oscillator circuit. These are marked "Ant" and "Osc." Each set of screws is numbered and covers a frequency range as follows:

Push Button	Frequency Range
1.....	970 to 1550 KC
2.....	970 to 1550 KC
3.....	750 to 1250 KC
4.....	750 to 1250 KC
5.....	970 to 1550 KC
6.....	970 to 1550 KC

Looking at the front of the cabinet, the first button on the left is adjusted by set screws No. 6, the next button by set screws No. 5, and the remaining buttons in the same order.

(B) Connect the Philco Farm Radio aerial, Part No. 40-6383, 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 On." Connect the output lead of the Station Setter to the "ANT" and "GND" terminals of the receiver and turn the indicator 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 whistle will be heard, one above and one below the frequency of the station. When the indicator is on the frequency of the station, the whistle will be eliminated and the modulated signal of the Station Setter will then be clearly heard through the receiver.

(E) Turn the receiver Tuning Range Selector to position one (Push-button) and push in the first button. Using the Part No. 27-7059 Insulated Screw Driver, turn the number 6 "OSC" screw until the modulated signal of the Station Setter is tuned in to maximum volume. Then adjust the number 6 "ANT" screw for maximum volume.

(F) 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.

(G) With the volume of the receiver low, slowly turn the number 6 "OSC" screw back and forth until maximum output is received. Repeat the same procedure for the number 6 "ANT" screw.

After setting up the first station, the same procedure given under (C) to (G) is used for the remaining buttons.

Alignment of Compensators

EQUIPMENT REQUIRED:

(1) Philco Model 077 Signal Generator which has a fundamental frequency range from 115 to 36,000 KC 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 screen terminals of the 1A5G tube. Set the meter to use the 0-30 volt scale.

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	1A7G Grid	.1 mf	470 KC	580 KC	Vol. Cont. max.	(20A) (19B) (19A)	
2	Ant. Lead (white)	400 ohms	18.0 MC	18.0 MC	Vol. Cont. max.	(6B)	See Note B
3	Ant. Lead (white)	225 mmf	1550 KC	1550 KC	Vol. Cont. max.	(9) (6A)	
4	Ant. Lead (white)	225 mmf	580 KC	580 KC	Vol. Cont. max.	(9A)	Roll gang
5	Ant. Lead (white)	225 mmf	1550 KC	1550 KC	Vol. Cont. max.	(9)	

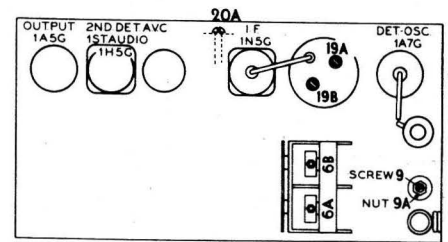


Fig. 1. Locations of Compensators

NOTE A—The "Dummy Antenna" consists of a condenser or resistor 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: Turn the tuning condenser to maximum capacity (plates fully meshed). With tuning condenser in this position set the pointer horizontally across the dial.

Specifications

TYPE OF CIRCUIT: Four tube, battery operated superhetrodyne circuit, two tuning ranges, Automatic Volume Control, and Pentode Output.

TUNING RANGES: Range 1, 540 to 1720 KC.; Range 2, 5.6 to 18.0 MC.

INTERMEDIATE FREQUENCY: 470 KC.

PHILCO TUBES USED: 1-1A7G, 1st Detector and Oscillator; 1-1N5G, I. F. Amplifier; 1-1H5G, 2nd Detector, 1st Audio, and Automatic Volume Control; and 1-1A5G, Output.

AERIAL AND GROUND: Philco "Farm Radio Aerial," part No. 40-6383, is required for maximum performance. A good ground is very essential.

CABINETS: Types "B" and "XF."

BATTERIES REQUIRED: One Philco "A" Pack, part No. 41-8014, and one Philco "B" Pack, part No. 41-8015.

BATTERY DRAIN: 6.5 Ma. "B" and 200 Ma. "A." Total with no signal.

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

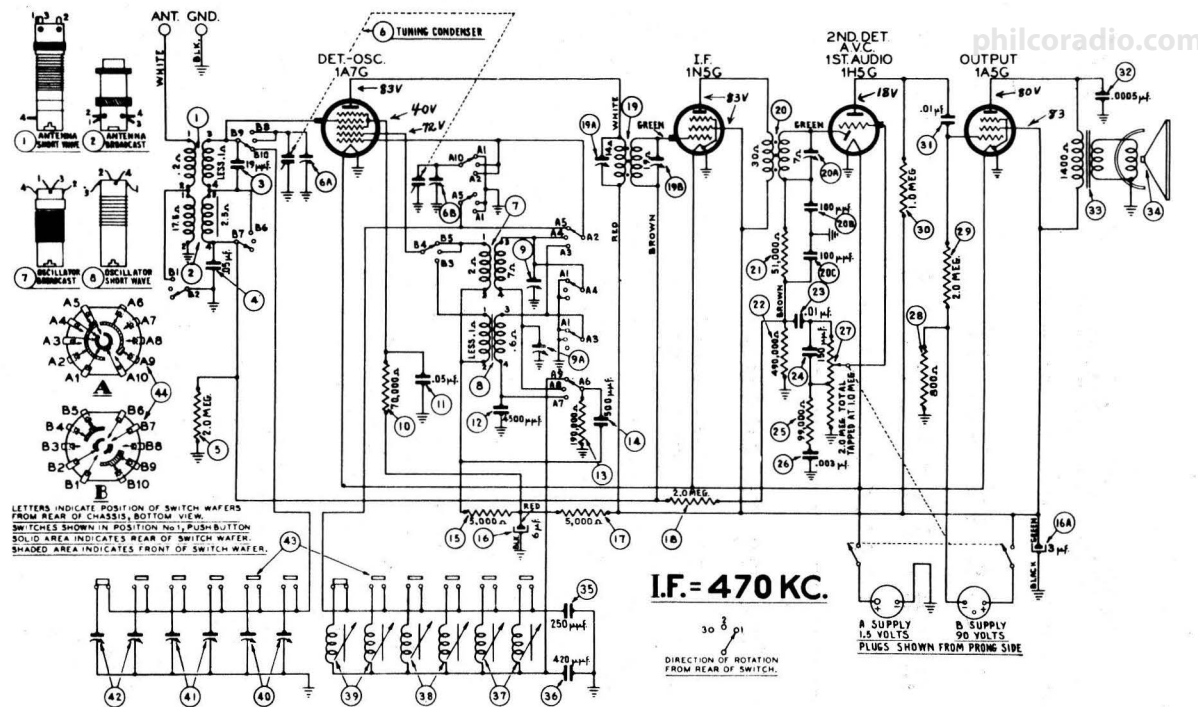


Fig. 2. Schematic Diagram

Replacement Parts Model 39-85, Code 121

Schem. No.	Description	Part No.	Schem. No.	Description	Part No.
1	Antenna Transformer, Range 2 (Incls. No. 3)	32-3092	28	Resistor (800 ohms, 1/2 watt)	33-180339
2	Antenna Transformer, Range 1	32-3084	29	Resistor (2.0 megohms, 1/2 watt)	33-520339
3	Condenser (19 mmf) (part of No. 1)	30-1090	30	Resistor (1.0 megohm, 1/2 watt)	33-510339
4	Condenser (.05 mf tubular)	30-4519	31	Condenser (.01 mf tubular)	30-4572
5	Resistor (2.0 megohms, 1/2 watt)	33-520339	32	Condenser (.0005 mf mica)	30-1114
6	Tuning Condenser Assembly	31-2300	33	Output Transformer	32-7984
7	Oscillator Transformer, Range 1	32-3082	34	Cone & Voice Coil Assembly for Speaker (Part No. 36-1410)	36-4093
8	Oscillator Transformer, Range 2	32-3085		Cone & Voice Coil Assembly for Speaker (Part No. 36-1436)	36-4094
9	Compensator (two sections)	31-6100	35	Condenser (250 mmf, silver plated mica)	30-1104
10	Resistor (70,000 ohms, 1/2 watt)	33-370339	36	Condenser (420 mmf, silver plated mica)	30-1116
11	Condenser (.05 mf tubular)	30-4444	37	Oscillator Coil Assem. (High freq. No. 1 and 2)	32-2941
12	Condenser (4500 mmf mica)	30-1109	38	Oscillator Coil Assem. (Medium frequency No. 3 and 4)	32-2942
13	Resistor (190,000 ohms, 1/2 watt)	33-419339	39	Oscillator Coil Assem. (Low frequency No. 5 and 6)	32-2943
14	Condenser (500 mmf mica)	30-1114	40	Compensator (two sections) (Nos. 1 and 2)	31-6244
15	Resistor (5000 ohms, 1/2 watt)	33-250339	41	Compensator (two sections) (Nos. 3 and 4)	31-6245
16	Electrolytic Condenser (6 mf—3 mf)	30-2348	42	Compensator (two sections) (Nos. 5 and 6)	31-6246
17	Resistor (5000 ohms, 1/2 watt)	33-250339	43	Push-Button Switch	42-1471
18	Resistor (2.0 megohms)	33-520339	44	Wave Switch	42-1466
19	1st I. F. Transformer Assembly	32-2841		Bezel Assy. (Dial)	40-6374
20	2nd I. F. Transformer Assembly	32-3081		Cable (Battery)	41-3437
21	Resistor (51,000 ohms, 1/2 watt)	33-351339		Dial Assy.	31-2307
22	Resistor (490,000 ohms, 1/2 watt)	33-449339		Dial Pointer	56-1091
23	Condenser (.01 mf tubular)	30-4572		Dial Drive Cord	31-2318
24	Condenser (150 mmf mica)	30-1033			
25	Resistor (99,000 ohms, 1/2 watt)	33-399330			
26	Condenser (.003 mf tubular)	30-4580			
27	Volume Control and On-Off Switch	33-5288			

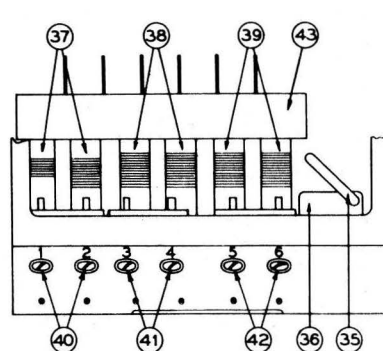


Fig. 4. Automatic Tuning Unit

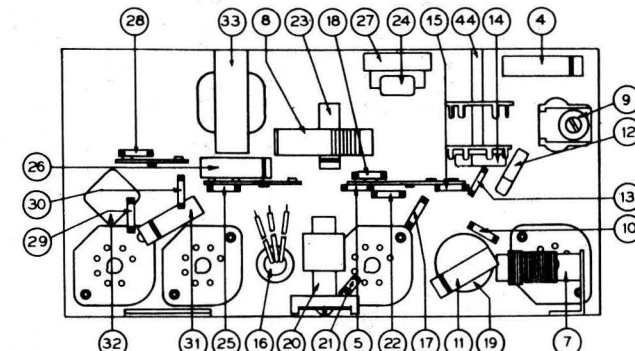


Fig. 3. Part locations, underside of chassis

Description	Part No.
Dial Drive Spring	28-8751
Dial Tuning Shaft	31-2290
Escutcheon (Push-Button)	28-5561
Knob (Push-Button)	27-4702
Knob (Range Switch)	27-4321
Knob (Volume & Tuning)	27-4332
Pulley (Tuning Condenser)	28-6662
Speaker (B Cabinet)	36-1410
Speaker (XF Cabinet)	36-1436
Socket (6 prong)	27-6086
Socket (7 prong)	27-6099
Socket (Speaker)	27-6115
Tab Kit	40-6408

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