

PHILCO Model 39-40, Code 121



SERVICE BULLETIN No. 305 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 KC. to 1720 KC.) and short-wave (5.8 MC. to 18.0 MC.) frequencies; Electric Push-Button Tuning; Automatic Volume Control; and Push-Pull 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, 80 watts.

INTERMEDIATE FREQUENCY: 470 KC.

TUNING RANGES: 540 KC. to 1720 KC.; 5.8 MC. to 18.0 MC.

PHILCO TUBES USED: 1-78, R. F.; 1-6A7, 1st detector and oscillator; 1-78, I. F.; 1-6Q7G, 2nd detector, 1st audio Automatic Volume Control; 1-6J5G, phase inverter; 2-42, push-pull output; and 1-5Y4G, rectifier.

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

CABINETS: Type "XX."

Adjusting Electric Push-Button Tuning

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 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 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. Each set of screws is numbered and covers a frequency range as follows:

Push-Button	Frequency Range
1 and 2	540-1030 KC.
3 and 4	670-1160 KC.
5 and 6	900-1470 KC.
7 and 8	1100-1600 KC.

Looking at the front of the cabinet, the first button on the left is adjusted by set screw No. 1, the next button by set screw No. 2, and the remaining buttons in the same order.

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

(C) Turn the receiver Tuning Range Selector to position 2 (Broadcast) 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.

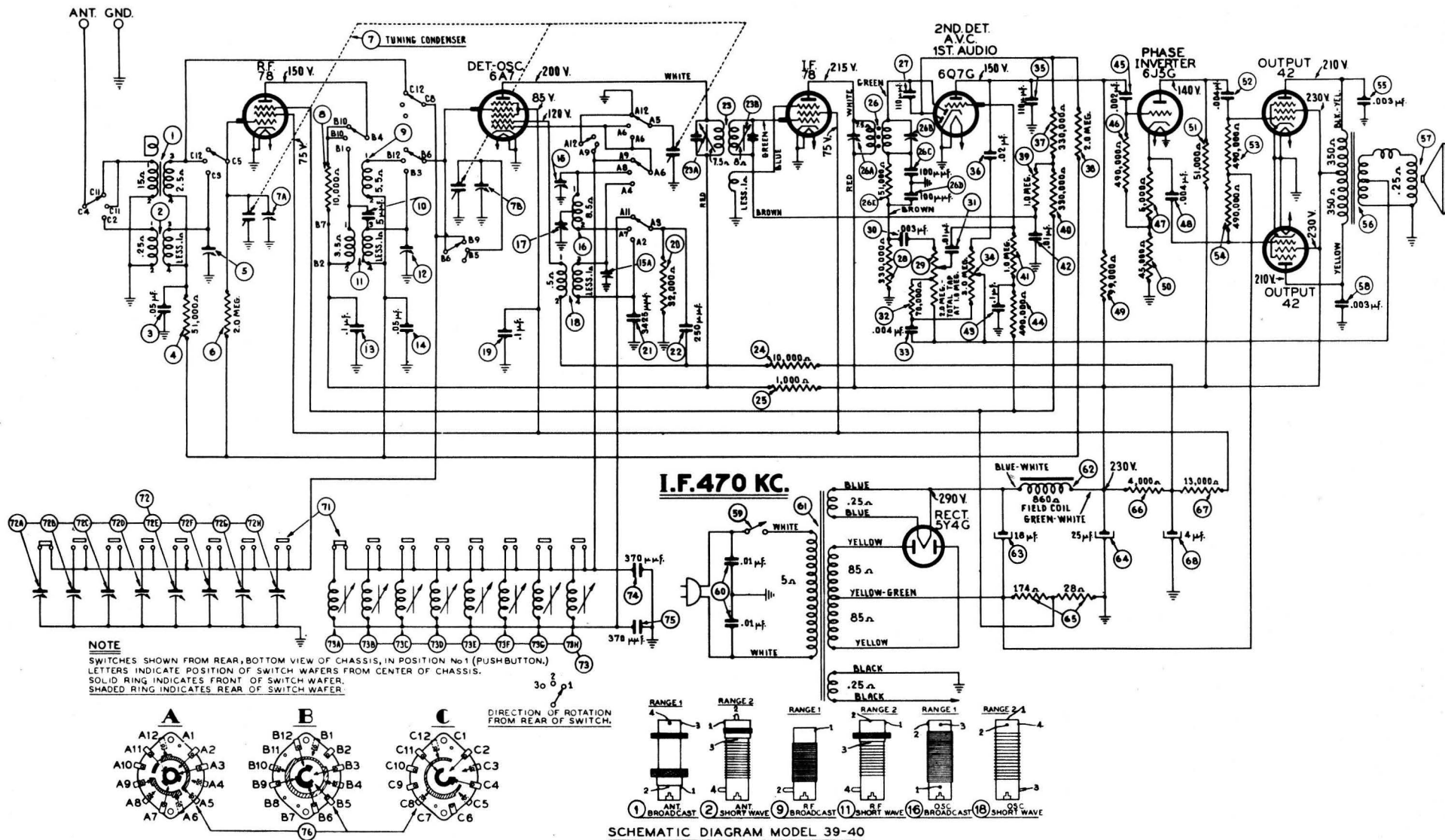
Turn the modulation control to "Modulation On." Connect the output lead of the station setter to the "ANT" and "GND" terminals of the receiver and tune to the frequency of the station being received. As the indicator is slowly tuned through the frequency of the station, there will be two points at which a 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 1 (Push-Button) and press in the first button. Using the part No. 27-7059 insulated screw driver; turn the No. 1 "OSC" screw until the broadcast station identified by the station setter signal is tuned to Maximum Volume.

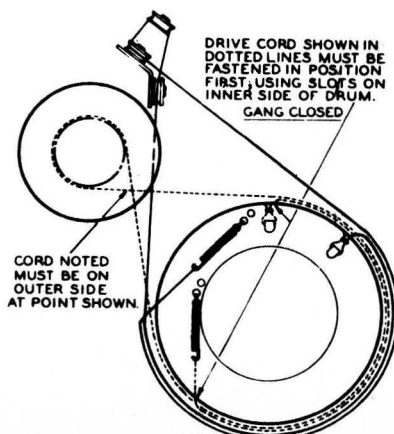
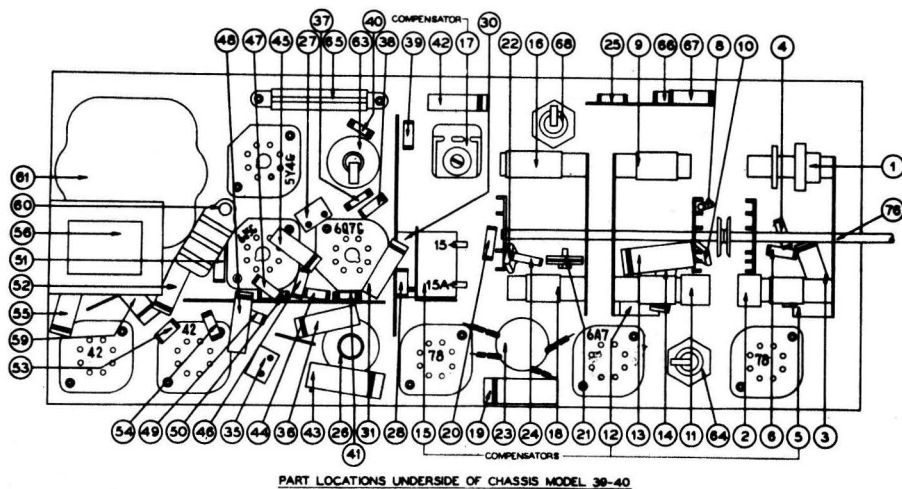
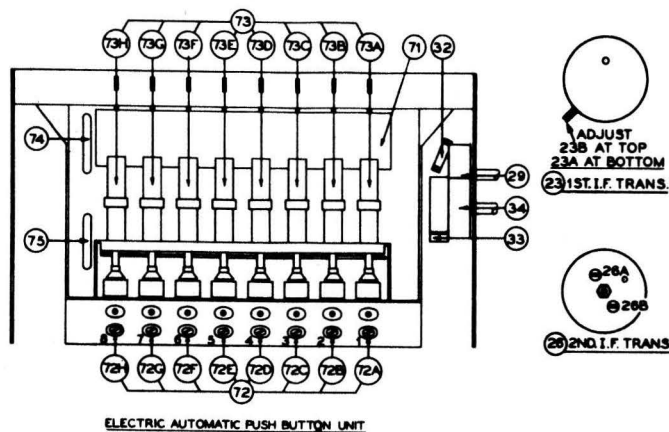
(F) Remove the output lead of the station setter from the "ANT" terminal of the receiver and turn the indicator of the Station Setter off the frequency of the station. The program of the desired station will then be heard in the receiver without the modulated signal.

(G) With the volume of the receiver low, slowly turn the No. 1 "OSC" screw back and forth until maximum output is received. Repeat the same procedure for the No. 1 "ANT" screw.

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



Replacement Parts Model 39-40, Code 121



**CORRECT METHOD OF INSTALLING DRIVE CORDS
ON TUNING CONDENSER DRUM**

Schem. No.	Description	Part No.	Schem. No.	Description	Part No.
1	Antenna Transformer (Range 1, Brdcast.)	32-3056	65	B. C. Resistor	33-3358
2	Antenna Transformer (Range 2)	32-3055	66	Resistor (4000 ohms, 1/2 watt)	33-240339
3	Condenser (.05 mf tubular)	30-4519	67	Resistor (13,000 ohms, 1/2 watt)	33-313339
4	Resistor (51,000 ohms, 1/2 watt)	33-351339	68	Elect. Condenser (4 mf), 250.	30-2334
5	Compensator (Range 2, S. W.)	31-6212	69	Pilot Lamp .. Dial	34-2064
6	Resistor (2.0 megohms, 1/2 watt)	33-520339	70	Pilot Lamp	34-2064
7	Tuning Condenser	31-2296	71	Push-Button Switch	42-1462
8	Resistor (10,000 ohms, 1/2 watt)	33-310339	72	Padder Strip Assem., Complete	31-6259
9	R. F. Transformer (Range 1, Brdcast.)	32-2379	72A	Compensator No. 1 (540-1030 KC.)	
10	Condenser (5 mmf mica)	30-1083	72B	Compensator No. 2 (540-1030 KC.)	
11	R. F. Transformer (Range 2, S. W.)	32-3046	72C	Compensator No. 3 (670-1160 KC.)	
12	Compensator (Range 2, S. W.)	31-6212	72D	Compensator No. 4 (670-1160 KC.)	
13	Condenser (.1 mf tubular)	30-4455	72E	Compensator No. 5 (900-1470 KC.)	
14	Condenser (.05 mf tubular)	30-4519	72F	Compensator No. 6 (900-1470 KC.)	
15	Compensator (two sections)	31-6093	72G	Compensator No. 7 (1100-1600 KC.)	
16	Oscillator Transformer (Range 1, Brdcast.)	32-2120	72H	Compensator No. 8 (1100-1600 KC.)	
17	Compensator	31-6230	73	Coil Strip Assembly (8 coils)	32-3031
18	Oscillator Transformer (Range 2, S. W.)	32-3051	73A	Coil No. 1 (540-1030 KC.)	32-3042
19	Condenser (.1 mf tubular)	30-4455	73B	Coil No. 2 (540-1030 KC.)	32-3042
20	Resistor (32,000 ohms, 1/2 watt)	33-332339	73C	Coil No. 3 (670-1160 KC.)	32-3042
21	Condenser (3425 mmf mica)	31-6263	73D	Coil No. 4 (670-1160 KC.)	32-3042
22	Condenser (250 mmf mica)	30-1032	73E	Coil No. 5 (900-1470 KC.)	32-3041
23	1st I. F. Transformer Assembly	32-3079	73F	Coil No. 6 (900-1470 KC.)	32-3041
24	Resistor (10,000 ohms, 1/2 watt)	33-310339	73G	Coil No. 7 (1100-1600 KC.)	32-3041
25	Resistor (1000 ohms, 1/2 watt)	33-210339	73H	Coil No. 8 (1100-1600 KC.)	32-3041
26	2nd I. F. Transformer	32-2582	74	Condenser (370 mmf silver mica)	30-1110
27	Condenser (110 mmf mica)	30-1031	75	Condenser (370 mmf silver mica)	30-1110
28	Resistor (330,000 ohms, 1/2 watt)	33-433339	76	Wave Switch	42-1461
29	Volume Control (2.0 megohms)	33-5286		Bezel	56-1104
30	Condenser (.003 mf tubular)	30-4580		Bezel Gasket	27-9245
31	Condenser (.01 mf tubular)	30-4581		Bearing (Drum Shaft)	56-1036
32	Resistor (70,000 ohms, 1/2 watt)	33-370339		Cable (Power)	L-2778
33	Condenser (.004 mf tubular)	30-4578		Cable (Speaker)	41-3430
34	Tone Control (3.0 megohms)	33-5287		Coupling (Tuning Condenser)	31-2291
35	Condenser (110 mmf mica)	30-1031		Dial (Scale)	27-5421
36	Condenser (.02 mf tubular)	30-4481		Dial Clamp	56-1034
37	Resistor (330,000 ohms, 1/2 watt)	33-433339		Dial Gasket	27-9224
38	Resistor (2.0 megohms, 1/2 watt)	33-520339		Dial Gasket	27-9225
39	Resistor (1.0 megohm, 1/2 watt)	33-510339		Dial Pointer	56-1033
40	Resistor (330,000 ohms, 1/2 watt)	33-433339		Dial Drive Cord (Tuning)	31-2315
41	Resistor (1.0 megohm, 1/2 watt)	33-510339		Dial Drive Cord Pointer	31-2316
42	Condenser (.01 mf tubular)	30-4581		Dial Drive Cord Spring	28-8913
43	Condenser (.1 mf tubular)	30-4455		Disc Control (Tuning)	27-4766
44	Resistor (490,000 ohms, 1/2 watt)	33-449339		Disc Control (Range Switch)	38-9702
45	Condenser (.002 mf tubular)	30-4579		Disc (Tone Control)	27-4764
46	Resistor (490,000 ohms, 1/2 watt)	33-449339		Disc (Volume Control)	27-4765
47	Resistor (5000 ohms, 1/2 watt)	33-250339		Drum Assembly (Tuning Condenser)	38-9661
48	Condenser (.004 mf tubular)	30-4578		Drum Bracket and Bearing (Tuning Condenser)	38-9662
49	Resistor (99,000 ohms, 1/2 watt)	33-399339		Shaft (Control Drums)	28-6924
50	Resistor (45,000 ohms, 1/2 watt)	33-345339		Socket Assembly Dial Lamp	38-9694
51	Resistor (51,000 ohms, 1/2 watt)	33-351339		Socket Assembly Dial Lamp	38-9695
52	Condenser (.004 mf tubular)	30-4578		Socket (6-prong), 78-tube	27-6036
53	Resistor (490,000 ohms, 1/2 watt)	33-449339		Socket (6-prong), Octal	27-6086
54	Resistor (490,000 ohms, 1/2 watt)	33-449339		Socket (7-prong), Octal	27-6053
55	Condenser (.003 mf tubular)	30-4469		Socket (7-prong), 6A7-tube	27-6107
56	Output Transformer	32-7981		Speaker	36-1450
57	Cone and Voice Coil Assembly for Speaker (Part No. 36-1450)	36-4089		Tab Kit	40-6392
58	Condenser (.003 mf tubular)	30-4469			
59	A. C. Switch	42-1467			
60	Condenser (.01 mf to .01 mf bakelite)	3903DG			
61	Pwr. Trnsfrmr., 115 v., 60 cycle	32-7998			
62	Field Coil, Replace Speaker	36-1450			
63	Elect. Condenser (18 mf)	30-2335			
64	Elect. Condenser (25 mf), 250.	30-2333			

Miscellaneous Parts

Grommet (Mtg. Push-Button Switch)	27-4610
Grommet (Mtg. Tuning Unit Assy.)	3914
Grommet (Mtg. Tuning Unit Assy.)	3915
Nut (A. C. Switch)	W-1757
Nut (Speaker Mtg.)	W-124
Screw (Mtg. Chassis)	W-1345
Screw (Bezel)	W-1834
Washer (Speaker Mtg.)	27-7467
Washer Rubber (Mtg. Chassis)	27-4571
Washer (A. C. Switch)	W-894

Alignment of Compensators

EQUIPMENT REQUIRED:

- (1) Signal Generator, 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 terminals of the type 42 tubes and adjusted for the 0 to 30 scale. After connecting the output meter, adjust the compensators in the order as shown in the tabulation below. Locations of the compensators are shown on page 3. If the output meter pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

Operations	SIGNAL GENERATOR			RECEIVER			Special Instructions
	Output Connections to Receiver	Dummy Antenna (Note A)	Dial Setting	Dial Setting	Control Setting	Adjust Compensators to Max. Reading	
1	6A7	.1 mf	470 KC.	580 KC.	Vol. Max. Range Switch Broadcast	26B, 26A, 23B, 23A	
2	Ant. Ter.	150 mmf	1550 KC.	1550 KC.	"	15, 7B, 7A	See Note B and C
3	Ant. Ter.	150 mmf	580 KC.	580 KC.	"	17	Roll Tuning Condenser
4	Ant. Ter.	150 mmf	1550 KC.	1550 KC.	"	15	
5	Ant. Ter.	400 ohms	18.0 MC.	18.0 MC.	Range Switch S. W.	15A, 12, 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 must be aligned to track properly with the tuning condenser. To adjust

the dial, proceed as follows: With the tuning condenser closed (maximum capacity), set the dial pointer on the extreme left index line at the low frequency end of the broadcast scale. The arrangement of the drive cable is shown on page 3.

NOTE C—Compensators (7A) and (7B) are located on top of the tuning condenser. Compensator (7A) is the first one from the tuning drum side.

PHILCO AUTOMATIC TUBE TESTER



Model 033. For 115 Volts 50-60 Cycles

Positive, fast, accurate push-button testing of all type tubes. Ultra-simplified controls plus automatic selection of voltage applied to tube being tested, are the outstanding features of this remarkable new instrument.

Only two controls to set—tests any tube in a few seconds time! Applied voltage selected by definite push-button controls.

Many other exclusive Philco features are built into this instrument. A novel revolving chart indicates setting of all controls to make a complete test of any tube.

Light weight, portable, rugged and attractive; panel matches other Philco test instruments. Large, easy-reading, illuminated indicating meter; neon tube flash test for showing up "shorts." Carrying handle makes it equally suitable for portable or counter use.

Net Dealer Price \$51⁰⁰

PHILCO RADIO AND TELEVISION CORPORATION
Parts and Service Division **Philadelphia, Pa.**