

MODELS 41-220C-C1, 41-225 AND 41-22CL

SPECIFICATIONS

Models 41-220 and 41-225 are six (6) tube alternating current (A. C.) or direct current (D. C.) operated super-heterodyne radios, employing the Philco Built-in American and Overseas aerial system.

In general, these models are similar in design with the exceptions of the cabinets and tuning mechanisms.

Model 41-220, is manually tuned and employs two tuning ranges covering 540 to 1600 K. C. and 1.6 to 3.3 M. C.

Model 41-225 has Electric Push-button tuning in addition to Manual tuning and two tuning ranges covering the same frequencies as Model 41-220. The electric push-button mechanism consists of six (6) push-buttons. One push-button is used to turn the power source OFF and ON and the remaining five (5) for automatically tuning in broadcasting stations. The procedure for adjusting and operating push-button tuning will be found in the instruction Part No. 39-6868 supplied with the receiver.

Additional features included in each model are:—Philco loktal tubes; R. F. stage; Beam power audio stage and a dust-proof speaker.

INTERMEDIATE FREQUENCY: 455 K. C.

AUDIO OUTPUT: 1 watt.

POWER SUPPLY: 115 volts A. C. or D. C. current.

PHILCO TUBES: 7C7 R. F. stage; 7A8 Oscillator; 1st de-

tor; 7B7, I. F. stage; 7C6, 2nd detector, A. V. C. first audio; 35A5, audio output and a 35Z3 rectifier.

CABINET DIMENSIONS:	Height	Width	Depth
Model 41-220	7"	12½"	6¼"
Model 41-225	8"	13⅜"	7"

OUTSIDE AERIAL: Connections are also provided on the rear of the chassis for an outside aerial to be used in locations such as steel reinforced buildings, and other shielded locations where signal strength is weak. For installation of this type the Philco Aerial, Part No. 40-0370 is recommended.

MODEL 41-22CL

Model 41-22CL is a combination radio and clock, designed for operation on a 115 volt A. C. supply only, and employing the same radio chassis as Model 41-220. The cabinet and several parts of Model 41-22CL differ from Model 41-220. These parts are as follows:

Dial Scale	27-5700	Loop Aerial	32-3645
Dial Pointer	27-4891	Cardboard Back ..	27-9867
Cable (Clock) ...	41-3484	Cabinet	10539A
Clock Complete ..	45-2855		

With the exception of the above parts, the service information for Model 41-220 applies to Model 41-22CL.

ALIGNMENT OF R. F. AND I. F. COMPENSATORS

The following procedure is the same for both models:

EQUIPMENT REQUIRED

1. Signal Generator: Covering the frequency range of the receiver, such as Philco Models 077 or 177.
2. Aligning Indicator: Either a vacuum tube voltmeter or an audio output meter may be used as an aligning indicator. Philco Models 027 and 028 circuit testers contain both these meters.
3. Tools: Philco Fiber Screw Driver, Part No. 45-2610.

CONNECTING ALIGNING INSTRUMENTS

Audio Output Meter: If this type of aligning meter is used, connect it to the voice coil terminals of the speaker or from the plate of the 35A5 tube to the chassis. Adjust the meter for the 0 to 10 volt scale.

Vacuum Tube Voltmeter: To use the vacuum tube voltmeter as an aligning indicator, make the following connections: Attach the negative (—) terminal of the voltmeter to any point in the circuit where the A. V. C. voltage can be obtained. Connect the positive (+) terminal of the vacuum tube voltmeter to the chassis.

Signal Generator: When adjusting the I. F. padders, the high side of the signal generator is connected through a .1 mfd. condenser to the stator plate lug of the antenna section of the tuning condenser. Connect the ground or low side of the generator to the chassis.

When aligning the R. F. padders a loop is made from a few turns of wire and connected to the signal generator output terminals; the signal generator is then placed close to the loop of the radio.

The receiver can be adjusted in the cabinet or removed from the cabinet.

When adjusting the radio outside the cabinet the loop aerial should be placed in approximately the same position around or near the chassis as when assembled.

After connecting the aligning instruments adjust the compensators as shown in the tabulation below. Locations of the compensators are shown in the Parts location diagram.

If the indicating meter pointer goes off scale when adjusting the compensator, reduce the strength of the signal from the generator.

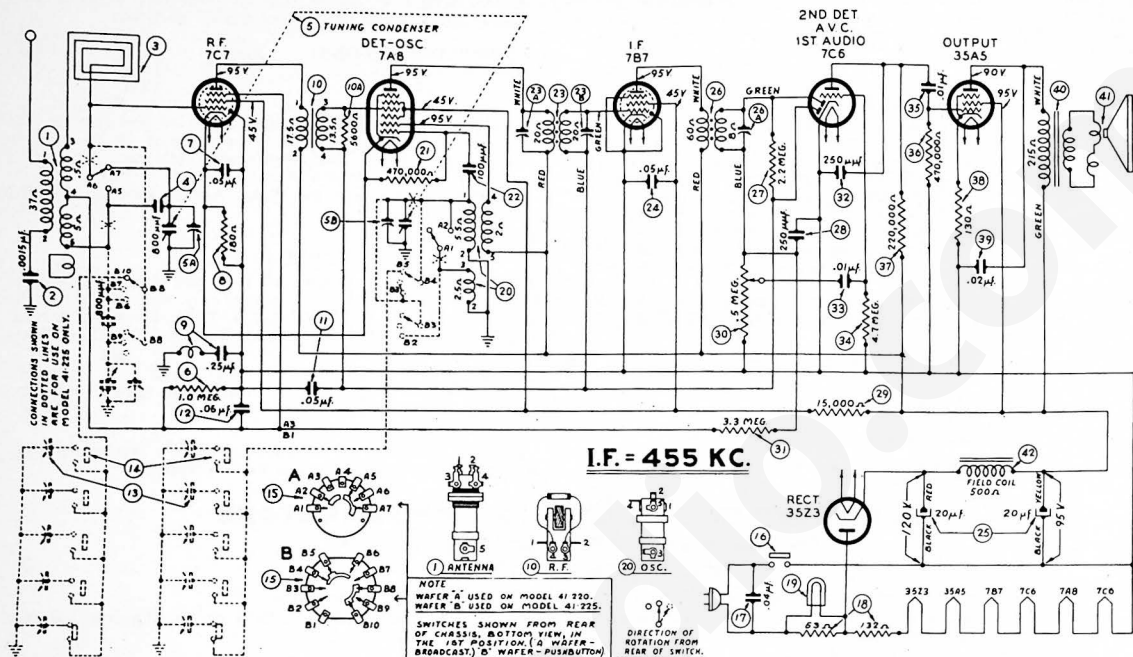
Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting	Adjust Compensators in Order	
1	Ant. Section of Tuning Cond.	455 K. C.	540 K. C. Tuning Cond. Closed	Vol. Max. Range Switch "Brdcst"	26A, 23B, 23A	
2	Loop—See above Instructions	1600 K. C.	1600 K. C.	Vol. Max. Range Switch "Brdcst"	5B Tuning Condenser	Note A
3	Loop—See above Instructions	1500 K. C.	1500 K. C.	Vol. Max. Range Switch "Brdcst"	5A Tuning Condenser	

NOTE A — DIAL CALIBRATION: In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser. To do this, proceed as follows: Turn the tuning condenser to the maximum capacity position (plates fully meshed). With the condenser in this position, set the tuning pointer on the extreme left index line at the low frequency end of the broadcast scale.

PRODUCTION CHANGES

In cases where hum is present, changing the pilot lamp socket assembly from Part No. 38-9825 to Part No. 76-1177 will eliminate the condition.

MODELS 41-220C-C1, 41-225 AND 41-22CL (CONTINUED)



SCHEMATIC DIAGRAM MODELS 41-220 & 41-225

Replacement Parts — Models 41-220, 41-225

SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.	
1	Aerial Transformer	32-3404	MISCELLANEOUS PARTS						
2	Condenser (.0015 mfd., 200 volts)	30-4555		Cabinet (41-220C)	10487A		Spring (Drive Cord Assembly)	28-8954	
3	Loop Aerial (Model 41-220)	32-3480		Cabinet (41-220C 1)	10487B		Socket (Tubes)	58-0575	
4	Loop Aerial (Model 41-225)	32-3480		Cabinet (41-225C)	10489A		Socket Assembly (Pilot Lamp)	38-9825	
5	Mica Condenser (800 mmfd.)	60-180127		Cord (Power)	L-3199		Tab (Off-On) 41-225	27-5623	
6	Tuning Condenser (Model 41-220)	31-2492		Clip (Coil Mounting)	28-5002		Tab Kit Stations	40-4503	
7	Condenser (1 megohm)	33-510339		Dial Scale (Model 41-220)	27-5821		MOUNTING PARTS		
8	Tuning Condenser (Model 41-225)	31-2492		Dial Scale (Model 41-225)	27-5821		Clip (R. F. Coil Mounting)	28-5002	
9	Resistor (.05 mfd., 200 volts)	30-4519		Dial Pointer	27-4868		Clamp (Electro-Condenser)	58-1346	
10	Resistor (180 ohms)	33-5251		Drive Cord (Dial)	31-2489		Pinout (Vol. Cont. Drive Shaft Mtg.)	W-2157	
11	Condenser (.25 mfd.) and Choke	38-9851		Drive Shaft (Tuning)	31-2370		Pinout (1st and 2nd I. F. Mounting)	W-1949	
12	R. F. Transformer	32-3273		Escutcheon (Push-button)	56-1893		Sleeve (Switch and Padder Mounting)	28-5665	
13	Resistor (5600 ohms) Part of 10	33-118336		Knob (Tuning-Volume) 41-220	27-4809		Sleeve (Tuning Condenser)	28-5883	
14	Condenser (.05 mfd., 200 volts)	30-4519		Knob (Range Switch) 41-220	54-4005		Screw (Dial Scale Mounting)	W-685	
15	Condenser (.05 mfd., 200 volts)	30-4519		Knob (Push-buttons)	54-4002		Screw Chassis Mounting)	W-2030	
16	Compensator Assembly (Push-buttons) Model 41-225 Only	31-6376					Screw (Push-button Bezel)	W-2071	
17	Push-button Switch Assembly (Model 41-225 Only)	42-1591							
18	Range Switch (Model 41-220)	42-1505							
19	Range Switch (Model 41-225)	42-1590							
20	Off-On Switch (Part of 14)	33-3375							
21	Condenser (.04 mfd., 400 volts)	30-4119							
22	Resistor (53-132 ohms)	33-3375							
23	Pilot Lamp	34-2068							
24	Oscillator Transformer	32-3256							
25	Resistor (47,000 ohms)	33-347339							
26	Condenser (100 mmfd.)	60-110157							
27	1st I. F. Transformer	32-3489							
28	Condenser (.05 mfd.)	30-4519							
29	Electrolytic Cond. (20 mfd., 20 mfd.)	30-2403							
30	Electrolytic Cond. (20 mfd., Part of 29A)	32-3304							
31	2nd I. F. Transformer	33-522154							
32	Resistor (2.2 megohm)	60-125157							
33	Mica Condenser (280 mmfd.)	33-318339							
34	Resistor (15,000 ohms)	33-510339							
35	Volume Control (Model 41-220)	33-8404							
36	Volume Control (Model 41-225)	33-8411							
37	Resistor (470,000 ohms)	33-523339							
38	Condenser (100 mfd.)	61-0033							
39	Condenser (.01 mfd., 200 volts)	30-4479							
40	Resistor (4.7 megohms)	33-847154							
41	Condenser (.01 mfd., 400 volts)	30-4572							
42	Resistor (470,000 ohms)	33-447339							
43	Resistor (320,000 ohms)	33-443339							
44	Resistor (130 ohms)	33-113336							
45	Condenser (.02 mfd., 400 volts)	30-4816							
46	Output Transformer	32-8144							
47	Cone Assembly (for Speaker 38-1512-9)	38-4167							
48	Field Coil (Replace Speaker 38-1512)								

