

MODELS 41-230 AND 41-235, CODE 121

SPECIFICATIONS

TYPE OF CIRCUIT: Models 41-230 and 41-235, Code 121, are seven (7) tube A. C. operated superheterodyne radios employing the Philco Built-in aerial system, which eliminates an outside aerial. In general these models are similar but differ in cabinet types. This new aerial system permits the radio to be turned to the position where a minimum amount of noise interference is picked up. If interference is not present, the receiver may be set in the position where best reception is obtained.

Other features of design included in the radios are: Two tuning ranges, covering Broadcast and Police frequencies; two I. F. stages; Philco Loktal tubes; automatic volume control; tone control and a pentode audio output stage.

TUNING RANGES: 540 to 1600 K. C. 1.5 to 3.5 M. C.

INTERMEDIATE FREQUENCY: 455 K. C.

POWER SUPPLY: 115 volts A. C., 60 cycles.

AUDIO OUTPUT: 1.5 watt.

PHILCO TUBES USED: One XXL, R. F. Mixer; one XXL, Oscillator; two 7B7, I. F. Amplifiers; one 7C6, Second Detector, First Audio, A. V. C.; one 7B5, Audio Output; one 7Y4, Rectifier.

CABINET DIMENSIONS:	Height	Width	Depth
41-230.....	10 $\frac{1}{4}$ "	13 $\frac{3}{8}$ "	6 $\frac{5}{8}$ "
41-235.....	10 $\frac{1}{4}$ "	15 $\frac{1}{4}$ "	9 $\frac{1}{4}$ "

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 7B5 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 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. If adjustments are made outside the cabinet a Service Tuning Scale, Part No. 45-2819, will be required. This scale is placed underneath the pointer on the metal dial plate.

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 schematic diagram on Page 2.

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

Opera- tions 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 "Brdcast"	32A, 20A 17B, 17A	
2	Loop—See above Instructions	1600 K. C.	1600 K. C.	Vol. Max. Range Switch "Brdcast"	7B	Note A
3	Loop—See above Instructions	1500 K. C.	1500 K. C.	Vol. Max. Range Switch "Brdcast"	7A	

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

To reduce noise caused by oversensitivity, oscillator transformer (8) on parts list changed from Part No. 32-3474 to 32-3568.

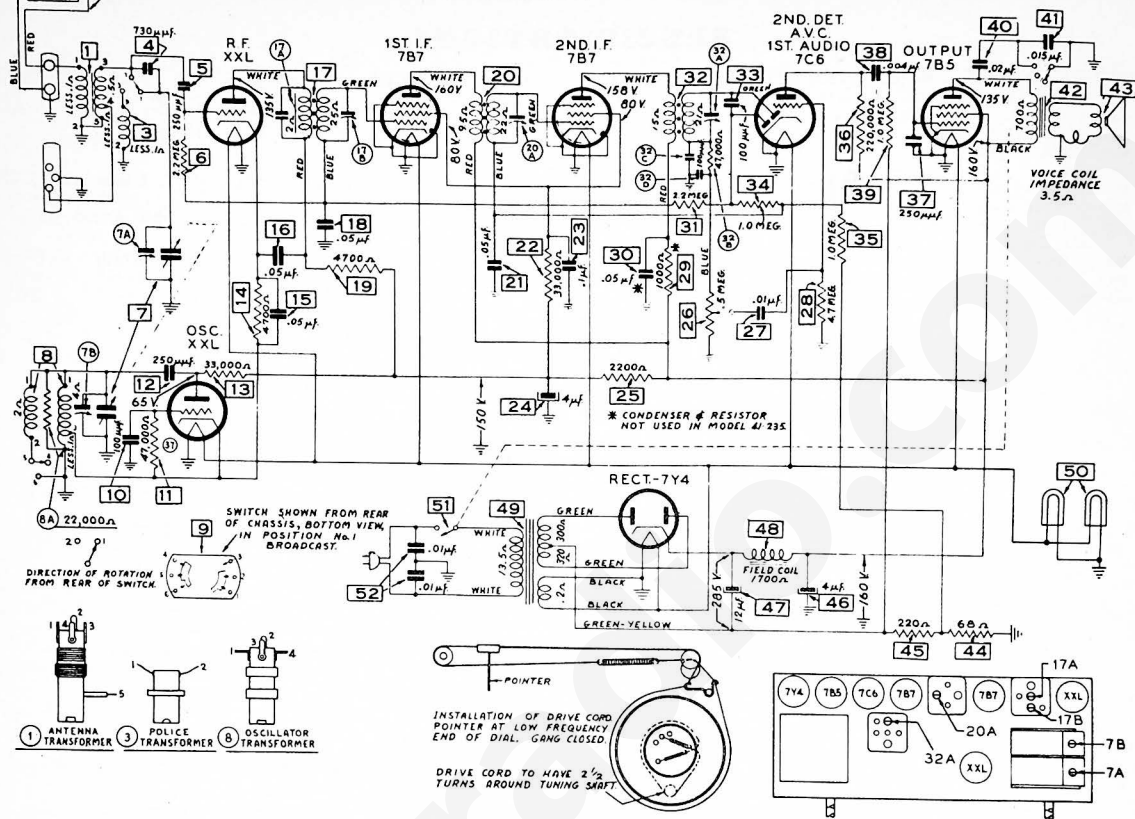
Dial pointer changed from Part No. 56-1822 to 56-1856.

Drive cord (pointer) changed from Part No. 31-2480 to 31-2510.

25 Cycle Change: To operate these models on 25 cycle current, change the power transformer from Part No. 32-8060 to 32-8075.

MODELS 41-230 AND 41-235, CODE 121 (CONTINUED)

I.F. = 455 KC.



Replacement Parts — Models 41-230, 41-235

SCH. No.	DESCRIPTION	PART No.	SCH. No.	DESCRIPTION	PART No.	SCH. No.	DESCRIPTION	PART No.
1	Aerial Transformer	32-3475	28-5002	Clip (Coil Mounting)	28-5002	W-2087	Screw (Chassis Mounting, 41-235)	W-2087
2	Loop Aerial (41-230)	76-1083	27-5587	Dial Scale (Glass)	27-5587	56-6086	Shaft ("C" Washer (Tuning Shaft Mfg.))	56-6086
3	Loop Aerial (41-235)	32-3476	58-1752	Dial Straps (Dial Scale Mounting)	58-1752	28-2043	Socket Assembly (Pilot Lamp)	28-2043
4	Aerial Shunt Transformer (Police)	60-125257	W-2062	Dial Screw (Dial Scale Mounting)	W-2062	78-1082	Socket Tubes	78-1082
5	Condenser Mica (.250 mmd.)	31-523239	31-2400	Drive Cord (Tuning Condenser)	31-2400	36-1510	Speaker	36-1510
6	Condenser Mica (.400 mmd.)	31-523239	31-2460	Drive Cord (Pointer Drive)	31-2460	28-8781	Spring (Condenser Drive, 2 req.)	28-8781
7	Tuning Condenser	31-2472	38-9883	Drum Assembly (Tuning Drive)	38-9883	28-8983	Spring (Pointer Drive)	28-8983
7A	Rubber sleeve	27-9437	27-4332	Knob (Tuning-Volume)	27-4332	57-1468	Spring (Drive Shaft Mounting)	57-1468
7B	Insulator	32-3474	W-2068	Screw (Chassis Mounting, 41-230)	W-2068	38-6533	Terminal Panel (Loop)	38-6533
8	Oscillator Transformer	32-3475						
8A	Resistor (22,000 ohms, 1/2 watt)	33-323339						
9	Range Switch	42-1494						
10	Condenser (.110 mmd., Mica)	60-111157						
11	Resistor (47,000 ohms, 1/2 watt)	33-347339						
12	Condenser Mica (.250 mmd.)	60-125257						
13	Resistor (33,000 ohms, 1/2 watt)	33-333339						
14	Resistor (470 ohms, 1/2 watt)	33-247339						
15	Condenser .05 mfd., 200 volt, Tubular	30-4518						
16	Condenser (.05 mfd., 400 volt, Tubular)	30-4518						
17	First I. F. Transformer	32-3468						
18	Condenser (.05 mfd., 200 volt, Tubular)	30-4519						
19	Resistor (4700 ohms, 1/2 watt)	33-247339						
20	Second I. F. Transformer	32-3466						
21	Condenser (.05 mfd., 200 volt, Tubular)	30-4519						
22	Resistor (33,000 ohms, 1/2 watt)	33-333339						
23	Condenser (.1 mfd., 400 volt, Tubular)	30-4455						
24	Electrolytic Condenser (4 mfd.)	30-2401						
25	Resistor (2200 ohms, 1/2 watt)	33-222339						
26	Volume Control (.5 megohms)	30-4572						
27	Condenser (.01 mfd.)	33-547339						
28	Resistor (4.7 megohms, 1/2 watt)	33-210339						
28*	Resistor (1000 ohms, 1/2 watt)	30-4518						
30*	Model 41-230 Only							
31	Condenser (.05 mfd., 400 volts, Tubular)	30-4518						
32	Model 41-230 Only							
33	Resistor (2.2 megohms, 1/2 watt)	33-522339						
34	Third I. F. Transformer	32-3467						
35	Condenser (.110 mfd., Mica)	60-111157						
36	Resistor (2 ohms, 1/2 watt)	33-510339						
37	Resistor (1 megohm, 1/2 watt)	33-510339						
38	Resistor (220,000 ohms, 1/2 watt)	33-510339						
39	Condenser (.250 mmd., Mica)	60-125257						
40	Cond. (.004 mmd., 400 volt, Tubular)	30-4578						
41	Resistor (1 megohm, 1/2 watt)	33-510339						
42	Condenser (.02 mfd., Tubular)	30-4516						
43	Condenser (.15 mfd., Tubular)	30-4515						
44	Output Transformer	32-8063						
45	Cone Assembly (for Speaker 36-1510-3)	36-4163						
46	Resistor (30 ohms, 1/2 watt)	36-4168						
47	Resistor (230 ohms, 1 watt)	33-122436						
48	Electro Condenser (.12 mfd.)	30-2401						
49	Spr. Field Transformer	30-2408						
50	Power Transformer (110 volts, 60 cycle)	32-8064						
51	Power Transformer (110 volts, 25 cycle)	56-1525						
52	Shield (Power Transformer)	56-1526						
	Base (Power Transformer)	30-2068						
	Filter Condenser	42-1520						
	Cable (Power)	30-320G						
	Cabinet (41-230)	104789						
	Cabinet (41-235)	104874						
	Baffle and Cloth	40-8548						

* Not used in Model 41-235.

PART LOCATIONS, UNDERSIDE OF CHASSIS