



Models 41-230; 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 $\frac{7}{8}$ "	6 $\frac{5}{8}$ "
41-235.....	10 $\frac{1}{8}$ "	15 $\frac{1}{4}$ "	9 $\frac{1}{8}$ "

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

The following procedure is the same for both models.

EQUIPMENT REQUIRED

- Signal Generator:** Covering the frequency range of the receiver, such as Philco Models 077 or 177.
- 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.
- 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.

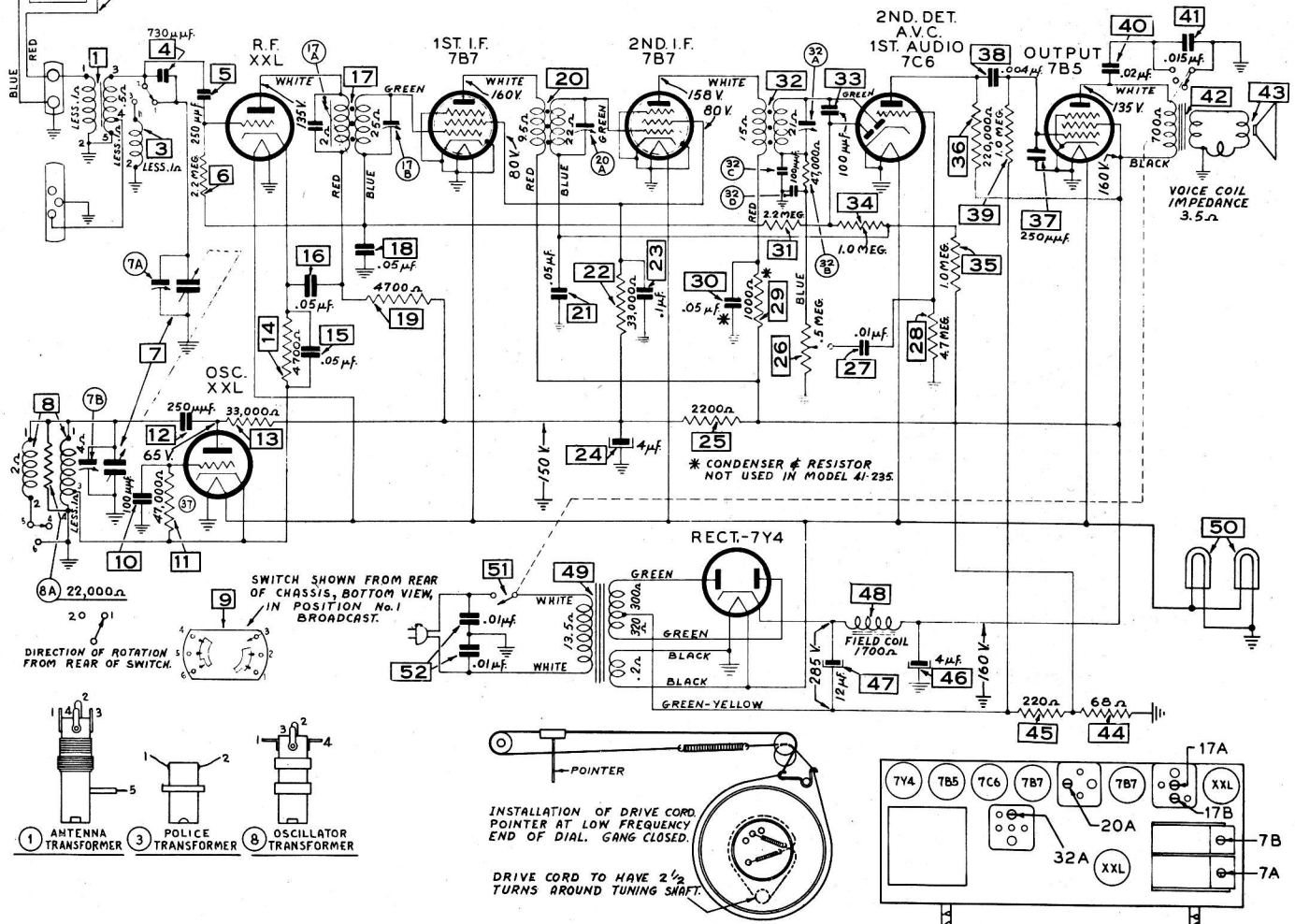
After connecting the aligning instruments adjust the compensators as shown in the tabulation below. Locations of the compensators are shown in the schematic diagram on Page 2.

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

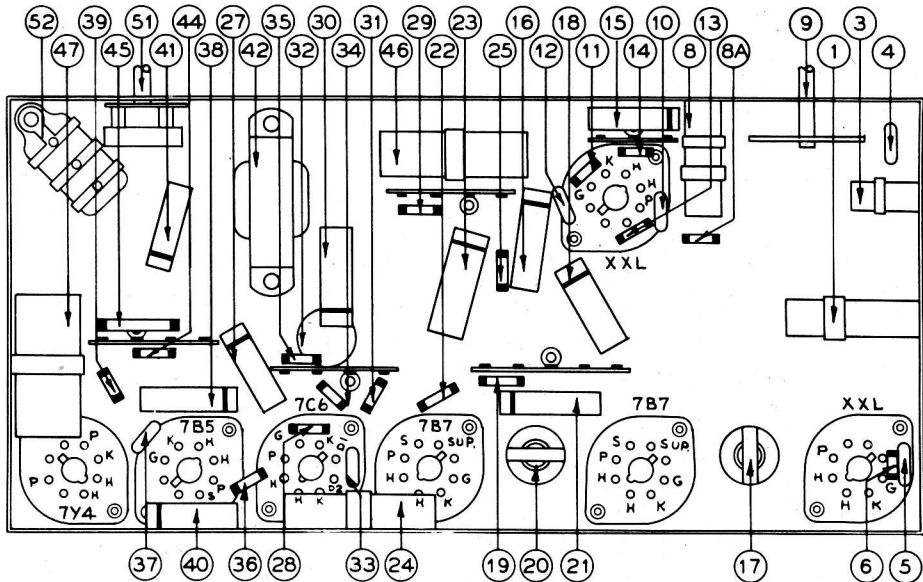
I.F. = 455 KC.



Replacement Parts — Models 41-230, 41-235

SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.
1	Aerial Transformer	32-3475	28-5002	Clip (Coil Mounting)	28-5002	W-2067	Screw (Chassis Mounting, 41-235)	W-2067
2	Loop Aerial (41-230)	76-1083	27-5587	Dial Scale (Glass)	27-5587	56-6086	Shaft (Tuning)	56-6086
3	Loop Aerial (41-235)	76-1084	56-1752	Dial Scale (Dial Scale Mounting)	56-1752	28-2043	Shaft "C" Washer (Tuning Shaft Mtg.)	28-2043
4	Aerial Shunt Transformer (Police)	32-3476	W-2062	Dial Screw (Dial Scale Mounting)	W-2062	76-1062	Socket Assembly (Pilot Lamp)	76-1062
5	Condenser Mica (730 mmfd.)	60-173127	56-1822	Dial Pointer	56-1822	27-6138	Socket Tubes	27-6138
6	Condenser Mica (250 mmfd.)	60-125257	31-2400	Drive Cord (Tuning Condenser)	31-2400	36-1510	Speaker	36-1510
7	Resistor (2.2 megohms, 1/2 watt)	33-522339	31-2400	Drive Cord (Condenser Drive)	31-2400	28-8751	Spring (Condenser Drive, 2 req.)	28-8751
8	Oscillator Transformer	32-3474	38-9883	Drum Assembly (Tuning Drive)	38-9883	28-8953	Spring (Pointer Drive)	28-8953
8A	Resistor (22,000 ohms, 1/2 watt)	33-322339	27-4332	Knob (Tuning-Volume)	27-4332	57-1468	Spring (Drive Shaft Mounting)	57-1468
9	Range Switch	33-1494	W-2068	Screw (Chassis Mounting, 41-230)	W-2068	36-6533	Terminal Panel (Loop)	36-6533
10	Condenser (110 mmfd., Mica)	60-111157						
11	Resistor (47,000 ohms, 1/2 watt)	33-347339						
12	Condenser Mica (250 mmfd.)	60-125257						
13	Resistor (33,000 ohms, 1/2 watt)	33-333339						
14	Resistor (4700 ohms, 1/2 watt)	33-247339						
15	Condenser (.05 mfd., 200 volt, Tubular)	30-4519						
16	Condenser (.05 mfd., 400 volt, Tubular)	30-4518						
17	First I. F. Transformer	32-3465						
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)	30-4458						
24	Electrolytic Condenser (4 mfd.)	30-2401						
25	Resistor (2200 ohms, 1/2 watt)	33-222339						
26	Volume Control (.5 megohms)	30-5151						
27	Condenser (.01 mfd.)	30-4572						
28	Resistor (4.7 megohms, 1/2 watt)	33-547339						
29*	Resistor (1000 ohms, 1/2 watt)	33-210339						
30*	Condenser (.05 mfd., 400 volts, Tubular)	30-4518						
31	Resistor (2.2 megohms, 1/2 watt)	33-522339						
32	Third I. F. Transformer	32-3467						
33	Condenser (110 mmfd., Mica)	60-111157						
34	Resistor (1 megohm, 1/2 watt)	33-510339						
35	Resistor (1 megohm, 1/2 watt)	33-510339						
36	Resistor (220,000 ohms, 1/2 watt)	33-422339						
37	Condenser (250 mmfd., Mica)	60-125257						
38	Cond. (.004 mmfd., 400 volt, Tubular)	30-4458						
39	Resistor (1 megohm, 1/2 watt)	33-510339						
40	Condenser (.02 mfd., Tubular)	30-4516						
41	Condenser (.015 mfd., Tubular)	34-2068						
42	Output Transformer	32-8063						
43	Cone Assembly (for Speaker 36-1510-3)	36-1513						
44	Resistor (68 ohms, 1/2 watt)	33-068336						
45	Resistor (220 ohms, 1 watt)	33-122436						
46	Electro Condenser (12 mfd.)	30-2409						
47	Electro Condenser (12 mfd.)	30-2409						
48	Spkr. Field (1700 ohms) Replace Spkr.	36-1510						
49	Power Transformer (110 volts, 60 cycle)	32-8064						
50	Power Transformer (110 volts, 25 cycle)	32-8064						
51	Shield (Power Transformer)	56-1525						
52	Base (Power Transformer)	56-1526						
	Pilot Lamps	34-2068						
	Tone Control and Power Switch	42-1520						
	Filter Condenser	3903-ODG						
	Cable (Power)	3903-ODG						
	Cabinet (41-230)	10478D						
	Cabinet (41-235)	10483A						
	Baffle and Cloth	40-6548						

* Not used in Model 41-235.



PART LOCATIONS, UNDERSIDE OF CHASSIS