MODEL 41-246, CODE 121

SPECIFICATIONS

TYPE OF CIRCUIT: Model 41-246, Code 121, is a seven (7) tube A. C. operated super-heterodyne radio with electric push button tuning. In addition, the radio employs the Philco Built-in American and Overseas Aerial system for operation without an outside aerial. Provisions are also provided for an outside aerial for sections where signal strength is weak, such as in steel reinforced buildings and other shielded locations. For installations of this type the Philco 1941 Outdoor Aerial, Part No. 45-2817, is recommended. This aerial can be conveniently connected to the radio by inserting the plug attached to the transformer unit into the socket provided at the rear of the chassis. A ground is not required with either type of installation. Other features of design included in the radio are three tuning ranges; covering standard, police, and shortwave frequencies; two I. F. stages, Philco Loktal tubes; variable tone control; automatic volume control; and a pentode audio output stage. Six (6) electric tuning push buttons are provided for automatically selecting stations. Five of the push buttons are used for broadcast stations, and one for turning the power of the set "on" and "off".

TUNING RANGES: 540 to 1720 K. C.; 9.0 to 12 M. C.; 15 to 18 M. C.

INTERMEDIATE FREQUENCY: 455 K. C.

POWER SUPPLY: 115 volts A. C., 60 cycles. To operate the radio on 115 volt, 25 cycle current, it is necessary to change the power transformers as indicated in the parts list.

AUDIO OUTPUT: 2 watts.

PHILCO TUBES USED: One XXL, 1st detector; one XXL, oscillator; one 7B7, 1st I. F.; one 7B7, 2nd I. F.; one 7C6, 2nd detector, 1st audio; A. V. C.; one 7B5, audio output and a 7Y4 rectifier.

CABINET DIMENSIONS: Height, 11 - 13/16; Width, 16 - 9/16; Depth, 9 - 1/8

ADJUSTING ELECTRIC TUNING PUSH-BUTTONS

The procedure for adjusting the push-buttons for reception of stations is the same as that given in radio Service Bulletin No. 360.

ALIGNING R. F. AND I. F. COMPENSATING CONDENSERS

EQUIPMENT REQUIRED

1. SIGNAL GENERATOR: Covering the frequency range of the receiver, such as Philco Models 070 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 aerial section (stator plates) 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 for each model below. Locations of the compensators are shown in the schematic diagram. If the indicating meter pointer goes off scale when adjusting the compensator, reduce the strength of the signal from the generator.

MODEL 41-246

Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Settings	Adjust Compensators in Order	
1	Ant. Section of Tuning Condenser	455 K. C.	Tuning Cond. closed	Vol. Max. Range Switch "Brdcst"	34A, 30A 28A, 28B	Note A
2	Loop to Radio Loop See Sig. Gen. above	1500 K. C.	1500 K. C.	Vol. Max. Range Switch "Brdcst"	11A, 9B	Note B
3	Loop to Radio Loop See Sig. Gen. above	580 K. C.	580 K. C.	Vol. Max. Range Switch "Brdcst"	11B	Rock Comp. to "max." Recheck Operation No. 2
4	Loop to Radio Loop See Sig. Gen. above	12 M. C.	12 M. C.	Range Switch "S. W."	12A, 9A	Note C
5	Loop to Radio Loop See Sig. Gen. above	18 M. C.	18 M. C.	Range Switch "S. W."	12B	Note D

NOTE A—Compensator (28A) must be adjusted before (28B), and should be done in the following manner: Turn 28A all the way up, then slowly turn down and select the first I. F. peak. Padder 28B is now adjusted to maximum.

NOTE B—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 frequnecy end of the broadcast scale.

NOTE C—Adjust padder (12A) to the first signal peak from the tight position (maximum capacity).

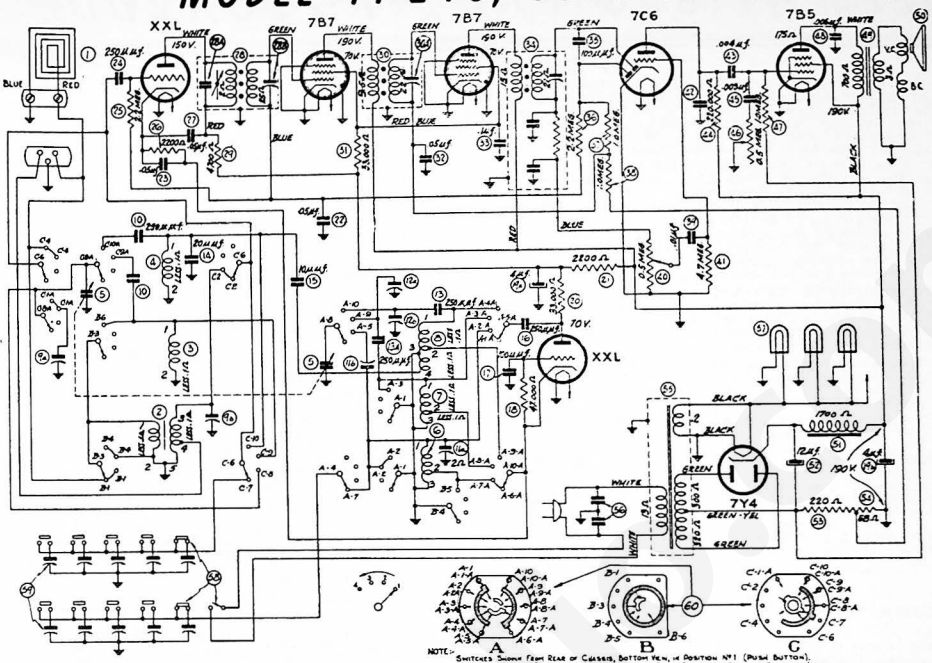
NOTE D—Adjust padder (12B) to the second signal peak from the tight position (maximum capacity).

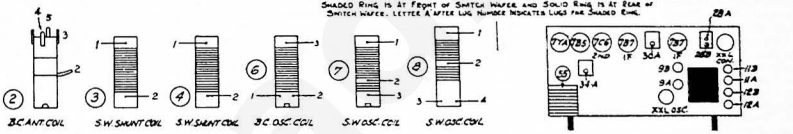
PRODUCTION CHANGES

To eliminate oscillation in the R. F. Circuit the excess lead length of Electrolytic Condenser 19A and 19B on schematic diagram should be twisted.

To operate Model 41-246 on 230 volts, 60 cycle current, the power transformer should be changed to Part No. 32-8093.

MODEL 41-246, CODE 121 (CONTINUED)

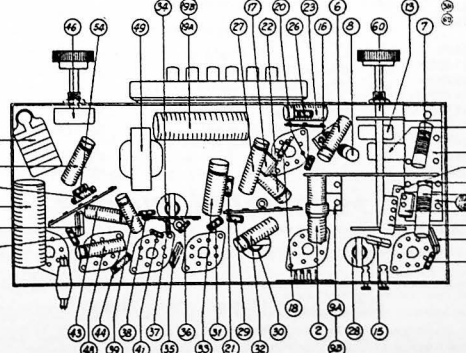




REPLACEMENT PARTS — MODEL 41-246

Schem. No.	Description	Part No.
①	Loop Aerial	76-1092
	Screw (Loop Mounting)	W-2073
②	Aerial Transformer (Broadcast)	32-3461
	Clip	28-5002
③	Shunt Transformer (S.W. 9 to 12 M.C.)	32-3636
④	Shunt Transformer (S.W. 14 to 18 M.C.)	32-3637
⑤	Tuning Condenser	31-3481
	Rubber Connection	27-9432
	Tuning Shaft	56-6086
	Insulator	27-9437
	"C" Washer	28-2043
	Spring (Drive Shaft Mounting)	28-9855
	Spring (Pointer Drive)	28-8953
	Spring (Cond. Drive)	28-8751
	Drive Drum	38-9883
	Screw Gang Mounting	W-2002
	Drive Cord (Tuning Cond.)	31-2400
	Drive Cord (Pointer)	31-2473
	Guide (Drive Cord)	56-1884
	Shaft Spacer	56-1926
⑥	Oscillator Transformer (Broadcast)	32-3464
⑦	Oscillator Transformer (S.W. 9 to 12 M.C.)	32-3634
⑧	Oscillator Transformer (S.W. 14 to 18 M.C.)	32-3635
⑨a	Compensator (S.W. Aerial)	31-6373
⑨b	Compensator (B.C. Aerial)	Part of ⑨a
⑩	Silver Mica Condenser (250 mmfd.)	30-1179
⑩a	Silver Mica Condenser (250 mmfd.)	30-1179
⑪a	Compensator (Broadcast Osc., 1500 K.C.)	31-6352
⑪b	Compensator (Broadcast Osc., 580 K.C.)	
⑫a	Compensator (Osc. 9 to 12 M.C.)	31-6408
⑫b	Compensator (Osc. 14 to 18 M.C.)	
⑬	Silver Mica Condenser (250 mmfd.)	30-1179
⑬a	Silver Mica Condenser (250 mmfd.)	30-1179
⑭	Mica Condenser (20 mmfd.)	60-020117
⑮	Mica Condenser (10 mmfd.)	60-010137
⑯	Mica Condenser (250 mmfd.)	60-125257
⑰	Mica Condenser (100 mmfd.)	60-110137
⑱	Resistor (47,000 ohms)	33-347339
⑱a	Electrolytic Condenser (4-4 mfd.)	30-2477
⑱b	Electrolytic Condenser (4 mfd.)	Part of ⑱a
⑲	Resistor (33,000 ohms)	33-333339
⑳	Resistor (2200 ohms)	33-222339
㉑	Condenser (.05 mfd., 200 volts)	30-4519
㉒	Condenser (.05 mfd., 200 volts)	30-4519
㉓	Mica Condenser (250 mmfd.)	60-125257
㉔	Resistor (2.2 megohm)	33-522339
㉕	Resistor (2200 ohms)	33-222339
㉖	Condenser (.05 mfd., 400 volts)	30-4518

Schem. No.	Description	Part No.
㉗	1st I. F. Transformer	32-3638
	Palnut (Mounting)	W-1949
㉘	Resistor (4700 ohms)	33-247339
㉙	2nd I. F. Transformer	32-3639
㉚	Resistor (3300 ohms)	33-333339
㉛	Condenser (.05 mfd., 200 volts)	30-4519
㉜	Condenser (.1 mfd., 400 volts)	61-0113
㉝	3rd I. F. Transformer	32-3640
㉞	Mica Condenser (100 mmfd.)	60-110157
㉟	Resistor (2.2 megohm)	33-522339
㊱	Resistor (1 megohm)	33-510339
㊲	Resistor (1 megohm)	33-510339
㊳	Condenser (.01 mfd., 400 volts)	30-4572
㊴	Volume Control	33-5332
	Palnut	W-2157
㊵	Resistor (4.7 megohm)	33-547339
㊶	Mica Condenser (100 mmfd.)	60-110157
㊷	Condenser (.004 mfd., 600 volts)	30-4578
㊸	Resistor (220,000 ohms)	33-422339
㊹	Condenser (.003 mfd., 1000 volts)	30-4469



LOCATION OF PARTS — UNDERSIDE OF CHASSIS

Schem. No.	Description	Part No.
㊺	Tone Control	33-5404
㊻	Resistor (1 megohm)	33-510339
㊼	Condenser (.006 mfd., 400 volts)	30-4591
㊽	Output Transformer	32-8063
㊾	Cone Assembly (for Speaker 36-1510-4)	36-4168
	(for Speaker 36-1510-3)	36-4163
㊿	Field Coil (Replace Speaker 36-1510-4)	
(51)	Electrolytic Condenser (12 mfd.)	30-2409
	Clip Electro Mounting	56-1466
(52)	Resistor (Wirewound 220 ohms)	33-122436
(53)	Resistor (Wirewound 68 ohms)	33-068336
(54)	**Power Transformer (110 volts, 60 cycle)**	32-8064
	Power Transformer (110 volts, 25 cycle)	32-8075
	Power Transformer (115-230 volts, 60 cycle)	32-8093
(55)	Condenser (.01-.01 mfd.)	3903-0DG
(56)	Power Transformer (110 volts, 60 cycle)	32-8064
	Power Transformer (110 volts, 25 cycle)	32-8075
(57)	Condenser (.01-.01 mfd.)	3903-0DG
(58)	Pilot Lamp	34-2068
(59)	Push-button and Power Switch	42-1576
(60)	Compensator Strip (Push buttons)	41-6372
(61)	Band Switch	42-1652
	Speed Nut	W-2210
	Pulley	56-1918

MISCELLANEOUS

Bezel (Dial)	27-4975
Bezel (Push buttons)	27-4983
Screw (Bezel Mounting)	W-2073
Cabinet	10492A
Cable (Power)	L-3199
Dial Scale	27-5693
Rubber Grommet	54-4169
Speed Clip	56-1876
Dial Pointer	56-1856
Drive Cord (Indicator)	31-2477
Knob (Tuning Volume)	27-4332
Knob (Push Buttons)	27-4824
Rubber Mounting Feet (Chassis)	56-1802
Socket (Aerial)	27-6145
Socket (8 Prong)	27-6151
Socket Assembly (Dial Light)	76-1062
Socket Assembly (Indicator Light)	76-1063
Tab Kitt	40-6619
Tab (Off-On)	27-5660
Tab (Television)	27-5661
Washer (Chassis Mounting)	W-410