

MODEL 42-1005, CODE 121-122

SPECIFICATIONS

Model 42-1005, Code 121 and 122, is an alternating current operated super-heterodyne radio-phonograph combination covering standard and shortwave broadcast frequencies. In general, Code 121 and 122 of this model are similar in design with the exception of the number of tubes, speaker types and rectified circuits. Code 121 consists of a seven-tube chassis using a 10-inch permanent magnet dynamic speaker and a single rectifier tube circuit.

Code 122 chassis contains eight tubes, a 10-inch electrodynamic speaker and two tubes in the rectifier circuit, one tube, type 50Y6GT, supplies plate voltage for the other tubes and a 50L6GT excites the field coil of the electrodynamic speaker.

PHONOGRAPH SECTION

The phonograph incorporates a self-starting rim drive turntable motor, and a manually operated Philco Photo-Electric Reproducer, which operates through the audio system of the radio. The phonograph motor is automatically started when the Photo-Electric Reproducer is lifted from its rest. The motor is stopped

operate on 115 volts, 60 cycle or 115 volts, 50 cycle A.C. power supplies. When operating on 115 volt, 50 cycle current, a special spring collar, Part No. 28-8999, must be placed on the motor drive shaft pulley.

RADIO SECTION

The radio features incorporated in this model are a Philco built-in, super-loop aerial; two tuning bands; two I.F. amplifier tubes; automatic volume control; two-position tone control mounted on the motor; audio bass compensation in the volume control circuit; beam power pentode audio output stage and Philco LOKTAL tubes.

TUNING BAND FREQUENCIES: 540 to 1720 K.C.

9 to 15.5 M.C.

INTERMEDIATE FREQUENCY: 465 K.C.

AUDIO OUTPUT: 15 watts

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

PHILCO TUBES USED:

Code 121, chassis—XXD, converter and phonograph pre-amplifier; 50L6GT, oscillator; 787, first I.F. amplifier; 787, second I.F. amplifier; 7C6, second detector, first audio; 50L6GT, audio output and a 50Y6GT rectifier.
Code 122, chassis—XXD, converter and phonograph pre-amplifier, 50L6GT, oscillator; 787, first I.F. amplifier; 787, second I.F. amplifier; 7C6, second detector, first audio; 50L6GT audio output; 50Y6GT rectifier; 50L6GT rectifier.

EXTERNAL AERIAL CONNECTIONS

The built-in low-impedance loop aerial system of this model is designed to operate without an outside aerial or ground, and to give exceptional receiving performance under average conditions.

To operate the radio, however, in steel reinforced buildings and other shielded locations where signal strength is weak, the Philco outdoor aerial, Part No.

45-2817, is recommended for maximum receiving performance. The outdoor aerial can be easily connected to the radio by inserting the plug attached to the transformer (supplied with the aerial) into the socket provided at the rear of the radio. This aerial can be obtained from your local Philco Distributor.

PHONOGRAPH REPRODUCER ADJUSTMENTS

The adjustments given Radio Service Bulletin 404 for the Phonograph reproducer apply also to Model 42-1005, Code 121-122

ALIGNING R. F. AND I. F. COMPENSATORS EQUIPMENT REQUIRED

- SIGNAL GENERATOR:** Covering the frequency range of the receiver, such as Philco Model 070.
- 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 and screen of the 50L6GT tube. 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 B (—) negative (electrical ground).

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. 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 on the schematic diagram.

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

PROCEDURE MODEL 42-1005, CODES 121-122

Operations in Order	SIGNAL GENERATOR		RECEIVER		SPECIAL INSTRUCTIONS	
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting		Adjust Compensators in Order
1	Tuning Cond. Stator Plate Lug	465 K.C.	540 K.C. Tuning Cond. Closed	Vol. Max. Band Switch Brdct.	45A 41A 40B 40A	Note B
2	Loop on Generator see above instructions	1500 K.C.	1500 K.C.	Vol. Max. Band Switch Brdct.	6B, 6A	Note A
3	Loop on Generator see above instructions	580 K.C.	580 K.C.	Vol. Max. Band Switch Brdct.	33	Roll Tuning Condenser
4	Loop on Generator see above instructions	1500 K.C.	1500 K.C.	Vol. Max. Band Switch Brdct.	6B	
5	Loop on Generator see above instructions	15 M.C.	15 M.C.	Band Switch "SW"	33A, 3 Note C	

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 small dot below 540 K.C.

NOTE B:—Before adjusting the I.F. compensators, tighten 40B and 40A compensators, then adjust compensators in the order as shown in the adjacent column once only for maximum output.

NOTE C:—Turn tuning condenser until pointer is on 15 M.C. mark, then adjust oscillator compensator 33A to maximum on the second signal peak from the tight position (compensator closed).

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Schem. No.	Description	Part No.	Schem. No.	Description	Part No.
1	Loop Aerial	76-1372	47	Condenser (.05 mfd, 200 volts)	30-4519
	Mtg. Sleeve	28-3806	48	Motor Switch	42-1654
	Mtg. Screw	W-1827		Cover	56-2108
	Spring Washer	28-4186		Washer	W-467FA4
	Washer	W-151		Nut	W-684FA4
2	Short Wave Aerial Transformer	32-3770		Lockwasher	W-1524
	Mtg. Clip	28-5002	49	Resistor (100,000 ohms)	33-410339
3	Compensator (S. W. Aerial)	31-6437	50	Condenser (.004 mfd, 600 volts)	30-4623
4	Broadcast Aerial Transformer	32-3846	51	Volume Control	33-5457
	Mtg. Clip	28-5002		Mtg. Nut	W-2157
5	Mica Condenser (375 mmfd.)	20-037511	52	Mica Condenser (100 mmfd.)	60-110157
6	Tuning Condenser	31-2572	53	Resistor (10 megohms)	33-610339
6A	Aerial Compensator (Part of 6)		54	Condenser (.01 mfd., 400 volts)	30-4572
6B	Oscillator Compensator (Part of 6)		55	Condenser (.001 mfd., 600 volts)	30-4820
	Drive Cord	31-2573	56	Resistor (470,000 ohms)	33-447339
	Spring	28-8954	57	Resistor (220,000 ohms)	33-422339
	Drive Shaft	31-2571	58	Condenser (.01 mfd., 400 volts)	30-4572
	Rubber Grommet	27-4610	59	Mica Condenser (250 mmfd.)	60-125157
	Mtg. Sleeve	28-5583	60	Electrolytic Condenser (10 mfd., 25 volts)	30-2509
	Mtg. Nut	W-684FA3	61	Resistor (130 ohms) Code 121	33-113336
	Pointer	56-2076		" (100 ohms) Code 122	33-110336
	Nut (Mtg. Condenser)	W-1543	62	Condenser (.004 mfd., 600 volts)	30-4623
7	Resistor (220,000 ohms)	33-422339	63	Condenser (.05 mfd., 400 volts)	30-4518
8	Phonograph Input Transformer	32-8196	64	Condenser (.003 mfd., 600 volts)	30-4582
	Input Cable	41-3622	65	Condenser (.2 mfd.) and Choke Assembly	76-1161
9	Photo-Electric Pickup Complete (Code 121)	35-2531	66	Output Transformer (Code 121)	32-8127
	" " " " (Code 122)	35-2602		Output Transformer (Code 122)	32-8207
	Rubber Bumper	54-4070	67	Speaker (Code 121)	36-1518-4
	Rubber Mtg. Grommet (2 required)	54-4086		Speaker (Code 122)	36-1569
	Rubber Mtg. Grommet (1 required)	54-4096		Cone Assembly (For Speaker 36-1518-4)	36-4171
	Lockwasher	W-2282		Cone Assembly (For Speaker 36-1569)	36-4169
	Nut	W-628		Speaker Cable (Code 121)	41-3646
	Washer	W-894		Speaker Cable (Code 122)	41-3657
10	Resistor (100,000 ohms, Code 121)	33-410339		Mtg. Nut	W-124FA3
	Resistor (220,000 ohms, Code 122)	33-422339		Mtg. Washer	28-3320
11	Electrolytic Condenser (6 mfd)	30-2508		Mtg. Sleeve	56-2044FA3
	Mtg. Clamp	56-1346		Mtg. Grommet	27-4596
12	Electrolytic Condenser (10 mfd) Part of 11		68	Filter Choke	32-8155
13	Resistor (47,000 ohms)	33-347339	69	Condenser (.2 mfd., 400 volts)	30-4594
14	Condenser (.05 mfd, 200 volts)	30-4519	70	Resistor (15 ohm ²)	33-016430
15	Resistor (4700 ohms)	33-247339	71	Condenser (.05 mfd., 200 volts)	30-4519
16	Mica Condenser (250 mmfd)	60-125157	72	Electrolytic Condenser (40-40 mfd., 150 volts)	30-2509
17	Resistor (2.2 megohms)	33-822339		Mtg. Panel	27-9508
18	Condenser (.01 mfd, 400 volts)	30-4572		Insulating Tube	27-9902
19	Resistor (10,000 ohms)	33-310339	73	Pilot Lamp	34-2477
20	Condenser (.05 mfd, 400 volts)	30-4518		Socket Assembly	76-1282
21	Resistor (2200 ohms)	33-222339	74	Filament Resistor	
22	Condenser (500 mmfd)	60-150157		(50-300 ohms, Code 121 only)	33-3413
23	Resistor (22,000 ohms)	33-322339	75	Phonograph Motor (115 volts, 60 cycles)	35-1265-2
24	Condenser (.05 mfd, 200 volts)	30-4519		Spring Collar (For 115 volts, 50 cycle A. C. Operation)	28-8999
25	Oscillator Choke	32-3615		Rubber Grommet	27-4596
26	Condenser (.05 mfd, 200 volts)	30-4519		Mtg. Sleeve	28-5685
27	Resistor (22,000 ohms)	33-322339		Mtg. Washer	W-151FA3
28	Mica Condenser (.001 mfd, 400 volts)	60-210124		Mtg. Screw	W-333FE11
29	Resistor (68,000 ohms)	33-368339		Plug	54-4142
30	Light Control (Light-Beam Reproducer)	33-5435		Plug Shell	56-2071
31	Mica Condenser (700 mmfd, Code 121)	60-170157		Turntable	35-3047-2
	" " (800 mmfd, Code 122)	60-180137	76	ON-OFF Switch (Part of 53)	
32	Mica Condenser (275 mmfd)	20-027511	77	Condenser (.04 mfd., 400 volts)	30-4119
33	Compensator (580KC)	31-6432	78	Tone Control Switch	42-1562-2
33A	Compensator (Part of 33)			Switch Plate	56-1793
34	Lamp (Light Beam Reproducer)	34-2478		Screw	W-560FA9
35	Condenser (.05 mfd, 200 volts)	30-4519	79	Band Switch	42-1678
36	Light Beam Osc. Transformer	32-3741		Mtg. Nut	W-2157
	Mtg. Clip	28-5002			
37	Oscillator Transformer (Broadcast S. W.)	32-3740			
	Mtg. Clip	28-5002			
38	Resistor (330 ohms)	33-133339			
39	Mica Condenser (10 mmfd, Code 122)	60-010137			
	" " (6 mmfd, Code 121)	60-006137			
40	First I. F. Transformer	32-3616			
	Mtg. Nut	W-1949FA3			
40A	Primary Compensator (Part of 40)				
40B	Secondary Compensator (Part of 40)				
40C	Condenser (3000 mmfd.) Part of 40				
41	Second I. F. Transformer	32-3617			
	Mtg. Nut	W-1949FA3			
41A	Secondary Compensator	(Part of 41)			
42	Resistor (68,000 ohms)	33-368339			
43	Condenser (.2 mfd, 200 volts)	30-4587			
44	Resistor (2.2 megohms)	33-822339			
45	Third I. F. Transformer	32-3758			
	Mtg. Nut	W-1949			
45A	Secondary Compensator (Part of 45)				
45B	Condenser (100 mmfd) Part of 45A				
45C	Resistor (47,000 ohms) Part of 45				
45D	Condenser (100 mmfd) Part of 45A				
46	Resistor (470,000 ohms)	33-447339			

FOLLOWING PARTS

Used in Code 122 Rectifier Circuit Only

80	Resistor (15 ohms)	33-015436
81	Electrolytic Condenser (10 mfd.)	30-2396
82	Field Coil (Replace Speaker 36-1518-4, Code 121 or 36-1569, Code 122)	

MISCELLANEOUS PARTS

Model 42-1005, Code 121

Bezel	54-4093
Screw	W-2073
Cabinet	10584-B
Dial Scale	27-8798
Rubber Grommet	4189
Speed Clip	56-1876
Knob (Vol-Tuning Band)	54-4105
Rubber Grommet (Chassis Mtg.)	3915
Rubber Grommet (Chassis Mtg.)	27-4307
Screw (Chassis Mtg.)	W-443