MODEL 42-322, CODE 121

SPECIFICATIONS

Model 42-322, Code 121 is a six (6) tube A.C.-D.C. operated superheterodyne table type radio employing a built-in loop aerial, and covers standard and shortwave broadcast frequencies. Other features included are an R.F. amplifier stage; automatic volume control; Beam power pentode audio output stage; Philco LOKTAL tubes and an Electro-dynamic speaker.

INTERMEDIATE SPEAKER: 455 KC.

TUNING BAND FREQUENCIES: 540 to 1720 K.C.
8.7 to 15.5 M.C.

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

POWER CONSUMPTION: 30 watts.

PHILCO TUBES USED: 7C7, R.F. Amplifier; 7A8 oscillator-converter; 7B7, I.F. amplifier; 7C6 second detector-first audio; 50L6G, audio output and a 35Z3 rectifier.

OUTSIDE AERIAL AND GROUND: Under ordinary operating conditions an outside aerial or ground is not required. In some locations, however, such as steel reinforced buildings and other shielded areas, an outside aerial should be used for maximum performance. For this purpose an outside aerial connection is located on the rear lower left corner of the chassis. Simply remove the lug from under the screw and attach the aerial lead to the lug. For installations of this type the PHILCO Safety Aerial, Part No. 40-6370, is recommended.

ALIGNING R. F. AND I. F. COMPENSATORS

EQUIPMENT REQUIRED

1. **SIGNAL GENERATOR:** Covering the frequency range of the receiver, such as Philco Model 070.
2. **ALIGNING INDICATOR:** Either a vacuum tube voltmeter or an audio output meter may be used as an aligning indicator. Philco Models 027 or 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 50L6GT 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 electrical ground ("B" negative).

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 removd from the cabinet. When adjusting the R. F. Compensators in the cabinet, the aligning points on the dial scale are used. If the radio is adjusted outside of the cabinet, the small indentations (lines) on the dial metal background plate mounted on the chassis are used as aligning points. These points progressing from the left end of the scale plate represent frequencies as follows: pointer position with tuning condenser closed, 580 K.C., 9.5 M.C., 1500 K.C., 15 M.C., and the last line 1720 K.C. or 15.5 M.C.

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.

If the indicating meter pointer goes off scale when adjusting the compensators, 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	Lug on the Ant. Section of Tuning	455 K.C.	540 K.C. Tuning Cond. Closed	Vol. Max. Range Switch Brdcst.	2TA, 2TB 26A, 26B	
2	Loop See Above Instructions	1500 K.C.	1500 K.C.	Vol. Max. Band Switch Brdcst.	7B, 7A	Note A
3	Loop See Above Instructions	580 K.C.	580 K.C.	Vol. Max. Band Switch Brdcst.	(1B)	Roll Tuning Condenser
4	Loop See Above Instructions	Repeat Operation 2				
5	Loop See Above Instructions	15 M.C.	15 M.C.	Band Switch S.W.	(1BA, 5) Note B	Roll Tuning Condenser When Padding 5

NOTE A—DIAL POINTER CALIBRATION: In order to adjust the receiver correctly, the pointer must be adjusted to track properly with the tuning condenser. To do this, turn the tuning condenser to the maximum capacity (plates fully meshed). With the condenser in this position, set the tuning pointer on the first small line stamped in the scale plate on the left side.

NOTE B—To accurately adjust the high frequency oscillator compensator to the fundamental instead of the image signal, turn the oscillator compensator (1BA) to the maximum capacity position (clockwise). From this position slowly turn the compensator counter-clockwise until a second peak is obtained on the output meter. Adjust the compensator for maximum output at this second peak.

If the above procedure is correctly performed, the image signal will be found (much weaker) by turning the signal generator dial 910 K.C. above the frequency being used on any high frequency range.

The aerial padder (5) must be adjusted to maximum by rolling the tuning condenser. If two signal peaks occur when turning the padder, adjust to maximum output on the first signal peak from the tight position (screw all the way down) of the padder.

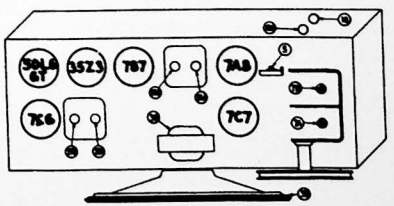

FIG. 1.—LOCATIONS OF COMPENSATORS

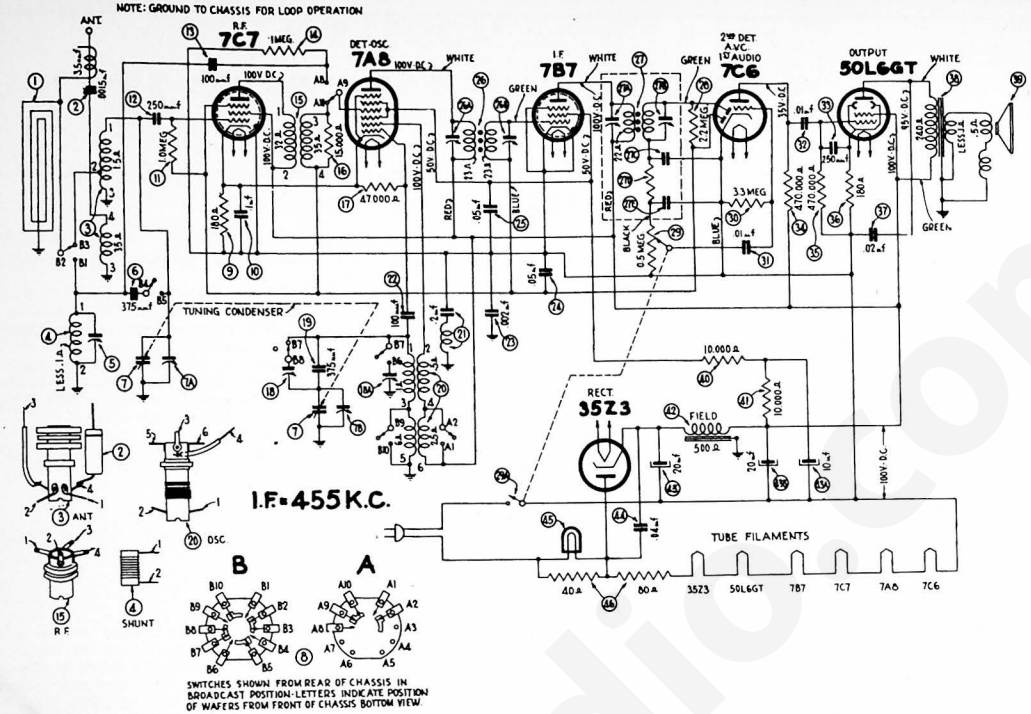

FIG. 2.—SCHEMATIC DIAGRAM—MODEL 42-322, CODE 121

The voltages indicated at the tube elements above were measured with a 1000 ohms per volt voltmeter. Philco Model 027, line voltage 117 volts, A. C. band switch (broadcast). No station being received.

REPLACEMENT PARTS—MODEL 42-322, CODE 121

Schem. No.	Description	Part No.
1.	Loop Aerial	76-1389
	Mtg. Screw	W-2073
2.	Condenser (.0015 mfd.) 600 volts	30-4621
3.	Broadcast Aerial Transformer	32-3857
	Mtg. Clip	28-5002
4.	Short Wave Aerial Transformer	32-3858
5.	Compensator (S.W. Aerial)	31-6426
6.	Mica Condenser (375 mmfd.)	20-037511
7.	Tuning Condenser	31-2605
7a.	Compensator (Broadcast Aerial)	Part of 7
7b.	Compensator (Broadcast Osc.)	Part of 7
	Drive Cord	31-2604
	Spring	28-9000
	Drive Shaft	76-1396
	"C" Washer	28-5990
	Pointer	56-2076
	Rubber Grommet	27-4596
	Mtg. Sleeve	28-5663
	Mtg. Washer	W-410
	Mtg. Screw	W-758
8.	Band Switch	42-1712
	Mtg. Nut	W-2157
9.	Resistor (180 ohms.)	33-118336
10.	Condenser (.1 mfd., 200 volts)	61-0104
11.	Resistor (1 megohm)	33-510339
12.	Mica Condenser (250 mmfd.)	60-125157
13.	Condenser (100 mmfd.)	60-110157
14.	Resistor (1 megohm)	33-510339
15.	R. F. Transformer	32-3595
	Mtg. Clip	28-5002
16.	Resistor (15,000 ohms) Part of 15	33-315339
17.	Resistor (47,000 ohms)	33-347339
18.	Compensator (Broadcast Osc.-500 K.C.)	31-6452
18a.	Compensator (S.W. Osc.)	Part of 18
19.	Mica Condenser (375 mmfd.)	20-037511
20.	Oscillator Transformer	32-3856
	Mtg. Clip	28-5002
21.	Condenser (.2 mfd., 400 volts) and R. F. Choke	76-1198
22.	Mica Condenser (100 mmfd.)	60-110157
23.	Condenser (.002 mfd., 400 volts)	30-4579
24.	Condenser (.05 mfd., 200 volts)	30-4519
25.	Condenser (.05 mfd., 200 volts)	30-4519
26.	First I. F. Transformer	32-3859
	Mtg. Nut	W-624
27.	Second I. F. Transformer	32-3860
	Mtg. Nut	W-624
27a.	Primary Compensator	Part of 27
27b.	Secondary Compensator	Part of 27
27c.	Condenser	Part of 27a
27d.	Resistor (47,000 ohms.) Part of 27	33-347339
27e.	Condenser	Part of 27a
28.	Resistor (2.2 megohms)	33-522339
29.	Volume Control	33-5482
	Mtg. Nut	W-2157
30.	Resistor (3.3 megohms)	33-533339
31.	Condenser (.01 mfd., 400 volts)	30-4572
32.	Condenser (.01 mfd., 400 volts)	30-4572
33.	Mica Condenser (250 mmfd.)	60-125157
34.	Resistor (470,000 ohms)	33-447339
35.	Resistor (470,000 ohms)	33-447339
36.	Resistor (180 ohms)	33-118336
37.	Condenser (.02 mfd., 400 volts)	30-4516
38.	Output Transformer (For Speaker 36-1533-9)	32-8164
39.	Speaker	36-1533-9
	Cone Assembly (For Speaker 36-1533-9)	36-4190
40.	Resistor (10,000 ohms)	33-310339
41.	Resistor (10,000 ohms)	33-310339
42.	Field Coil (Replace Speaker 36-1533)	
43.	Electrolytic Condenser (10 mfd.)	30-2530
43a.	Electrolytic Condenser (20 mfd.)	Part of 43
43b.	Electrolytic Condenser (20 mfd.)	Part of 43
	Mtg. Clip	56-1466
44.	Condenser (.04 mfd., 400 volts)	30-4119
45.	Dial Lamp	34-2068
	Socket Assembly	76-1398
46.	Filament Resistor (40-80 ohms.)	33-3408

MISCELLANEOUS PARTS

Cabinet	10552-A
Cable (Power)	L-3199
Dial Scale	27-5800
Knob Assembly	54-4137
Screw (Chassis Mtg.)	W-2065
Socket (LOKTAL Tubes)	27-6177
Mtg. Rivet	W-239
Socket (Output Tube)	27-6174
Washer (Chassis Mtg.)	W-410

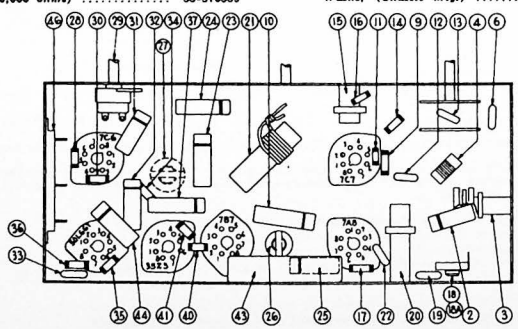

FIG. 3.—LOCATIONS OF PARTS—UNDER CHASSIS—MODEL 42-322