

PHILCO

REG. TRADE MARK

Service Bulletin No. 166-A

Model 338 (Code 124)

The Philco Model 338 Code 124 is a battery-operated five-tube superheterodyne receiver. Model 338 is designed for use with a 2-volt storage battery or an air cell battery for "A" supply. The frequency range is 540 K.C. to 2415 K.C. and a wave band switch permits the selection of either the standard broadcast or police and amateur radio stations.

When used with a storage battery, the black and white lead marked "Storage Battery +-" is connected to the storage battery, and the red lead marked "Air Cell +-" is to be taped up in such a manner that it cannot come in contact with any of the other batteries. When used with an air cell battery, this procedure is reversed. The red lead marked "Air Cell +-" must never be shortened, as its resistance is required in the circuit.

The Model 338 Code 124 employs a type 1A6 tube as detector-oscillator, a type 32 tube for intermediate frequency amplifier, a type 32 as second detector, a type 30 tube for first audio frequency stage, and a type 19 as output (Class B amplifier). These are the low current drain 2-volt tubes.

Tube Socket Voltages

All Voltages Measure to Ground or -F

	1A6	32 (I.F.)	32 (2nd Det.)	30	19
Plate . . .	127	127	50	126	126
Screen Grid . .	G ₂ 82	64	22	....	....
Grid	G ₁ -10	....	....	....	G ₁ -2.9
					G ₂ -2.9

Above voltages measured with a high resistance D. C. voltmeter, using test prods applied to sockets underneath chassis (see Fig. 2). Philco Model 025 circuit tester is recommended for these tests.

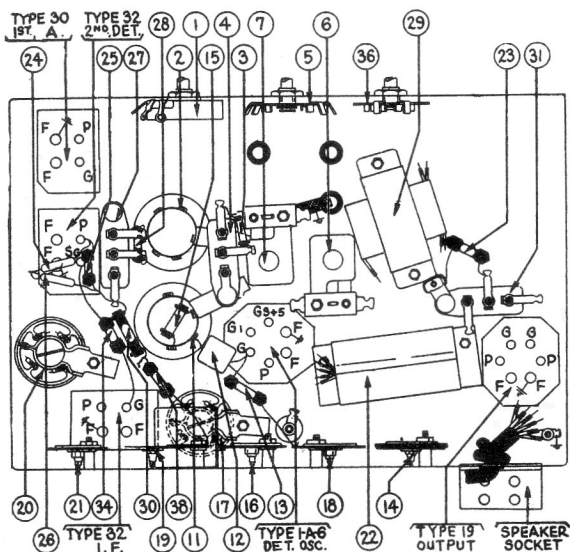


FIG. 2—Bottom of Chassis Showing Parts; and Sockets for Testing Voltages

Model 338 Code 124 requires three 45-volt "B" batteries and two 4½-volt "C" batteries, in addition to the "A" battery. The "B" battery current drain varies between 8 and 12 milliamperes, depending upon the amount of signal applied to the loud speaker. The intermediate frequency of the superheterodyne circuit is 460 K.C.

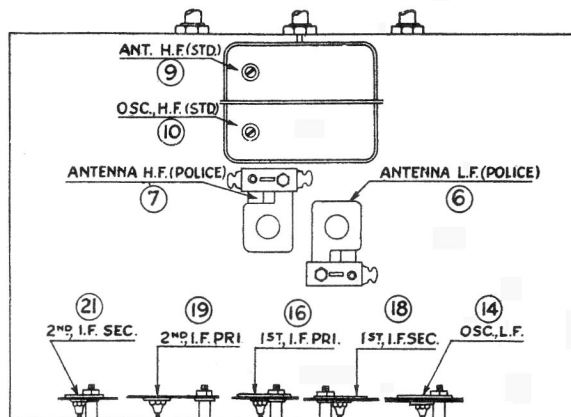


FIG. 1—Locations of Compensating Condensers

NOTE: Condensators ⑨ and ⑩ are shown as viewed from top of chassis; all others in position seen from bottom.

Adjusting Compensating Condensers

Adjustment of compensating condensers in Model 338 Code 124 requires the use of an accurate signal generator (such as the Philco Model 024), an output meter (Philco Model 012 or 025 are recommended) and a special adjusting wrench (Philco No. 3164). The I. F. or intermediate frequency of the set is 460 K. C. Refer to Fig. 1 for locations of compensating condensers.

I. F.—Set signal generator at 460 K. C. Remove grid clip from cap of 1A6 tube and connect antenna lead from signal generator to cap of tube, connect ground lead to ground post of set. Set dial of receiver at 550 and wave band switch at left. See that set is connected to batteries and volume control full "on." Connect output meter to primary terminals of output transformer (in chassis). Turn "on" the receiver and signal generator. Adjust the four I. F. compensating condensers ⑬, ⑭, ⑮ and ⑯ to give maximum response in the output meter. These adjustments are all made from the rear of the chassis through holes in sub-base.

ANT. H. F. and OSC. H. F. (standard wave)—These are condensers ⑨ and ⑩ located on top of the tuning condenser assembly and adjusted from above. ⑨ is the one nearest the front of chassis. Set signal generator at 1500. Replace grid clip on cap of 1A6 tube and connect antenna and ground leads from signal generator direct to antenna and ground posts of set. Turn dial of set to 150 and adjust condensers ⑨ and ⑩ for maximum reading in output meter.

OSC. L. F. (standard wave)—Set signal generator at 600 and turn dial of set to 60. Adjust condenser ⑭, reached from rear of chassis, to give maximum reading in output meter.

ANT. H. F. and L. F. (police band)—Turn wave band switch to the right. Set signal generator at 2400 and dial at 2.4 (lower scale). Adjust condenser ⑦ to give maximum response in output meter. Now turn dial to 1.5 and set signal generator at 1500. Adjust condenser ⑥ for maximum response. Condensers ⑥ and ⑦ are reached through the two holes in top of chassis to rear of tuning condenser assembly.

NOTE: If reading on output meter is too great during adjustments, turn down "attenuator" on signal generator.

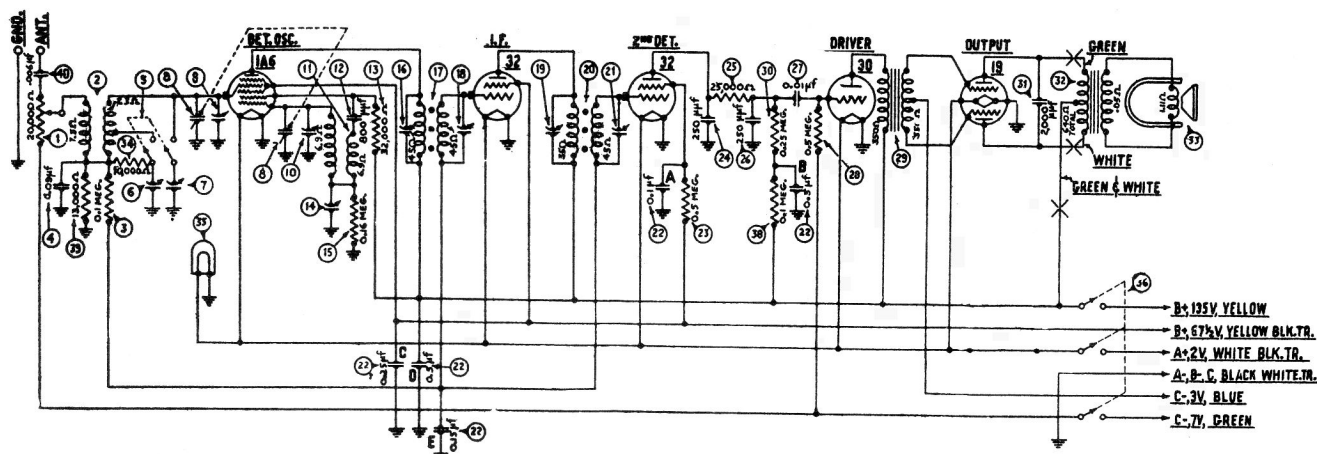
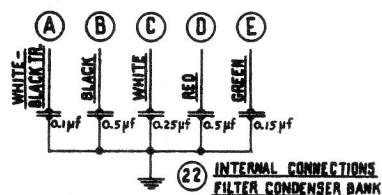


FIG. 3—Schematic Wiring Diagram



Replacement Parts—Model 338 (Code 124)

	Part No.	List Price		Part No.	List Price
① Volume Control.....	33-5017	\$1.40	②⑦ Condenser (.01 mfd. Bakelite Block).....	3908-Z	\$0.25
② Antenna Transformer.....	32-1518	1.00	②⑧ Resistor (.5 meg.) (Yellow-White-Yellow).....	6097	.25
③ Resistor (.1 meg.) (White-White-Yellow).....	6099	.25	②⑨ Audio Transformer.....	7233	2.25
④ Condenser (.09 mfd. Bakelite Block).....	4989-F	.35	③① Resistor (.25 meg.) (Red-Yellow-Yellow).....	4410	.25
⑤ Wave-band Switch.....	42-1039	.70	③② Condenser (.002 mfd. mica).....	7296-C	.30
⑥ Compensating Condenser (Ant. L. F.-Police).....	04000-S	.45	③③ Output Transformer.....	32-7286	2.60
⑦ Compensating Condenser (Ant. H. F.-Police).....	04000-D	.16	③④ Voice Coil & Cone Assembly (KR-7).....	36-3159	1.10
⑧ Tuning Condenser Assembly.....	31-1401	5.25	③⑤ Resistor (10000 ohms) (Brown-Black-Orange).....	33-1000	.25
⑨ Compensating Condenser (Ant. H. F.).....	Part of ⑧	.....	③⑥ Pilot Lamp (dial).....	5316	.30
⑩ Compensating Condenser (Osc. H. F.).....	Part of ⑧	.....	③⑥ On-Off Switch.....	42-1040	.80
⑪ Oscillator Transformer.....	32-1519	1.00			
⑫ Condenser (.0008 mfd. mica).....	5878	.35	③⑧ Resistor (.1 meg.) (White-White-Yellow).....	6099	.25
⑬ Resistor (32000 ohms) (Orange-Red-Orange).....	5279	.25	③⑨ Resistor (13000 ohms) (Brown-Orange-Orange).....	33-1160	.25
⑭ Compensating Condenser (Osc. L. F.).....	04000-S	.45	④① Condenser (.006 mfd.).....	30-4125	.25
⑮ Resistor (160000 ohms) (Brown-Blue-Yellow).....	33-1191	.25	Dial Assembly.....	31-1408	.40
⑯ Compensating Condenser (1st I. F. Pri.).....	04000-A	.16	Scale.....	27-5068	.25
⑰ First I. F. Transformer.....	32-1251	1.25	4 Prong Socket.....	7545	.20
⑱ Compensating Condenser (1st I. F. sec.).....	04000-A	.16	6 Prong Socket.....	7547	.15
⑲ Compensating Condenser (2nd I. F. pri.).....	04000-A	.16	Speaker Socket.....	7828	.15
⑳ Second I. F. Transformer.....	32-1252	1.25	Shorting Jumper (Ballast Tube Socket).....	28-8061	.03
㉑ Compensating Condenser (2nd I. F. sec.).....	04000-A	.16	Tube Shield (Fits Inside Base).....	28-1107	.10
㉒ Filter Condenser Block (.25-.5-.15-.1-.5).....	03915	1.80	Tube Shield (Fits Over Base).....	8005	.10
㉓ Resistor (.5 meg.) (Yellow-White-Yellow).....	4517	.25	Battery Cable Assembly.....	L1759 5	.95
㉔ Condenser (.00025 mfd. mica).....	3082	.35	Knob.....	27-4052	.10
㉕ Resistor (25000 ohms) (Red-Green-Orange).....	4516	.25			
㉖ Condenser (.00025 mfd. mica).....	3082	.35			

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