SPECIFICATIONS

Model 108, code 121 is a combination Phonograph and Electric Automatic Tuning radio receiver. The phonograph consists of a semi-automatic crystal pickup mechanism and a turntable motor.

The radio receiver employs a six tube, A. C. operated superheterodyne circuit with two tuning ranges covering standard (540 to 1720 K. C.) and shortwave (5 M. C. to 18. M. C.) Broadcasts — Electric Automatic Pushbutton Tuning by which any of eight standard broadcast stations can be automatically selected—Continuously Variable Tone Control — Automatic Volume Control and a Pentode Audio Output Circuit. The procedure for adjusting and operating the electric pushbuttons will be found in the instructions supplied with each receiver.

POWER SUPPLY: 115 V., 60 cycle A. C. 69 watts.

INTERMEDIATE FREQUENCY: 470 K. C.

PHILCO TUBES USED: 6A7, First Detector Oscillator; 78, I. F. Amplifier; 37, Second Detector, A. V. C.; 75, First Audio; 41, Audio Output and 84, Rectifier.

ALIGNMENT OF COMPENSATORS

EQUIPMENT REQUIRED:

(1) Signal Generator; Philco Model 077.

(2) Output Meter, Philco 027 Vacuum Tube Voltmeter and Circuit Tester.

(3) Philco Fiber Handle Screw Driver, Part No. 27 - 7059, and Fiber Wrench, Part No. 3164.

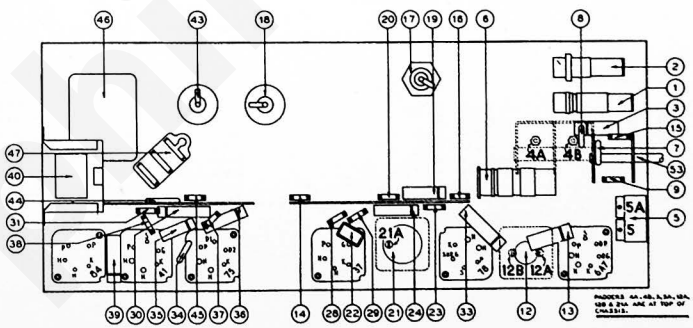
OUTPUT METER: The Philco 027 Output Meter is connected to the plate and cathode terminals of the type 41 tube. The Vacuum Tube Voltmeter can also be used in aligning the receiver by connecting the Negative terminal through a one megohm Resistor to the 6A7 grid. The Positive terminal is connected to the chassis. After connecting the Output Meter, adjust compensators in the order as given in tabulation below. Locations of the compensators are shown in Fig. 1.

Operations in Order	SIGNAL GENERATOR				RECEIVER		SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dummy Antenna Note A	Dial Setting	Dial Setting	Control Settings	Adjust Compensators in Order	
1	6A7 Grid	.1 mf.	470 K. C.	580 K. C.	Vol. Cont. Max. Range Sw. (Brdcst)	(21A) (12B) (12A)	
2	Ant. Ter.	100 mmf.	18.0 M. C.	18.0 M. C.	Vol. Cont. Max. Range Sw. (S. W.)	(4B)	See Note B, C
3	Ant. Ter.	100 mmf.	1550 K. C.	1550 K. C.	Vol. Cont. Max. Range Sw. (Brdcst)	(5) (4A)	
4	Ant. Ter.	100 mmf.	580 K. C.	580 K. C.	Vol. Cont. Max. Range Sw. (Brdcst)	(5A)	
5	Ant. Ter.	100 mmf.	1550 K. C.	1550 K. C.	Vol. Cont. Max.	(5)	

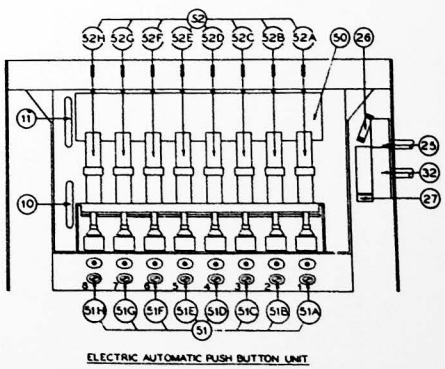
NOTE A — The "Dummy Antenna" consists of a condenser connected in series with the signal generator output lead (high side). Use the capacity as specified in each step of the above procedure.

NOTE B — DIAL CALIBRATION: In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows: With the tuning condenser closed (maximum capacity), set the dial pointer on the extreme left index line at the low frequency end of the broadcast scale. The arrangement of the drive cable is shown in Service Bulletin No. 305.

NOTE C — Compensators (4A) and (4B) are located on top of the tuning condenser. Compensator (4B) is the first one from the tuning drum side.



Parts locations-underside of chassis **Fig. 1**



ELECTRIC AUTOMATIC PUSH BUTTON UNIT

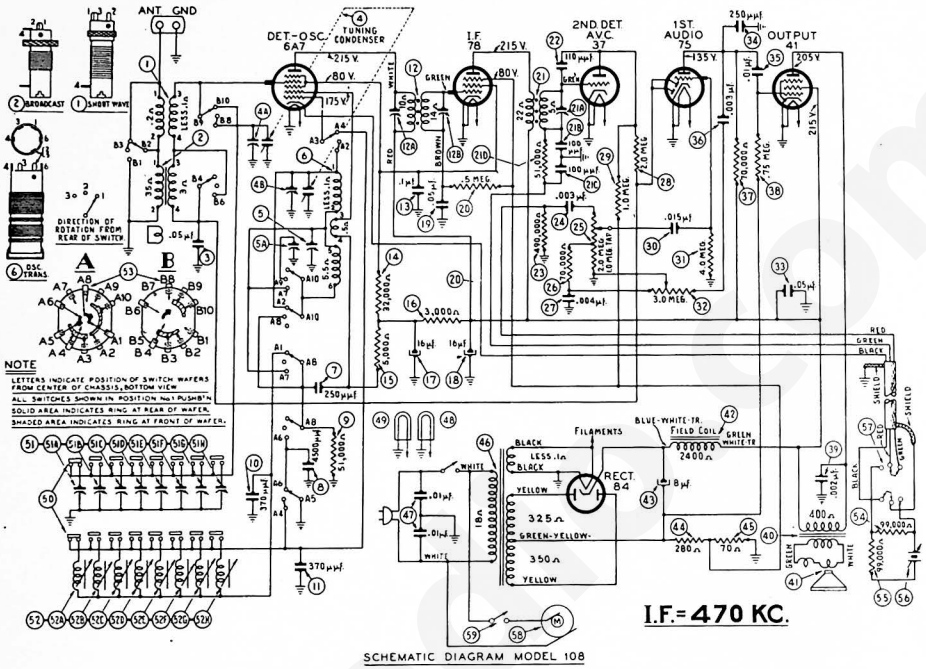


Fig. 2

REPLACEMENT PARTS

Sche. No.	Description	Part No.
1	Ant. Trans. (S. W.)	32-3027
2	Ant. Trans. (B. C.)	32-3026
3	Tubular Cond. (.05 mf.)	30-4519
4	Tuning Cond. Assy.	31-2346
5	Dual Padder Unit	31-6255
6	Osc. Trans.	32-3028
7	Mica Cond. (250 mmf.)	30-1032
8	Mica Cond. (4500 mmf.)	30-1109
9	Resistor (51,000 ohms, ½ watt)	33-351339
10	Condenser (Silver Mica) (370 mmf.)	30-1110
11	Condenser (Silver Mica) (370 mmf.)	30-1110
12	1st I. F. Trans. Assy.	32-3018
13	Tubular Cond. (.1 mf.)	30-4455
14	Resistor (32,000 ohms, ½ watt)	33-332339
15	Resistor (5,000 ohms, ½ watt)	33-250339
16	Resistor (3,000 ohms, ½ watt)	33-230339
17	Electro. Cond. (16 mf.) 250 volts	30-2331
18	Electro. Cond. (16 mf.) 250 volts	30-2370
19	Tubular Cond. (.05 mf.)	30-4519
20	Resistor (490,000 ohms, ½ watt)	33-449339
21	2nd I. F. Trans. Assy.	32-3129
21A	Compensator Part of 21	
21B	Condenser Part of 21A	
21C	Condenser Part of 21A	
21D	Resistor (51,000 ohms, ½ watt)	33-351339
22	Mica Cond. (110 mmf.)	30-1031
23	Resistor (490,000 ohms, ½ watt)	33-449339
24	Tubular Cond. (.003 mf.)	30-4580
25	Volume Control (2 meg.)	33-5286
26	Resistor (70,000 ohms)	33-370339
27	Tubular Cond. (.004 mf.)	30-4334
28	Resistor (2.0 meg., ½ watt)	33-520339
29	Resistor (1.0 meg., ½ watt)	33-510339
30	Tubular Cond. (.015 mf.)	30-4515
31	Resistor (4.0 meg., ½ watt)	33-540339
32	Tone Control (3 meg.)	33-5287
33	Tubular Cond. (.05 mf.	30-4518
34	Mica Cond. (250 mmf.)	30-1032
35	Tubular Cond. (.01 mf.)	30-4572

Sche. No.	Description	Part No.
36	Tubular Cond. (.003 mf.)	30-4582
37	Resistor (70,000 ohms, ½ watt)	33-370339
38	Resistor (75 meg., ½ watt)	33-475339
39	Tubular Cond. (.002 mf.)	30-4177
40	Output Trans. for Speaker Part No. 36-1438-2	32-7978
41	Cone and Voice Coil Assy. for Speaker Part No. 36-1438-2	36-4089
42	Field Coil, Replace Speaker Part No. 36-1438-2	
43	Electro. Cond. (8 mf. 400 V.)	30-2371
44	Resistor (280 ohms)	33-128431
45	Resistor (70 ohms, ½ watt)	33-070339
46	Power Trans. (115 V. 50 to 60 cycles)	32-7977
47	Bakelite Cond. (.01 mf. .01 mf.)	3903DG
48	Pilot Lamp (Dial)	34-2064
49	Pilot Lamp (Dial)	34-2064
50	Push Button Switch	42-1462
51	Compensator Assy.	31-6256
51A	Compensator No. 1 (540-1030 K. C.)	
51B	Compensator No. 2 (540-1030 K. C.)	
51C	Compensator No. 3 (670-1160 K. C.)	
51D	Compensator No. 4 (670-1160 K. C.)	
51E	Compensator No. 5 (900-1470 K. C.)	
51F	Compensator No. 6 (900-1470 K. C.)	
51G	Compensator No. 7 (1170-1600 K. C.)	
51H	Compensator No. 8 (1170-1600 K. C.)	
52	Electric Push Button Coil Assy.	32-3031
52A	Osc. Coil No. 1 (540-1030 K.C.)	32-3042
52B	Osc. Coil No. 2 (540-1030 K.C.)	32-3042
52C	Osc. Coil No. 3 (670-1160 K.C.)	32-3042
52D	Osc. Coil No. 4 (670-1160 K.C.)	32-3042
52E	Osc. Coil No. 5 (900-1470 K.C.)	32-3041
52F	Osc. Coil No. 6 (900-1470 K.C.)	32-3041
52G	Osc. Coil No. 7 (1170-1600 K.C.)	32-3041
52H	Osc. Coil No. 8 (1170-1600 K.C.)	32-3041
53	Wave Switch	42-1478
54	Resistor (99,000 ohms, ½ watt)	33-399339
55	Resistor (99,000 ohms, ½ watt)	33-399339

Sche. No.	Description	Part No.
56	Crystal Pickup (without mtg. Parts)	35-2031
	Crystal Pickup (complete with mtg. Parts)	35-2027
57	Radio Phono Switch	42-1509
58	Phono Motor (115 volt, 60 cycle)	35-1158
59	Motor Switch	42-1498
	Bezel	56-1104
	Bracket & Bearing (Tuning Drum)	38-9662
	Cable (Power)	L-2778
	Coupling (Tuning Condenser)	31-2291
	Dial	27-5452
	Drive Cord Assy. (Tuning)	31-2315
	Drive Cord Assy. (Pointer)	31-2316
	Disc Control (Tuning)	27-4766
	Disc Control (Range Switch)	27-4767
	Disc Control (Tone)	27-4764
	Disc Control (Volume)	27-4765
	Drum & Shaft (Tuning Cond.)	38-9716
	Needle Screw	218-1047
	Nut ("T" Type Motor Mtg.)	W-1758
	Knob (Pushbutton)	27-4758
	Pointer	56-1033
	Screw (Pickup Mtg.)	W-2027
	Screw (Motor Mtg.)	W-599
	Screw (Chassis Mtg.)	W-454
	Sleeve (Motor Mtg.)	28-5274
	Spring (Drive Cord Assy.)	28-8913
	Spring (Pushbutton)	56-1238
	Socket (5 prong)	27-6035
	Socket (6 prong)	27-6036
	Socket (7 prong)	27-6099
	Speaker	36-1438-2
	Turntable	315-1007
	Washer (Rubber coupling, Turntable shaft)	315-1002
	Washer (Metal coupling, Turntable shaft)	315-1003
	Washer (Rubber, Motor Mtg., top)	3915
	Washer (Rubber, Motor Mtg., bottom)	27-4818