

Model 524

Battery Operated Radio Receiver

Specifications

Frequency Range:

.535 to 1.6 megacycles

I.F.:

470 K.C.

Tubes:

Type	Position
1D7G	Converter
1D5G	I.F. Amplifier
1F7G	2nd Detector, A.V.C., 1st A.F. Amplifier
1G5G	Output Amplifier

Power Supply:

"A" Battery—Eveready A-600 "Air-Cell",
two volt storage cell or 4 No. 6 dry cells.

"B" Battery—Two or three 45 volt batteries.

A.V.C.:

On 1D7G Converter and 1D5G, 1st I.F.
Amplifier.

Controls:

Left—Volume control and battery switch;

Centre—Tuning control;

Right—Tone control.

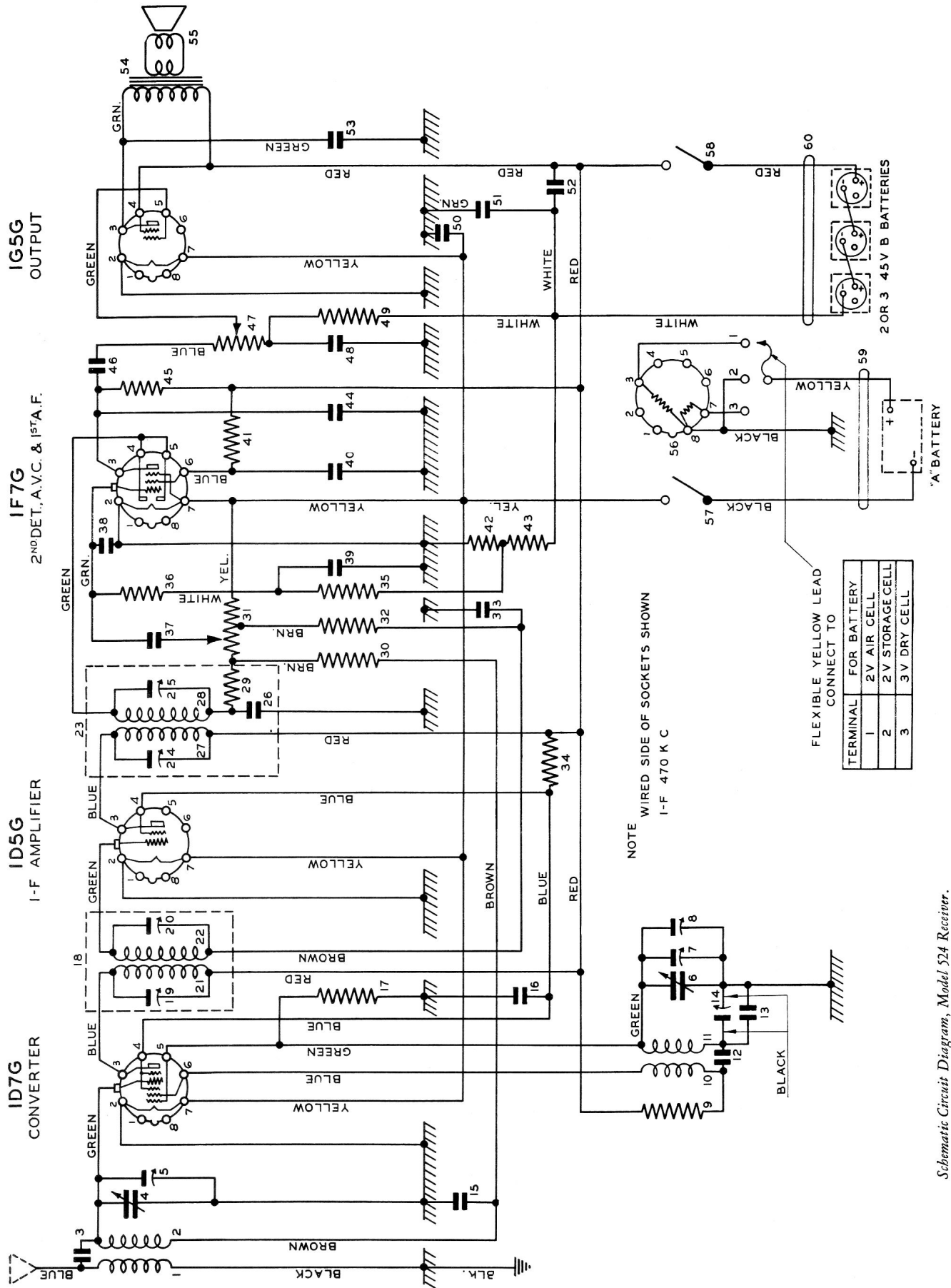
Loudspeaker:

Permanent magnet

Cabinet:

Table model

MODEL 524 RADIO RECEIVER



Schematic Circuit Diagram, Model 524 Receiver.

REPLACEMENT PARTS LIST

Schematic Designation	Value and Description	Part Number
1	Antenna Transformer—Primary.....	K-3071
2	Antenna Transformer—Secondary.....	
3	Coupling Cap. 6 mmf.....	
4	Tuning Cap. Ant. Sec. { 352.3	K-3067
5	Trimmer Cap. Ant. Sec. { mmf.	
6	Tuning Cap. Osc. Sec. { max.	
7	Trimmer Cap. Osc. Sec. { cap.	
8	Resistor, 10,000 ohms.....	K-2226-10
9	Osc. Trans. Primary.....	K-3066
10	Osc. Trans. Sec.....	
11	Capacitor, .005 mf, 175 volts.....	K-2227-4
12	Capacitor, 230 mmf, mica, plus or minus 3%.....	K-1611-27
13	Capacitor, Trimmer, 40-120 mmf.....	K-3083-3
14	Capacitor, 175 volts, 0.1 mf..	K-2227-9
15	Capacitor, 175 volts, 0.1 mf..	K-2227-9
16	Resistor, 50,000 ohms.....	K-2226-6
17	1st I.F. Trans. Assy.....	K-2758
18	Capacitor, Trimmer, 30-130 mmf.....	Part of } K-2134-1
19	Capacitor, Trimmer, 30-130 mmf.....	
20	Capacitor, Trimmer, 30-130 mmf.....	Part of } K-2777
21	1st I.F. Transformer—Primary.....	
22	1st I.F. Transformer—Secondary.....	K-2758 } K-2759
23	2nd I.F. Transformer Assy....	
24	Capacitor, Trimmer, 30-130 mmf.....	Part of } K-2932
25	Capacitor, Trimmer, 30-130 mmf.....	
26	Capacitor, mica, 100 mmf.....	Part of } K-2778
27	2nd I.F. Transformer—Primary.....	
28	2nd I.F. Transformer—Secondary.....	Part of } K-2226-6
29	Resistor, 50,000 ohms.....	
30	Resistor, 2 meg.....	K-2226-1
31	Volume Control, 1/2 meg.....	K-3060
32	Resistor, 1 meg.....	K-2226-2
33	Capacitor, 0.1 mf, 175 volts..	K-2227-9
34	Resistor, 30,000 ohms.....	K-2226-44
35	Resistor, 1/2 meg.....	K-2226-3
36	Resistor, 1 meg.....	K-2226-2
37	Capacitor, .02 mf, 175 volts..	K-2227-7
38	Capacitor, mica, 100 mmf....	K-1611-2
39	Capacitor, 175 volts, 0.25 mf.	K-2227-10

Schematic Designation	Value and Description	Part Number
40	Capacitor, 175 volts, 0.1 mf..	K-2227-9
41	Resistor, 1 meg.....	K-2226-2
42	Resistor, 150 ohms.....	K-2226-23
43	Resistor, 500 ohms.....	K-2226-18
44	Capacitor, mica, 100 mmf....	K-1611-2
45	Resistor, 1/4 meg.....	K-2226-4
46	Capacitor, 175 volts, 0.02 mf.	K-2227-7
47	Tone Control, 1/2 meg.....	K-3059
48	Capacitor, 175 volts, 0.002 mf.	K-2227-1
49	Resistor, 1/2 meg.....	K-2226-3
50	Capacitor, 175 volts, 0.5 meg.	K-2227-11
51	Capacitor, Elec. 5 volts, 10 mf.	K-2771
52	Capacitor, Elec. 90 volts, 4 mf.	
53	Capacitor, 175 volts, 0.002 mf.	K-2227-1
54	Output Transformer.....	K-3058
55	P-M Loudspeaker (Imp. 4.9 ohms.....)	
56	Resistance Tube.....	K-2979-2
57	"A" Battery	Part of } K-3060
58	Switch	
58	"B" Battery	
59	Switch.....	K-2493
59	"A" Battery Cable (7' No. 18 twin flex).....	
60	"B" Battery Cable (7 1/2' No. 20 twin flex).....	K-2782

MISCELLANEOUS:

"B" Battery Plugs.....	K-2457
"B" Battery Shorting Socket.....	K-2492
Sockets, Octal Base.....	K-1924-1
Tube Shield Base.....	K-2390
Battery Terminal Strips.....	K-2763
Dial Scale (glass).....	K-3068
Reduction Drive Assy.....	K-3047
Dial Drive Disc Assy.....	K-2997
Indicator Pointer Assy.....	K-3073
Celluloid Window (Escutcheon)..	K-3106
Chassis Mounting Screws (Pk. No. 5 x 3/4).....	K-2804-6
Washers for Chassis Screws.....	K-1206-15
Set Screw for Dial Drive Disc (No. 6—32 x 3/8).....	K-2927-6
Battery lead Cord Tip.....	A-6409
Tube Shield.....	K-2267-3
Tube Shield (cut).....	K-2267-4
Grid Clip.....	K-3030
Knob, Tuning.....	K-2885-2
Knob, "On-Off".....	K-2765-2
Knob, Tone.....	K-2765-8
Felt Washers for Knobs.....	K-2491-4
Escutcheon Pins.....	K-3116
Tuning Wrench (all models).....	K-836

SOCKET VOLTAGE READINGS

TUBE	VOLTAGES				CURRENTS—MA.		
	Filament	Plate	Screen	Grid	Screen	PLATE	
						Normal Bias	Bias red. 4½ Volts
1D7G	2.0	122 ①	53	—	1.2	2.4 ②	3.0
1D5G	2.0	122	53	—	1.2	2.8	3.1
1F7G	2.0	30	25	3 ③	.10	.30	.35
1G5G	2.0	118	122	14 ④	2.5	8.	11.5

① Anode Grid Voltage 108—

② Anode Grid Current 1.3 ma.

③ Measured across 150 ohm resistor in —B lead.

④ Measured from —B to ground.

Voltages measured at socket.

SOCKET RESISTANCE READINGS TO GROUND — OHMS

TUBE	Top Cap Cont. Grid	Pin No. 1 (N.C.)	Pin No. 2 Fila- ment +	Pin No. 3 Plate	Pin No. 4 Screen	Pin No. 5	Pin No. 6	Pin No. 7 Fila- ment —	Pin No. 8 (N.C.)
Type 1D7G Converter	2.5 ① meg.	—	0	12.5 ②	30,000 ②	(No. 1 Grid) 50,000	(No. 2 Grid) 10,000	0 ①	—
Type 1D5G I-F Amplifier	1.1 ① meg.	—	0	12.5 ②	30,000 ②	—	—	0 ①	—
Type 1F7G 2nd Det., A.V.C. & 1st A-F Amplifier	1.5	—	0	¼ meg. ②	(Diode Plate) 550,000 ①	(Diode Plate) 550,000 ①	(Screen) 1 meg. ②	0 ①	—
Type 1G5G Output Amplifier	—	—	0	495 ②	0 ②	1 meg.	—	0 ①	—

① Measured to — Filament.

② Measured to +B.

All readings taken with the battery switch off and tone control treble.

The pin numbers correspond with those shown on the schematic circuit.

REALIGNING INSTRUCTIONS

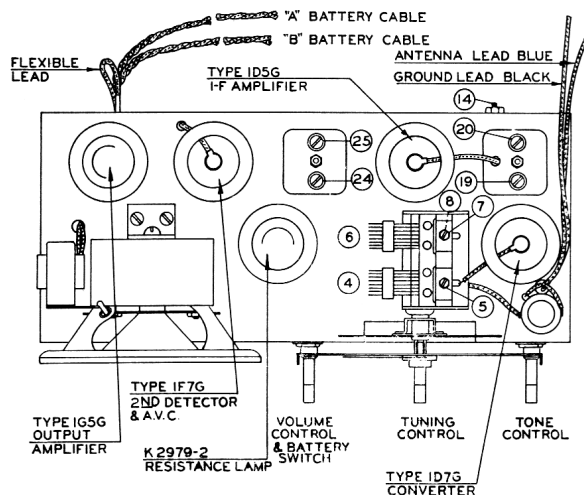
I.F. ALIGNMENT

- (a) Set the signal generator to 470 k.c. and connect its output through a 0.1 mfd. capacitor to the grid cap of the converter tube (type 1D7G). Set the receiver dial to about 600 k.c.
- (b) Adjust trimmers 19, 20, 24 and 25 for maximum output.
- (c) Reduce the output from the generator to as low a value as will give an output reading and check the adjustments. All trimmers should peak properly.

R.F. ALIGNMENT

- (a) With the gang all in, check the position of the pointer. It should line up with the end of the calibration line.

- (b) Couple the signal generator to the antenna (blue) lead through a 100 mmf. mica capacitor. Connect the ground (black) lead to ground.
- (c) Set the generator and receiver to 1400 kc. Adjust trimmer, item 7, to bring in the signal. It may be necessary to adjust trimmer, item 8, under the oscillator section of the gang first, and make the final adjustment on trimmer, item 7. Adjust trimmer, item 5, for maximum sensitivity.
- (d) Set the generator to 600 k.c. and tune the receiver to it. Adjust trimmer, item 14, at the same time rocking the gang, until maximum sensitivity is obtained.
- (e) Recheck at 1400 k.c.



Model 524 Chassis Layout, showing Tube Locations and Aligning Positions.