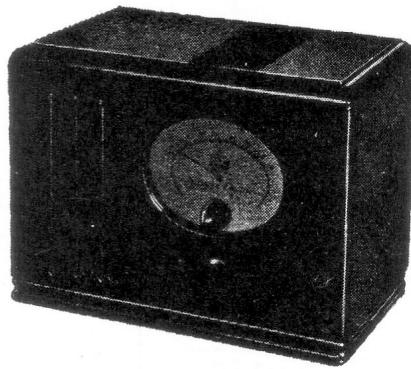


Models 422, 422A

The "Balmoral"

Radio Receivers



Specifications

Frequency Range:

525 to 1750 K.C.

I.F.:

470 K.C.

Tubes:

Type	Function
6A8G	1st Detector and Oscillator
6J7G	2nd Detector
6K6G	Output
5Y4G	Rectifier

Power Supply:

Model 422: 105 to 125 volts A.C., 60 cycles

Model 422A: 105 to 125 volts A.C.,
25-60 cycles.

Controls:

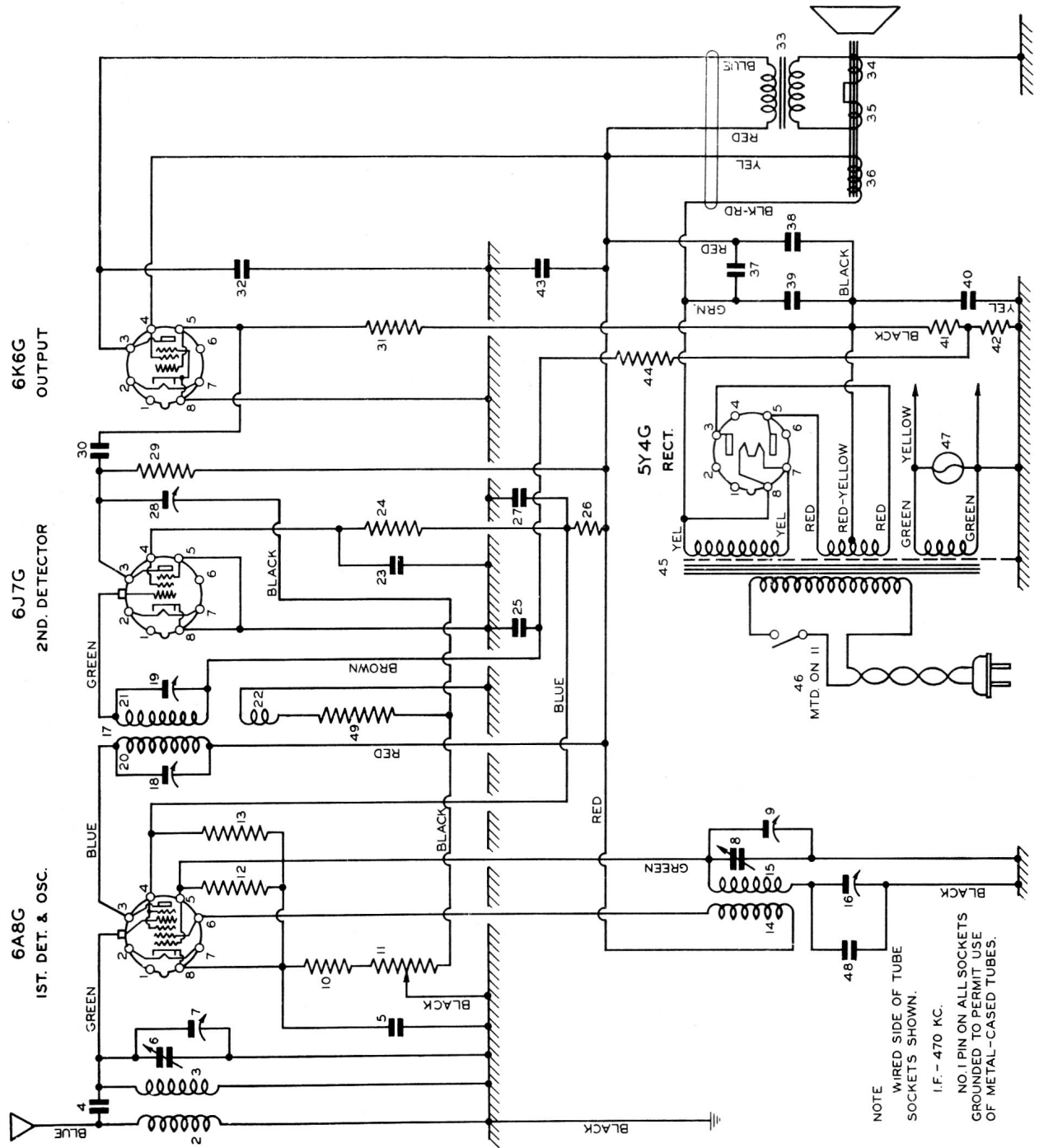
Upper—Tuning Control

Lower—A.C. Switch and Volume Control

Cabinet:

Mantel Model.

MODEL 422 RADIO RECEIVER



Schematic Circuit Diagram—Model 422.

REPLACEMENT PARTS LIST

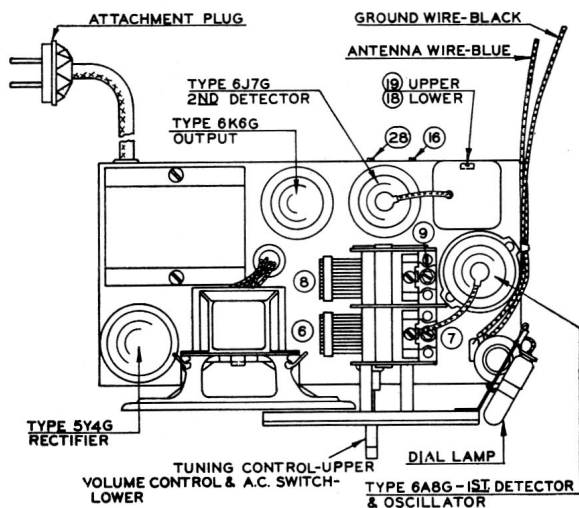
<i>Schematic</i> Designation	<i>Value and Description</i>	<i>Part</i> Number
1	Ant. Trans. Assem.....	K-2841
2	Ant. Trans. Pri. Sect.....	
3	Ant. Trans. Sec. Sect.....	
4	Coupling Capacitor, 6 mmf....	
5	Capacitor, .01 mf, 175 volts....	K-2227-6
6	Ant. Sect. Cap. Gang.....	K-2815
7	Ant. Sect. Trim. Cap.....	
8	Osc. Sect. Cap. Gang.....	
9	Osc. Sect. Trim. Cap.....	
10	Resistor, 135 ohms, 1/4 watt....	K-2226-30
11	Volume Control, 5000 ohms, var.	K-2669-2
12	Resistor, 50,000 ohms, 1/4 watt.	K-2226-6
13	Resistor, 9,500 ohms, 1/2 watt	K-2363-4
	(Ins.).....	
14	Osc. Coil Plate Winding.....	K-2840
15	Osc. Coil Grid Winding.....	
16	Capacitor, 9-110 mmf, var. trim.	K-2810-2
17	I.F. Trans. Assem.....	K-2828
18	Capacitor, 40-150 mmf, var. trim.	K-1244-2
19	Capacitor, 40-150 mmf, var. trim.	
20	I.F. Trans. Pri.....	
21	I.F. Trans. Sec.....	
22	I.F. Trans. Feed Back.....	K-2829
	Coil.....	
23	Capacitor, .1 mf, 175 volts....	K-2227-9
24	Resistor, 1 meg, 1/4 watt....	K-2226-2
25	Capacitor, .1 mf, 175 volts....	K-2227-9
26	Resistor, 8,800 ohms, 1 watt....	K-1870-4
27	Capacitor, .1 mf, 175 volts....	K-2227-9
28	Capacitor, 9-110 mmf, var....	K-2810-2
29	Resistor, 1/2 meg 1/4 watt....	K-2226-3
30	Capacitor, .005 mf, 350 volts....	K-2228-5
31	Resistor, 1 meg, 1/4 watt....	K-2226-2
32	Capacitor, .005 mf, 350 volts....	K-2228-5
33	Output Transformer (K-2911)	K-2690
34	Voice Coil (5 ohms).....	
35	Hum Bucking Coil.....	
36	Field Coil (1400 ohms).....	
		L.S. & O.T. Assembly

<i>Schematic</i> Designation	<i>Value and Description</i>	<i>Part</i> Number
37	Capacitor, .05 mf, 175 volts....	K-2227-8
38	Capacitor, 8 mf, 210 volts, d.e..	K-2811
39	Capacitor, 4 mf, 270 volts, d.e..	
40	Capacitor, 30 mf, 16 volts, d.e..	
41	Resistor, 285 ohms, 1/4 watt....	K-2226-42
42	Resistor, 85 ohms, 1/4 watt....	K-2226-46
43	Capacitor, .05 mf, 350 volts....	K-2228-8
44	Resistor, 1 meg, 1/4 watt....	K-2226-2
45a	Power Transformer—60 cycle...	K-2179-5
45b	Power Transformer—25 cycle...	K-2179-6
46	A.C. Switch (Mounted on item	11).....
47	Dial Lamp 6.3 volts.....	K-2589-3
48	Capacitor, 300 mmf (mica)....	K-1611-10
49	Resistor, 500 ohms, 1/4 watt....	K-2226-18

MISCELLANEOUS

Sockets, octal base.....	K-1924-1
Socket rivets.....	K-1070-7
Tube shield base.....	K-2390
Dial Scale Clips.....	K-2836
Dial & Bracket Assembly.....	K-2820
Indicator (dial).....	K-2851
Indicator retaining screw.....	K-2826
Dial Scale (glass).....	K-2826
Dial Lamp Socket.....	K-2835
Paper for dial backing.....	K-2933
Knob, tuning.....	K-2830-1
Knob, volume control.....	K-2830-2
Felt washer (volume control knob)	K-2491-4
Clamp for filter capacitor.....	K-2520-2
Dial gaskets.....	K-2816
Chassis mounting screws.....	K-2804-6
Tube shield (for K-2390 base)....	K-2267-3
Speaker felt (large).....	K-2923-1
Baffle Felt.....	K-2923-2
Tuning wrenches (all models)....	K-836

REALIGNING INSTRUCTIONS



Model 422—Chassis Layout showing Aligning Positions.

I.F. ALIGNMENT:

- Set the signal generator at 470 k.c. and connect its output through an 0.1 mf. capacitor to the grid cap of the first detector (type 6A8G) tube. Set the receiver dial at about 600 k.c.
- Sensitivity and selectivity depend greatly upon the regeneration control trimmer, item 28. The set should be allowed to operate and heat up for half an hour at least before attempting adjustments. If possible, the line voltage should be raised to 125 volts to make sure that trouble will not occur subsequently if the line voltage rises to such values.
First unscrew trimmer, item 28, and then adjust trimmers, items 18 and 19, for maximum output.

MODEL 422 RADIO RECEIVER

- (c) Screw in the regeneration control trimmer, item 28. The further this capacitance is increased the greater is the sensitivity. However, a limit is set by approach to a condition of instability and oscillation. Unless the line voltage is high, as noted above, the adjustment should be backed off from this optimum point to insure against instability developing later with the set in use.
- (d) Reduce the output from the signal generator to as low a value as will give an output reading, and check the adjustments of trimmers, items 18 and 19. Both should peak properly.

pointer. It should line up with the .52 me. calibration.

- (b) Couple the signal generator to the antenna lead through a 100 mmf. mica capacitor. Connect the ground lead (black) to ground.
- (c) Set the signal generator and the receiver at 1600 kilocycles. Adjust the trimmer, item 9, to bring in the signal.
- (d) Adjust trimmer, item 7, for maximum output.
- (e) Set the generator at 600 kilocycles, and tune the receiver to the signal. Adjust the lagging trimmer, item 16, for maximum output, while rocking the gang.

R.F. ALIGNMENT:

- (a) With the gang all in, check the position of the

- (f) Recheck at 1600 kilocycles.

SOCKET RESISTANCE READINGS TO GROUND—OHMS

TUBE	TOP CAP CONT. GRID	PIN No. 1 SHELL	PIN No. 2 HEATER	PIN No. 3 PLATE	PIN No. 4 SCREEN	PIN No. 5	PIN No. 6	PIN No. 7 HEATER	PIN No. 8 CATHODE
Type 6A8G	3.9 ohms	0	0	23,440	14,635	(No. 1 Grid) 55,000	(Anode- Grid) 23,440	0.2	0
Type 6J7G	1 Meg.	0	0	523,400	1 megohm	(Sup- pressor) 0	—	0.2	0
Type 6K6G	—	0	0	23,800	23,400	(Contr. Grid) 1 megohm	—	0.2	0
Type 5Y4G	—	0	—	510 (60-cy.) 615 (25-cy.)	—	(Plate) 510 (60-cy.) 615 (25-cy.)	—	24,800	(Filament) 24,800

Readings apply to the set with the power switched off. The pins are numbered to correspond with the schematic circuit diagram.

SOCKET VOLTAGE AND CURRENT READINGS

TUBE	VOLTAGES					CURRENTS—M.A.		
	Heater (a-c)	Plate	Screen	Cathode	Grid	Screen	Plate	
							Normal Bias	Bias Red. 4½ V.
Type 6A8G—1st Detector and Oscillator	6.3	190*	84	2.4	0	1.8	3.3†	7.6
Type 6J7G—2nd Detector	6.3	49	18	0	—3.4‡	.03	.11	.31
Type 6K6G—Output	6.3	180	190	0	—16§	3.4	19.5	23
Type 5Y4G—Rectifier	4.95	—	—	250	—	—	20 m.a. per plate	—

* Anode grid voltage 190.

† Anode grid current 4.5 m.a.

‡ Measured across resistor 42.

§ Measured from power transformer centre-top to ground.