

Models 414, 414A, 511, 511A

Radio Receivers

Specifications

Frequency Range:
540—1750 K.C.

I.F.:
463 K.C.

Tubes:

Model	Type	Function
414 only	6A8G	1st Detector and Oscillator
511 only	6A8	1st Detector
511 only	6C5	Oscillator
414, 511	6J7 or 6J7G	2nd Detector
414, 511	6K6G	Output
414, 511	5Y4G	Rectifier

Power Supply:

Model 414: 105 to 125 volts A.C. 60 cycles

Model 414A: 105 to 125 volts A.C.
25-60 cycles

Model 511: 105 to 125 volts A.C. 60 cycles

Model 511A: 105 to 125 volts A.C.
25-60 cycles

Controls:

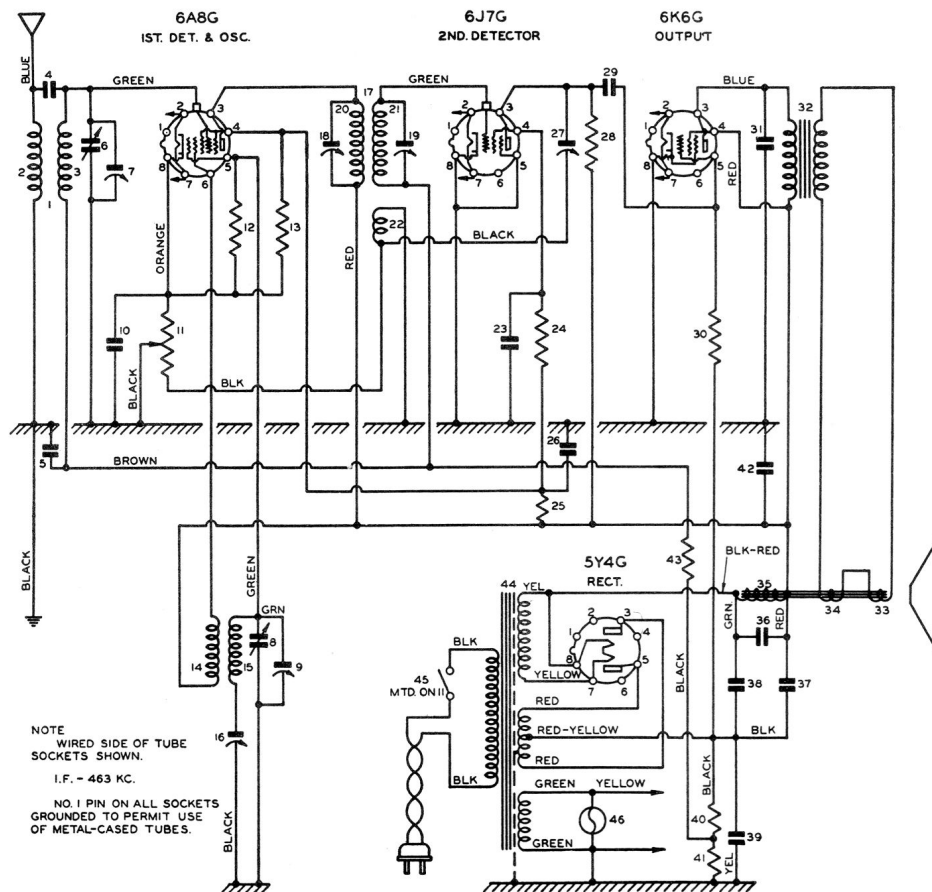
Upper: Tuning control
Lower: A.C. switch and volume control

Cabinets:

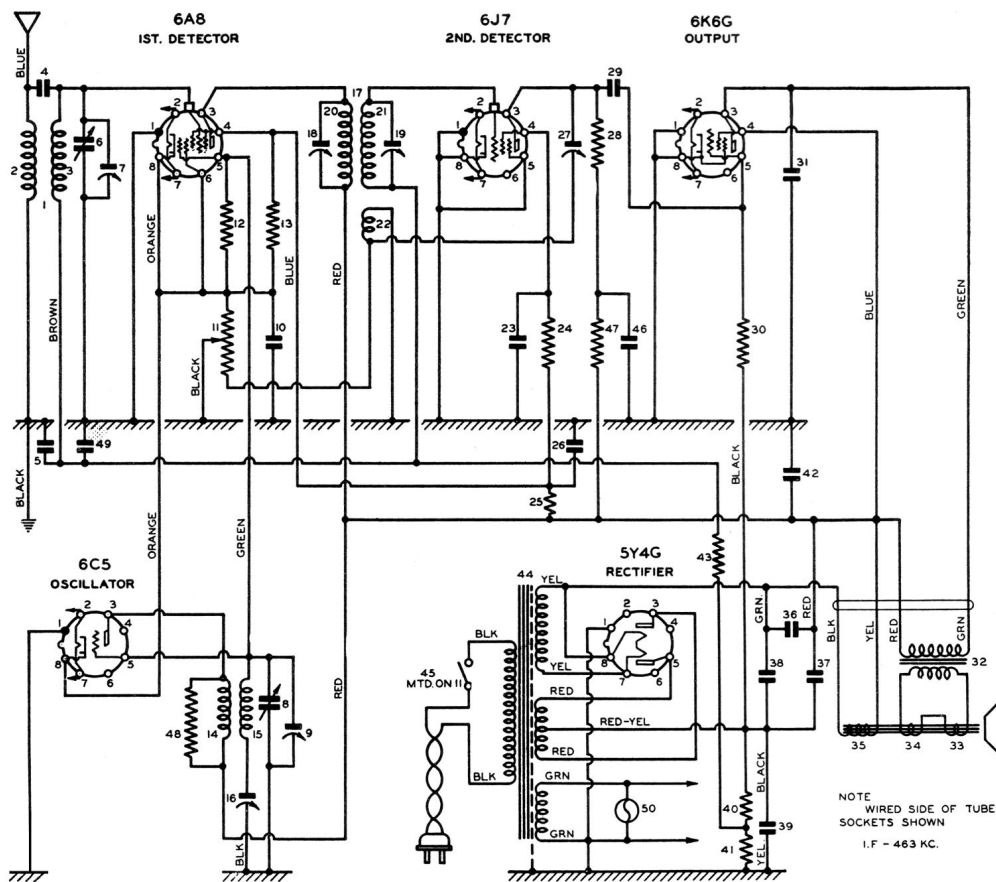
414, 414A: Table model
511, 511A: Console model.

Models 414 and 511 are similar except that the 511 employs a separate oscillator, has a larger speaker, and is fitted in a console cabinet.

MODELS 414-511 RADIO RECEIVERS



Schematic Circuit Diagram—Model 414.



Schematic Circuit Diagram—Model 511.

REPLACEMENT PARTS LIST—MODEL 414

Schematic Designation	Value and Description	Part Number
1	Antenna Trans. Assem.....	K-2696
2	Antenna Trans. Pri. Sect.....	
3	Antenna Trans. Sec. Sect.....	
4	Coupling Capacitor—6 mmf.....	K-2227-8
5	Capacitor, .05 mf, 175 volts.....	
6	Ant. Sect. Cap. Gang.....	K-2664
7	Ant. Sect. Trim. Cap.....	
8	Osc. Sect. Cap. Gang.....	K-2228-1
9	Osc. Sect. Trim. Cap.....	
10	Capacitor, .001 mf, 350 volts.....	K-2669
11	Volume Control & Switch, 5,000 ohms, var.....	K-2226-6
12	Resistor, 50,000 ohms, ½ watt.....	K-1870-3
13	Resistor, 7800 ohms, 1 watt.....	K-2695
14	Osc. Coil Plate Winding.....	
15	Osc. Coil Grid Winding.....	K-2483-1
16	Capacitor, Var. Trim, 300-600 mmf.....	
17	I.F. Trans. Assem.....	K-2698-1
18	Cap. Var. Trim, 40-150 mmf.....	
19	Cap. Var. Trim, 40-150 mmf.....	K-2697
20	I.F. Trans. Pri.....	
21	I.F. Trans. Sec.....	K-2227-9
22	I.F. Trans. Feed Back Coil.....	
23	Capacitor, .1 mf, 175 volts.....	

Schematic Designation	Value and Description	Part Number
24	Resistor, 1 meg, ½ watt.....	K-2226-2
25	Resistor, 10,000 ohms, 1 watt.....	K-1870-2
26	Capacitor, .1 mf, 175 volts.....	K-2227-9
27	Cap. Var, 3-25 mmf (f-b cont).....	K-1458-6
28	Resistor, ½ meg, ½ watt.....	K-2226-3
29	Capacitor, .005 mf, 350 volts.....	K-2228-5
30	Resistor, 1 meg, ½ watt.....	K-2226-2
31	Capacitor, .005 mf, 350 volts.....	K-2228-5
32	Output Trans.....	K-2690
33	Voice Coil (5 ohms).....	
34	Hum Bucking Coil.....	
35	Field Coil—1400 ohms.....	K-2227-8
36	Capacitor, .05 mf, 175 volts.....	
37	Capacitor, Elec., 8 mf, 275 volts.....	K-2679
38	Capacitor, Elec., 4 mf, 300 volts.....	
39	Capacitor, Elec, 10 mf, 25 volts.....	K-2226-42
40	Resistor, 285 ohms, ½ watt.....	
41	Resistor, 50 ohms, ½ watt.....	K-2226-25
42	Capacitor, .05 mf; 350 volts.....	K-2228-8
43	Resistor, 1 meg, ½ watt.....	K-2226-2
44	Power Transformer—60 cycle.....	K-2179-5
44-A	Power Transformer—25 cycle.....	K-2179-6
45	A.C. Switch—mounted on item 11.....	
46	Dial Lamp, 6.3 volts.....	K-2589-3

REPLACEMENT PARTS LIST—MODEL 511

Schematic Designation	Value and Description	Part Number
1	Ant. Trans. Assem.....	K-2696
2	Ant. Trans. primary.....	
3	Ant. Trans. secondary.....	
4	Coupling Capacitor; 6 mmf.....	K-2227-8
5	Capacitor; .05 mf; 175 volts.....	
6	Ant. section; cap. gang.....	K-2664
7	Trimmer for Ant. sect.....	
8	Osc. section; cap gang.....	K-2228-1
9	Trimmer for osc. sect.....	
10	Capacitor; .001 mf; 350 volts.....	K-2669
11	Volume Control & Switch; 5000 ohms.....	K-2226-6
12	Resistor; 50,000 ohms; ½ watt.....	K-1870-3
13	Resistor; 7,800 ohms; 1 watt.....	K-2695
14	Osc. coil plate winding.....	
15	Osc. coil grid winding.....	K-2483-1
16	Trimmer; 300-600 mmf; var. single.....	
17	I.F. Transf. assembly (complete).....	K-2698-1
18	Trimmer; 40-150 mmf.....	
19	Trimmer; 40-150 mmf.....	K-2697
20	I.F. Transf. primary.....	
21	I.F. Transf. secondary.....	K-2227-9
22	I.F. Transf. feed back coil.....	
23	Capacitor; .1 mf; 175 volts.....	K-2226-2
24	Resistor; 1 meg; ½ watt.....	K-1870-2
25	Resistor; 10,000 ohms; 2 watt.....	K-2227-9
26	Capacitor; .1 mf; 175 volts.....	

Schematic Designation	Value and Description	Part Number
27	Feed back control; 3-25 mmf. var.....	K-1458-6
28	Resistor; ½ meg; ½ watt.....	K-2226-3
29	Capacitor; .005 mf; 350 volts.....	K-2228-5
30	Resistor; 1 meg; ½ watt.....	K-2226-2
31	Capacitor; .005 mf; 350 volts.....	K-2228-5
32	Output Transformer.....	K-2718-3
33	Voice Coil (& diaphragm) (1.82 ohms).....	K-2544
34	Hum-bucking coil.....	K-2543-3
35	Field Coil—1400 ohms.....	
	(Items 33, 34, 35 part of K-2542-3 L. S. Assembly)	
36	Capacitor; .05 mf; 175 volts.....	K-2227-8
37	Filter (elect) 8 mf; 275 volts.....	K-2679
38	Filter (elect) 4 mf; 300 volts.....	
39	Filter (elect) 10 mf; 25 volts.....	K-2226-42
40	Resistor; 285 ohms; ½ watt.....	
41	Resistor; 50 ohms; ½ watt.....	K-2226-25
42	Capacitor; .05 mf; 350 volts.....	K-2228-8
43	Resistor; 1 meg; ½ watt.....	K-2226-2
44	Power transformer, 60 cycles.....	K-2179-7
44-A	Power transformer, 25 cycles.....	K-2179-8
45	A. C. Switch (mounted on item 11).....	
46	Capacitor; .1 mf; 350 volts.....	K-2228-9
47	Resistor; 100,000 ohms; ½ watt.....	K-2226-5
48	Resistor; 1500 ohms; ½ watt.....	K-2226-15
49	Capacitor; .1 mf; 175 volts.....	K-2227-9
50	Dial Lamp; 6.3 volts.....	K-2589-3

MISCELLANEOUS:—(Not included in item designations):—
(Applies on both models 414 and 511.)

Description	Part Number
Sockets, octal base.....	K-1924-1
Tube Shield, base.....	K-2390
Clips for Dial Scale.....	K-2702
Indicator for Dial.....	K-2692
Glass Dial Scale.....	K-2670
Lamp Socket.....	K-2598-2
Knobs.....	K-2249-1

Description	Part Number
Tube Shield.....	K-2267-3
Chassis Mounting Screws (Model 414).....	K-1032-4
Chassis Mounting Washers.....	K-1206-15
Tuning Wrench (all models).....	K-836
Chassis Mounting Screws (Model 511).....	K-1032-7

REALIGNING INSTRUCTIONS (Models 414-511)

To secure full advantage of the performance characteristics of this receiver, any realignment necessary should be carried out carefully. A reliable test oscillator or signal generator, and also an output meter should be employed.

I.F. ALIGNMENT:

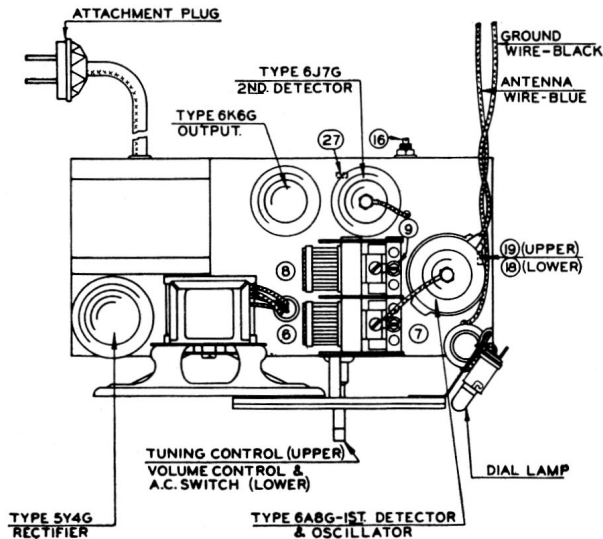
- (a) Set the signal generator at 463 K.C., and connect its output through an 0.1 mf. capacitor to the grid cap of the first detector (type 6A8 or 6A8G) tube. Set the receiver dial at about 600 K.C.
- (b) Sensitivity and selectivity depend greatly upon the regeneration control trimmer, item 27. The set 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 27, and then adjust trimmers, items 18 and 19, for maximum output.
- (c) Screw in the regeneration control trimmer, item 27. 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.

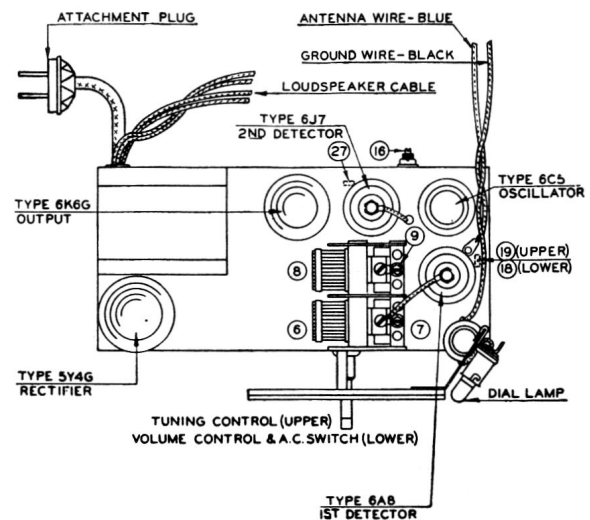
- (d) Reduce the output from the signal generator to as low a value as will give an output reading, and check the adjustments of trimmers, items 18 and 19. Both should peak properly.

R.F. ALIGNMENT:

- (a) With the gang all in, check the position of the pointer. It should line up with the .53 mc. 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.
- (f) Recheck at 1600 kilocycles.



Model 414—Chassis Layout showing Aligning Positions.



Model 511—Chassis Layout showing Aligning Positions.

SOCKET VOLTAGE AND CURRENT READINGS

TUBE	VOLTAGES				CURRENTS—M.A.		
	Heater (a-c)	Plate	Screen	Cathode	Screen	Plate	
						Normal Bias	Bias Red. 4½ V.
Type 6A8G (Model 414 only) 1st Detector & Oscillator	6.45	190	70	0	1.8	2.7*	4.3
Type 6A8 (Mod. 511 only) 1st Detector	6.45	190	70	0	1.8	2.7	4.3
Type 6C5 (Mod. 511 only) Oscillator	6.45	190	—	0	—	4.5	7.5
Type 6J7 or 6J7G 2nd Detector	6.45	40	14	0	.04	.12	.25
Type 6K6G Output	6.45	183	190	14	3.7	21	25
Type 5Y4G Rectifier	5.0	—	—	250	(Plate) 20	20	

* Anode-grid current 3.5 ma.