

Models 622, 623

Battery Operated Radio Receivers

Specifications

Frequency Range:

Broadcast, White—528 to 1730 K.C.
Short Wave, Green—5.7 to 10.2 megacycles.
Short Wave, Red—11.5 to 15.6 megacycles.

I.F.:

470 K.C.

Tubes:

Type	Function
1C7G	Converter
1D5G	I.F. Amplifier
1F7G	2nd Detector, A.V.C., 1st A.F. Amplifier
1H4G	2nd A.F. Amplifier
1H4G	Output amplifier
1H4G	Output amplifier

Power Supply:

“A” Battery—Eveready A-600 “Air Cell” or Monarch type 2M6 storage cell or six or eight No. 6 dry cells in series parallel.

“B” Battery—Three Eveready No. 385 or No. 386.

“C” Battery—Two Eveready No. 771.
See Schematic for connections.

A.V.C.:

Full control on type 1C7G and partial control on type 1D5G.

Controls:

Left to Right—Power switch; volume control; tuning control (vernier) wave change switch; tone control.

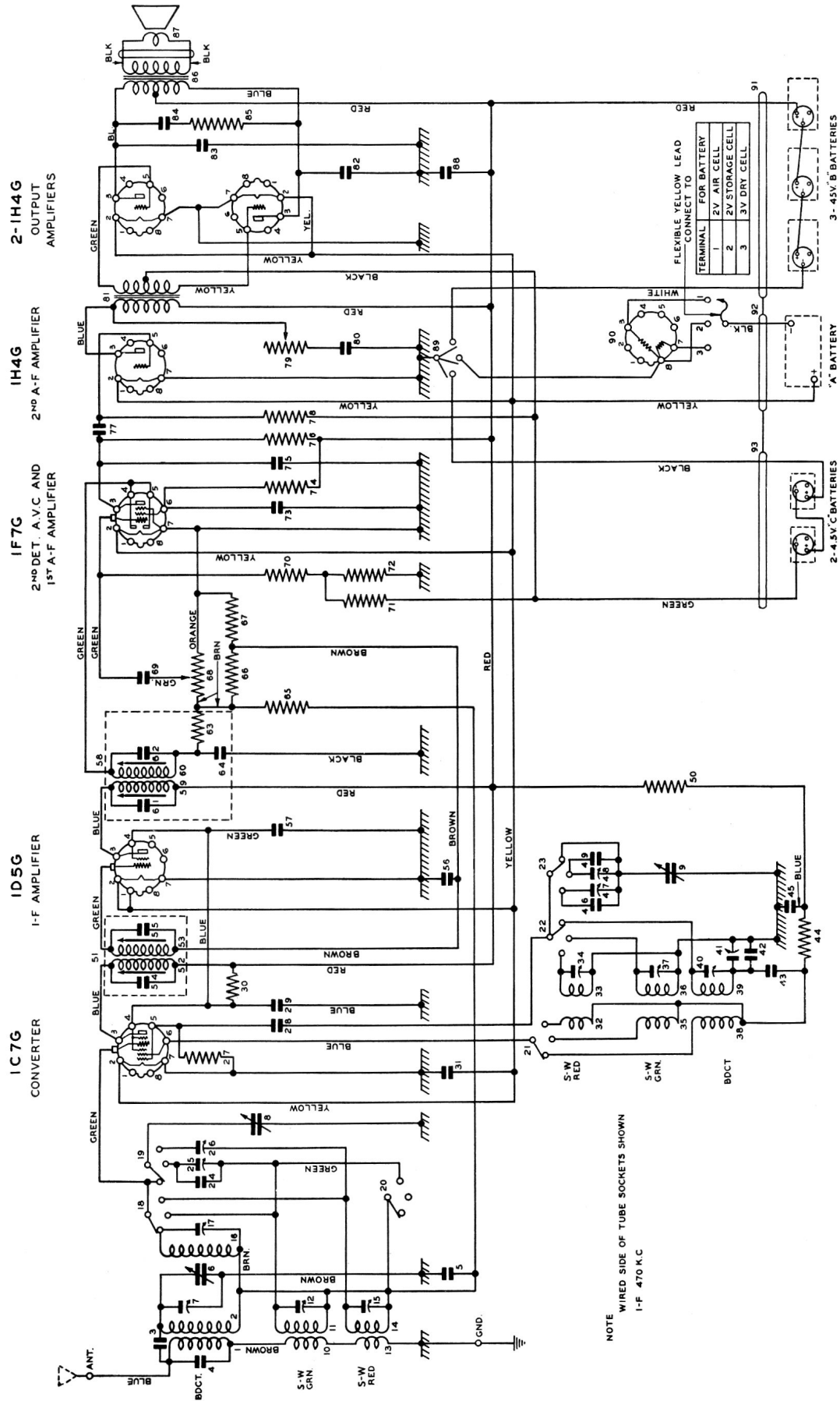
Loudspeakers:

Model 622—six inch permanent magnet.
Model 623—ten inch permanent magnet.

Cabinets:

Model 622—Table model.
Model 623—Console model.

MODELS 622-623 RADIO RECEIVERS



Schematic Diagram Model 622-623 Receivers.

REPLACEMENT PARTS LIST

Schematic Designation	Value and Description	Part Number
1	Broadcast Antenna Transformer—Primary.....	K-3020
2	Broadcast Antenna Transformer—Secondary.....	
3	Capacitor, coupling, 4.0 mmf.	K-1611-2
4	Capacitor, mica, 100 mmf....	
5	Capacitor, 175 volts, 0.02 mf.	K-2227-7
6	Tuning Cap—Bdct. Ant. Sect.....	K-3022
7	Trimmer Cap—Bdct. Ant. Sect.....	
8	Tuning Cap — Ant. Sect.....	
9	Tuning Cap — Osc. Sect.....	
10	Green Band Ant. Trans. Primary.....	K-3001
11	Green Band Ant. Transformer Secondary.....	
12	Capacitor, Trimmer, 3-25 mmf.	K-1458-6
13	Red Band Ant. Trans.—Primary.....	K-3017
14	Red Band Ant. Trans.—Secondary.....	
15	Capacitor, Trimmer, 3-25 mmf.	K-1458-6
16	Bdct. Preselector Coil.....	K-2980
17	Capacitor, Trimmer, 1.5-10 mmf.....	K-1458-5
18	W-C Switch, Ant. Trans. Sect.	K-3027
19	W-C Switch, Ant. Gang Sect.	
20	W-C Switch, Ant. Shorting Sect.....	
21	W-C Switch, Osc. Plate Sect.	
22	W-C Switch, Osc. Grid. Sect.	K-1611-25
23	W-C Switch, Osc. Gang Sect.	
24	Capacitor, mica, 100 mmf, plus or minus 3%.....	K-3036
25	Capacitor, Trimmer, 26-120 mmf.....	
26	Capacitor, Trimmer, 26-120 mmf.....	K-2226-6
27	Resistor, 50,000 ohms.....	
28	Capacitor, mica, 100 mmf....	K-1611-2
29	Capacitor, Elect., 135 volts, 2 mf.....	Part of K-2963-2
30	Resistor, 40,000 ohms.....	K-2226-34
31	Capacitor, 175 volts, 0.5 mf..	K-2227-11
32	Red Band Osc. Transformer—Primary.....	K-3103
33	Red Band Osc. Transformer—Secondary.....	
34	Capacitor, Trimmer, Var, 3-25 mmf.....	K-1458-6
35	Green Band Osc. Trans.—Primary.....	K-3101
36	Green Band Osc. Trans.—Secondary.....	

Schematic Designation	Value and Description	Part Number
37	Capacitor, Trimmer, 1.5-10 mmf.....	K-1458-5
38	Bdct. Band Osc. Trans.—Primary.....	K-3099
39	Bdct. Band Osc. Trans.—Secondary.....	
40	Capacitor, Trimmer, 3-25 mmf.	K-1458-6
41	Capacitor, Trimmer, 26-120 mmf.....	Part of K-3037
42	Capacitor, mica, 340 mmf, plus or minus 3%.....	K-1611-26
43	Capacitor, 0.001 mf, 350 volts	K-2228-1
44	Resistor, 10,000 ohms.....	K-2226-10
45	Capacitor, Elect., 150 volts, 4 mf.....	Part of K-2254-2
46	Capacitor, mica, 20 mmf....	K-1611-29
47	Capacitor, Trimmer, 26-120 mmf.....	Part of K-3037
48	Capacitor, Trimmer, 26-120 mmf.....	
49	Capacitor, mica, 100 mmf....	K-1611-25
50	Resistor, 10,000 ohms.....	K-2226-10
51	First I.F. Trans. Assy.....	K-3095
52	First I.F. Trans.—Primary....	
53	First I.F. Trans.—Secondary...	
54	Mica Capacitor (Not replace-able)	K-3096
55	Mica Capacitor (Not replace-able)	
56	Capacitor, 175 volts, 0.05 mf.	K-2227-8
57	Capacitor, 175 volts, 0.1 mf..	K-2227-9
58	2nd I.F. Trans. Assy.....	K-3096
59	2nd I.F. Trans.—Primary....	
60	2nd I.F. Trans.—Secondary...	
61	Mica Capacitor (Not replace-able)	K-3096
62	Mica Capacitor (Not replace-able)	
63	Resistor, 50,000 ohms.....	K-2226-6
64	Capacitor, mica, 100 mmf....	K-1611-2
65	Resistor, 2 meg.....	K-2226-1
66	Resistor, 2 meg.....	K-2226-1
67	Resistor, 40,000 ohms.....	K-2226-34
68	Volume Control, 1/2 meg....	K-3024
69	Capacitor, 175 volts, 0.005 mf.	K-2227-4
70	Resistor, 2 meg.....	K-2226-1
71	Resistor, 6,000 ohms.....	K-2226-33
72	Resistor, 750 ohms.....	K-2226-17
73	Capacitor, .1 mf, 175 volts...	K-2227-9
74	Resistor, 1 meg.....	K-2226-2
75	Capacitor, mica, 100 mmf....	K-1611-2
76	Resistor, 1/4 meg.....	K-2226-4
77	Capacitor, 175 volts, 0.005 mf.	K-2227-4
78	Resistor, 1 meg.....	K-2226-2
79	Tone Control, 1/2 meg.....	K-3025
80	Capacitor, 175 volts, 0.02 mf.	K-2227-7
81	Input Transformer.....	K-2496-3
82	Capacitor, mica, 500 mmf....	K-1611-6
83	Capacitor, mica, 500 mmf....	K-1611-6
84	Capacitor, 175 volts, 0.003 mf	K-2227-2
85	Resistor, 20,000 ohms.....	K-2226-8
86	Output Transformer.....	K-2499-5

REPLACEMENT PARTS LIST—(Continued)

Schematic Designation	Value and Description	Part Number
87	Loudspeaker (Model 622 only)	K-2960
87a	Loudspeaker (Model 623 only)	K-3108
88	Capacitor, 4 mf, 135 volts.....	Part of K-2963-2
89	Battery Switch.....	
90	Resistance Lamp.....	K-2979-3
91	"B" Battery Cable (No. 20 twin flex) (7½').....	K-2782
92	"A" Battery Cable (No. 18 twin flex) (7').....	K-2483-1
93	"C" Battery Cable (No. 20 triple flex) (7½').....	K-3005

MISCELLANEOUS

"A" Battery Terminal Strip.....	K-2763
Tube Shield Base.....	K-2390-2
Wave Change Indicator.....	K-3142
Tuning Indicator.....	K-2654-2
Drive Disc Assy. (fibre).....	K-3959
Reduction Drive Assy.....	K-3082
Dial Scale (Glass) & Gold Facing.	K-3535
Drive Cord, 10'.....	K-1929
Tube Shield, slotted.....	K-2267-1

Schematic Designation	Value and Description	Part Number
Tube Shield.....		K-2267-2
Grid Clip.....		K-3030
Insulation Strip (on gang).....		K-1682-1
"B" Battery Plug.....		K-2457
"C" Battery Plug.....		K-2515
Pin Tip.....		K-3314
Escutcheon only.....		K-3019-1
Escutcheon Retaining Ring.....		K-3019-2
Escutcheon Cork Gasket.....		K-3019-3
Escutcheon Cover (Dial Scale)....		K-2897
Knob—"Tuning".....		K-2885-2
Knob—"Volume".....		K-2765-3
Knob—"On-Off".....		K-2765-7
Knob—"Tone".....		K-2765-8
Knob—"Band".....		K-2765-9
Felt Washers for Knobs.....		K-2491-4
Escutcheon Pins.....		K-3116
Chassis Mounting Screws (10/32-1¼").....		K-1122-10
Escutcheon Screws (No. 2—⅜")..		K-3081-3
Washer (under Tuning Indicator).		K-3165-1
"B" Battery Shorting Socket.....		K-2492
Tuning Wrenches, all models.....		K-836

REALIGNING INSTRUCTIONS

I.F. ALIGNMENT—

- Set the signal generator at 470 k.c. and connect its output through a 0.1 mf. capacitor to the grid cap of the converter (type 1C7G) tube. Set the receiver to about 600 k.c. and turn the wave-change switch to the broadcast band.
- Adjust screws 52, 53, 59 and 60 (moveable cores, as shown on schematic) for maximum output.
- Reduce the output from the generator to as low a value as will give an output reading and check the adjustments, all of which should peak properly.

R.F. ALIGNMENT—See Underside Aligning Positions Broadcast Band

- With the gang all in check the position of the pointer. It should line up with the end of the scale. Put 100 mmf. mica capacitor in generator lead and set wave-change switch to the broadcast position.
- Set generator and receiver to 1500 k.c. Adjust 40 to tune in the signal, and adjust 7 and 17 for maximum output.
- Set the generator to 600 k.c. and tune in the signal. Adjust 41 for maximum output while rocking the gang. Recheck at 1500 k.c.

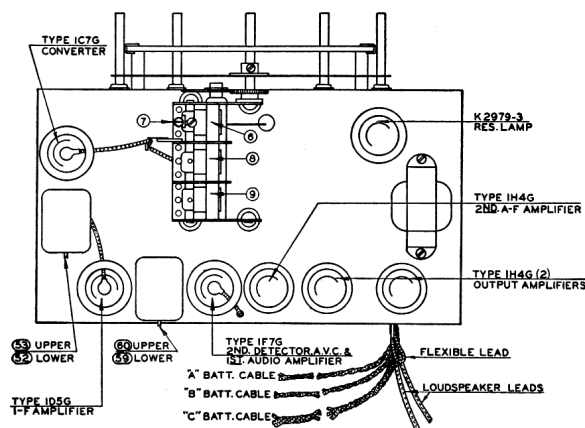
GREEN BAND:—

- Substitute a 400 ohm carbon resistor in place of the capacitor in the lead from the signal generator. Turn the wave-change switch to the green band position.
- Set the receiver and generator to 9.5 megacycles. Adjust 37 to tune in the signal and adjust 12 for maximum output while rocking the gang. (Note—check for image at 8.6 megacycles.)
- Set the receiver and generator to 6 megacycles and adjust 48 to tune in the signal. Adjust 25

for maximum output. (Check for image at 5.1 mc.) It will be necessary to repeat the above operations several times in order to obtain correct calibration at both ends of the band.

RED BAND:—

- Use a 400 ohm carbon resistor in the lead from the generator to the receiver. Turn the wave-change switch to the red band position.
- Set the generator and receiver to 15 megacycles. Adjust 34 to tune in the signal and adjust 15 for maximum output while rocking the gang. (Check for the image at 15.9 mc.)
- Set the generator and pointer to 11.6 mc. and adjust 47 to tune in the signal. Adjust 15 for maximum output while rocking the gang. (Check for image at 12.7 mc.) Recheck at 15 mc. It will be necessary to repeat the above operation several times in order to obtain correct calibration at both ends of the band.



Model 622-623 Chassis Layout showing Upper Aligning Points and Tube Positions.

SOCKET VOLTAGE READINGS

TUBE	VOLTAGES			CURRENTS—M.A.		
				Screen	PLATE	
	Filament	Plate	Screen		Normal Bias	Bias red. 4½ volts.
Type 1C7G	1.97	135 ①	43	1.4	2.5 ②	3.5
Type 1D5G	1.97	135	43	.9	2.4	3.4
Type 1F7G	1.97	30	23	.11	.35	.37
Type 1H4G	1.97	132	—	—	2.7	6.2
Type 1H4G	1.97	134	—	—	3.0	7.4
Type 1H4G	1.97	134	—	—	3.0	7.4

① Anode-grid Voltage = 82

② Anode-grid Current = 1.8

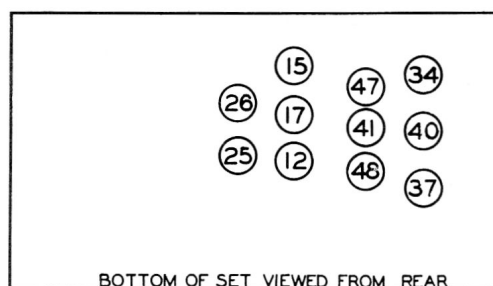
SOCKET RESISTANCE READINGS TO GROUND — OHMS

TUBE	Top Cap. Control Grid	Pin No. 1	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
Type 1C7G Converter	2.4 megs.	—	OPEN	6.1 ①	40,000 ①	Grid No. 1 40,000	Grid No. 2 20,000	0	—
Type 1D5G I-F Amplifier	40,000	—	OPEN	6.1 ①	40,000 ①	—	—	0	—
Type 1F7G 2nd Det., A.V.C. 1st A-F Amplifier	2.0 megs.	—	OPEN	¼ meg. ①	1 meg.	Diode Plate 450,000	Diode Plate 450,000	0	—
Type 1H4G 2nd A-F Amplifier	—	—	OPEN	950 ①	—	Grid 1 megohm	—	0	—
Type 1H4G Output Amplifier	—	—	OPEN	430 ①	—	Grid 525 ②	—	0	—
Type 1H4G Output Amplifier	—	—	OPEN	430 ①	—	Grid 525 ②	—	0	—

① Measured to B+ lead.

② Measured to C—

All readings are taken with battery switch off, volume control maximum and tone control treble.



BOTTOM OF SET VIEWED FROM REAR

Underside Aligning Positions.