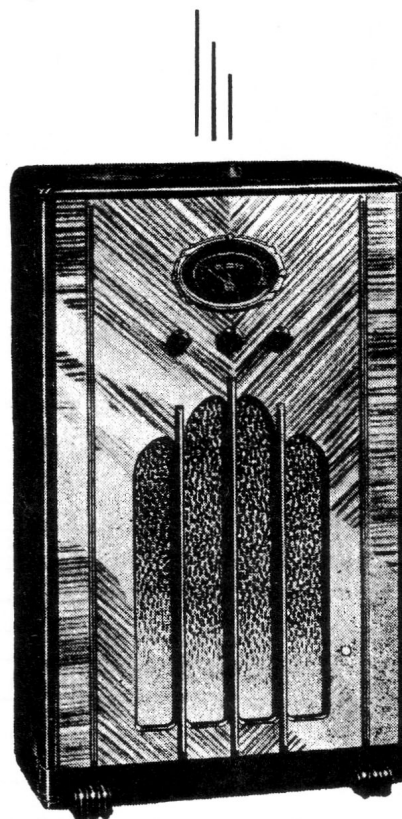
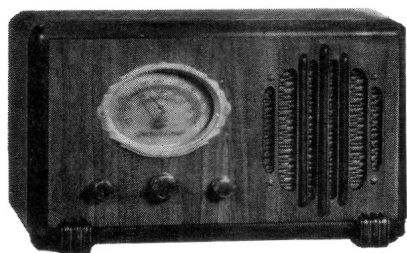


Models 522, 523

Battery Operated Radio Receivers



Specifications

Frequency Range:

Broadcast—540 to 1720 K.C.

Short Wave—9 to 10 megacycles

I.F.:

470 K.C.

Tubes:

Type	Function
1D7G	Converter
1D5G	I.F. Amplifier
1F7G	2nd Detector, A.V.C., 1st Audio Amplifier
1H4G	Driver
1J6G	Output

Power Supply:

"A" Battery: 2 volt or 3 volt dry cell

"B" Battery: 135 volts

"C" Battery: two 4½ volt batteries
See Schematic for proper connections

A.V.C.:

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

Controls:

Left—Battery switch and volume control

Centre—Tuning control

Right—Wave change switch and tone control

Loudspeakers:

522—6 inch permanent magnet

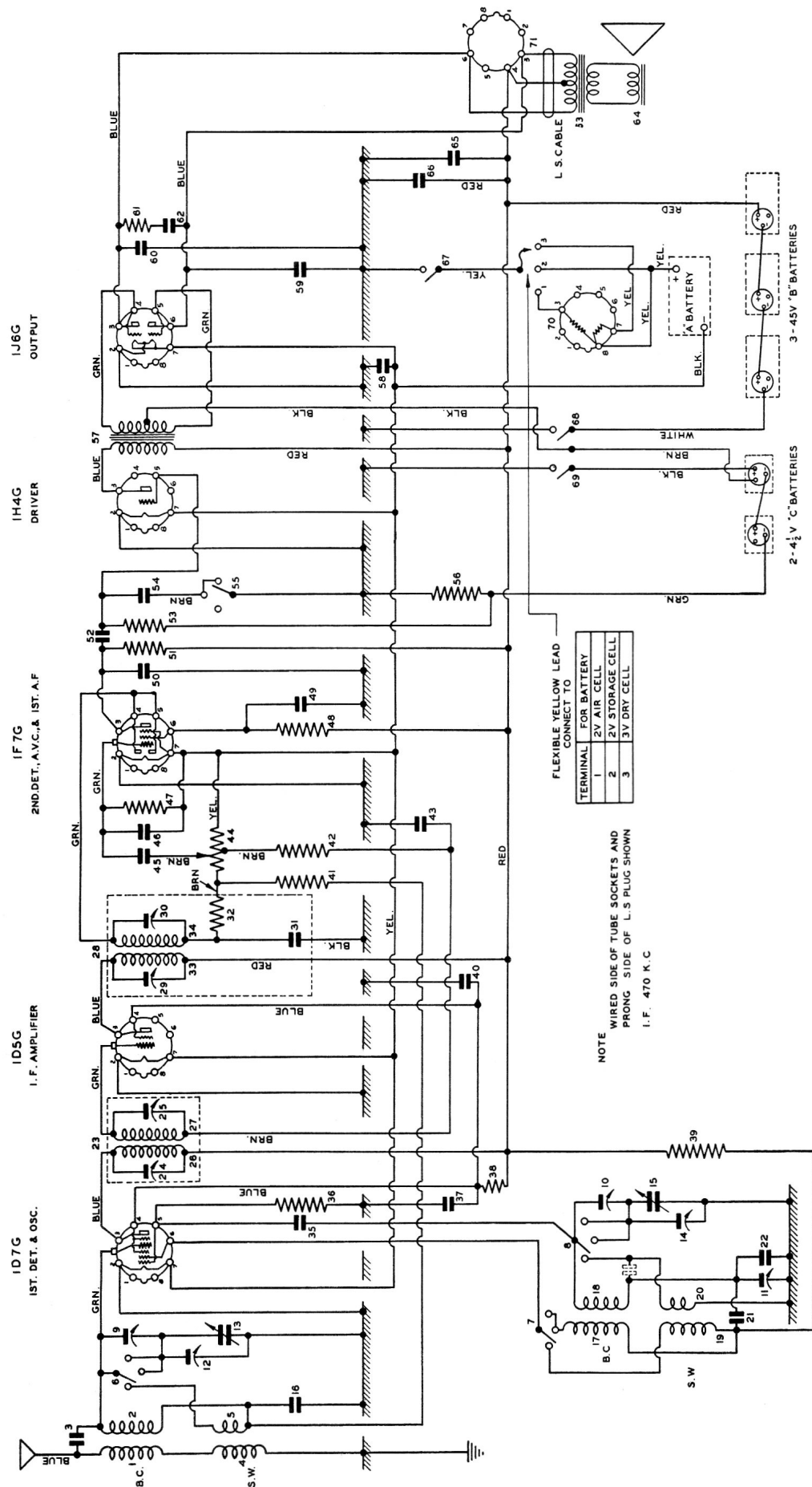
523—8 inch permanent magnet

Cabinets:

522—Table model

523—Console model

MODELS 522-523 RADIO RECEIVERS



Schematic Diagram—Models 522-523 Receivers.

REPLACEMENT PARTS LIST

Schematic Designation	Value and Description	Part Number
1	B.C. Antenna Transformer, Primary	K-2982
2	B.C. Antenna Transformer, Secondary	
3	Coupling Cap., 5 mmf.	K-2984
4	S.W. Ant. Transformer, Primary	
5	S.W. Ant. Transformer, Secondary	K-2989
6	Wave-change Switch, Ant. Section	
7	Wave-change Switch, Osc., Primary	K-2869
8	Wave-change Switch, Osc., Secondary	
9	3-30 mmf. Variable Trimmer Capacitor	K-2877
10	20-60 mmf. Variable Trimmer Capacitor	
11	20-60 mmf. Variable Trimmer Capacitor	K-2227-9
12	Ant. Section Variable Trimmer Capacitor	
13	Ant. Section Gang Capacitor, Max. 441.6 mmf.	K-2981
14	Osc. Section Variable Trimmer Capacitor	
15	Osc. Section Gang Capacitor, Max. 441.6 mmf.	K-2983
16	0.1 mfd. 175V. Capacitor	
17	B.C. Osc. Coil, Primary	K-2227-4
18	B.C. Osc. Coil, Secondary	
19	S.W. Osc. Coil, Primary	K-1611-11
20	S.W. Osc. Coil, Secondary	
21	0.005 mfd. 175V. Capacitor	K-2881
22	375 mmfd. Mica Capacitor, plus or minus 3%	
23	1st I.F. Trans. Assy.	K-2134-1
24	30-130 mmfd. Variable Trimmer Capacitor	
25	30-130 mmfd. Variable Trimmer Capacitor	K-2882
26	1st I.F. Transformer, Primary	
27	1st I.F. Transformer, Secondary	K-2883
28	2nd I.F. Trnsformer Assy.	
29	30-130 mmfd. Variable Trimmer Capacitor	K-2932-1
30	30-130 mmfd. Variable Trimmer Capacitor	
31	100 mmfd. Mica Capacitor	K-2226-6
32	50,000 ohm Resistor	
33	2nd I.F. Transformer, Primary	K-2884
34	2nd I.F. Transformer, Secondary	

Schematic Designation	Value and Description	Part Number
35	100 mmfd. Mica Capacitor	K-1611-2
36	Resistor, 50,000 ohm	K-2226-6
37	Capacitor, 0.1 mfd, 175 V.	K-2227-9
38	Resistor, 50,000 ohm	K-2226-6
39	Resistor, 10,000 ohm	K-2226-10
40	Capacitor, Elec., 2 mfd., 135V.	Part of K-2963
41	Resistor, 2 meg.	K-2226-1
42	Resistor, 1/2 meg.	K-2226-3
43	Capacitor, 0.05 mfd., 175 V.	K-2227-8
44	Volume Control, 1/2 meg.	K-2964
45	Capacitor, 0.02 mfd, 175 V.	K-2227-7
46	Capacitor, mica, 100 mmfd.	K-1611-2
47	Resistor, 2 meg.	K-2226-1
48	Resistor, 1 meg.	K-2226-2
49	Capacitor, 0.1 mfd, 175 V.	K-2227-9
50	Capacitor, mica, 300 mmfd.	K-1611-4
51	Resistor, 1/4 meg.	K-2226-4
52	Capacitor, .02 mfd, 175 V.	K-2227-7
53	Resistor, 2 meg.	K-2226-1
54	Capacitor, .0003 mfd, 175 V.	K-2227-2
55	Tone Control Switch	Part of K-2989
56	Resistor, 7,000 ohms	K-2226-50
57	Input Transformer	K-2496-2
58	Capacitor, .5 mfd, 175 V.	K-2227-11
59	Capacitor, mica, 500 mmfd.	K-1611-6
60	Capacitor, mica, 500 mmfd.	K-1611-6
61	Resistor, 20,000 ohms	K-2226-8
62	Capacitor, 0.003 mfd, 175 V.	K-2227-2
63a	Output Transformer (Model 522)	K-2499-3
63b	Output Transformer (Model 523)	K-2499-4
64a	Loudspeaker complete (Voice Coil 2.5 ohm) (522)	K-2960-1
64b	Loudspeaker complete (Voice Coil 2.5 ohm) (523)	K-2962
65	Capacitor, 0.1 mfd, 175 V.	K-2227-9
66	Capacitor, elec., 4 mfd, 135 V.	Part of K-2963
67	Battery Switch, "A" Section.	Mtd. on K-2964
68	Battery Switch, "B" Section.	ditto
69	Battery Switch, "C" Section.	ditto
70	Resistance Tube	K-2979-1
71	Loudspeaker Plug	K-2678

MISCELLANEOUS:

"B" Battery Plug	K-2457
"B" Battery Shorting Socket	K-2492
Socket, octal base	K-1924-1
Tube Shield Base	K-2390
Indicator, Tuning	K-2924
Indicator, Wave Band	K-2859

REPLACEMENT PARTS LIST—Continued

Schematic Designation	Value and Description	Part Number
Dial Indicator Cord (17" long)...		K-1929
Spring for Dial Cord.....		FP-103164
Dial Drive Disc Assembly.....		K-2915
Reduction Drive Assembly.....		K-2797
Dial Scale (glass).....		K-3004
Dial Scale Clips.....		K-2436
Card Board Strips for Dial Assy...		K-3046
Loudspeaker only—Model 522....		K-2960
Diaphragm & Voice Coil for K-2962 (Model 523) Loudspeaker only.....		K-2991
Tube Shield.....		K-2267-2
Tube Shield, slotted.....		K-2267-1
Grid Clips.....		K-1821
"C" Battery Plug.....		K-2515

Schematic Designation	Value and Description	Part Number
Knob, Volume.....		K-2765-2
Knob, Wave Change.....		K-2765-8
Knob, Tuning.....		K-2885-2
Escutcheon Pins.....		K-3116
Escutcheon.....		K-2886
Escutcheon Mounting Screws.....		K-1690-3
Mounting Screw, special head for Loudspeaker 8/32 x 1-3/16"....		K-2971-1
"A" Battery Cable (7'—No. 18 twin).....		K-2493
"B" Battery Cable (7½'—No. 20 twin).....		K-2782
"C" Battery Cable (7½'—No. 20 triple).....		K-3005
Tuning Wrench (all models).....		K-836

REALIGNING INSTRUCTIONS

I.F. ALIGNMENT

- Set the signal generator to 470 k.c. and connect its output through a 0.1 mf. capacitor to the grid cap of the converter tube (type 1D7G). Set the receiver dial to about 600 k.c. and turn the wave change switch to the broadcast position.
- Adjust trimmers, items 24, 25, 29 and 30 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 trimmers should peak properly.

R.F. ALIGNMENT—Broadcast Band

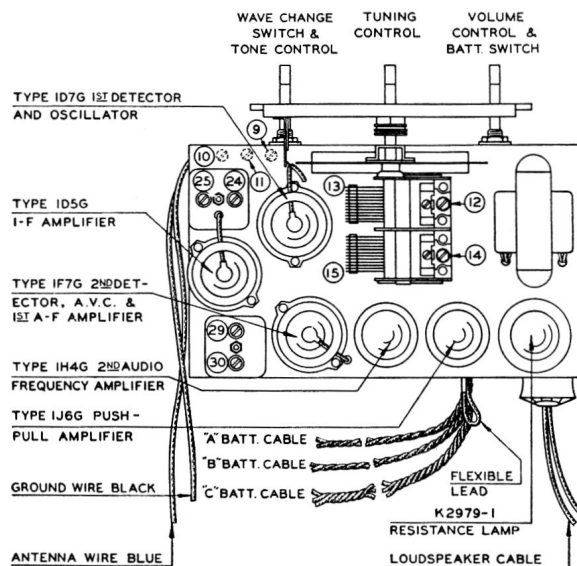
- With the gang all in check the position of the pointer. It should line up with the end of the calibration line. Put the wave-change switch in the broadcast position.
- Couple the signal generator to the antenna (blue) lead through a 100 mmf. mica capacitor. Connect the ground (black) lead to ground.
- Set the generator and receiver to 1600 k.c.

Adjust trimmer, item 14, to bring in the signal and then adjust trimmer, item 12, for maximum sensitivity.

- Set the generator to 600 k.c. and tune the receiver to it. Adjust trimmer item 11, at the same time rocking the gang, until maximum sensitivity is obtained.
- Recheck at 1600 k.c.

R.F. ALIGNMENT—Short-Wave 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 short-wave position.
- Set the receiver and generator to 9.0 megacycles and adjust trimmer, item 10, to bring in the signal.
- Set generator and receiver to 9.6 megacycles and adjust trimmer, item 9, at the same time rocking the gang until maximum sensitivity is obtained.
- Recheck at 9.0 megacycles.



Models 522 and 523.—Chassis Layout.
Showing aligning positions.

SOCKET VOLTAGE READINGS

TUBE	VOLTAGES			CURRENTS—M.A.		
				Screen	PLATE	
	Filament	Plate	Screen		Normal Bias	Bias red. 4½ Volts
Type 1D7G	1.95	135	①42	1.3	2.5②	3.2
Type 1D5G	1.95	135	42	0.85	3.0	3.4
Type 1F7G	1.95	35	17	0.13	0.37	0.39
Type 1H4G	1.95	127	—	—	5.0	8.5
Type 1J6G	1.95	127	—	—	4.0	8.3

① Anode Grid Voltage—114.

② Anode Grid Current—1.5 m.a.

SOCKET RESISTANCE READINGS TO GROUND — OHMS.

TUBE	Top Cap Control Grid	Pin No. 1 N.C.	Pin No. 2 Filament	Pin No. 3 Plate	Pin No. 4 Screen	Pin No. 5	Pin No. 6	Pin No. 7 Filament	Pin No. 8 N.C.
Type 1D7G Converter	2.5 meg. ①	—	0	12.5②	50,000 ②	(Grid No. 1) 50,000	(Anode Grid) 10,000②	0①	—
Type 1D5G I.F. Amplifier	625,000 ①	—	0	12.5②	50,000 ②	—	—	0①	—
Type 1F7G 2nd Det., A.V.C., 1st Audio Amp.	2.0 meg. ①	—	0	250,000 ②	(Diode Plate) 550,000 ①	(Diode Plate) 550,000 ①	(Screen) 1.0 meg.	0①	—
Type 1H4G	—	—	0	960②	—	(Grid) 2.0 meg.	—	0①	—
Type 1J6G	—	—	0	415②	(Grid) 530③	(Grid) 530③	(Plate) 415②	0①	—

All readings taken with battery switch off and tubes removed.

① Measured to —A.

② Measured to +B.

③ Measured to Brown "C" lead.