

SERVICE BULLETIN



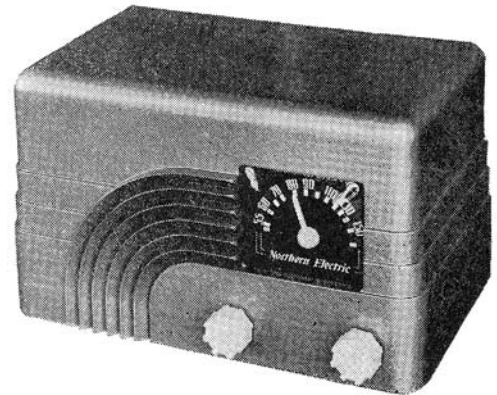
Northern Electric RADIO

Model 4104

4-Tube Mantel Model

Battery Operated Radio Receiver

SERVICE INFORMATION



SPECIFICATIONS

GENERAL: 4-Tube Superheterodyne Battery Operated Radio Receiver, housed in table model plastic cabinet available in five colours.

MODEL

B4104	Ivory
B4104	Green
B4104	Gold
B4104	Blue
B4104	Rose

1. FREQUENCY RANGE

Broadcast band — 540 to 1600 K.C.

2. INTERMEDIATE FREQUENCY

455 K.C.

3. TUBES

Type	Function
1A7GT	Converter
1N5GT	I.F. Amplifier
1H5GT	2nd Detector, A.V.C. and 1st Audio Amplifier
3Q5GT	Output Amplifier

4. A.V.C.

On 1A7GT Converter

5. POWER SUPPLY

"A" Battery — 1½ Volts, 250 Milliampères
"B" Battery — 90 Volts, 10 Milliampères

6. POWER OUTPUT

250 Milliwatts

7. ANTENNA

An external antenna is required for the operation of this set. Connect to terminal "A" on back of cabinet. Use single wire 40 to 100 feet in length including lead-in.

8. GROUND

Connect to terminal "A" on back of cabinet.

9. AUDIO SYSTEM

Audio portion of 1H5GT resistance — capacity coupled to 3Q5GT power output tube.

10. LOUDSPEAKER

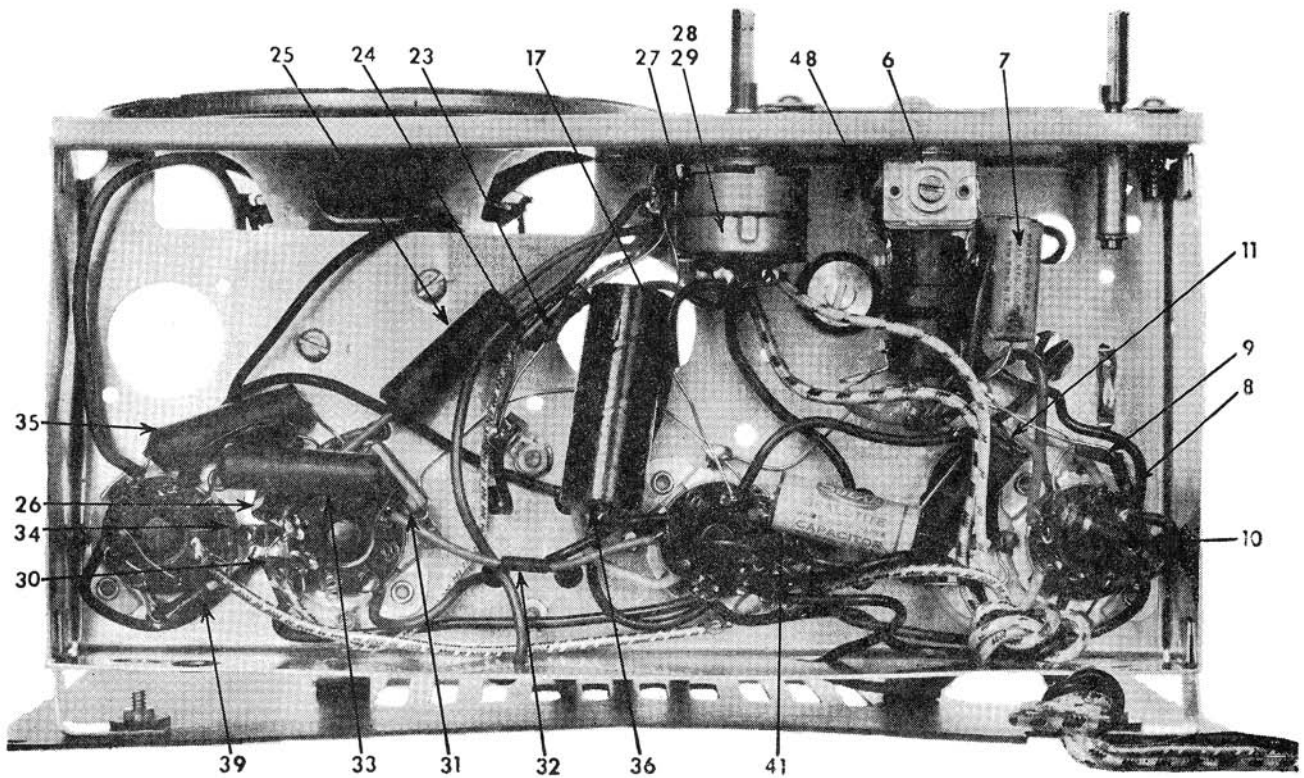
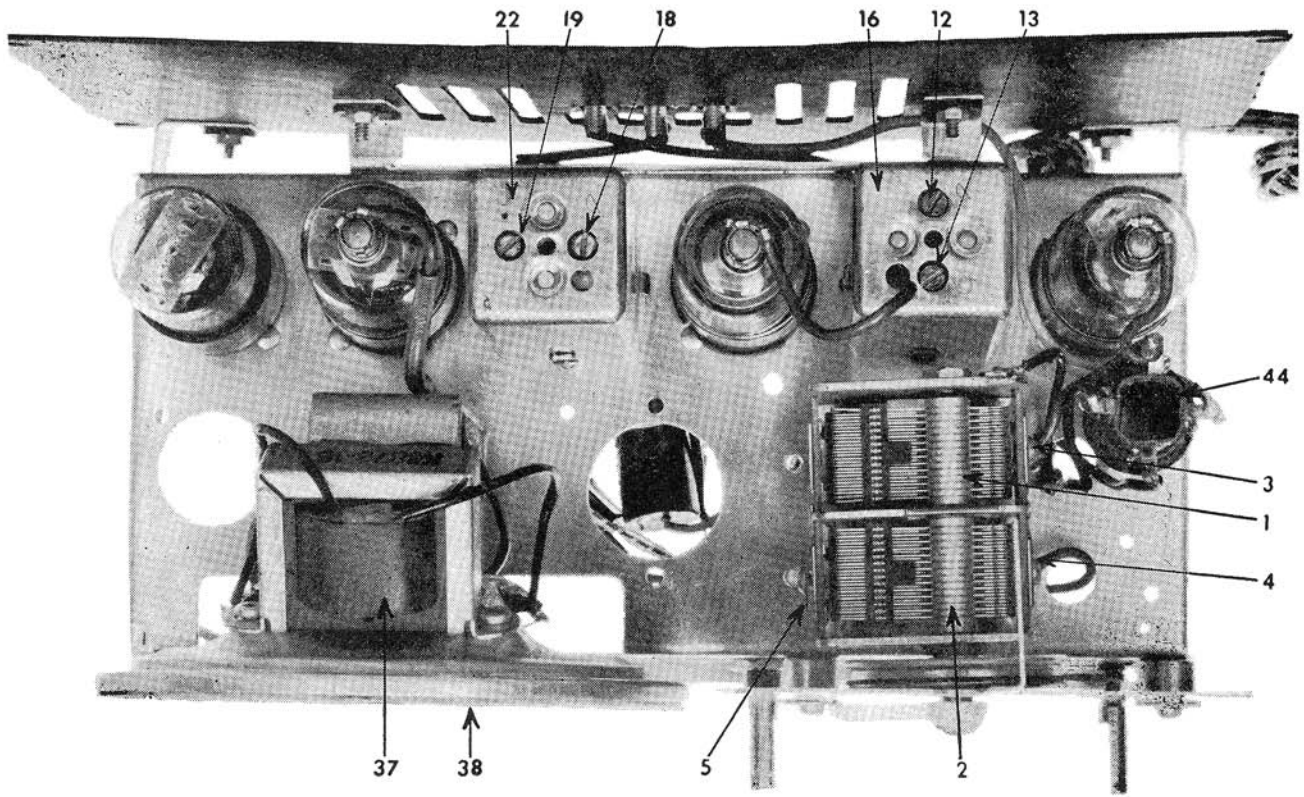
5" permanent magnet

11. CONTROLS

Left — Volume Control and ON-OFF Switch.
Right — Tuning Control.

12. DIMENSIONS

Chassis, Assembled (excluding shafts)
Length 10 11/32", Width 5 3/8",
Height 5 15/16"
Cabinet, Overall (including knobs)
Length 10 5/8", Width 6 1/4",
Height 6 9/16".



ALIGNMENT

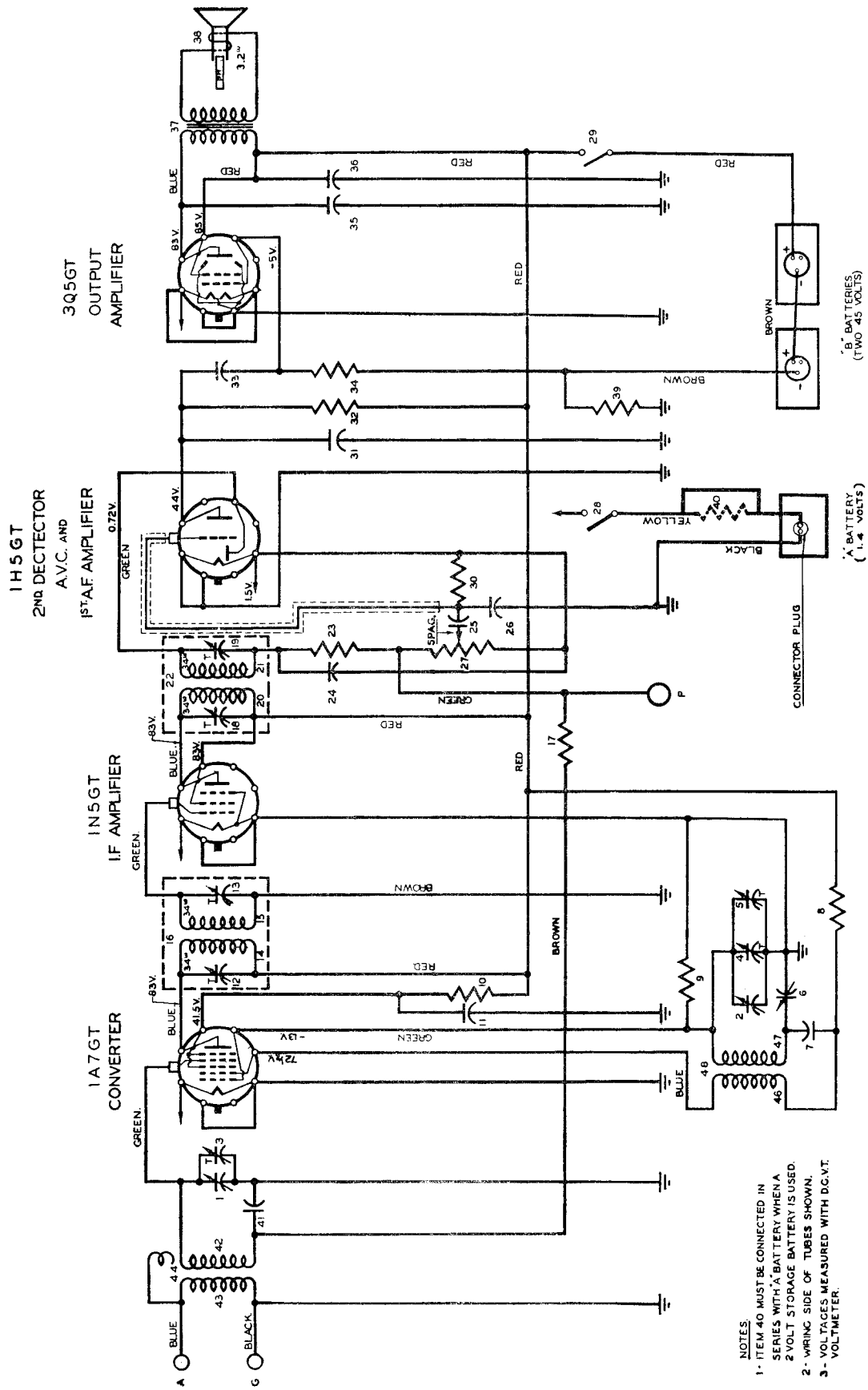
Alignment procedure should be carried out according to the following table and in the order shown.

Alignment Frequency	Dummy Antenna	Receiver Connection	Items to be Adjusted for Maximum output and their location
I.F. 455 KC	0.1 Mfd. (Paper)	1A7GT Grid Cap	I.F. Trimmers, Items 18, 19, 13 and 14 on I.F. cans (tuning gang open)
B.C. 1400 KC	100 Mmf (Mica)	Antenna Terminal	Oscillator trimmers on gang items 4 and 5, antenna trimmer on gang, item 3.
B.C. 600 KC	100 Mmf (Mica)	Antenna Terminal	Oscillator lag trimmer, item 6, adjust while rocking gang. Recheck at 1400 KC

IMPORTANT NOTE:—When a 2-volt storage battery is used, a 2.2 ohm resistor, item 40, must be installed as shown.

REPLACEMENT PARTS LIST

Item	Description	Part No.	Item	Description	Part No.
1	Capacitor, Gang, Antenna Section, 420 Mmf, Part of.....	R12734	37	Transformer, Output.....	K3873-16
2	Capacitor, Gang, Oscillator Section, 420 Mmf, Part of.....	R12734	38	Loudspeaker.....	R12791
3	Capacitor, Trimmer, 1.5-20 Mmf, Part of.....	R12734	39	Resistor, 430 Ohm 3/4 W.....	K10003A-431
4	Capacitor, Trimmer, 1.5-20 Mmf, Part of.....	R12734	40	Resistor, 2.2 Ohm 1/2 W.....	K10003B-22
5	Capacitor, Trimmer, 1.5-20 Mmf, Part of.....	R12734	41	Capacitor, Paper, .05 Mfd 400 V.....	K10129-503
6	Capacitor, Trimmer, 225-750 Mmf (Part of R13472).....	K1458-13	42	Coil, Antenna, Secondary, Part of.....	R13376
7	Capacitor, Paper, .002 Mfd 600 V.....	K10128-202	43	Coil, Antenna, Primary, Part of.....	R13376
8	Resistor, 10,000 Ohm 1/2 W.....	K10000C-103	44	Coil, Antenna.....	R13376
9	Resistor, .22 Meg 1/2 W.....	K10000C-224	46	Coil, Oscillator, Plate, Part of.....	R13015
10	Resistor, 68,000 Ohm 1/2 W.....	K10000B-683	47	Coil, Oscillator, Grid, Part of.....	R13015
11	Capacitor, Paper, 0.1 Mfd 200 V.....	K10130-104	48	Coil, Oscillator.....	R13015
12	Capacitor, Trimmer, 20-150 Mmf, Part of.....	R15375	Miscellaneous		
13	Capacitor, Trimmer, 20-150 Mmf, Part of.....	R15373	Cord, Dial.....	K10301	
14 & 15	Coils, 1st I.F.....	—	Spring, Dial Cord.....	R13898	
16	Transformer, 1st I.F.....	R15375-2	Dial Scale Assembly.....	R8258-24	
17	Resistor, 2.2 Meg 1/2 W.....	K10000C-225	Shaft, Tuning Drive.....	R12727	
18	Capacitor, Trimmer, 20-150 Mmf, Part of.....	R15373	Socket, Octal Tube.....	K10145-36	
19	Capacitor, Trimmer, 20-150 Mmf, Part of.....	R15373	Dial Indicator Assembly.....	R16281	
20 & 21	Coils, 2nd I.F.....	—	Bezel.....	R12951	
22	Transformer, 2nd I.F.....	R15307-2	Plain Knob Assembly (Ivory).....	R15348-1	
23	Resistor, 47,000 Ohm 1/2 W.....	K10000C-473	Plug, "A" Battery.....	K4781-2	
24	Capacitor, Mica, 100 Mmf 500 V.....	K10134C-101	Plug, "B" Battery.....	K4780-2	
25	Capacitor, Paper, .01 Mfd 600 V.....	K10128-103	Battery Cable Assembly, Detail 2.....	R13377	
26	Capacitor, Mica, 100 Mmf 500 V.....	K10134C-101	Cabinet, Ivory.....	R13357A	
27	Control, Volume, Part of.....	K4754-5	Cabinet, Ornamental Green Finish.....	R13357C	
28	Switch, "A" Battery, Part of.....	K4754-5	Cabinet, Ornamental Gold Finish.....	R13357E	
29	Switch, "B" Battery, Part of.....	K4754-5	Cabinet, Ornamental Blue Finish.....	R13357G	
30	Resistor, 10 Meg. 1/2 W.....	K10000C-106	Cabinet, Ornamental Rose Finish.....	R13357J	
31	Capacitor, Mica, 100 Mmf 500 V.....	K10134C-101	Cabinet Back Assembly.....	R8258-23	
32	Resistor, 1 Meg 1/2 W.....	K10000C-105	Terminal Strip, Single.....	K10120-1	
33	Capacitor, Paper, .01 Mfd 600 V.....	K10128-103	Trimmer and Bracket Assembly (including Item 6).....	R13472	
34	Resistor, 2.2 Meg 1/2 W.....	K10000C-225	Speed Nut (Bezel Mounting).....	R12979	
35	Capacitor, Paper, .005 Mfd 600 V.....	K10128-502	Indicator Knob Assembly (Ivory).....	R13372-1	
36	Capacitor, Electrolytic, 15 Mfd 150 V.....	K10124-13	Stud, Gang Mounting.....	K10298-3	



SCHMATIC DIAGRAM MODEL B4104 BATTERY OPERATED RECEIVER