ECLIPSE RADIO PTY. LTD.

(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)

11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

BULLETIN BKM-1 **File: Receivers A/c.** **Date: 19.7.48,**

SUBJECT— Type BKM Mantel Model

4 Tube Broadcast Superheterodyne

Receiver

For operation from—

200-250 Volt 50 Cycle A/c. Mains.

This Bulletin contains:—

1. Technical Specifications.
2. General Description.
3. Alignment Procedure.
4. Circuit Diagram.
5. Voltage Table.
6. Component Parts List.
7. Coil and IF. Transformer Connections.

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BULLETIN BKM-1 **File: Receivers A/c.** **Date: 19.7.48,**

SUBJECT :- Technical Specifications—Receiver Type BKM

Tube Complement:

6A8G Converter.
6B8G IF. Amplifier, AVC., Detector, 1st Audio.
6V6GT Beam Power Amplifier.
5Y3G Full Wave Rectifier.

Intermediate Frequency: 455 Kc/s.

Tuning Range: 535 Kc/s. (Kilocycles) to 1640 Kc/s.
565 M. (Metres) to 182.9 M.

Calibration: Straight Line Frequency.
Power Consumtpion: 40 Watts (Approx.).

General Description:

The type BKM Mantel Model is a 4 tube reflexed superheterodyne receiver. The circuit which is of unusual design has overcome the usual disadvantages of reflexed circuits, ie., low volume distortion and failure of the volume control to cut off.

The tube line up consists of a 6A8G pentagrid converter followed by a type 6B8G diode pentode used as a combined IF. amplifier, diode detector and A.V.C. bias source and 1st audio amplifier.

A.V.C. is applied to the 6A8G only. Volume is controlled by varying the reflexed audio signal applied to the 6B8G tube. The audio output of this tube is fed directly to the 6V6GT output tube. Degenerative feedback is taken from the secondary of the output transformer and applied to the bottom of the volume control. A second circuit providing bass boost is connected to the tap on the volume control.

Bias (back bias) for the 6V6G output tube is obtained from the voltage drop across the 250 ohm resistor circuit number 36.

High tension is supplied from full wave rectifier 5Y3G and filtered by resistance capacitive filter comprising 24MFD. electroyltic 450 ohm resistor and 16MFD. electrolytic condenser circuit numbers 17, 37 and 18.

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BULLETIN BKM-1 **File: Receivers A/c.** **Date: 19.7.48,**

SUBJECT:- Alignment Procedure—Receiver Type BKM

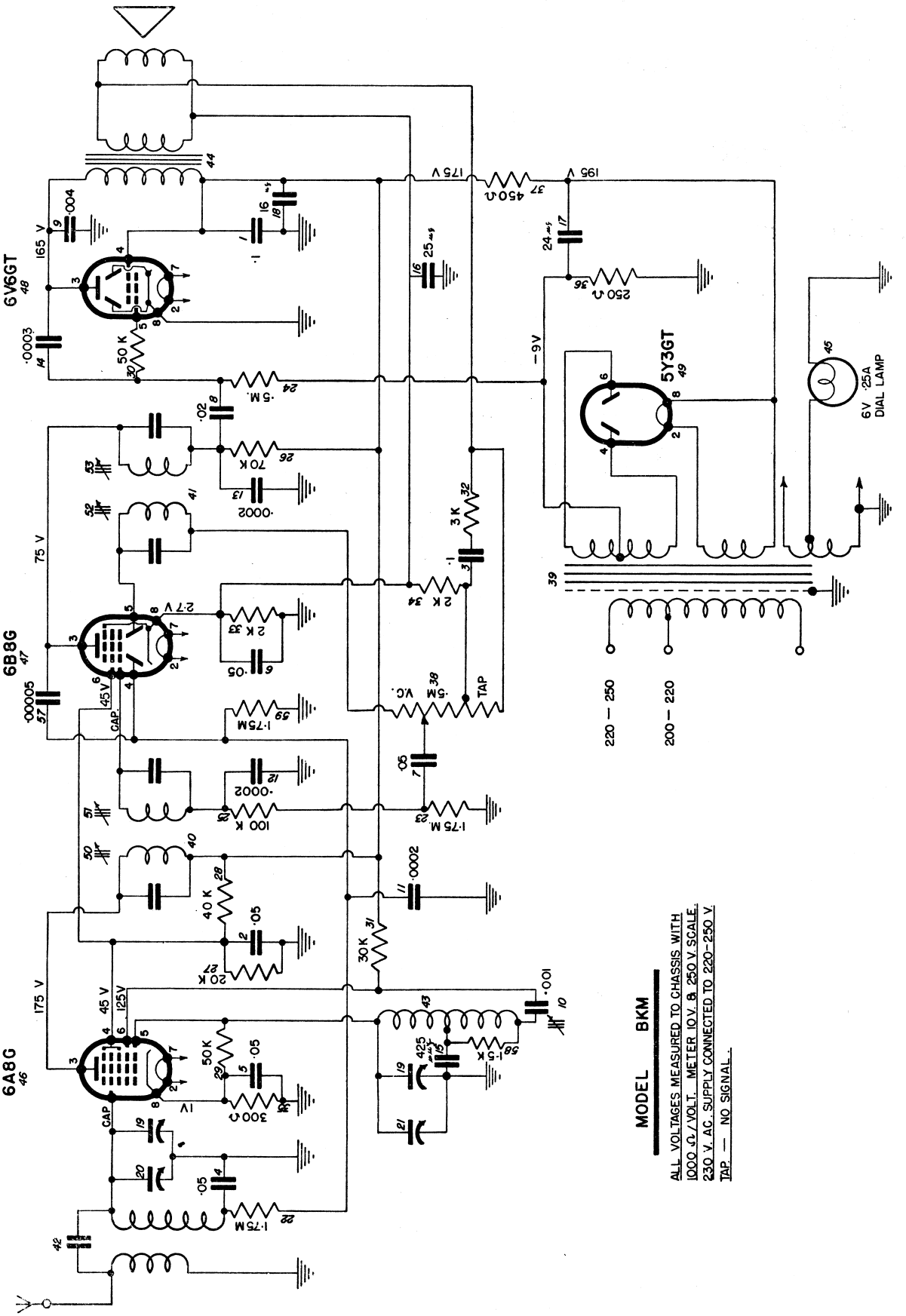
Equipment :- Signal Generator.
Dummy Antenna :-
.01 MFD. mica Capacitor.
200 MMFD mica Capacitor.
Output Meter.
Alignment Tool.

Alignment Conditions :
Load Impedance—5,000 ohms.
Output Level—50 Milliwatts.
Volume Control—Maximum Volume (Fully Clockwise).

Alignment : (Chassis removed from cabinet).
Intermediate Frequency—455 K/cs.
Do not use a screwdriver or alignment tool with an iron point for aligning IF. transformers. A special tool part number PM581, is available from the factory, or failing this an insulated rod with a small brass blade may be used.

Operation No.	Generator Connection	Frequency	Dummy Antenna	Instructions
1.	To grid of 6B8G tube	455 Kc/s.	.01 MFD. mica capacitor in series with generator	Gang plates full out. Leave grid cap on tube. Peak 2nd IF. transformer primary and secondary.
2.	To grid of 6A8G tube	455 Kc/s.	.01MFD. mica capacitor in series with generator	Gang plates full out. Leave grid cap on tube. Peak 1st IF. transformer primary and secondary.
3.	Set the dial pointer to the right-hand margin of the dial scale near 550 K.C. with the gang plates fully meshed.			
4.	To antenna lead	600 Kc/s.	200 MMFD. mica capacitor in series with generator	Turn dial pointer to 600 Kc/s. dial mark. Peak oscillator coil inductance trimmer (iron core) for maximum output rocking gang to and fro while adjusting.
5.	To antenna lead	1400 Kc/s.	200 MMFD. mica capacitor in series with generator	Turn dial pointer to 1400 Kc/s. dial mark. Adjust oscillator trimmer for logging and peak aerial coil trimmer.
6.	Repeat operations No. 4 and 5. Tuning Range: 535-1640 Kc/s.			

SUBJECT: Circuit Diagram—Receiver Type BKM



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TECHNICAL BULLETIN

Peter Pan RADIO

BULLETIN BKM-1 **File: Receivers A/c.** **Date: 19.7.48,**

SUBJECT: Voltage Table–Receiver Type BKM

EQUIPMENT:–

Volt Meter :–

1,000 ohms per volt with 0-250 volt and 0-10 volt scales.

Conditions of test :–

All voltages measured from tube socket contacts to chassis. 230 volts 50 cycle A/c. input, receiver tuned to 1,000 Kc/s. volume control at maximum volume (fully clockwise) no signal.

TUBE	FIL.	PLATE	SCREEN	GRID	CATHODE	OSCL. PLATE
6A8G	6.3V.	175V.	45V.	–	1.0V.	125V.
6B8G	6.3V.	75V.	45V.	–	2.7V.	–
6V6GT	6.3V.	165V.	175V.	9.0V.	–	–
5Y3G	5V.	198V./198V. RMS. The initial surge voltage across the first electrolytic condenser (circuit No. 17) is 255 volts dropping to normal operating value of 195 volts, D.C. voltage across 450 ohm filter resistor is 20 volts.				

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BULLETIN BKM-1 **File: Receivers A/c.** **Date: 19.7.48,**

SUBJECT:- Component Parts List—Electrical—Receiver Type BKM

Circuit No.		Part Name	Rating	Tol. +	Eclipse Part No.
1.	.1 mfd.	Paper Condenser	400VW	20%	PC103
2.	.05 mfd.	Paper Condenser	400VW	20%	PC109
3.	.1 mfd.	Paper Condenser	200VW	20%	PC218
4.	.05 mfd.	Paper Condenser	200VW	20%	PC102
5.	.05 mfd.	Paper Condenser	200VW	20%	PC102
6.	.05 mfd.	Paper Condenser	200VW	20%	PC102
7.	.05 mfd.	Paper Condenser	200VW	20%	PC102
8.	.02 mfd.	Paper Condenser	400VW	20%	PC111
9.	.004 mfd.	Paper Condenser	600VW	20%	PC221
10.	.001 mfd.	Mica Condenser	1000VT	10%	PC108
11.	.0002 mfd.	Mica Condenser	1000VT	10%	PC124
12.	.0002 mfd.	Mica Condenser	1000VT	10%	PC124
13.	.0002 mfd.	Mica Condenser	1000VT	10%	PC124
14.	.0003 mfd.	Mica Condenser	1000VT	10%	PC212
15.	.000425 mfd.	Mica Condenser	1000VT	2½%	PC683
16.	25 mfd.	Electrolytic Condenser	40PV	20%	PC660
17.	24 mfd.	Electrolytic Condenser	350PV	20%	PC276
18.	16 mfd.	Electrolytic Condenser	350PV	20%	PC283
19.	2 gang	Variable Condenser			PC716
20.	1.5—18 mmfd.	Trimmer Condenser			PC250
21.	0—30 mmfd.	Trimmer Condenser Wire Wound			PC663
22.	1.75 megohm	Carbon Resistor	½ Watt	10%	PR248
23.	1.75 megohm	Carbon Resistor	½ Watt	10%	PR248
24.	.5 megohm	Carbon Resistor	½ Watt	10%	PR245
25.	100,000 ohm	Carbon Resistor	½ Watt	10%	PR103
26.	70,000 ohm	Carbon Resistor	1 Watt	10%	PR617
27.	20,000 ohm	Carbon Resistor	½ Watt	10%	PR166
28.	40,000 ohm	Carbon Resistor	1 Watt	10%	PR198
29.	50,000 ohm	Carbon Resistor	½ Watt	10%	PR160
30.	50,000 ohm	Carbon Resistor	½ Watt	10%	PR160
31.	30,000 ohm	Carbon Resistor	1 Watt	10%	PR156
32.	3,000 ohm	Carbon Resistor	½ Watt	10%	PR185
33.	2,000 ohm	Carbon Resistor	½ Watt	10%	PR253

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BULLETIN BKM-1 **File : Receivers A/c.** **Date : 19.7.48,**

SUBJECT: Component arts List—Electrical—Receiver Type BKM

Circuit No.	Part	Name	Rating	Tol + -	Eclipse Part No.
34.	2,000 ohm	Carbon Resistor	½ Watt	10%	PR253
35.	300 ohm	Carbon Resistor	½ Watt	10%	PR258
36.	250 ohm	Wire Wound Resistor	½ Watt	10%	PR259
37.	450 ohm	Wire Wound Resistor	1 Watt	10%	PR615
38.	.5 megohm Tapped at 40,000 ohms	Volume Control			
39.		(Power Transformer			PT794
		(Power Transformer (West Aust.)			PT795
40.	1st I.F.	Transformer			PT753
41.	2nd I.F.	Transformer			PT387
42.	Antenna	Transformer			PT381
43.	Oscillator	Transformer			PT793
44.	Permag Speaker 5,000 ohm input				K109
45.	6-8V. 25A	Pilot Lamp (2)			PM678
46.	Type 6A8G	Tube			
47.	Type 6B8G	Tube			
48.	Type 6V6G/GT	Tube			
49.	Type 5Y3G/GT	Tube			
50.	1st I.F. Primary Adjusting Screw				
51.	1st I.F. Secondary Adjusting Screw				
52.	2nd I.F. Primary Adjusting Screw				
53.	2nd I.F. Secondary Adjusting Screw				
54.	Tuning Control				
55.	Socket 8 pin (4)				
56.	Valve Shield				
57.	50 mmfd	Mica Condenser	1000VT	10%	PC572
58.	1,500 ohm	Carbon Resistor	½ Watt	10%	PR244
59.	1.35 ohm	Carbon Resistor	½ Watt	10%	PR248

Note :— Intermediate Transformers. Due to shortage of stocks of intermediate transformers listed in this Bulletin, other transformers of a different type may be substituted, in accordance with Service Bulletin G-3 and G-5.

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BULLETIN BKM-1 **File: Receivers A/c.** **Date: 19.7.48.**

SUBJECT: Component Parts List—Mechanical—Receiver Type BKM

Dial Lamp Socket Assy.	A102/668
Pointer Assembly	A104/668
Slide Bar	4/668
Dial Cord	7/282
Terminal Strip Assy.	A103/509
Speaker—Mount Lugs	16/628
Gang—Mount Bracket	15/668
Spring—Dial Cord	73/239-1
Shield—Dial Lamp	6/640
Grid Clip	873/495
Earth Contact Valve Shield	22/30C
Speed Nuts—Receiver Mounting	86/E200
Speed Nuts—Dial Mounting	227/250
Screws—Receiver Mounting	36/560-6
Formed Washers—Receiver Mounting	19/648
Washers—Felt	79/30C
Knob (Walnut) Volume	10/634
Knob (Ivory) Volume	10/634-4
Cabinet (Walnut)	2/E267
Cabinet (Ivory)	2/E267-1
Knob—Springs	86/71
Cabinet Back (Walnut)	3/E267
Cabinet Back (Ivory)	3/E267-1
Screws—Cabinet Back Mounting	10/560-16
Knob—Tuning (Walnut)	5/E252
Knob—Tuning (Ivory)	5/E252-5
Knob—Springs	17/81

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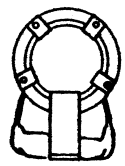
BULLETIN BKM-1 **File: Receivers A/c.** **Date: 19.7.48,**

SUBJECT : Coil and I.F. Transformer Connections—Receiver Type BKM

A.V.C.

(Outside Secondary) Grid



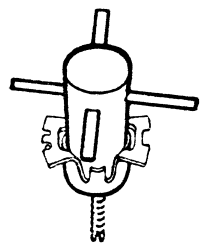
Earth

Antenna (Inside Primary)

ANT. TRANSFORMER

Grid

Series Pad



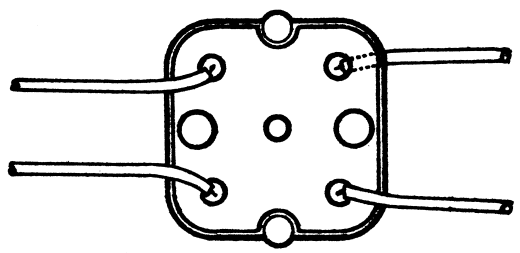
6A8G Oscl. Plate cond.

Series Pad

OSCL. COIL

(Junction of circuit Nos. 12 and 25)

(6A8G Plate)



(6B8G Grid)

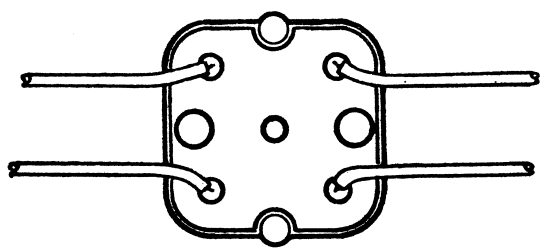
Untinned Support
See Bulletin G-1

(B+)

1st IF. TRANS.

(Junction of circuit Nos. 11, 22 and 38)

(6B8G plate)



(6B8G Diode)

Untinned Support.
See Bulletin G-1

Junction of Nos. 8, 13 and 26.

2nd IF. TRANS.