



ECLIPSE RADIO PTY. LTD.

(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)

11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

Bulletin BKJ-1

File : Receivers A/c.

Date : 1/10/46

SUBJECT—

Type BKJ Mantel Model

5 Tube Dual Wave 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.
8. Photographic Illustrations.



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SUBJECT—Technical Specifications—Receiver Type BKJ

Tube Complement:—

- Type 6J8G Converter.
- Type 6U7G IF. Amplifier.
- Type 6B6G Detector, AVC. and 1st Audio.
- Type 6V6GT Beam Power Output.
- Type 5Y3G Full Wave Rectifier.

Intermediate Frequency:—455Kc.

Tuning Range:

- Broadcast: 535Kc. (Kilocycles) to 1640Kc.
- 565M. (Meters) to 182.9M.
- Shortwave:—5.8Mc. (Megacycles) to 18.5Mc.
- 50M. (Meters) to 16M.

Calibration:—Straight Line Frequency.

Power Consumption:—55 Watts (approx.).

General Description:—

The type BKJ model is a 5-tube dual wave superheterodyne receiver designed as a mantel model. The circuit consists of a Triode Heptode converter tube type 6J8G followed by an IF. amplifier using a type 6U7G tube, a type 6B6G tube for diode detection, AVC and 1st audio with a type 6V6G as a beam power output amplifier. A type 5Y3G tube is used for full wave rectification.

Bias for the converter, IF. and output tubes is obtained from separate cathode bias circuits and for the 1st audio stage bias is obtained from the voltage drop across the 3 megohm resistor (32) in the 6B6G tube grid circuit.

AVC. voltage is obtained from the signal diode and applied to the converter and IF. tubes. Delay is obtained by connecting the AVC. line to the second diode in the 6B6G. which has a small positive potential applied to it through resistor (31) causing it to conduct. No negative voltage is applied to the controlled tubes until the signal diode negative voltage is high enough to cut off the current through this diode.

Three distinct conditions of tone have been provided in the design of the circuit. The first position provides a condition of maximum intelligibility when listening to long distance stations. In this position no feedback is used. For the second position inverse feedback is applied to the grid of the 6B6G tube from the speaker voice coil via the volume control tap and bringing into operation circuit components 47, 12, 45 41 and 4, providing bass and treble boost. The third position switches out of circuit resistor 41 and condenser 4 producing bass cut. On positions two and three the circuit operates from very low to maximum volume, but the boost is progressively reduced as maximum is approached.

Shortwave Operation: The operation of the circuit on shortwave is substantially the same as on broadcast except that no AVC. is applied to the converter stage.



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SUBJECT-ALIGNMENT PROCEDURE-Receiver Type BKJ

Equipment:-

Signal Generator.

Dummy Antenna:-

.01MFD. Mica Capacitor.

.0002MFD. Mica Capacitor.

400 Ohm Non-Inductive Resistor.

Output Meter.

Alignment Tool.

Alignment Conditions:-

Load Impedance-5,000 Ohms.

Output Level-50 Milliwatts.

Volume Control-Full on (clockwise).

Accousinator Control-Fully anti-clockwise.

Alignment:-

Intermediate Frequency-455 Kc.

Do not use a screw driver or alignment tool with an iron point for aligning IF. transformers. A special tool, Part No. PM581, is obtainable from the factory, or failing this an insulated rod with a small brass blade may be used.

Tuning Range:-Broadcast Band 535-1640 Kc.

Short Wave Band 5.8-18.5 Mc.

Set the dial pointer to the right hand margin of the dial scale, near 550 Kc. with the gang plates fully meshed.



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SUBJECT—ALIGNMENT INSTRUCTIONS—

Receiver Type BKJ

Operation	Generator Connection	Frequency	Dummy Capacity	Instructions
Wave Change Switch On B/Cast Position.				
1.	To grid of 6U7G tube	455Kc.	.01MFD. mica capacitor in series with generator	Leave grid cap on. Peak 2nd IF. transformer primary and secondary.
2.	To grid of 6J8G tube	455Kc.	.01MFD. mica capacitor in series with generator	Gang Plates full out. Leave grid cap on. Peak 1st IF. transformer primary and secondary
3.	To antenna lead	1400Kc.	200MMFD. mica capacitor in series with generator	Turn dial pointer to 1400Kc. Adjust oscillator trimmer for logging and peak aerial coil trimmer for maximum
4.	To antenna lead	600Kc.	200MMFD. mica capacitor in series with generator	Turn dial pointer to 600Kc. Peak series padder rocking gang to and fro while adjusting for maximum output
Turn Wave Change Switch to S/Wave Position.				
5.	To antenna lead	16Mc.	400 Ohm non-inductive resistor in series with generator	Turn dial pointer to 16Mc. Adjust oscillator trimmer for logging and peak aerial coil trimmer for maximum output
6.	To antenna lead	7Mc.	400 Ohm non-inductive resistor in series with generator	Turn pointer to 7Mc. and check tracking



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SUBJECT—VOLTAGE TABLE—RECEIVER TYPE BKJ

Equipment:—

Volt Meter:—1000 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 volt 50 cycle A/C. input, receiver tuned to 1,000Kc., volume control full on (clockwise), no signal.

Tube.	Fil.	Plate	Screen	Cathode	Oscil. Plate
6J8G	6.3V.	230V.	85V.	2.6V.	126V.
6U7G	6.3V.	230V.	85V.	2.2V.	—
6B6G	6.3V.	72V.	—	—	—
6V6G	6.3V.	220V.	230V.	12V.	—
5Y3G	5V.	325/325V.	RMS. The initial surge voltage across the first electrolytic (circuit No. 23) is 420 volts dropping to normal operating value of 320 volts. DC voltage across field coil is 90 volts.		



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SUBJECT—COMPONENT PARTS LIST—ELECTRICAL—RECEIVER TYPE BKJ

Circuit No.	Part Name	Rating	Tol.	Eclipse Part No.
1.	.5 mfd Paper Condenser	200V	20%	PC121
2.	.25 mfd Paper Condenser	400V	20%	PC128
3.	.1 mfd Paper Condenser	400V	20%	PC103
4.	.1 mfd Paper Condenser	200V	20%	PC218
5.	.05 mfd Paper Condenser	200V	20%	PC102
6.	.05 mfd Paper Condenser	200V	20%	PC102
7.	.05 mfd Paper Condenser	200V	20%	PC102
8.	.05 mfd Paper Condenser	200V	20%	PC102
9.	.05 mfd Paper Condenser	200V	20%	PC102
10.	.03 mfd Paper Condenser	200V	20%	PC303
11.	.02 mfd Paper Condenser	400V	20%	PC111
12.	.01 mfd Paper Condenser	600V	20%	PC140
13.	.002 mfd Paper Condenser	600V	20%	PC112
14.	.004 mfd Mica Condenser	1000V	5%	PC299
15.	.00025 mfd Mica Condenser	1000V	10%	PC126
16.	.0001 mfd Mica Condenser	1000V	10%	PC110
17.	.0001 mfd Mica Condenser	1000V	10%	PC110
18.	.0001 mfd Mica Condenser	1000V	10%	PC110
19.	.00005 mfd Mica Condenser	1000V	10%	PC141
20.	.00005 mfd Mica Condenser	1000V	10%	PC141
21.	25 mfd Electrolytic Condenser	40PV	20%	PC660
22.	16 mfd Electrolytic Condenser	525PV	20%	PC300
23.	8 mfd Electrolytic Condenser	525PV	20%	PC313
24.	2 Gang Variable Condenser			PC636
25.	Variable Series Pad			PC164
26.	B.C. Aerial Trimmer	} Double Trimmer Assy.		PC643
27.	S.W. Aerial Trimmer			
28.	Wire Wound Trimmer			PC367
29.	Wire Wound Trimmer			PC367
30.	15 Mmf Bifilar Trimmer			PC196
31.	10 megohm Carbon Resistor	1 watt	10%	PR236
32.	3 megohm Carbon Resistor	1/2 watt	10%	PR282
33.	1.75 megohm Carbon Resistor	1/2 watt	10%	PR248
34.	0.5 megohm Carbon Resistor	1/2 watt	10%	PR245
35.	250,000 ohm Carbon Resistor	1 watt	10%	PR496
36.	100,000 ohm Carbon Resistor	1/2 watt	10%	PR103
37.	100,000 ohm Carbon Resistor	1/2 watt	10%	PR103
38.	50,000 ohm Carbon Resistor	1/2 watt	10%	PR160
39.	50,000 ohm Carbon Resistor	1/2 watt	10%	PR160
40.	50,000 ohm Carbon Resistor	1/2 watt	10%	PR160
41.	20,000 ohm Carbon Resistor	1/2 watt	10%	PR166



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SUBJECT-COMPONENT PARTS LIST-ELECTRICAL-RECEIVER TYPE BKJ

Circuit No.	Part Name	Rating	Tol.	Eclipse Part No.
42.	20,000 ohm Carbon Resistor	1 watt	10%	PR171
43.	20,000 ohm Carbon Resistor	1 watt	10%	PR171
44.	10,000 ohm Carbon Resistor	1/2 watt	10%	PR164
45.	5,000 ohm Carbon Resistor	1/2 watt	10%	PR250
46.	2,000 ohm Carbon Resistor	1/2 watt	10%	PR253
47.	2,000 ohm Carbon Resistor	1/2 watt	10%	PR253
48.	300 ohm Wire Wound Resistor	1 watt	10%	PR122
49.	300 ohm Wire Wound Resistor	1/2 watt	10%	PR258
50.	300 ohm Wire Wound Resistor	1/2 watt	10%	PR258
51.	50 ohm Wire Wound Resistor	1/2 watt	10%	PR280
52.	50 ohm Wire Wound Resistor	1/2 watt	10%	PR280
53.	.5 megohm Volume Control			PR579
54.	1st IF. Transformer			PT753
55.	2nd IF. Transformer			PT387
56.	Power Transformer			PT177
57.	S/W Antenna Transformer			PT463
58.	B/C Antenna Transformer			PT381
59.	S/W Oscillator Transformer			PT464
60.	B/C Oscillator Transformer			PT383
61.	Type 6J8G Tube			PM222
62.	Type 6U7G Tube			PM261
63.	Type 6B6G Tube			PM299
64.	Type 6V6G Tube			PM370
65.	Type 5Y3G Tube			PM355
66.	Octal Sockets (5)			PM532
67.	Wave Change Switch			S107
68.	Accoustinator Switch			PM597
69.	Aerial Terminal			PM306
70.	Earth Terminal			PM306
71.	Valve Shields (2)			PM217
72.	Dynamic Speaker, 6 inch- 1500 ohm Field 5000 ohm Input			PM569
73.	6.3V .25 amp Pilot Lamp (2)			PM678
73.	1st IF. Primary Adjusting Screw			
74.	1st IF. Secondary Adjust. Screw			
75.	2nd IF. Primary Adjust. Screw			
76.	2nd IF. Secondary Adjust. Screw			
77.	Tuning Control			
78.	Pick-up bridge			

A101/513



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SUBJECT—COMPONENT PARTS LIST—Receiver Type BKJ

Part Name	Eclipse Part No.
Light diffuser Assy.	A102/E231
Tension Spring for above	11/E231-2
Pointer Carrier Assy.	A103/E231
Pulleys	4/501-2
Spring Cord-Tension	30/E231
Lever Assy.	A104/E233
Dial Drum Assy.	4/E231
Pilot Light Assy.	A130/30-C
Grid Clips	873/495
Valve shield earth contacts	22/30-C
Contact Strip Assy.	A105/E243
Dial Glass	7/E231
Trim Plate	32/E231
Speed Nuts	227/250
Wave Change Switch	S 107
Tone Control Switch	PM597
Mount Feet for Cabinet	96/47

CABINET FITTINGS

CABINETS		KNOBS		FELT WASHERS	
Colour	Part No.	Colour	Part No.	Colour	Part No.
Walnut	B-4	Walnut	1/E252	To Match	124/74-1
Cream	..	Cream
Green	..	Green
Blue	..	Blue
Champagne	..	Champagne



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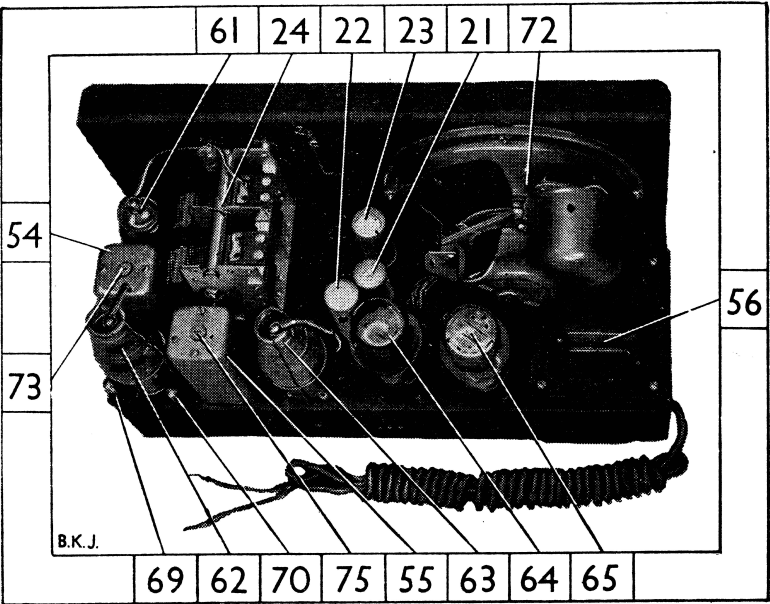
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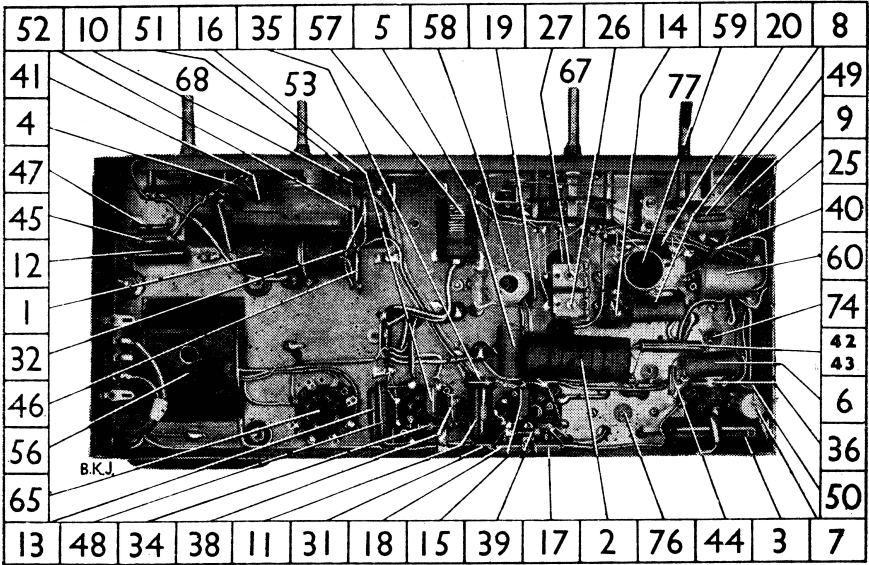
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SUBJECT-CHASSIS-TOP AND BOTTOM VIEWS-Receiver Type BKJ



Model BKJ Top View.



Model BKJ Bottom view.



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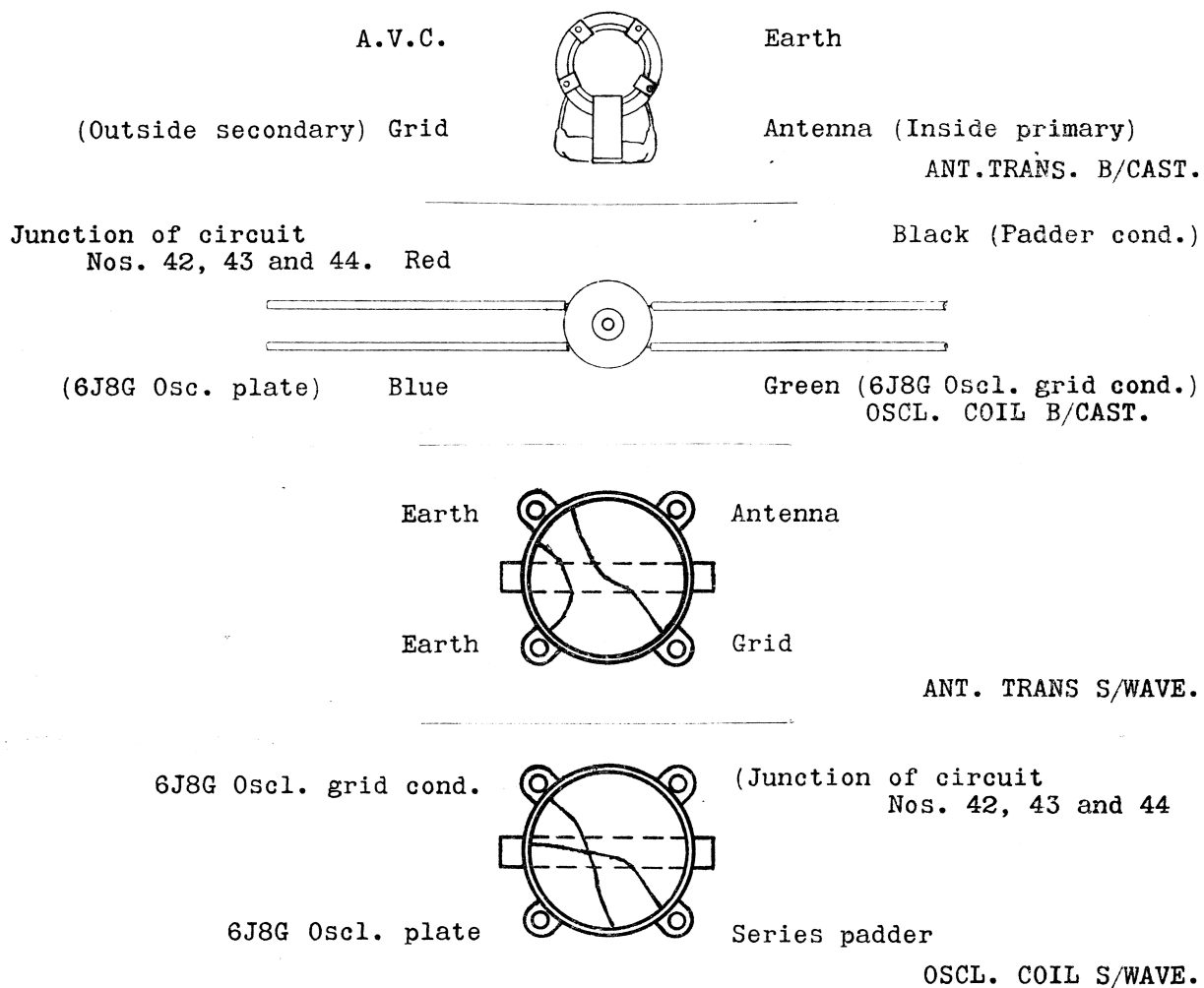
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SUBJECT—Coil and IF. Transformer CONNECTIONS—Receiver Type BKJ





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SUBJECT—COIL AND IF. TRANSFORMER CONNECTIONS—Receiver Type BKJ

