ECLIPSE RADIO PTY. LTD.

(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)

11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

MONARCH RADIO

Bulletin : "CLJ"—1 **File : Receivers Battery** **Date : 1/2/50**

Subject: Model "CLJ" 5 Tube Superheterodyne Dual Wave Receiver—Battery Operated Consolette.

For Operation from:

1.5 Volts "A" Battery and 90 Volts "B" Battery } Plug-in type Batteries.

This Bulletin contains:-

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

Subject: Technical Specifications - Model "CLJ"

Tube Complement:	Type 1R5 Converter. Type 1T4 Amplifier (I.F.). Type 1T4 Amplifier (I.F.). Type 1S5 Diode Detector, AVC and 1st Audio. Type 3V4 Power Output Amplifier.
Intermediate Frequency:	455 Kc/s.
Tuning Range:	Broadcast 535 Kc/s. (Kilocycles) to 1,640 Kc/s. 560.7 M. (Metres) to 182.9 M. Shortwave 5.85 Mc/s (Megacycles) to 1,640 Kc/s. 50 M. (Metres) to 16 M.
Dial Reading:	Straight Line Frequency Calibration.
Operating Voltages:	"A" Battery 1.5 Volts. "B" Battery 90 Volts. (Two 45 volt batteries in series).
Battery Consumption:	"A" Battery 300 Milliamps. (Does not include dial lamps). °B" Battery 11 Milliamps.

GENERAL DESCRIPTION:

The model "CLJ" is a five-valve dual-wave Consolette receiver for operation from plug-in type dry batteries, which are housed within the receiver and secured by a metal clasp. Removal of the metal clasp permits easy replacement of the batteries.

Miniature single-ended tubes which operate from 1.4 volts are used throughout. The tubes and their functions in the circuit will be found listed under the heading "Tube Complement".

To obtain a selectivity characteristic suitable for use in country areas, two I.F. stages have been used.

Full A.V.C. voltage is applied to the converter tube only (no A.V.C. is applied to this tube when operating on the shortwave band). Approximately 30% of the control voltage is applied to the 1st I.F. Amplifier and none to the 2nd I.F. Amplifier. Fixed bias is applied to the 2nd I.F. Amplifier and to the power amplifier. Bias for the det. tube is developed across the 10 megohm resistor, Circuit No. 32.

The tone Control and Wave change switch are operated by levers located on the rear of the cabinet just below the plastic escutcheon. Moulded bakelite and steel are combined to provide an attractive and serviceable cabinet at low cost. Access is gained to the receiver by removing the rear cover, and all but major service may be carried out without removing the chassis.

Current for dial illumination is provided by two 1.5 volt flashlight cells which are held in metal clasps within the dial moulding. Replacement is achieved by removing the cabinet back and withdrawing the cells. Replacement cells are then pushed firmly into the clasps.

A press button is provided on the rear of the dial moulding which, when pressed, causes the dial lamps to illuminate the dial.

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Alignment Procedure – Model "CLJ".

Equipment: Signal Generator
Output Meter
Alignment Tools – Part No. PM581 and M195
Dummy Antenna – 200 MMFD Mica Capacitor
400 Ohm Non-Inductive resistor
I.F. Dummy – .01 MFD Mica Capacitor

Alignment Conditions: Load Impedance – 10,000 Ohms
Output Level – 25 Milliwatts
Battery Supply – "A" 1.5 Volts, "B" 90 Volts
Volume Control – Full on (clockwise)

Procedure: Set dial pointer to right hand margin of dial scale–Gang plates full in.

Operation No.	Generator Connection	Generator Frequency	Dummy	Instructions
1.	To control grid of 1T4 Pin No. 6 Circuit No. 62.	455 Kc/s.	.01 MFD Mica capacitor in series with generator.	Peak 3rd I.F. Transf. primary and secondary for maximum output.
2.	To control grid of 1T4 Pin No. 6 Circuit No. 61.	455 Kc/s.	.01 MFD Mica capacitor in series with generator.	Peak 2nd I.F. Transf. primary and secondary for maximum output.
3.	To Control grid of IR5 Pin No. 6 Circuit No. 60.	455 Kc/s.	.01 MFD Mica capacitor in series with generator.	Gang plate full out. Peak 1st I.F. secondary and primary for maximum output.
4.	To Antenna Terminal.	600 Kc/s.	200 MMFD Mica Capacitor in series with generator.	Turn dial pointer to 600 Kc/s. Peak B/C oscl. coil iron core for max. output.
5.	To Antenna Terminal.	1,400 Kc/s.	200 MMFD Mica Capacitor in series with generator.	Turn dial pointer to 1,400 Kc/s. Adjust B/C oscl. coil trimmer for logging and peak B/C Ant. coil trimmer for maximum output.
6.	To Antenna Terminal.	600 Kc/s.	200 MMFD Mica Capacitor in series with generator.	Turn dial pointer to 600 Kc/s. Adjust B/C oscl. coil iron core for max. output whilst rocking gang to and fro through signal.
7.	Turn wave change switch to S/W position.			Repeat operations 5 and 6.
8.	To Antenna Terminal.	17 Mc/s.	400 Ohm resistor in series with generator.	Turn dial pointer to 17 Mc/s. Adjust S/W oscl. trimmer for logging and S/W Ant. trimmer for maximum output.
9.	To Antenna Terminal.	7 Mc/s.	400 Ohm resistor in series with generator.	Turn dial pointer to 7 Mc/s. and check tracking.

Voltage Table

Equipment: D.C. Volt meter: 1,000 ohm per volt meter with 0-10 and 0-250 volt scales.

D.C. mA. Meter: 0-10 and 0-500 milliamps scales.

Conditions of Test: Receiver tuned to 1,000 Kc/s.
Volume control full on (clockwise) no signal.
"A" battery 1.5 volts. "B" battery 90 volts.

Tube	Fil.	Plate	Screen	Grid
1R5	1.5 V	84 V	65 V	–
1T4	1.5 V	84 V	7 V	–
1T4	1.5 V	84 V	6 V	–
1S5	1.5 V	9 V	3 V	–
3V4	1.5 V	83 V	84 V	-4.5 V

A. – Battery Current drain not including dial lamps is 300 mA.

B. – Battery Current drain is 11 mA.

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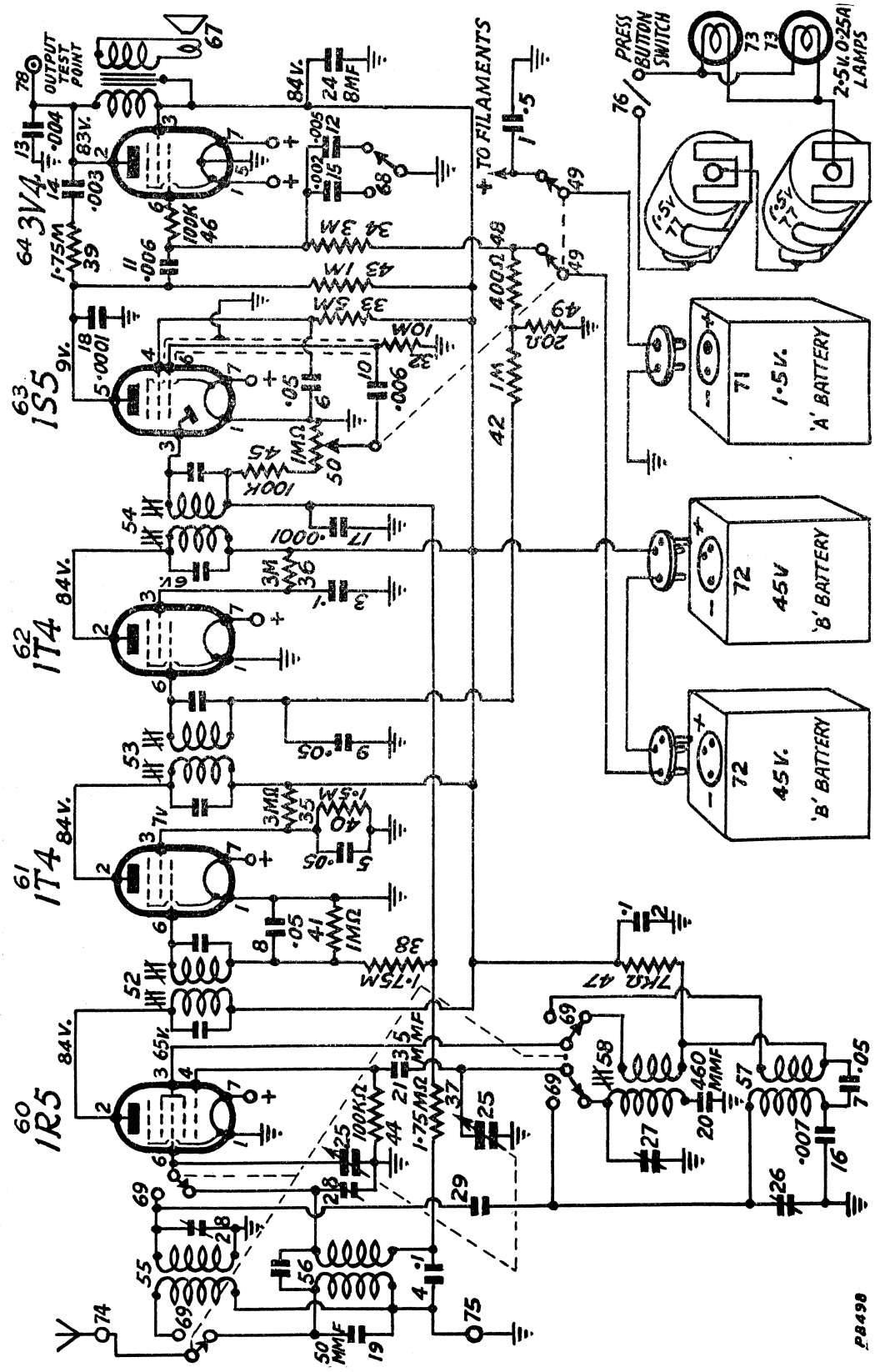
Subject: Circuit Diagram Model "CLJ".



Subject: Component Parts List - Electrical - Receiver Type "CLJ".

Circuit No.	Part Name	Rating	Tol.±	Part No. Eclipse
1	.5 mfd. Paper Capacitor	200 V	20%	PC 121
2	.1 mfd. Paper Capacitor	400 V	20%	PC 103
3	.1 mfd. Paper Capacitor	400 V	20%	PC 103
4	.1 mfd. Paper Capacitor	200 V	20%	PC 218
5	.05 mfd. Paper Capacitor	400 V	20%	PC 109
6	.05 mfd. Paper Capacitor	400 V	20%	PC 109
7	.05 mfd. Paper Capacitor	200 V	20%	PC 102
8	.05 mfd. Paper Capacitor	200 V	20%	PC 102
9	.05 mfd. Paper Capacitor	200 V	20%	PC 102
10	.006 mfd. Paper Capacitor	600 V	20%	PC 217
11	.006 mfd. Paper Capacitor	600 V	20%	PC 217
12	.005 mfd. Paper Capacitor	600 V	20%	PC 252
13	.004 Paper Capacitor	600 V	20%	PC 221
14	.003 Paper Capacitor	600 V	20%	PC 274
15	.002 Paper Capacitor	600 V	20%	PC 112
16	.007 mfd. Mica Capacitor	1,000 V	5%	PC 672
17	.0001 mfd. Mica Capacitor	1,000 V	10%	PC 571
18	.0001 mfd. Mica Capacitor	1,000 V	10%	PC 571
19	50 mmfd. Mica Capacitor	1,000 V	10%	PC 572
20	460 mmfd. Mica Capacitor	1,000 V	2½%	PC 728
21	35 mmfd. Silvered Mica Capacitor	1,000 V	+0-5%	PC 721
22				
23				
24	8 mfd. Electrolytic Capacitor	525 PV	20%	PC 313
25	2 Gang Variable Capacitor	-	-	PC 756
26	0-30 mmfd. Trimmer Capacitor S/W	-	-	PC 663
27	0-30 mmfd. Trimmer Capacitor B/C	-	-	PC 663
28	Double Trimmer Assembly Capacitor	-	-	PC 643
29	Neutralizing Capacitor	-	-	PC 743
30				
31				
32	10 meg. Carbon Resistor	1 watt	10%	PR 236
33	5 meg. Carbon Resistor	1 watt	10%	PR 355
34	3 meg. Carbon Resistor	½ watt	10%	PR 282
35	3 meg. Carbon Resistor	1 watt	10%	PR 410
36	3 meg. Carbon Resistor	1 watt	10%	PR 410
37	1.75 meg. Carbon Resistor	½ watt	10%	PR 248
38	1.75 meg. Carbon Resistor	½ watt	10%	PR 248
39	1.75 meg. Carbon Resistor	½ watt	10%	PR 248
40	1.5 meg. Carbon Resistor	1 watt	10%	PR 210
41	1 meg. Carbon Resistor	½ watt	10%	PR 246
42	1 meg. Carbon Resistor	1 watt	10%	PR 246
43	1 meg. Carbon Resistor	1 watt	10%	PR 520
44	100,000 ohm Carbon Resistor	½ watt	10%	PR 103
45	100,000 ohm Carbon Resistor	½ watt	10%	PR 103
46	100,000 ohm Carbon Resistor	½ watt	10%	PR 103
47	7,000 ohm Carbon Resistor	1 watt	10%	PR 640

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Subject: Component Parts List – Electrical – Receiver Type "CLJ"–Cont'd.

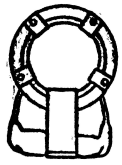
Circuit No.	Part Name	Rating	Tol.±	Part No. Eclipse
48	400 ohm Carbon Resistor	1 watt	10%	PR 148
49	20 ohm wire wound Resistor	1 watt	10%	PR 674
50	1 megohm Carbon Potentiometer			PR 673
51				
52	1st I.F. Transformer			PT 869
53	2nd I.F. Transformer			PT 869
54	3rd I.F. Transformer			PT 869
55	Antenna Transformer S/W			PT 463
56	Antenna Transformer B/C			PT 381
57	Oscillator Coil S/W			PT 860
58	Oscillator Coil B/C			PT 860
59				
60	Type 1R5 Tube			
61	Type 1T4 Tube			
62	Type 1T4 Tube			
63	Type 1S5 Tube			
64	Type 3V4 Tube			
65				
66				
67	6" Permag. Speaker			K 155
68	Tone Switch			S 153
69	Wave Change Switch			S 154
70				
71	1.5 Volt "A" Battery			M 138
72	45 Volt "B" Battery (2)			M 137
73	Dial Lamp Min. Screw Base	2.5 V–0.25 A		PM 477
74	A. Terminal			PM 306
75	E. Terminal			PM 306
76	Press Button Switch			PM 395
77	1.5 Volt Flashlight Cell	Type 950		PM 466
78	Output test socket			
79				
80				

Component Parts List – Mechanical – Receiver Type "CLJ".

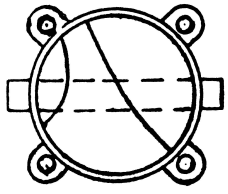
Cabinet Top Moulding	94/81
Control Knobs (2)	156/81
Springs – Control Knobs (2)	17/81
Dial Reading	42/683
Actuating Lever Assy. – Tone Control	A108/683
" " " Wave Change SW	A108/683
Spring – Dial Cord	73/239 – 1
Dial Cord – 40 inch	7/282
Pointer assembly	A102/683
Battery retaining clasp	39/683
Battery Plug ("A" Batt.)	336/30 C
Battery Plug ("B" Batt.) (2)	335/30 C
Operating Instruction Booklet	147/278

Bulletin : "CLJ"—1 **File : Receivers Battery** **Date : 1/2/50**

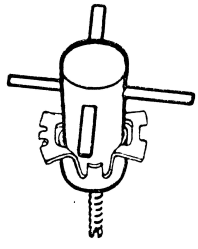
Subject: Coil and I.F. Transformer Connections.



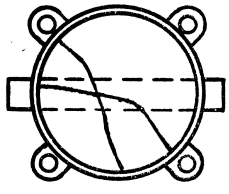
ANT. TRANS. B/CAST.



ANT. TRANS. S/WAVE.

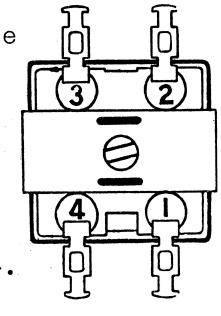


OSC. TRANS. B/CAST.

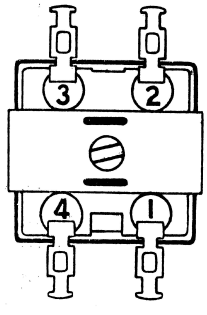


OSC. TRANS. S/WAVE.

1st I.F. TRANS.



2nd and 3rd I.F. TRANS.



Bias/Diode Return