ECLIPSE RADIO PTY. LTD.

(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)

11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

BULLETIN DKN-1 **File : Receivers Vibrator** **Date : 19/2/48**

SUBJECT:- Type DKN Mantel Model
5 Tube Vibrator/Battery Operated
Superheterodyne Dual Wave Receiver

Operation is from
A 6-Volt Accumulator

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 DKN-1 **File : Receivers Vibrator** **Date : 19/2/48**

SUBJECT:- Technical Specifications—Receiver Type DKN

TUBE COMPLEMENT:

Type 1C7G Converter.
Type 1M5G IF. Amplifier.
Type 1M5G IF. Amplifier.
Type 1K7G 1st Audio, AVC., and Detector.
Type 1L5G Power Output Amplifier.

INTERMEDIATE FREQUENCY:		455 Kc/s.
Tuning Range:	Broadcast	540 Kc/s. (Kilocycles) to 1640 Kc/s. 555 M. (Metres) to 182.9 M.
	Shortwave	5.8 Mc/s. (Megacycles) to 18.5 Mc/s. 50 M. (Metres) to 16 M.
CALIBRATION:		Straight Line Frequency.
BATTERY SUPPLY:		6-Volt Accumulator.
BATTERY CONSUMPTION:		1.4 Amps. (does not include dial lamps).
POWER OUTPUT:		.5 Watt (undistorted).
VIBRATOR:		Self Rectifying, Synchronous Type.

GENERAL DESCRIPTION:

The Type DKN is a 5-tube dual wave 6-volt vibrator receiver designed as a mantel model. The circuit consists of a pentagrid converter, two IF. stages, a duo diode pentode driver stage followed by a power output amplifier.

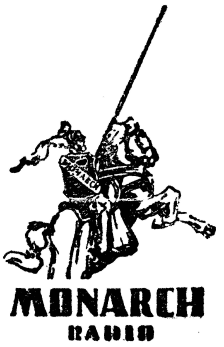
Full AVC. developed across resistors (circuit numbers 53 and 55) is applied to the converter stage on broadcast only. Approximately two-thirds AVC. is applied to the two IF. stages on both bands.

Inverse feedback and bass boost is applied through the path provided by resistor (circuit number 56) and condensor (20).

The tone control which is combined with the battery switch operates in the grid circuit of the output tube and comprises circuit components 17, 19 and 95.

The filaments of the tubes are wired across the 6-volt supply in a series parallel circuit which provides maximum protection for the remaining tubes in the event of a filament open circuiting. Bias is determined by the position of the tube in the filament circuit.

High tension is supplied from a 6-volt synchronous self rectifying vibrator in conjunction with a transformer (circuit number 79) and a 6-volt accumulator.



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BULLETIN DKN-1 **File : Receivers Vibrator** **Date : 19/2/48**

SUBJECT:- Alignment Instructions—Receiver Type DKN.

EQUIPMENT:

Signal Generator.
Dummy Antenna:-
.01MFD. Mica Capacitor.
.0002MFD. Mica Capacitor.
400 Ohm Non-Inductive Resistor.
Output Meter.
Alignment Tool.

ALIGNMENT CONDITIONS:-

Load Impedance - 15,000 Ohms.
Output Level - 50 Milliwatts.
Volume Control - Full on (clockwise).
Tone Control - High Tone Position.
Battery Supply - 6-Volt Accumulator.

ALIGNMENT:-

Intermediate Frequency—455 Kc/s.

Do not use a screwdriver or alignment tool with an iron point for aligning IF. transformers. A special tool, part number PM581, is obtainable from the factory, or failing this an insulated rod with a small brass blade may be used.

Tuning Range:-

Broadcast Band 540—1640 Kc/s.
Shortwave Band 5.8—18.5 Mc/s.

Set the dial pointer to the top margin of the dial scale, near 550 Kc/s. (condenser gang plates fully meshed).

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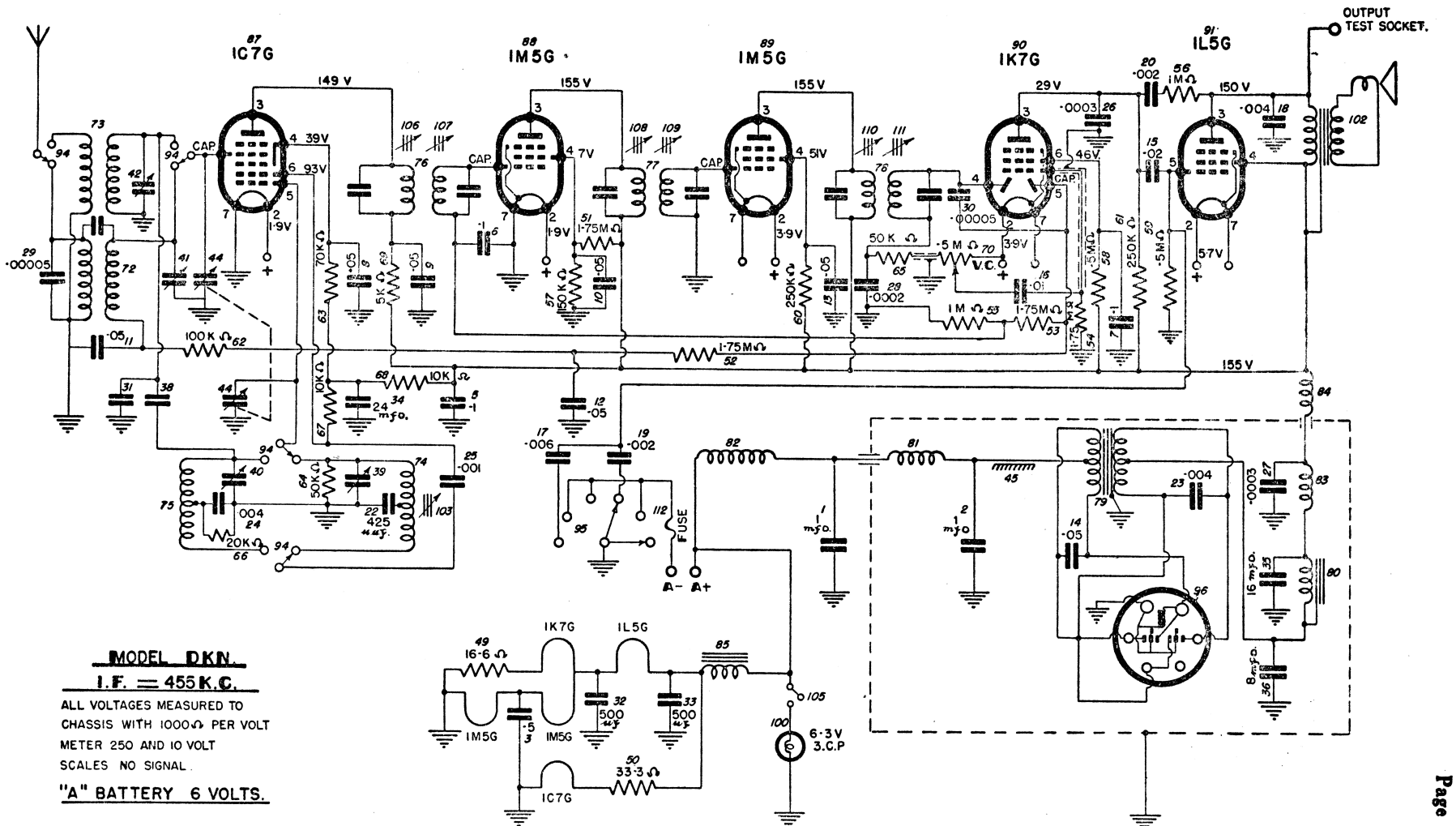
SUBJECT:- Alignment Instructions—Receiver Type DKN

Operation No.	Generator Connection	Frequency	Dummy Antenna	Instructions
	Turn Wave Change Switch to Broadcast Position			
1.	To grid of 1M5G tube (circuit No. 89).	455 Kc/s.	.01MFD. Mica capacitor in series with generator.	Leave grid cap on tube. Peak 3rd IF. transformer primary and secondary.
2.	To grid of 1M5G tube (circuit No. 88).	455 Kc/s.	.01MFD. Mica capacitor in series with generator.	Leave grid cap on tube. Peak 2nd IF. transformer primary and secondary.
3.	To grid of 1C7G tube.	455 Kc/s.	.01MFD. Mica capacitor in series with generator.	Leave grid cap on tube. Gang plates full out. Peak 1st transformer primary and secondary.
4.	To antenna terminal.	600 Kc/s.	.0002MFD. Mica capacitor in series with generator.	Turn dial pointer to 600 Kc/s. Adjust B/cast oscl. coil inductance trimmer (iron core) for max. output.
5.	To antenna terminal.	1400 Kc/s.	.0002MFD. Mica capacitor in series with generator.	Turn dial pointer to 1400 Kc/s. Adjust B/cast oscillator trimmer for logging and peak B/cast aerial coil trimmer.
6.	To antenna terminal.	600 Kc/s.	.0002MFD. Mica capacitor in series with generator.	Turn dial pointer to 600 Kc/s. Peak B/cast oscl. coil inductance trimmer rocking gang to and fro while adjusting.
7.	Repeat operations 5 and 6 until no further improvement.			
	Turn Wave Change Switch to Shortwave Position			
8.	To antenna terminal.	16 Mc/s.	400 Ohm non-inductive resistor in series with generator.	Turn dial pointer to 16 Mc/s. Adjust S/wave oscillator trimmer for logging and peak S/wave aerial coil trimmer.
9.	To antenna terminal.	7 Mc/s.	400 Ohm non-inductive resistor in series with generator.	Check tracking.


87 IC7G
88 IM5G
89 IM5G
90 IK7G
91 IL5G
OUTPUT TEST SOCKET.
149 V
155 V
155 V
29 V
150 V
155 V
39V
93V
7V
51V
46V
1·9V
1·9V
3·9V
3·9V
57V
CAP
100 K Ω 62
1·75M Ω 52
50 K Ω
·5 M Ω 70
V.C.
1M Ω 53
1·75M Ω 53
250K Ω
·5MΩ
10K Ω
24 mfd.
425 mfd.
20K Ω 66
50K Ω 64
FUSE
A- A+
1 mfd.
2 mfd.
16 mfd.
8 mfd.
IK7G
IL5G
IM5G
IM5G
IC7G
16·6 Ω 49
33·3 Ω 50
500 mf
500 mf
6·3V 3.C.P
MODEL DKN.
I.F. = 455 K.C.
ALL VOLTAGES MEASURED TO CHASSIS WITH 1000Ω PER VOLT METER 250 AND 10 VOLT SCALES NO SIGNAL.
"A" BATTERY 6 VOLTS.

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TECHNICAL BULLETIN

BULLETIN DKN-1 **File : Receivers Vibrator** **Date : 19/2/48**

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

Circuit No.	Part Name	Rating	Tol. ±	Eclipse Part No.
1.	1 mfd Paper Condenser	200VW	20%	PC182
2.	1 mfd Paper Condenser	200VW	20%	PC182
3.	.5 mfd Paper Condenser	200VW	20%	PC121
4.				
5.	.1 mfd Paper Condenser	400VW	20%	PC103
6.	.1 mfd Paper Condenser	200VW	20%	PC218
7.	.1 mfd Paper Condenser	200VW	20%	PC218
8.	.05 mfd Paper Condenser	400VW	20%	PC109
9.	.05 mfd Paper Condenser	400VW	20%	PC109
10.	.05 mfd Paper Condenser	400VW	20%	PC109
11.	.05 mfd Paper Condenser	200VW	20%	PC102
12.	.05 mfd Paper Condenser	200VW	20%	PC102
13.	.05 mfd Paper Condenser	400VW	20%	PC109
14.	.05 mfd Paper Condenser	200VW	20%	PC102
15.	.02 mfd Paper Condenser	400VW	20%	PC111
16.	.01 mfd Paper Condenser	600VW	20%	PC140
17.	.006 mfd Paper Condenser	600VW	20%	PC217
18.	.004 mfd Paper Condenser	600VW	20%	PC221
19.	.002 mfd Paper Condenser	600VW	20%	PC112
20.	.002 mfd Paper Condenser	600VW	20%	PC112
21.				
22.	.000425 mfd Mica Condenser	1000VT	2½%	PC726
23.	.004 mfd Mica Condenser	2000VT	10%	PT515
24.	.004 mfd Mica Condenser	1000VT	5%	PC299
25.	.001 mfd Mica Condenser	1000VT	10%	PC571
26.	.0003 mfd Mica Condenser	1000VT	10%	PC568
27.	.0003 mfd Mica Condenser	1000VT	10%	PC568
28.	.0002 mfd Mica Condenser	1000VT	10%	PC563
29.	.00005 mfd Mica Condenser	1000VT	10%	PC572
30.	.00005 mfd Mica Condenser	1000VT	10%	PC572
31.	8m mfd Silver Mica Condenser	1000VT		PC374
32.	500 mfd Electrolytic Condenser	12VP	20%	PC295
33.	500 mfd Electrolytic Condenser	12VP	20%	PC295
34.	24 mfd Electrolytic Condenser	350VP	20%	PC184
35.	16 mfd Electrolytic Condenser	350VP	20%	PC283
36.	8 mfd Electrolytic Condenser	350VP	20%	PC640
37.				
38.	Neutralizing Condenser			
39.	Oscillator Trimmer W.W. (B/Cast)			PC663
40.	Oscillator Trimmer W.W. (S/Wave)			PC663

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SUBJECT:- Component Parts List–Electrical–Receiver Type DKN

Circuit No.	Part Name	Rating	Tol. ±	Eclipse Part No.
81.	Hash Choke			PT111
82.	Midget Hash Choke			PT439
83.	RF Choke ("B" Supply)			PT109
84.	RF Choke ("B" Supply)			PT109
85.	Filter Choke (Filament Supply)			PT112
86.				
87.	Type 1C7-G Tube			
88.	Type 1M5-G Tube			
89.	Type 1M5-G Tube			
90.	Type 1K7-G Tube			
91.	Type 1L5-G Tube			
92.				
93.	8 Pin Midget Sockets			PM532
94.	Wave Change Switch			S143
95.	Tone Control and Battery Switch			PM279
96.	6 Pin Synchronous Vibrator			PM413
97.	Valve Shields (3) (Goat Type)			PM217
98.	Aerial Terminal			PM306
99.	Earth Terminal			PM306
100.	Pilot Lamp	6.3V	3CP	PM450
101.				
102.	Permanent Magnet Speaker 15,000 ohm input			K101
103.	Oscl. Transformer (B/Cast) Adjusting Screw			
104.	Battery Cable			
105.	Dial Light Switch			
106.	1st IF. Primary Adjusting Screw			
107.	1st IF. Secondary Adjusting Screw			
108.	2nd IF. Primary Adjusting Screw			
109.	2nd IF. Secondary Adjusting Screw			
110.	3rd IF. Primary Adjusting Screw			
111.	3rd IF. Secondary Adjusting Screw			
112.	Fuse			
113.				
114.				
115.				
116.				

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BULLETIN DKN-1 **File : Receivers Vibrator** **Date : 19/2/48**

SUBJECT:- Component Parts List—Mechanical—Receiver Type DKN

Part Name	Eclipse Part No.
Vibrator Cover	21/47
Vibrator Socket Assembly	A102/58
Grommets. Cond. Mounting	64/30A
Bush Cond. Mounting	93/45-1
Lever Assembly (S/Wave Switch)	A102/246
Grommets Speaker Mounting	5/91-1
Spring—Cord Tension	73/239-1
Dial Cord	7/282
Reflector – Dial Light	4/657
Dial Light Assembly	A104/657
Grid Clips	873/495
Valve Shield Earth Contact	22/30C
Terminal Strip Assembly	A103/509
Hash Plate	19A/47
Bakelite Plate	19B/47
Mica	29/216
Battery Clip (Positive)	3/245-1
Battery Clip (Negative)	3/245-2
Speaker Gaskets (4)	15/657
Dial Pointer Assembly	A102/657
Springs – Diffuser	3/657
Diffuser Assembly	A103/657
Slide Bar	10/657
Rubber Ring – Pointer Assembly	22/657
Speed Nuts – Set mounting	86/E200
Cabinet feet (4)	96/47
Cabinet	1/E245
Control Knobs (Front)	1/E252
Felt Washers – Control Knobs	66/30C
Control Knob (side)	84/81
Springs – Control Knobs	17/81
Dial Reading	7/E263-1
Speed nuts in Dial glass – Trim plate	227/250

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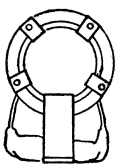
BULLETIN DKN-1 **File : Receivers Vibrator** **Date : 19/2/48**

SUBJECT:- Coil and IF. Transformer Connections—Receiver Type DKN

A.V.C.

(Outside Secondary) Grid



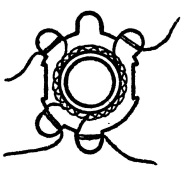
Earth

Antenna (Inside primary)

ANT. TRANS. B/CAST

Oscl. Grid

Series Pad



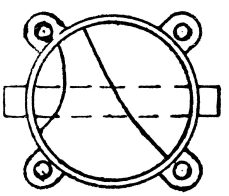
Oscl. Plate

Series Pad.

OSCL. COIL B/CAST

Earth

Earth



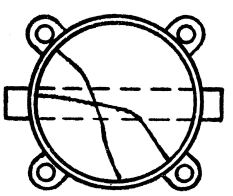
Antenna

Grid

ANT. TRANS. S/WAVE

1C7G oscl. grid

1C7G oscl. plate Cond.



Series padder

Series padder

OSCL. COIL S/WAVE

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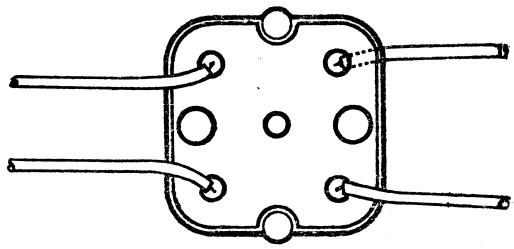
SUBJECT:- Coil and IF. Transformer Connections—Receiver Type DKN

Junction of circuit numbers
6, 53, and 55.

1M5G grid
(First I.F. Amp)

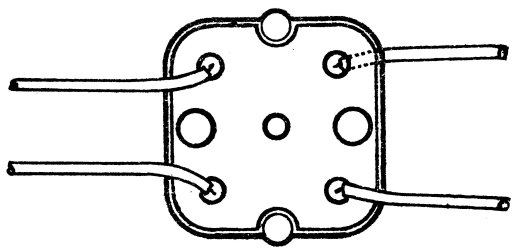


1C7G plate

B+ (untinned wire)
Junction of circuit
numbers 9 and 69
1st IF. TRANSFORMER

Earth

1M5G grid
(Second I.F. Amp)

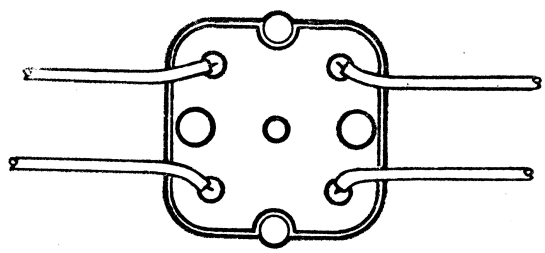


1M5G Grid

B+ (untinned wire)
2nd IF. TRANSFORMER

Junction of circuit numbers
28 and 65

1K7G diode
(Pin No. 4)



1M5G Plate

B+ (untinned wire)
3rd IF. TRANSFORMER