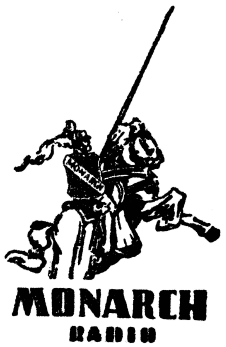


ECLIPSE RADIO PTY. LTD.

(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)

11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

Bulletin ELN-1 **File : Receivers A/c.** **Date : 1/10/46**

SUBJECT— Type ELN Console 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.

ECLIPSE RADIO PTY. LTD.
(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)
11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

MONARCH RADIO

Bulletin ELN-1 **File : Receivers A/c.** **Date : 1/10/46**

SUBJECT–Technical Specifications– Receiver Type ELN

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:–455Kcs.

Tuning Range:–
Broadcast:–540Kcs. (Kilocycles) to 1640Kcs.
555M. (Metres) to 182.9M.
Shortwave:–5.8Mcs. (Megacycles) to 18.5 Mcs.
50M. (Metres) to 16M.

Calibration:–Straight Line Frequency.

Power Consumption:–50 Watts (Approx.).

General Description:–

The type ELN model is a 5 tube dual wave superheterodyne receiver designed as a console 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 6V6GT 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 (circuit number 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 (fully anticlockwise) causes the receiver to work without inverse feedback and is useful for short wave reception, since in this condition the receiver operates with maximum gain. Furthermore the high and low audio frequencies are cut, to improve the intelligibility of weak signals. 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, 10, 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 on shortwave is substantially the same as on broadcast except that no AVC. is applied to the converter stage.

ECLIPSE RADIO PTY. LTD.
(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)
11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

Bulletin ELN-1 **File : Receivers A/c.** **Date : 1/10/46**

SUBJECT—Alignment Instructions—Receiver Type ELN

EQUIPMENT:—

Signal Generator.
Dummy Antenna.
.01MFD. Mica Capacitor .
200MMFD. Mica Capacitor.
400 Ohm Non-Inductive Resistor.
Output Meter.
Alignment Tool.

ALIGNMENT CONDITIONS:—

Load Impedance 5000 Ohms.
Output Level—50 Milliwatts.
Volume Control—Maximum Volume (Fully Clockwise).
Tone Control—Fully Anti-clockwise.

ALIGNMENT:—

Intermediate Frequency—455Kcs.
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 small brass blade may be used.

Tuning Range:—
Broadcast Band 540-1640Kcs.
Shortwave Band 5.8-18.5Mcs.
Set the dial pointer to the right hand margin of the dial scale near 550Kc. with the Gang plates fully meshed.

ECLIPSE RADIO PTY. LTD.

(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)

11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

Bulletin ELN-1 **File : Receivers A/c.** **Date : 1/10/46**

SUBJECT—Alignment Instructions—Receiver Type ELN

Operation	Generator Connection	Frequency	Dummy Antenna	Instructions
		Wave Change Switch on B/cast. Position.		
1.	To grid of 6U7G Tube.	455Kcs.	.01MFD. Mica capacitor in series with generator.	Leave grid cap on tube. Gang plates full out. Peak 2nd IF. transformer primary and secondary.
2.	To grid of 6J8G Tube.	455Kcs.	.01MFD. Mica capacitor in series with generator.	Leave grid cap on tube. Gang plates full out. Peak 1st IF. transformer primary and secondary.
3.	To antenna lead.	1400Kcs.	200MMFD. Mica capacitor in series with generator.	Turn dial pointer to 1400 Kcs. Adjust B/cast oscillator trimmer for logging and peak B/cast aerial coil trimmer.
4.	To antenna lead.	600Kcs.	200MMFD. Mica capacitor in series with generator.	Turn dial pointer to 600 Kcs. Peak B/cast series padder, rocking gang to and fro while adjusting for maximum output.
		Turn Wave Change Switch to Short Wave position.		
5.	To antenna lead.	16Mcs.	400 ohm non-inductive resistor in series with generator.	Turn dial pointer to 16 Mcs. Adjust S/wave oscillator trimmer for logging and peak S/wave aerial coil trimmer.
6.	To antenna lead.	7Mcs.	400 ohm non-inductive resistor in series with generator.	Turn dial pointed to 7Mcs. and check tracking.

ECLIPSE RADIO PTY. LTD.

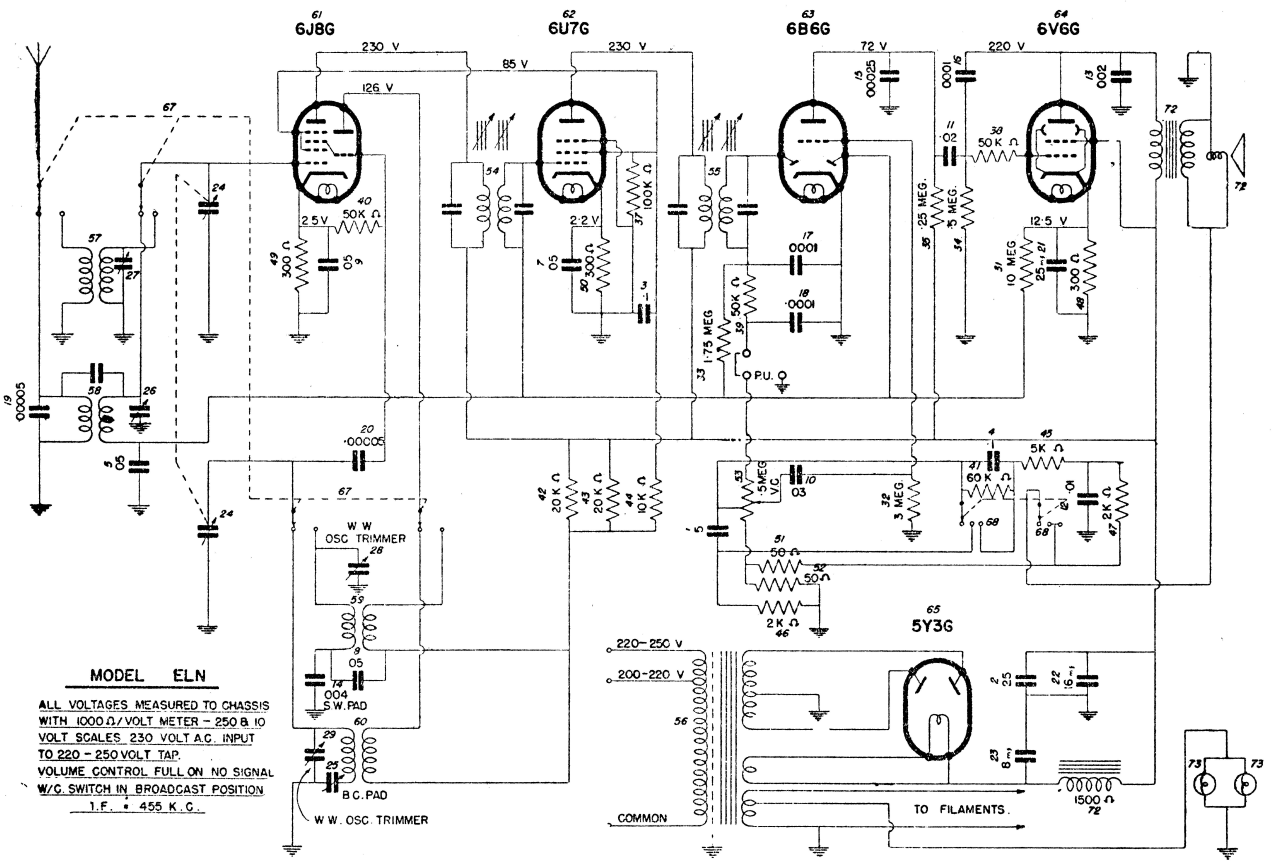
(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)

11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

Bulletin ELN-1 **File : Receivers A/c.** **Date : 1/10/46**

SUBJECT—Schematic Circuit Diagram—Receiver Type ELN



PICK-UP:

At the rear of the chassis three pin-jacks will be seen, two of which are bridged by a metal strip. To connect a gramophone pick-up, pull out the bridging piece and connect the pick-up wires as follows—

If a single wire with shielded braid is used, connect the centre wire to the centre pin-jack and the braid to the right hand pin-jack. The connections for other types of pick-up lead will be obvious if it is remembered that the centre pin-jack is the "live" one and the right hand is earth. On no account must the left-hand pin-jack be used for connecting pick-up.

It is essential that, after using the pick-up, the leads should be removed from the pin-jacks and the bridging strip replaced.

ECLIPSE RADIO PTY. LTD.
(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)
11-21 STURT STREET, SOUTH MELBOURNE
TECHNICAL BULLETIN

MONARCH RADIO

Bulletin ELN-1 File : Receivers A/c. Date : 1/10/46

SUBJECT—Voltage Table—Receiver Type ELN

EQUIPMENT:—

Volt Meter:—
1,000 ohms per volt with 0-500 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 1,000 Kc., volume control full on (clockwise) no signal.

Tube	Fil.	Plate	Screen	Cathode	Oscl. Plate
6J8G	6.3V	230V.	85V.	2.5V.	126V.
6U7G	6.3V	230V.	85V.	2.2V.	–
6B6G	6.3V	80V.	–	–	–
6V6GT	6.3V	220V.	230V.	12.5V.	–
5Y3G	5V.	72V./330V. RMs. The initial surge voltage across the first electrolytic (circuit No. 23) is 430 volts dropping to normal operating value of 340 volts. DC. voltage across field coil is 90 volts.			

ECLIPSE RADIO PTY. LTD.

(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)

11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

MONARCH RADIO

Bulletin ELN-1 **File : Receivers A/c.** **Date : 1/10/46**

SUBJECT—Component Parts List—Electrical—Receiver Type ELN

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
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.	.007 mfd Mica Condenser	1000V	5%	PC672
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.	25mfd Electrolytic Condenser	40PV	20%	PC660
22.	16mfd Electrolytic Condenser	525PV	20%	PC300
23.	8mfd 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			PC196
30.				
31.	10 megohm Carbon Resistor	1 watt	10%	PR236
32.	3 megohm Carbon Resistor	½ watt	10%	PR282
33.	1.75 megohm Carbon Resistor	½ watt	10%	PR248
34.	0.5 megohm Carbon Resistor	½ watt	10%	PR245
35.	250,000 ohm Carbon Resistor	1 watt	10%	PR496
37.	100,000 ohm Carbon Resistor	½ watt	10%	PR103
38.	50,000 ohm Carbon Resistor	½ watt	10%	PR160
39.	50,000 ohm Carbon Resistor	½ watt	10%	PR160
40.	50,000 ohm Carbon Resistor	½ watt	10%	PR160
41.	60,000 ohm Carbon Resistor	½ watt	10%	PR125

MONARCH RADIO

ECLIPSE RADIO PTY. LTD.

(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)

11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

Bulletin ELN-1 File : Receivers A/c. Date : 1/10/46

SUBJECT—Component Parts List—Electrical—Receiver Type ELN

Circuit No.	Part Name	Tol. ±	Rating	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	½ watt	10%	PR164
45.	5,000 ohm Carbon Resistor	½ watt	10%	PR250
46.	2,000 ohm Carbon Resistor	1 watt	10%	PR253
47.	2,000 ohm Carbon Resistor	½ watt	10%	PR253
48.	300 ohm Wire Wound Resistor	½ watt	10%	PR122
49.	300 ohm Wire Wound Resistor	½ watt	10%	PR258
50.	300 ohm Wire Wound Resistor	½ watt	10%	PR258
51.	50 ohm Wire Wound Resistor	½ watt	10%	PR280
52.	50 ohm Wire Wound Resistor	½ watt	10%	PR280
53.	.5 megohm Volume Control			PR579
54.	1st I.F. Transformer			PT753
55.	2nd I.F. 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.	Acoustinator Switch			PM597
69.	Aerial Terminal			PM306
70.	Earth Terminal			PM306
71.	Valve Shields (2)			PM217
72.	Dynamic Speaker, 12 inch— 1500 ohm Field 500 ohm Input			PM447
73.	6.3V .25 amp Pilot Lamp (2)			PM678
73.	1st I.F. Primary Adjusting Screw			
74.	1st I.F. Secondary Adjust. Screw			
75.	2nd I.F. Primary Adjust. Screw			
76.	2nd I.F. Secondary Adjust. Screw			
77.	Tuning Control			
78.	Pick-up Input			

ECLIPSE RADIO PTY. LTD.
(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)
11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

Bulletin ELN-1 **File : Receivers A/c.** **Date : 1/10/46**

SUBJECT—Component Parts List—Mechanical Receiver Type ELN

Part Name	Part Number
Escutcheon No. 41	18/508
Escutcheon Bands Chrome	43/510
Slide Bar Assembly	A106/E243
Dial Drum Assembly	A103/E243
Lever Assembly	A107/E243
Contact Strip Assembly (3 lug)	24/E233
Diffuser Assembly	A104/E243
Pointer Assembly	A102/E243
Dial Drive Spindle	10/E243
Fly Wheel	86/87
Spindle Insulator	14/E243
Spring Lever Mtg.	30/E231
Spring Diffuser Plate	10/526
Valve Shield Earth Contact	22/30C
Grid Clips	873/495
Dial Cord	12/282
Lamp Socket Assembly	A108/E243
Dial Glass	18/E243/1
Glass Clips	46/503
Knobs	1/E252
Knob Inserts	17/81
Felt Washers	124/71-1
Screws shelf to chassis	16/560-22
Nuts shelf to chassis	3/478-4
Washers shelf to chassis	153/250-4

ECLIPSE RADIO PTY. LTD.

(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)

11-21 STURT STREET, SOUTH MELBOURNE

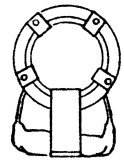
TECHNICAL BULLETIN

Bulletin ELN-1 **File : Receivers A/c.** **Date : 1/10/46**

SUBJECT—COIL AND IF: TRANSFORMER Connections—Receiver Type ELN

A.V.C.

(Outside secondary) Grid

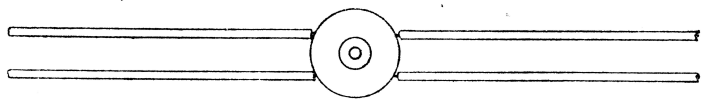


Earth

Antenna (Inside primary)

ANT. TRANS. B/CAST.

(Junction of circuit numbers 42, 43, 44 and 8) Red



Black (Padder cond.)

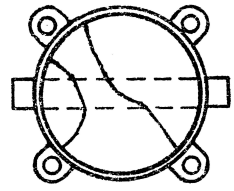
(6J8G Osc. plate) Blue

Green (6J8G Oscl. grid cond.)

OSCL. COIL B/CAST.

Earth

Earth



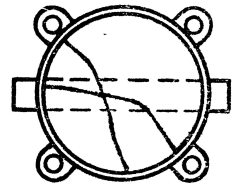
Antenna

Grid

ANT. TRANS. S/WAVE.

6J8G Oscl. grid cond.

6J8G Oscl. plate



(Junction of circuit numbers 42, 43, 44 and 8)

Series padder

OSCL. COIL S/WAVE.

ECLIPSE RADIO PTY. LTD.
(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)
11-21 STURT STREET, SOUTH MELBOURNE

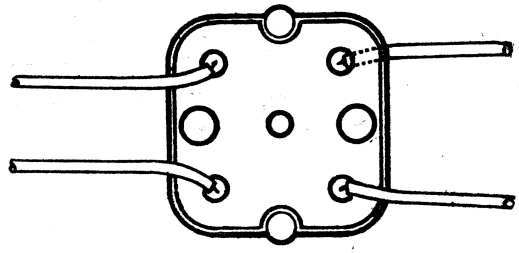
TECHNICAL BULLETIN

Bulletin ELN-1 **File : Receivers A/c.** **Date : 1/10/46**

SUBJECT—Coil and IF. Tranformer Connections—Receiver Type ELN

(Junction of circuit numbers 5 and 33) Black

Green (6U7G Grid)



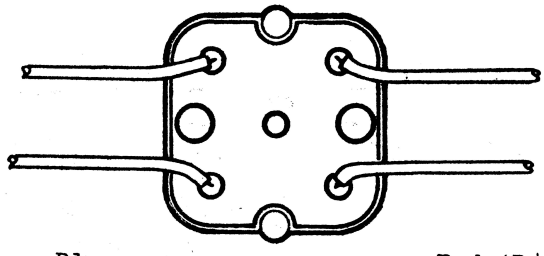
(6J8G Plate) Blue

Red (B+)

1st IF. TRANS.

(Junction of circuit numbers 17, 33 and 39) Black

Green (6B6G Diode)

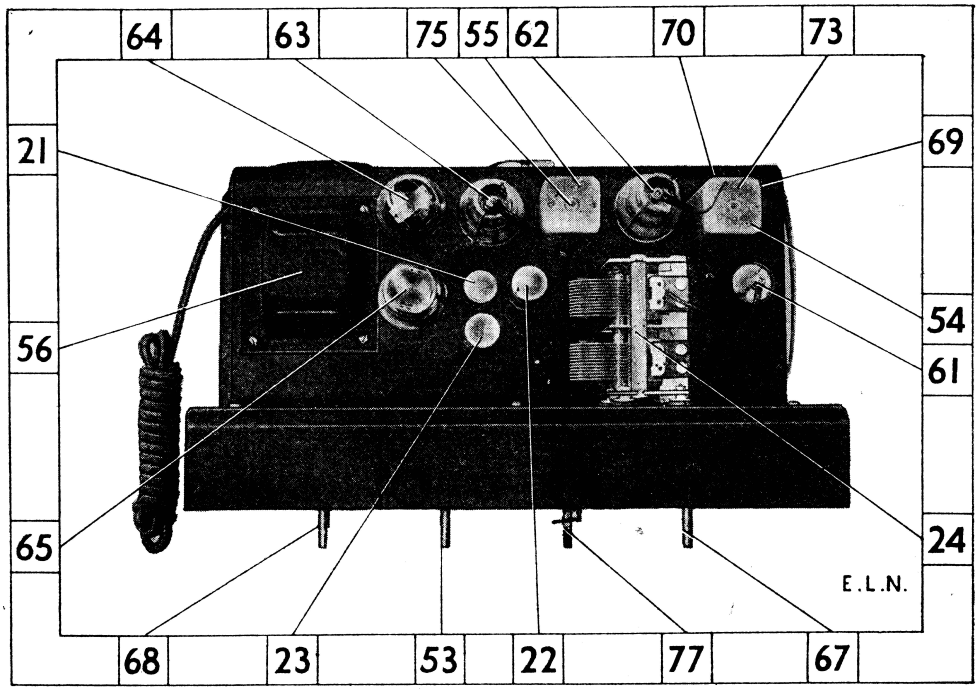


(6U7G Plate) Blue

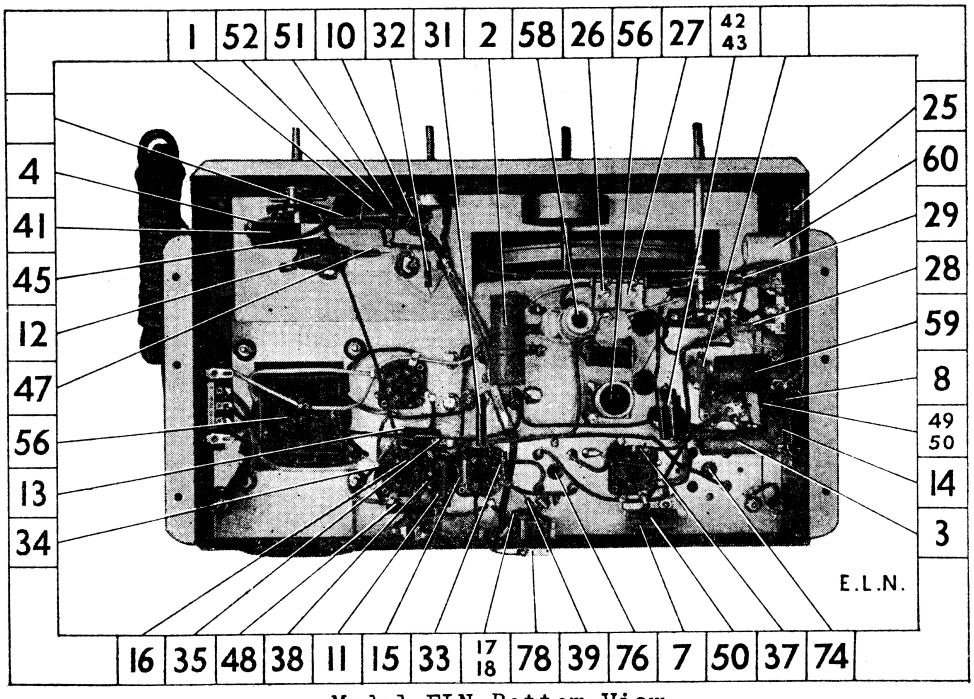
Red (B+)

2nd IF. TRANS.

SUBJECT—Chassis—Top and Bottom Views—Receiver Type ELN



Model ELN, Top View.



Model ELN, Bottom View.