



# RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

126-130 GRANT STREET, SOUTH MELBOURNE, S.C.4.

## TECHNICAL BULLETIN

BULLETIN LS-1

File:-Receivers A/c.

Date: 14/5/46.

Page 1.

SUBJECT-

Type "LS" Console 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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SUBJECT-Alignment Instructions-Receiver Type "LS"

Equipment:-Signal Generator.

Dummy Capacitor .01MFD. Mica.

Dummy Capacitor 200 MMFD. Mica.

Output Meter.

Alignment Tool.

Alignment Conditions:-

Load Impedance 5,000 Ohms.

Output Level 50 milliwatts.

Volume Control Full on (clockwise).

Alignment:-Intermediate Frequency 455Kc.

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 540-1640Kc.

Set dial pointer to the end of travel mark on the dial calibration near 550Kc. (condenser gang plates fully meshed).

Operation	Generator Connection	Frequency	Dummy Capacity	Instructions
1.	To grid of 6B8G	455Kc.	.01MFD mica capacitor in series with generator.	Leave grid cap on. Peak 2nd IF. transformer primary then secondary.
2.	Grid of 6A8G	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 in series with generator.	Set pointer at 1400Kc. Adjust oscillator and aerial trimmers for maximum output.
4.	To antenna lead	600Kc.	200MMFD in series with generator.	Set dial pointer on 600 Kc. Peak series padder, rocking gang to and fro while adjusting for maximum output.

SUBJECT-Technical Specifications-Receiver Type "LS"

Tube Complement:-

Type 6A8G Converter.

Type 6B8G IF. Amplifier, AVC., Detector, 1st Audio.

Type 6V6GT Beam Power Output.

Type 5Y3G Full Wave Rectifier.

Intermediate Frequency: 455Kc.

Tuning Range: 540Kc (Kilocycles) to 1640 Kc.

555M. (Meters) to 182.9M.

Calibration: Straight Line Frequency.

Power Consumption: 45 Watts (approx.)

General Description:

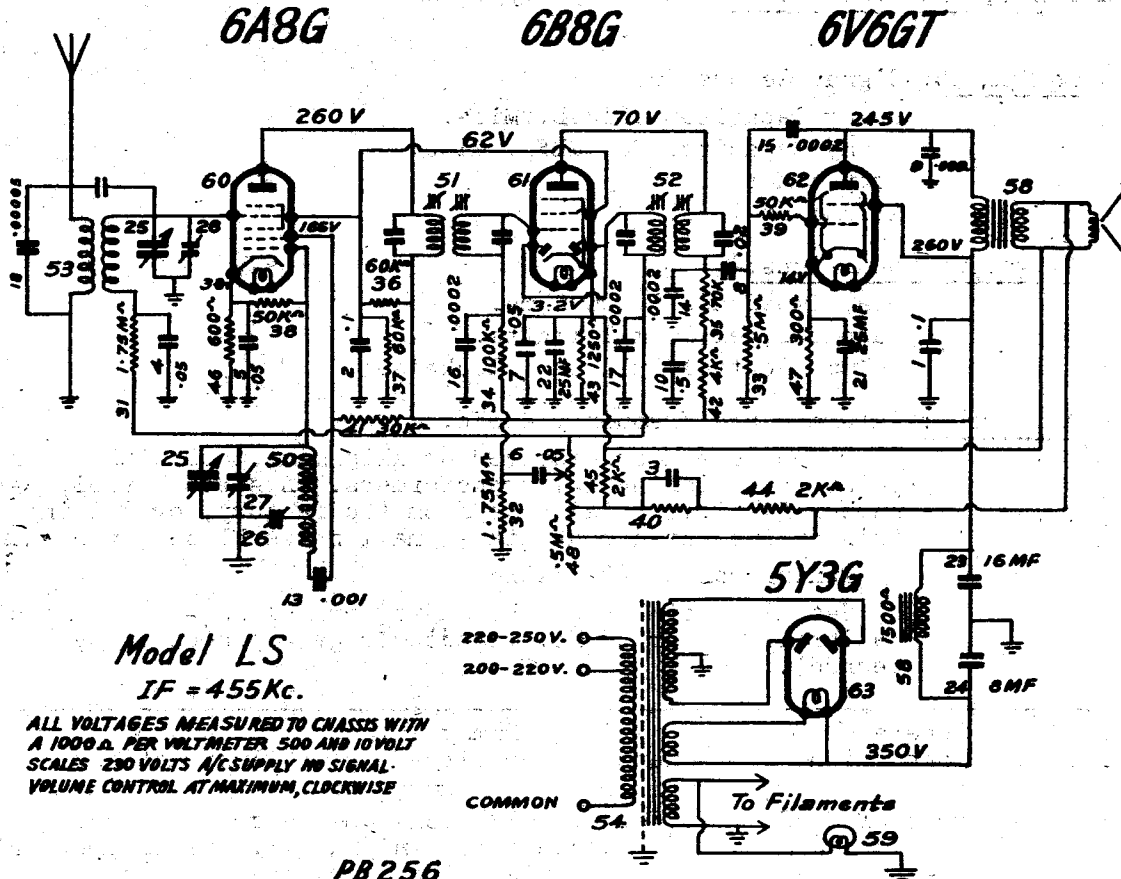
The type "LS" console model is a 4 tube reflexed superheterodyne of unusual design. The usual disadvantages of reflexed receivers, i.e., low volume distortion and failure of the volume control to cut off, are overcome.

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

High tension is supplied from a full wave rectifier 5Y3G and filtered by an 8uf. and 16uf. electrolytic condenser in conjunction with the loud-speaker field coil.

A.V.C. is applied to the 6A8G tube only. Volume is controlled by varying the reflexed audio signal applied to the 6B8G tube. The audio output from 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.

SUBJECT-Schematic Circuit Diagram-Receiver Type "LS"



Model LS  
 IF = 455Kc.

ALL VOLTAGES MEASURED TO CHASSIS WITH  
 A 1000 $\Omega$  PER VOLTMETER 500 AND 10VOLT  
 SCALES 230 VOLTS A/C SUPPLY NO SIGNAL-  
 VOLUME CONTROL AT MAXIMUM, CLOCKWISE

PB256



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SUBJECT-Component Parts List-Electrical-Receiver Type "LS"

Circuit No.	Part Name	Tol. ±	Rating	Radio Corp. Part No.
40.	10,000 Ohm Carbon Resistor	10%	$\frac{1}{2}$ watt	PR164
41.	30,000 Ohm Carbon Resistor	10%	$\frac{1}{2}$ watt	PR151
42.	4,000 Ohm Carbon Resistor	10%	$\frac{1}{2}$ watt	PR288
43.	2,500 Ohm Carbon Resistor	10%	$\frac{1}{2}$ watt	PR300
	2,500 Ohm Carbon Resistor	10%	$\frac{1}{2}$ watt	PR300
	2 resistors in parallel to make 1,250 Ohms			
44.	2,000 Ohm Carbon Resistor	10%	$\frac{1}{2}$ watt	PR253
45.	2,000 Ohm Carbon Resistor	10%	$\frac{1}{2}$ watt	PR253
46.	600 Ohm Carbon Resistor	10%	$\frac{1}{2}$ watt	PR338
47.	300 Ohm Wire Wound Resistor	10%	1 watt	PR122
48.	.5 Megohm Carbon Potentiometer	-	-	PR605
49.				
50.	Oscillator Coil			PT414
51.	1st IF. Transformer			PT461
52.	2nd IF. Transformer			PT462
53.	Antenna Transformer			PT381
54.	Power Transformer (200-250V mains)			PT770
	Power Transformer (200-260V mains)			PT771
55.				
56.				
57.	Socket, 8 pin			PM532
58.	Speaker, 5,000 Ohm input 1,500 Ohm field			K110
59.	Lamp, Single Contact		6-8V 3CP	PM450
60.	Tube Type 6A8G			
61.	Tube Type 6B8G			
62.	Tube Type 6V6GT			
63.	Tube Type 5Y3G			



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SUBJECT-Voltage Table-Receiver Type "LS"

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	Oscil. Plate
6A8G	6.3V	260V	62V	3.8V	166V.
6B8G	6.3V	70V	62V	3.2V	-
6V6GT	6.3V	245V	260V	14V	-
5Y3G	5V	330/330V. RMS. The initial surge voltage across			

the first electrolytic (circuit No. 24) is 430 volts dropping to normal operating value of 350 volts. DC voltage across field coil is 90 volts.

SUBJECT-Component Parts List-Mechanical-Receiver Type "LS"

Part Name	Part Number
<u>Chassis viewed from rear</u>	
Roller Bracket Assembly (left)	A104/614-1
Roller Bracket Assembly (right)	A104/614-2
Chassis Mount Bracket (right)	7/614-1
Chassis Mount Bracket (left)	7/614-2
Bracing Strip (right)	12/614-1
Bracing Strip (left)	12/614-2
Chassis Assembly	A101/614
Dial Idler Pulley (2)	13/613
Bracket-Jockey Pulley	9/589
Spring Clip-Jockey Pulley	176/250
Spring Jockey Pulley	8/613
Dial Track Wire	7/589-5
Dial Track Straining Screws (2)	8/589
Valve Shield	162/30A
Valve Shield Clamp	161/30A
Valve Shield Earth Clip	22/30C
Power Contact Strip	A105/E243
Dial Pointer Assembly	A102/614
Roller Shield Assembly	A105/614
Chassis Cover	18/614
Dial Celluloid	17/614
Dial Roller Assembly	A106/614
Comprising:	
Roller	5/614
End pieces	4/614
Dial Reading	13/614
Cabinet Type C1	169/221-1
Lamp Holder Assembly	A107/614
Light Shield	21/614
Control Knobs (2)	77/81
Control Knob Springs (2)	17/81
Fly Wheel	86/87
Bowden Cable	11/609-3
Dial Cord 3 ft.	7/282

SUBJECT-Component parts list-Electrical-Receiver Type "LS"

Circuit No.	Part Name	Tol. ±	Rating	Radio Corp. Part No.
1.	.1MFD Paper Condenser	20%	400V DCW	PC103
2.	.1MFD Paper Condenser	20%	400V DCW	PC103
3.	.25MFD Paper Condenser	20%	200V DCW	PC146
4.	.05MFD Paper Condenser	20%	200V DCW	PC102
5.	.05MFD Paper Condenser	20%	200V DCW	PC102
6.	.05MFD Paper Condenser	20%	200V DCW	PC102
7.	.05MFD Paper Condenser	20%	200V DCW	PC102
8.	.02MFD Paper Condenser	20%	400V DCW	PC111
9.	.002MFD Paper Condenser	20%	600V DCW	PC112
10.	.5MFD Paper Condenser	20%	400V DCW	PC115
11.				
12.				
13.	.001MFD Mica Condenser	10%	1000VT	PC108
14.	.0002MFD Mica Condenser	10%	1000VT	PC124
15.	.0002MFD Mica Condenser	10%	1000VT	PC124
16.	.0002MFD Mica Condenser	10%	1000VT	PC124
17.	.0002MFD Mica Condenser	10%	1000VT	PC124
18.	.00005MFD Mica Condenser	10%	1000VT	PC141
19.				
20.				
21.	25MFD Electrolytic Condenser	20%	40VP	PC269
22.	25MFD Electrolytic Condenser	20%	40VP	PC269
23.	16MFD Electrolytic Condenser	20%	525VP	PC300
24.	8MFD Electrolytic Condenser	20%	525VP	PC313
25.	2 Gang Variable Condenser	-	-	PC679
26.	150-500MMFD Padder Condenser	-	-	PC164
27.	0-30MMFD Trimmer Condenser	-	-	PC663
28.	1.5-18MMFD Trimmer Condenser	-	-	PC250
29.				
30.				
31.	1.75 Megohm Carbon Resistor	10%	1/2 watt	PR248
32.	1.75 Megohm Carbon Resistor	10%	1/2 watt	PR248
33.	500,000 Ohm Carbon Resistor	10%	1/2 watt	PR245
34.	100,000 Ohm Carbon Resistor	10%	1/2 watt	PR103
35.	70,000 Ohm Carbon Resistor	10%	1/2 watt	PR256
36.	60,000 Ohm Carbon Resistor	10%	1 watt	PR415
37.	60,000 Ohm Carbon Resistor	10%	1/2 watt	PR125
38.	50,000 Ohm Carbon Resistor	10%	1/2 watt	PR160
39.	50,000 Ohm Carbon Resistor	10%	1/2 watt	PR160





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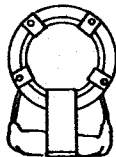
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A.V.C.

Earth

(Outside secondary) Grid

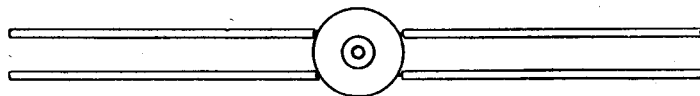


Antenna (Inside primary)

ANTENNA TRANS.

(Padder cond.) Red

Black (Padder cond.)



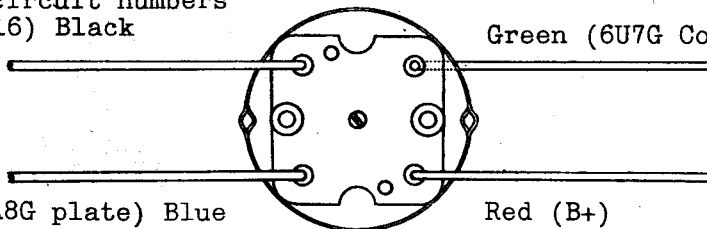
(6A8G Osci. plate cond.) Blue

Green (6A8G Osc. grid)

OSCL. COIL

(Junction of circuit numbers  
34 and 16) Black

Green (6U7G Control grid)



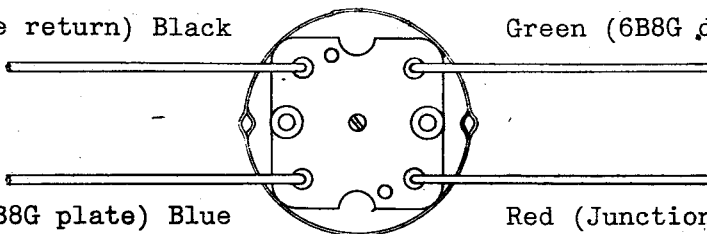
(6A8G plate) Blue

Red (B+)

1st IF. TRANS.

(Diode return) Black

Green (6B8G diode)



(6B8G plate) Blue

Red (Junction of circuit  
numbers 8, 14 and 31)

2nd IF. TRANS.



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BULLETIN LS-2

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SUBJECT-Substitute Valves-Receiver Type "LS"

The type 6A8G and 6B8G valves may be substituted with types 6J8G and 6G8G respectively.

These valve types must be used in combination and cannot be substituted as independent replacements otherwise distortion at low volume will result.

When using the types 6J8G and 6G8G tubes a slight circuit alteration is necessary as follows:-

- (a) An additional 60,000 ohm carbon resistor tol.± 10% 1 watt (part number PR415) is to be connected in parallel and directly across the existing 60,000 ohm 1 watt resistor circuit number 36.
- (b) The 60,000 ohm  $\frac{1}{2}$  watt resistor circuit number 37 is to be replaced with a 10,000 ohm carbon resistor tol± 10%  $\frac{1}{2}$  watt (part number PR164).