



# RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.  
126-130 GRANT STREET, SOUTH MELBOURNE, S.C.4.

## TECHNICAL BULLETIN

BULLETIN DL-2.  
File:-Receivers AC.  
Date: 29/1/47.  
Page 1.

SUBJECT-

Model "DL"

4 Tube Superheterodyne Mantel

Receiver.

For operation from:-

200-250 Volts 50 Cycle AC. 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. Summary of Changes Made During Production.

**This Receiver is NOT in Production**  
**Information is for Service Purposes ONLY**

SUBJECT--

Alignment Procedure--Model "DL"

---

Operation	Generator Frequency	Generator Connection	Dummy Antenna	Instructions
1.	455 Kc.	To control grid of IF. tube.	0.01MFD. mica capacitor in series with generator.	Leave grid clip on tube. Gang plates full out. Peak 2nd IF. transformer primary and secondary.
2.	455 Kc.	To control grid of converter tube.	0.01MFD. mica capacitor in series with generator.	Leave grid clip on tube. Gang plates full out. Peak 1st IF. transformer primary and secondary.
3.	1400 Kc.	To antenna lead.	50MMFD. mica capacitor in series with generator.	Turn gang and dial pointer to 1400 Kc. Adjust Oscillator trimmer for logging and peak aerial trimmer.
4.	600 Kc.	To antenna lead.	50MMFD. mica capacitor in series with generator.	Turn gang and dial pointer to 600 Kc. Adjust series padder for maximum output rocking gang to and fro through the signal while adjusting.

---

SUBJECT- Technical Specifications-Model "DL"

Tube Complement:-

Type 6A8G Converter.  
Type 6B8G IF. Amplifier and Diode Detector.  
Type 6V6G Beam Power Output Amplifier.  
Type 5Y3G Full Wave Rectifier.

Intermediate Frequency:-

455 Kc.

Tuning Range:-

540 Kc. (Kilocycles) to 1650 Kc.

Power Consumption:-

45 Watts (approximately).

General Description:-

The Model "DL" is a 4 tube superheterodyne mantel broadcast receiver having a sensitivity of 200 microvolts for an output of 50 milliwatts with a 5,000 ohm load. Operation is from 200-250 volt 50 cycle AC. Mains.

The circuit consists of tuned aerial and oscillator stages with a type 6A8G converter tube followed by an IF. amplifier stage using the pentode section of a diode pentode tube type 6B8G.

The output from the second IF. transformer circuit No. 38 is fed to the 6B8G diodes for detection. The audio component developed across the diode load resistor circuit No. 23 is fed via the coupling condenser circuit No. 6 to the grid of the beam power output tube type 6V6G.

A separate cathode bias circuit is provided for each tube. A slight degree of regeneration is obtained by connecting the .05MFD. bypass condenser (circuit No. 5) to the 6A8G cathode.

Volume is controlled by varying the bias on the converter tube.

High tension is obtained from the full wave rectifier type 5Y3G after filtering with two 8MFD. electrolytic condensers in conjunction with the speaker field coil.



# RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

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

## TECHNICAL BULLETIN

BULLETIN DL-2.

File:-Receivers AC.

Date: 29/1/47.

Page 3.

SUBJECT-

Alignment Procedure-Model "DL"

### Equipment:-

Signal Generator.

Output Meter.

Alignment Tool.

Dummy Antenna:-

0.01MFD. Mica Capacitor.

50MMFD. Mica Capacitor.

### Alignment Conditions:-

Load Impedance-4,000 Ohms.

Output Level-50 Milliwatts.

Volume Control-Maximum Volume (fully clockwise).

Tone Control-High Tone Position.

### Dial Pointer Setting:-

Fully mesh the gang plates then set the dial pointer in line with the end of travel mark on the dial calibration near 550 Kc.

### Alignment:-

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 for alignment purposes or failing this an insulated rod with a small brass blade may be used.

SUBJECT- Component Parts List-Model "DL"

<u>Circuit No.</u>	<u>Part Name</u>	<u>Tol.±</u>	<u>Rating</u>	<u>Part Number</u>
1.	.25MFD. Paper Condenser	20%	200V. DCW	PC145
2.	.1MFD. Paper Condenser	20%	400V. DCW	PC103
3.	.1MFD. Paper Condenser	20%	200V. DCW	PC218
4.	.05MFD. Paper Condenser	20%	400V. DCW	PC109
5.	.05MFD. Paper Condenser	20%	200V. DCW	PC102
6.	.05MFD. Paper Condenser	20%	200V. DCW	PC102
7.	.006MFD. Paper Condenser	20%	600V. DCW	PC217
8.				
9.	.001MFD. Mica Condenser	10%	1000VT.	PC108
10.	.00025MFD. Mica Condenser	10%	1000VT.	PC126
11.				
12.	25MFD. Electrolytic Condenser	20%	40PV.	PC269 changed to PC318
13.	8MFD. Electrolytic Condenser	20%	525PV.	PC262
14.	8MFD. Electrolytic Condenser	20%	525PV.	PC313
15.				
16.	2 Gang Variable Condenser			PC253
17.	Series Padder Condenser			PC164
18.	20MMFD. Wire Wound Condenser			PC166
19.	Antenna Trans. Trimmer Cond. 1.5-18MMFD.			PC250
20.	Wire Wound Trimmer			PC367
21.				
22.	.75 Megohm Carbon Resistor	10%	$\frac{1}{2}$ Watt	PR267
23.	.5 Megohm Carbon Resistor	10%	$\frac{1}{2}$ Watt	PR245
24.	50,000 Ohm Carbon Resistor	10%	$\frac{1}{2}$ Watt	PR160
25.	50,000 Ohm Carbon Resistor	10%	$\frac{1}{2}$ Watt	PR160
26.	50,000 Ohm Carbon Resistor	10%	$\frac{1}{2}$ Watt	PR160
27.	40,000 Ohm Carbon Resistor	10%	1 Watt	PR198
28.	40,000 Ohm Carbon Resistor	10%	1 Watt	PR198
29.	30,000 Ohm Carbon Resistor	10%	$\frac{1}{2}$ Watt	PR151
30.	400 Ohm Wire Wound Resistor	10%	$\frac{1}{2}$ Watt	PR268
31.	300 Ohm Wire Wound Resistor	10%	1 Watt	PR122
32.	250 Ohm Wire Wound Resistor	10%	$\frac{1}{2}$ Watt	PR259
33.	100,000 Ohm Carbon Pot. (Tone Control)			PR328
34.	25,000 Ohm Carbon Pot. (Volume Control)			PR373 changed to PR378
35.				
36.				
37.	1st IF. Transformer			PT386
38.	2nd IF. Transformer			PT387
39.	Oscillator Coil			PT414
40.	Antenna Transformer			PT381



# RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

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

## TECHNICAL BULLETIN

BULLETIN DL-2.

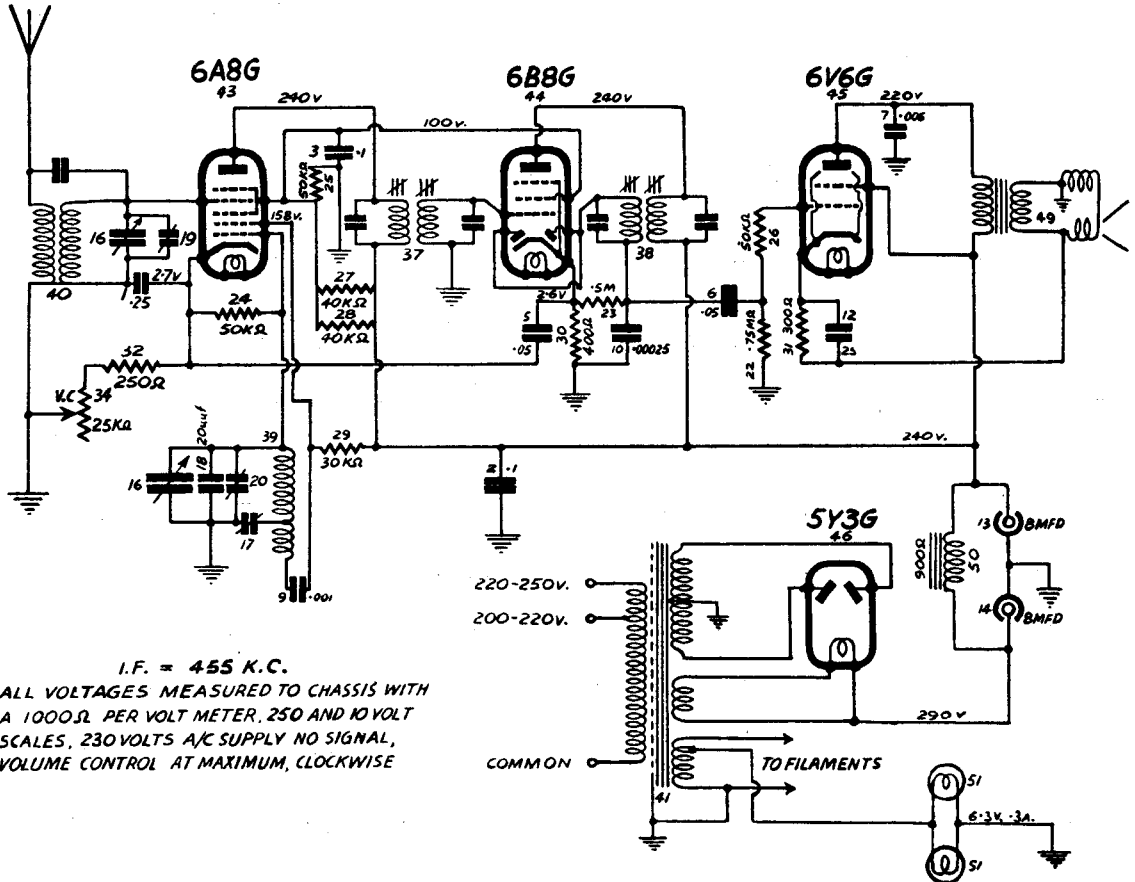
File:-Receivers AC.

Date: 29/1/47.

Page 5.

SUBJECT-

Schematic Circuit Diagram-Model "DL"



SUBJECT-

Voltage Table-Model "DL"

Equipment:-

DC. Volt Meter: 1,000 ohm per volt meter with 0-10, 0-250 and 0-500 volt scales.

Conditions of Test:-

230 volt 50 cycle AC. input with primary tap adjusted to 220-250 volt position.

Volume control at maximum volume (minimum bias position), no signal.

All voltages measured from tube socket contacts to chassis.

Tube	Fil.	Plate	Screen	Cathode	Osc. Plate
6A8G	6.3V.	240V.	100V.	2.7V.	158V.
6B8G	6.3V.	240V.	100V.	2.6V.	-
6V6G	6.3V.	220V.	240V.	12.5V.	-
5Y3G	5V.	315V/315V. RMS. The initial surge voltage across the first electrolytic (circuit No. 14) is 420 volts, dropping to normal operating value of 290 volts.			

DC. voltage across field coil is 50 volts.



# RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

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

## TECHNICAL BULLETIN

BULLETIN DL-2.

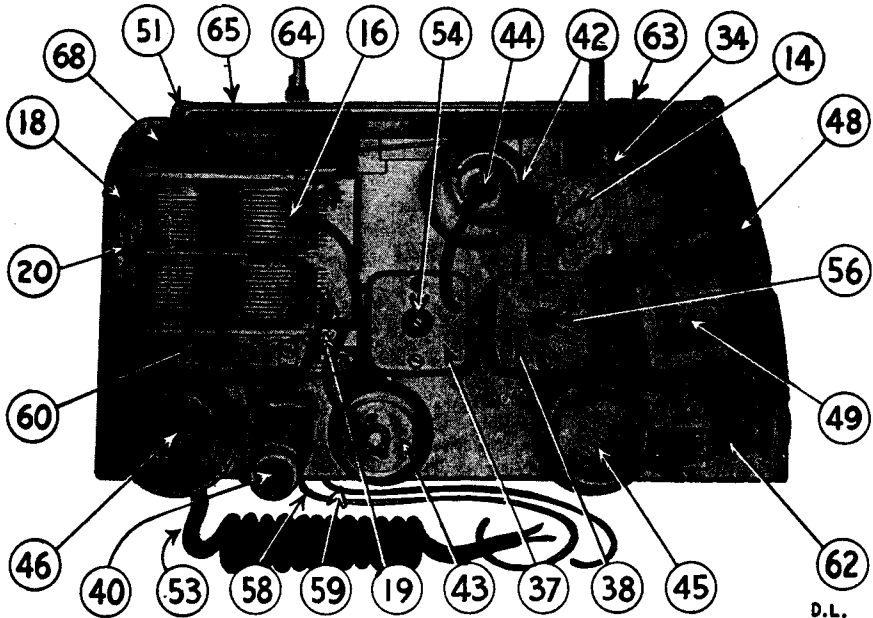
File:-Receivers AC.

Date: 29/1/47.

Page 7.

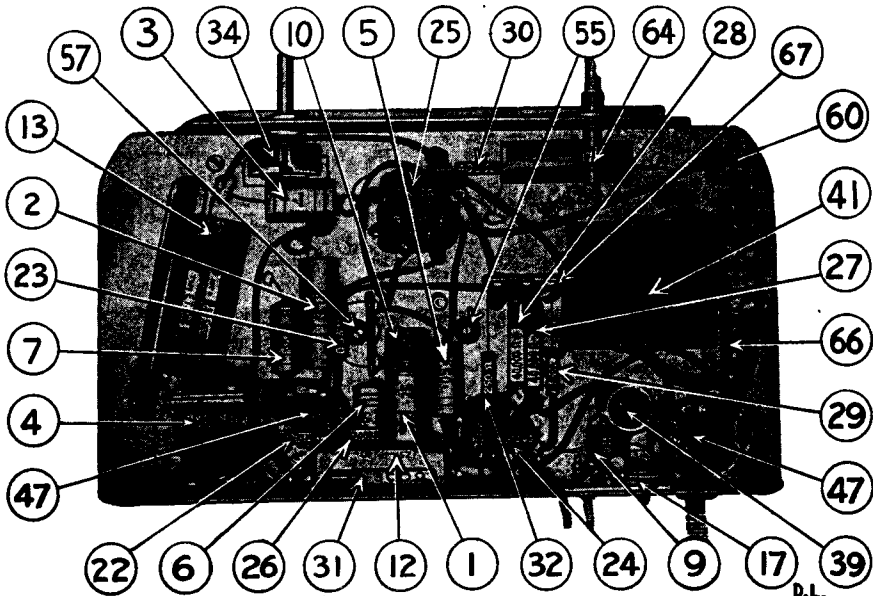
SUBJECT-

Top View of Chassis-Model "DL"



D.L.

Bottom View of Chassis-Model "DL"



D.L.



JECT-

Summary of Changes Made

During

The Production of this Receiver.

- . Two dial lamps 3.5V. .3A. min. screw base G3 $\frac{1}{2}$  bulb (part No. PM121) or two 3.8V. .3A lamps min. screw base G3 $\frac{1}{2}$  bulb (part No. PM474), wired in series and across the 6.3 volt fil. winding were used when the 6.3V lamps PM140 were not obtainable. Insulated lamp socket part No. is All4/246.
  - . A 30,000 ohm carbon resistor tol.  $\pm 10\%$   $\frac{1}{2}$  watt part No. PR151 was wired across the oscillator coil secondary to allow the use of a type 6J8G or a type 6A8G converter tube as direct substitutes.
  - . The 100,000 ohm tone control circuit No. 33 and the .05MFD/400V. cond. circuit No. 4 were deleted during the war.
  - . A small batch of receivers were produced using a speaker part No. PM487. 8000 ohm input 1500 ohm field. These speakers were used because the correct speaker PM596 were not obtainable.
- Drop in B+ voltage 20 volts.  
Drop in overall gain 3.5 DB.
- . An EK2G tube was used in place of the 6A8G or 6J8G tube when the latter tubes were not available.

Circuit changes for an EK2G tube:-

- A. Circuit No. 32: 250 ohm  $\frac{1}{2}$  watt resistor PR259 changed to 500 ohm  $\frac{1}{2}$  watt resistor PR274.
- B. Circuit No. 1: .25MFD. paper cond. PC146 changed to .5MFD. paper cond. PC121.
- C. Circuit No. 27 and 28: Two 40,000 ohm 1 watt resistors wired in parallel are to be wired in series.
- D. The 30,000 ohm resistor PR151 across the oscl. coil secondary is not required.



# RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

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

## TECHNICAL BULLETIN

BULLETIN DL-2.

File:-Receivers AC.

Date: 29/1/47.

Page 9.

SUBJECT-

Component Parts List-Model "DL"

<u>Circuit No.</u>	<u>Part Name</u>	<u>Tol.±</u>	<u>Rating</u>	<u>Part Number</u>
41.	Power Transformer 200-250V. 50 cycle			PT437
	Power Transformer 200-260V. 40 cycle			PT773
42.	Valve Shield			PM217
43.	6A8G Tube			
44.	6B8G Tube			
45.	6V6G Tube			
46.	5Y3G Tube			
47.	8 Pin Socket			PM532
48.	Dynamic Speaker 5 inch			
49.	Input Trans. 7,000 Ohm Imped. }			PM596
50.	Field Coil 900 Ohm }			
51.	Dial Lamps 6.3V. .3A Min Screw Base, T3¼ Bulb			PM140
52.				
53.	AC. Mains Cord			
54.	1st IF. Pri. Adj. Screw			
55.	1st IF. Sec. Adj. Screw			
56.	2nd IF. Pri. Adj. Screw			
57.	2nd IF. Sec. Adj. Screw			
58.	Aerial Lead			
59.	Earth Lead			
MECHANICAL PARTS				
60.	Metal Chassis			
61.	Gang Mount Platform			{ 3/296 changed to 48/246 23/246
62.	Speaker Mount Bracket			A106/246
63.	{ Dial Pointer (Slides on flat metal bar)			A104/296
	{ Dial Pointer (Slides on edge of dial frame)			10/296
64.	Drive Spindle			22/246
65.	Dial Pointer Track Bar			
66.	{ Mains Adj. Term Strip			A101/30C-1
	{ Strip with lugs			36/205
	{ Strip without lugs			A103/509
67.	Junction Strip Assembly			A107/246
68.	Dial Drum			{ changed to A107/246-1

SUBJECT-

Component Parts List-Model "DL"

Pilot Lamp Socket and Bkt. Assy. LH.	{ A108/246 changed to A129/30C A109/246
Pilot Lamp Socket and Bkt. Assy. RH.	{ changed to A129/30C
Dial Frame (Chassis number below 12,000)	A103/246
Dial Frame (Chassis number above 12,000)	49/246
49/246 requires dial pointer A104/296	
*Dial Reading-Glass-Red	5/296-1
Dial Reading-Glass-Amber	5/296-2
Dial Reading-Glass-Green	5/296-3
Dial Reading-Glass-Blue	5/296-4
Rubber Spacers-dial reading	21/246
Cabinet Back	2/296
Tuning Knob Spring	86/71
Terminal Post	A113/246

\*Refer Service Bulletin DL-1 for fitting dial reading to cabinet.

CABINET FITTINGS

<u>Cabinet</u>	<u>Knobs</u>	<u>Dial Reading</u>
<u>Colour-Part No.</u>	<u>Colour-Part No.</u>	<u>Colour-Part No.</u>
Mottled Red 1/246-13	Walnut 22/81-4	Red 22/296-1
Chinese Red 1/246-14	Walnut 22/81-4	Red 22/296-1
Amber 1/246-9	Champagne 21/82-6	Amber 22/296-2
Walnut 1/246-1	Walnut 22/81-4	Amber 22/296-2
Ivory 1/246-10	Champagne 22/81-6	Green 22/296-3
Champagne 1/246-4	Champagne 22/81-6	Green 22/296-3
Green 1/246-2	Green 22/81-3	Green 22/296-3



# RADIO CORPORATION PTY. LTD.

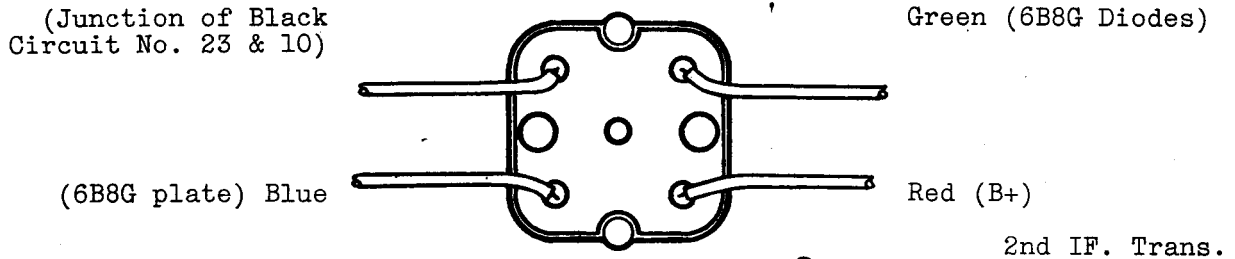
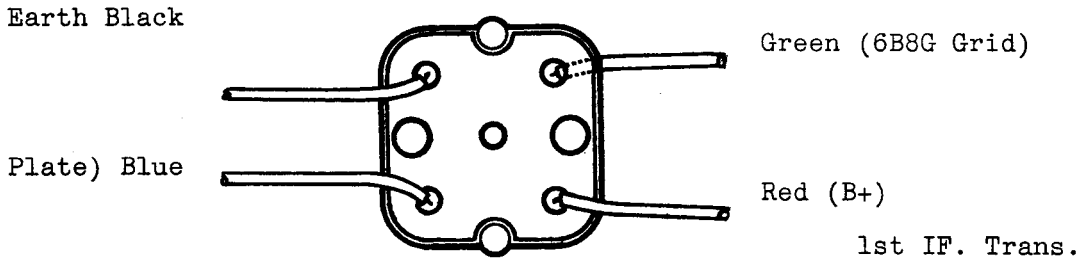
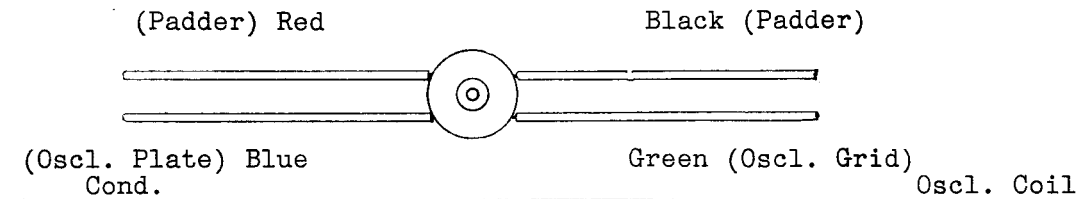
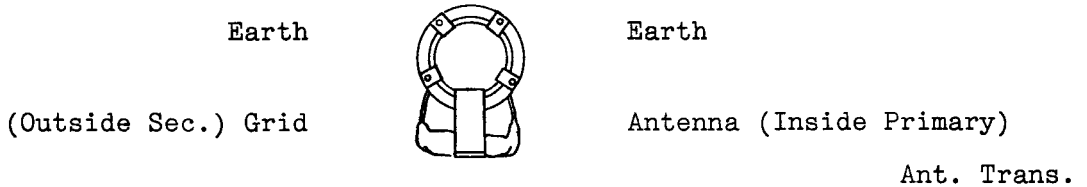
DIVISION OF ELECTRONIC INDUSTRIES LTD.  
126-130 GRANT STREET, SOUTH MELBOURNE, S.C.4.

BULLETIN DL-2  
File:—Receivers AC.  
Date: 29/1/47.  
Page 11.

## TECHNICAL BULLETIN

SUBJECT—

Coil and IF. Transformer Connections—Model "DL"



PT437

PT773

Common	-Red - Primary-Red	-Common
200-230V.	-Green	Green-200-220V.
230-250V.	-Black	Black-220-240V.
		White-240-260V.

HT. Sec.—Blue—Start  
Yellow—Centre Tap  
Blue—

Static Shield—yellow—habitual wire  
LT. Sec.—winding wire

Power Trans.



# RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

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

## TECHNICAL BULLETIN

BULLETIN DL-2.

File:--Receivers AC.

Date: 29/1/47.

Page 13.

SUBJECT--

Summary of Changes Made

During

The Production of this Receiver

6. 20MMFD. wire wound cond. PC166 changed to a 15MMFD. to improve peaking position of oscillator trimmer.
7. .006MFD. cond. circuit No. 7 changed to .005MFD. part No. PC252 to improve tone.
8. An EK32G tube may be used as a direct substitute for the 6A8G or 6J8G tube in this model.
9. A 6A8 tube was used when 6A8G tubes were not obtainable. A 10MMFD. wire wound cond. PC307 is required across oscl. trimmer to improve peaking position.
10. A 6G8G tube may be used as a direct substitute for the 6B8G tube.
11. Rola type K5 dynamic speaker (part No. PM596) 7,000 ohm input, 1500 ohm field coil was changed to a Rola type 5C permag speaker (part No. K109) 5000 ohm input and a 14 henry choke (part No. PT765) in place of the field coil. This change was necessary due to Rola Co. not manufacturing dynamic speakers.



# RADIO CORPORATION PTY. LTD.

DIVISION OF ELECTRONIC INDUSTRIES LTD.

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

## TECHNICAL BULLETIN

BULLETIN: DL 1  
File: Receivers,  
AC.

Date: 3-1-46

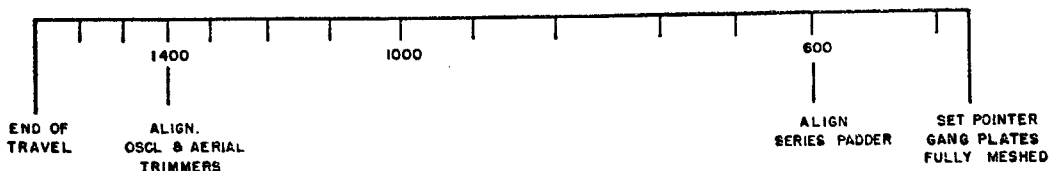
Page 1

SUBJECT—SERVICE: MODEL "DL" CABINET AND DIAL

The Model "DL" cabinet and dial assemblies have been modified so that the dial glass is assembled into the cabinet and not to the dial assembly of the chassis as hitherto. This applies to serial numbers from 12000 upwards. Should it be necessary to replace cabinets on Model "DL" receivers with serial numbers below 12000, the following action is necessary:—

1. Order the cabinet using the Part No. 1/246 and in addition order four (4) off Speed Nuts—Part No. 227/250.
2. Remove the glass dial reading from the set. Dispense with the four (4) rubber blocks and break off the lugs which were used to hold the glass.
3. If the original glass dial reading is intact it may be cut down to suit the new cabinet. Mark the length of the glass  $3\frac{1}{2}$  in. each side of the centre line and cut so that the new overall length is  $6\frac{1}{2}$  in.
4. The dial readings of the correct size to fit the new cabinet may be ordered under the following parts numbers—
 

Red .. ..	23/296-1
Amber.. ..	23/296-2
Green.. ..	23/296-3
Blue .. ..	23/296-4
5. Fit the cutdown or new glass into the cabinet and fasten by means of the speed nuts which are pushed over the studs provided for that purpose.
6. Carry out alignment and logging, using the alignment chart provided with this bulletin. A reproduction of the card is shown below so that, should the original card be lost, a new one can be made using the dimensions shown.



MODEL DL  
ALIGNMENT CHART.

P.B.248