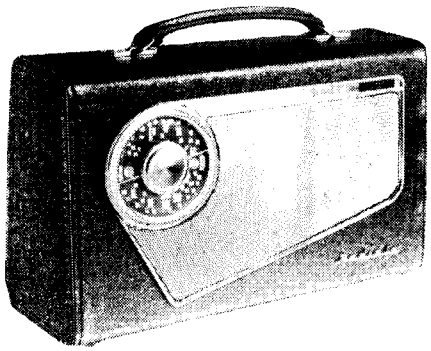
TECHNICAL INFORMATION AND SERVICE DATA

AWA RADIOLA

Portable Models 581-P & 581-PZ

FIVE VALVE, BROADCAST, DRY-CELL BATTERY or A.C. POWER UNIT OPERATED SUPERHETERODYNE



Issued by:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

ELECTRICAL SPECIFICATIONS

Frequency Range ..... 540-1600 Kc/s (555-187.5 Metres)

Intermediate Frequency ..... 455 Kc/s

Battery Complement:

"A" Battery = One 7.5 volt type 719
"B" Battery = One 90 volt type 490-P

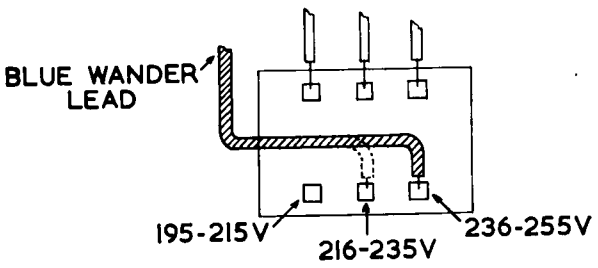
Battery Consumption:

"A" Battery = 50 mA
"B" Battery = 13 mA ("Full")
8 mA ("Save")

Power Unit Operation:

The receiver may be operated on the following voltage ranges by altering the transformer tappings:—

195-215 volts
216-235 volts
236-255 volts



With the switch in the AC position, the 6X4 is operated as a half wave rectifier with both plates connected to the chassis, which is negative for both "A" and "B" circuits. The transformer secondary voltage is applied between cathode and load.

With the switch in the "ACTIVATE" position, one rectifier plate and "A" battery negative are disconnected from the chassis and connected together, thus isolating the "A" and "B" circuits. The 6X4 is then used as two half wave rectifiers with a common cathode.

Power Unit Frequency Ranges:

50-60 C.P.S. and 40 C.P.S.

A.C. Power Consumption:

17 watts.

Valve Complement:

(1) 1R5 Converter
(2) 1T4 I.F. Amplifier
(3) 1S5 Detector, A.F. Amplifier, A.V.C. (581-P)
(3) 1U5 Detector, A.F. Amplifier, A.V.C. (581-PZ)
(4) 3V4 Output
(5) 6X4 Rectifier.

Loudspeaker:

4" permanent magnet No. 21018
Transformer No. 21135
V.C. Impedance, 16 ohms at 400 C.P.S.

Undistorted Power Output:

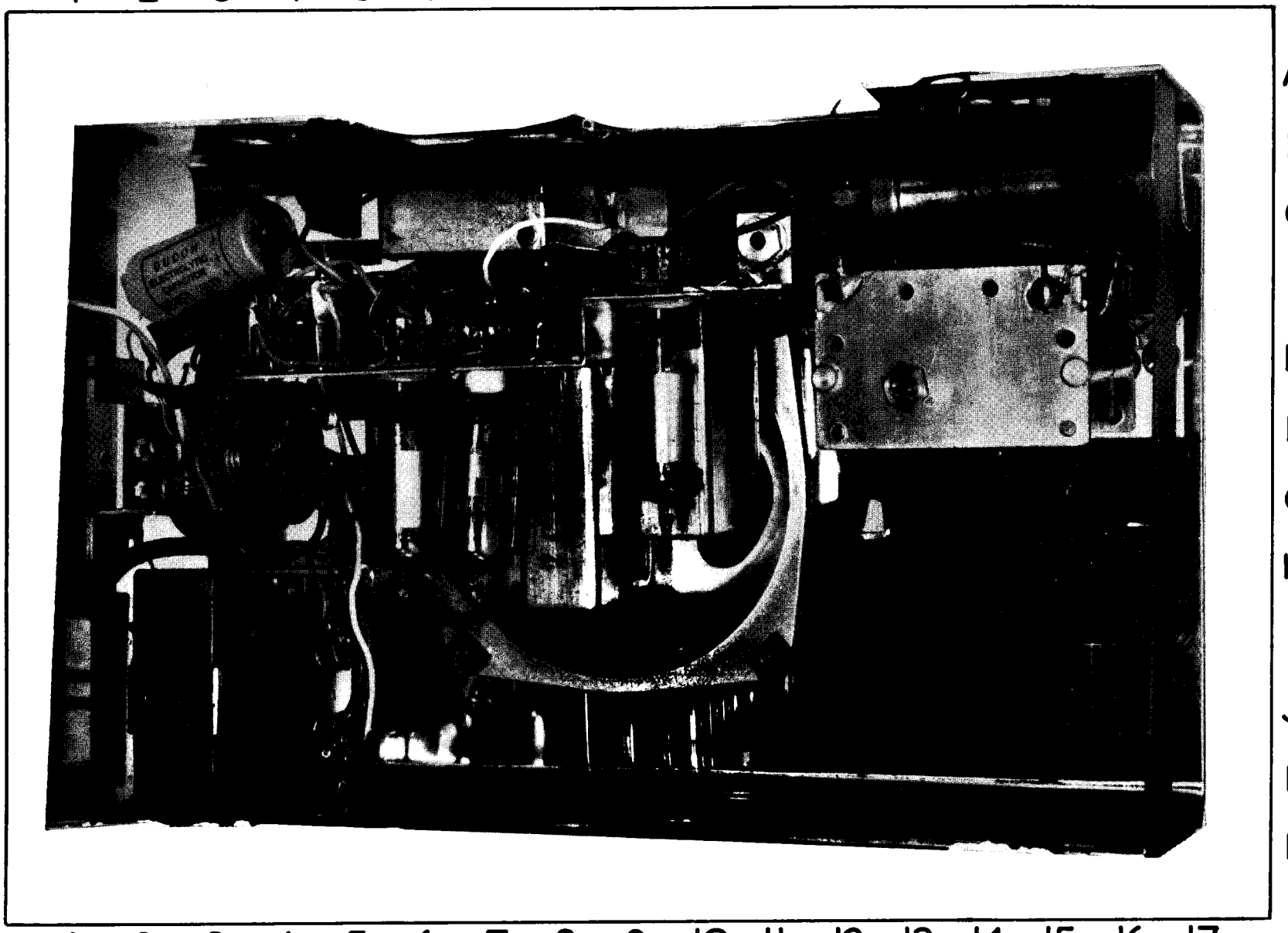
200 milliwatts.

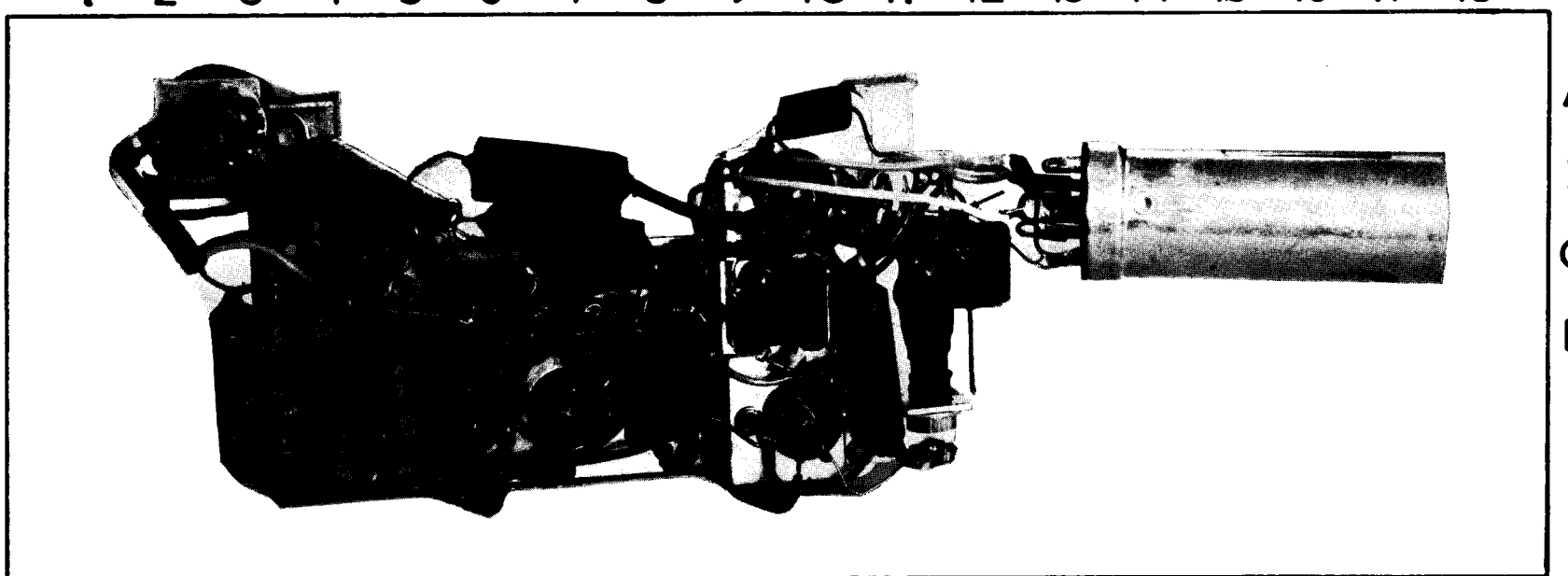
Controls:

Tuning Control — front left-hand of cabinet.
Volume Control — front right-hand of cabinet.
Power Selector Switch— right-hand end of cabinet.

Chassis Removal:

Remove the tuning control and power selector switch knobs. Remove two screws from the top of the cabinet.
The chassis is now free to lift from the cabinet.




1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A B C D E F
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A B C D E F

ALIGNMENT PROCEDURE

Manufacturer's Setting of Adjustments:

The receiver is tested by the manufacturer with precision instruments and all adjusting screws are sealed. Re-alignment should be necessary only when components in tuned circuits are repaired or replaced or when it is found that the seals over the adjusting screws have been broken. It is especially important that the adjustments should not be altered unless in association with the correct testing instruments listed below.

Under no circumstances should the plates of the ganged tuning capacitor be bent, as the unit is accurately aligned during manufacture and can only be re-adjusted by skilled operators using special equipment.

For all alignment operations, keep the generator output as low as possible to avoid A.V.C. action and set the volume control in the maximum clockwise position.

Testing Instruments:

(1) A.W.A. Junior Signal Generator, type 2R7003, or

(2) A.W.A. Modulated Oscillator, series J6726.
If the modulated oscillator is used, connect a .22' megohm non-inductive resistor across the output terminals.

(3) A.W.A. Output Meter, type 2M8832.

ALIGNMENT TABLE

Alignment Order	Connect "high" side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for Maximum Peak output:
1	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s	L7 Core
2	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s	L6 Core
3	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s	L5 Core
4	Aerial Section of Gang (Drive End)	455 Kc/s	540 Kc/s	L4 Core
Repeat the above adjustments until the maximum output is obtained.				
5	Inductively coupled to Rod Aerial*	600 Kc/s	600 Kc/s	L.F. Osc. Core Adj. (L2)†
6	Inductively coupled to Rod Aerial*	1500 Kc/s	1500 Kc/s	H.F. Osc. Adj. (C4)
7	Inductively coupled to Rod Aerial*	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C3)
Repeat adjustments 5, 6 and 7.				

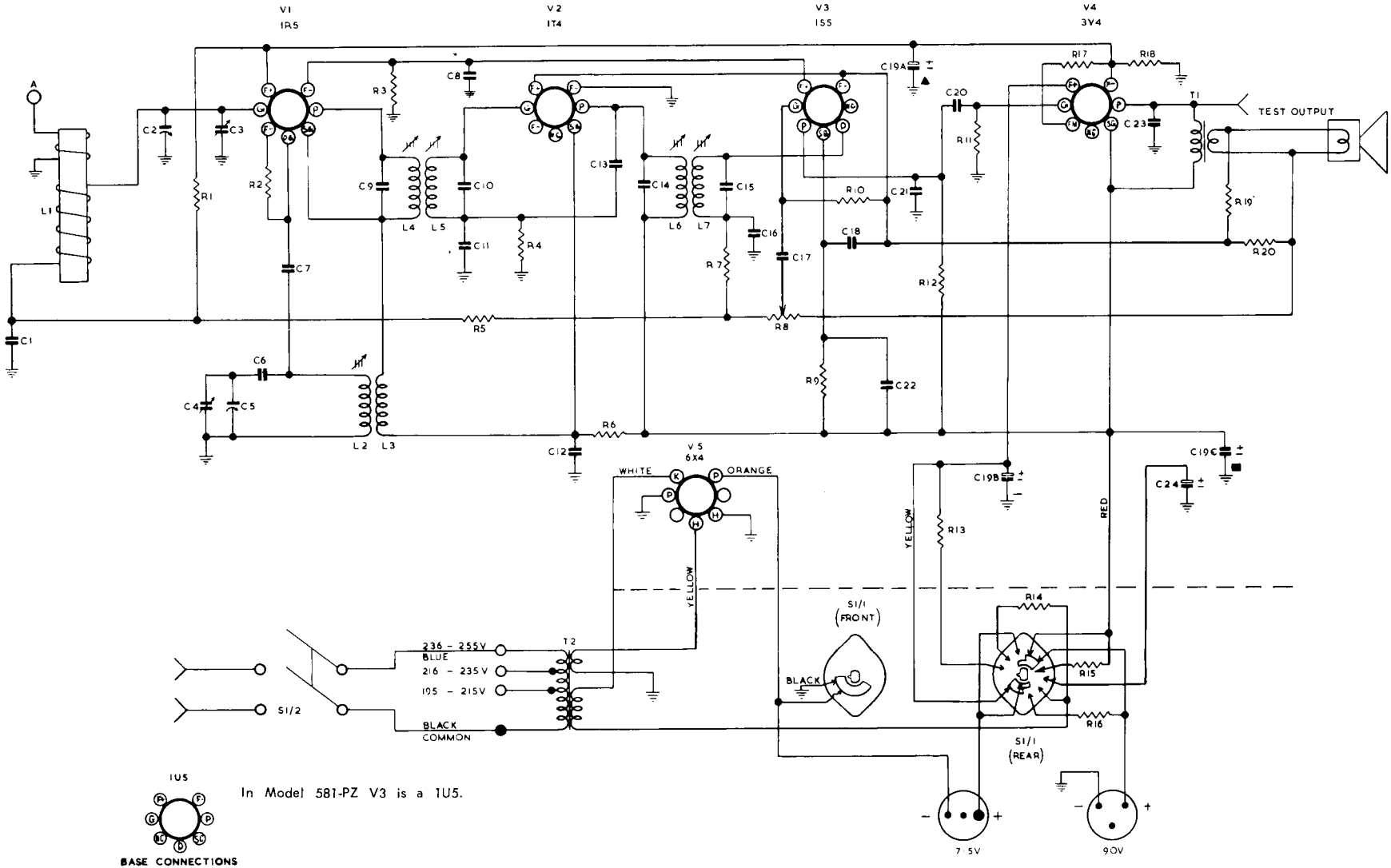
* A coil comprising 3 turns of 16 gauge D.C.C. wire and about 12 inches in diameter should be connected between the output terminals of the test instrument, placed concentric with the rod aerial and distant not less than 1 foot from it.

† Rock the tuning control back and forth through the signal.

SOCKET VOLTAGES

VALVES	Bias Volts	Screen to Chassis Volts:	Anode to Chassis Volts:	Anode Current mA:	Filament Volts:
1R5 Converter	—	48	48	0.5	1.3 - 1.4
1T4 I.F. Amp.	—	48	90	2.0	1.3 - 1.4
1S5 or 1U5 Det., A.F. Amp., A.V.C.	—	25*	35*	0.1	1.3 - 1.4
3V4 Output	−4.5	90	88	6.5	2.6 - 2.8

* Cannot be measured with an ordinary voltmeter.
Measured with no signal input. Volume control maximum clockwise.
A.C. Power Unit Operation:—
H.T. Secondary Volts = 130 AC.
6X4 Cathode to Chassis Volts = 120V DC.
Heater Volts = 6.3V AC.


V1
1R5
V2
1T4
V3
1S5
V4
3V4
V5
6X4
A
L1
C1
C2
C3
R1
R2
C4
C5
C6
L2
L3
C7
R3
C8
C9
L4
L5
C10
C11
R4
R5
C12
R6
C13
C14
L6
L7
C15
C16
R7
C17
R8
C18
R9
C22
C19A
C19B
C19C
C20
R10
C21
R11
R12
R13
R14
R15
R16
R17
R18
T1
C23
R19
R20
C24
TEST OUTPUT
WHITE
ORANGE
YELLOW
RED
BLACK
T2
236 - 255V
BLUE
216 - 235V
195 - 215V
BLACK
COMMON
S1/2
S1/1
(FRONT)
S1/1
(REAR)
7·5V
9·0V
1U5
BASE CONNECTIONS
In Model 581-PZ V3 is a 1U5.

CIRCUIT CODE—RADIOLA 581-P, 581-PZ

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1	Ferrite Aerial Assembly	35432	1	B13
L2, L3	Oscillator Coil 540-1600 Kc/s.	30777	2	D11
L4, L5	1st I.F. Transformer	35434	1	F10
L6, L7	2nd I.F. Transformer	35434	1	G8
	RESISTORS			
R1	3.3 megohms ½ watt		2	C9
R2	0.1 megohm ½ ,,		2	B9
R3	820 ohms ½ ,,		2	C11
R4	4.7 megohms ½ ,,		2	D10
R5	3.3 megohms ½ ,,		2	C8
R6	13,000 ohms ½ ,,		2	E8
R7	47,000 ohms ½ ,,		2	D9
R8	1.0 megohm Volume Control	35267/9	2	A3
R9	3.3 megohms ½ watt		2	E3
R10	10 megohms ½ ,,		2	C4
R11	1.0 megohm ½ ,,		2	E4
R12	0.47 megohm ½ ,,		2	E6
R13	1100 ohms 3 watts (W.W.)		1	D3
R14	1200 ohms 3 ,, (W.W.)		1	D2
R15	1800 ohms 1 watt		1	G3
R16	470 ohms ½ ,,		1	G3
R17	470 ohms ½ ,,		2	E5
R18	820 ohms ½ ,,		2	B12
R19	820 ohms ½ ,,		2	D3
R20	30 ohms ½ ,,		2	C2
	CAPACITORS			
C1	0.047 μF paper 200V working		2	C7
C2	12-445 μμF Tuning	18687	1	E15
C3	4-27 μμF Trimmer (on gang)	33304	1	D16
C4	8-40 μμF Trimmer (on gang) Code No.	231185	1	D15
C5	12-445 μμF Tuning	18687	1	E15
C6	470 μμF padder ± 2½%		2	C12
C7	68 μμF silvered mica		2	A10
C8	0.1 μF paper 200V working		2	B7
C9	47 μμF silvered mica (in 1st I.F.)		1	E10
C10	47 μμF silvered mica (in 1st I.F.)		1	E10
C11	0.01 μF paper 200V working		2	C8
C12	0.047 μF paper 200V working		2	E11
C13	6.8 μμF ceramic		2	D8
C14	47 μμF silvered mica (in 2nd I.F.)		1	E8
C15	47 μμF silvered mica (in 2nd I.F.)		1	E8
C16	220 μμF mica		2	D7
C17	0.01 μF paper 200V working (581-P)		2	B4
C17	0.047 μF paper 200V working (581-PZ)		2	B4
C18	0.047 μF paper 200V working		2	D3
C19A	40 μF 40 P.V. electrolytic		2	B14
C19B	400 μF 12 P.V. electrolytic		2	B14
C19C	*40 μF 200 P.V. electrolytic		2	B14
C20	0.0027 μF paper 400V working		2	D6
C21	100 μμF mica		2	C6
C22	0.01 μF paper 200V working		2	E4
C23	0.0047 μF paper 400V working		2	D4
C24	*50 μF 150 P.V. electrolytic		1	C3
	* On early models C19C is the 1st filter and C24 the 2nd filter. On later models C24 has been replaced by a 50/200 P.V. electrolytic and with C19C wired as shown in the circuit.			
	TRANSFORMERS			
T1	Loudspeaker Transformer	21135	1	C7
T2	Power Transformer 50 c/s	25835	1	J3
	40 c/s	25837		
	LOUDSPEAKER			
	4 inch permanent magnet	21018	1	H9
	SWITCHES			
S1	Power Selector	35274	1	F4

D.C. RESISTANCE OF WINDINGS

Winding	D.C. Resistance in ohms
Ferrite Aerial Assembly:	
Secondary (L1)	1
Oscillator Coil:	
Primary (L2)	1
Secondary (L3)	4
I.F. Transformer Windings	25
Loudspeaker Input Transformer (T1):	
Primary	450
Secondary	*
Power Transformer (T2):	
Primary	140
Secondary	100

* Less than 1 ohm.

The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations and it should not be assumed that a component is faulty if a slightly different reading is obtained.

MECHANICAL REPLACEMENT PARTS

Item	Part Number
Aerial Support Assembly	35271
Cabinet	28138
Cable, Battery	35428
Cable, Power	250450
Dial Scale:	
N.S.W.	32247
Vic.	32248
Qld.	32249
S.A.	32250
W.A.	32251
Tas.	32252
Fret, Speaker	35254
Knob Assembly, Power Selector	31839
Knob Assembly, Tuning	35276
Knob Assembly, Volume	35275
Nameplate, Radiola	35278
Panel Assembly	35262
Pin Jack Assembly	27685
Socket and Bracket Assembly	35258
Socket, Floating Assembly	35156
Socket Valve 7 Pin	794576
Strap	35252
Trim-Frame	35251

When ordering, always quote the above Part Numbers and in the case of coloured parts such as cabinets, knobs, etc., the colour plus the Part Number.