

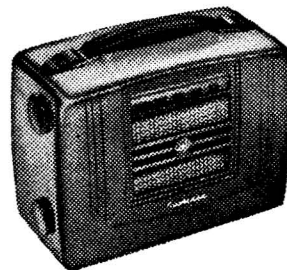
TECHNICAL INFORMATION
AND
SERVICE DATA

AWA **RADIOLA**
Portable Model 545-P

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 One 7.5 volt No. 719 "A" Battery
One 90 volt No. 490P "B" Battery
- Battery Consumption .. "A" battery 50 mA
"B" battery 12 mA "Battery Full"
8 mA "Battery Saving"
- Power Unit Operation .. The receiver may be operated on
the following voltage ranges by
altering the transformer tapings:
200 - 215 volts
216 - 230 volts
231 - 245 volts
246 - 260 volts
- Power Unit Frequency
Range 50-60 C.P.S. and 40 C.P.S.
- A.C. Power Consump-
tion 17 watts
- Valve Complement:
(1) 1R5 Converter
(2) 1T4 I.F. Amplifier
(3) 1S5 Detector, A.F. Amplifier, A.V.C.
(4) 3V4 Output
(5) 6X4 Rectifier

Loudspeaker (Permanent Magnet) — 4 inch — Code No. BH1
Transformer — XA220

V.C. Impedance, 3 ohms at 400 C.P.S.

Undistorted Power Output: 200 milliwatts

Controls:

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

Chassis Removal.

Power Unit. Remove the Power Selector Knob by pulling it straight off its spindle, disconnect the batteries and remove the receiver cable plug from the socket on the Power Unit chassis.

The chassis is held in the cabinet by two screws through the base of the cabinet. Removal of these enables the chassis to be withdrawn.

Receiver.

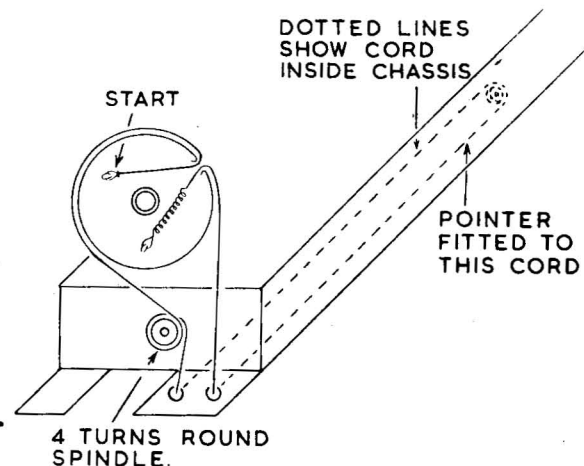
Disconnect and remove the batteries and pull the knobs straight off their spindles. Loosen the two 2BA screws retaining the chassis which then may be withdrawn. If necessary unsolder the loop leads.

When re-fitting the chassis, make sure that the two rectangular washers on the 2BA screws are replaced so that their "teeth" are towards the front of the cabinet.

When soldering the loop leads always connect the green lead so that it connects to the inside, or start, of the loop.

Drive Cord Replacement.

The accompanying diagram shows the route of the cord and the method of attachment.



External Aerial and Earth.

In late models, external Aerial and Earth Terminals are provided in the cabinet back and are marked "A" and "E" respectively. These terminals should not be used for alignment purposes.

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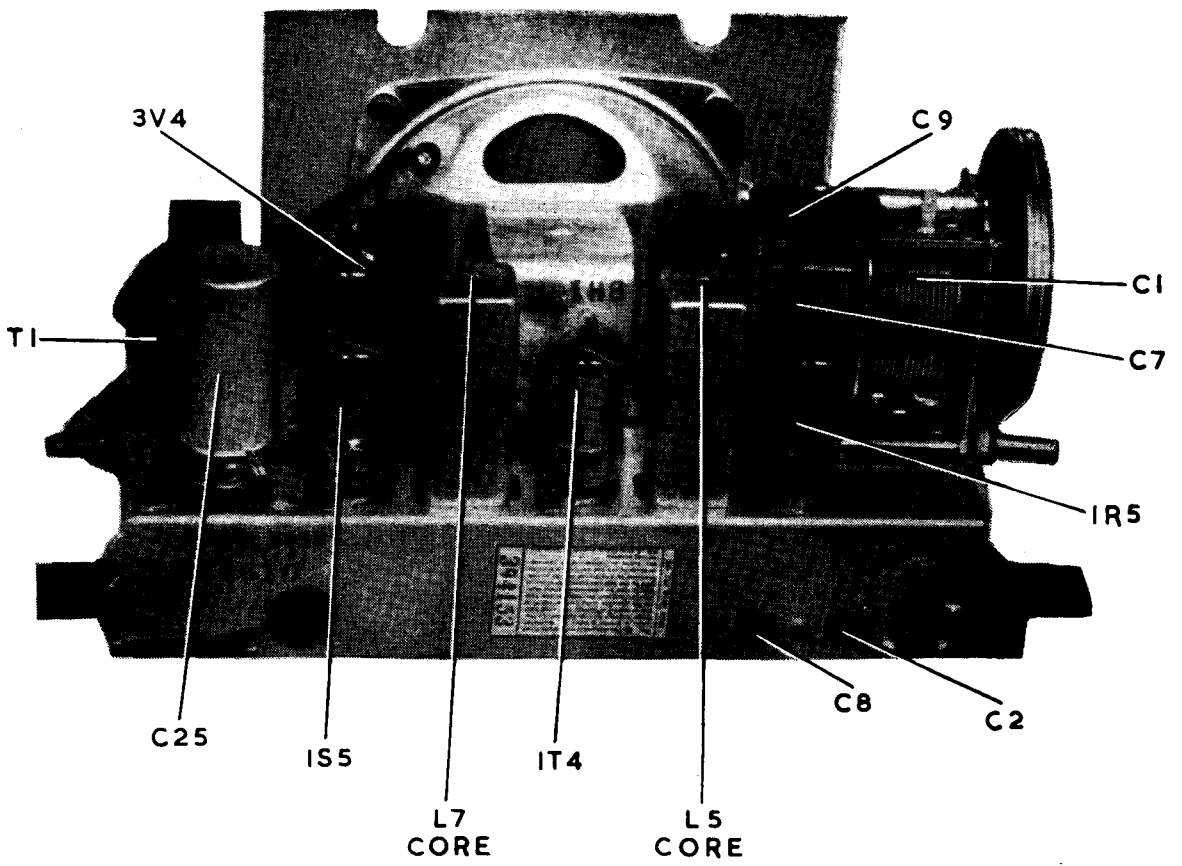
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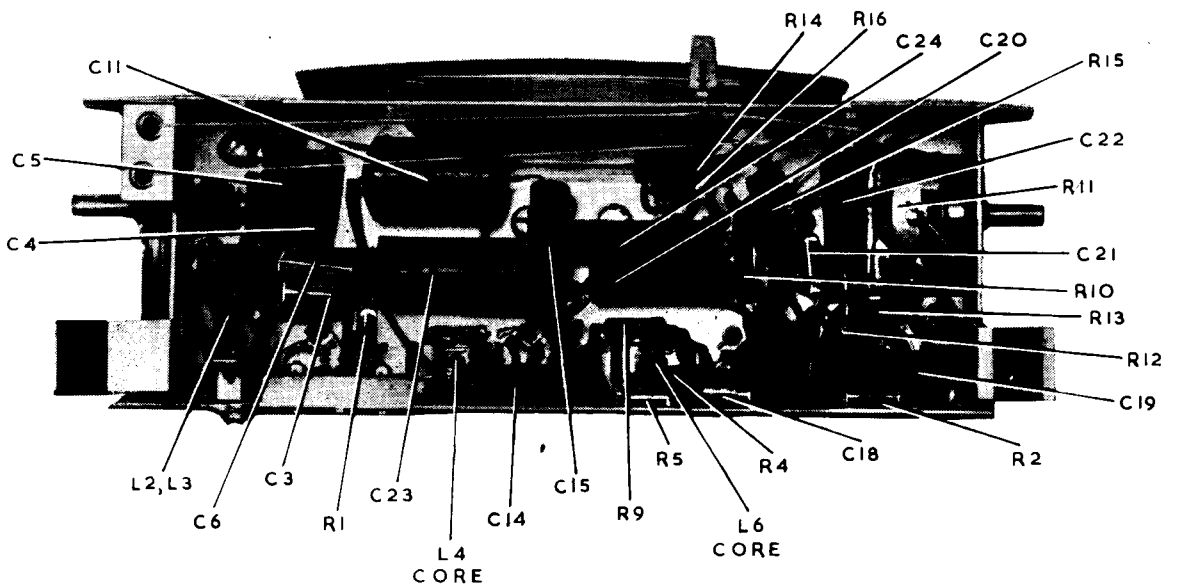
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CHASSIS TOP VIEW MODEL 545-P



CHASSIS UNDERNEATH VIEW MODEL 545-P

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 cannot be readjusted unless by skilled operators using special equipment.

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

Testing Instruments.

- (1) A.W.A. Junior Signal Generator, type 2R3911, or
- (2) A.W.A. Modulated Oscillator, type J6726.

If the modulated oscillator is used, connect a 0.25 megohm non-inductive resistor across the output terminals.

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

ALIGNMENT TABLE

Order	Connect "high" side of generator to:	Tune generator to:	Tune Receiver to:	Adjust for maximum peak output
Note: If loop leads protruding from the chassis are disconnected, connect a 1.0 megohm resistor across them.				
1	Grid of 1T4* (I.F. Amp)	455 Kc/s	Gang in full mesh	L7 and L6 cores
2	Aerial Section of Gang* (Drive End)	455 Kc/s	Gang in full mesh	L5 and L4 cores
With weak valves greater sensitivity may be obtained by aligning I.F. cores from the 1R5 grid. If any instability occurs, however, the alignment procedure as above should be adhered to.				
The chassis should now be fitted in the cabinet, the resistor removed from the loop leads, and the leads then connected to the aerial in the cabinet back. The batteries and power unit must be in place in the cabinet and the back closed for alignment of aerial circuits.				
3	Inductively coupled to loop†	600 Kc/s	600 Kc/s (Approx. 10 on dial)	L.F. Osc. Core Adj. (L3)§‡
4	Inductively coupled to loop†	1620 Kc/s	Gang fully open	H.F. Osc. Adj. (C8)‡
5	Inductively coupled to loop†	1500 Kc/s	1500 Kc/s (Approx. 90 on dial)	H.F. Aer. Adj. (C2)‡
Repeat adjustments 3 and 5 until the maximum output is obtained.				

* A 0.001 μ F capacitor should be connected in series with the high side of the test instrument.

† A coil comprising 3 turns of 16 gauge D.C.C. wire and about 6 inches in diameter should be connected between the output terminals of the test instrument, placed co-axial with the loop and distant not less than 1 foot from it.

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

‡ The adjustments are accessible through 3 holes in the cabinet back.

Power Unit Operation.

With the switch in the A.C. 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.

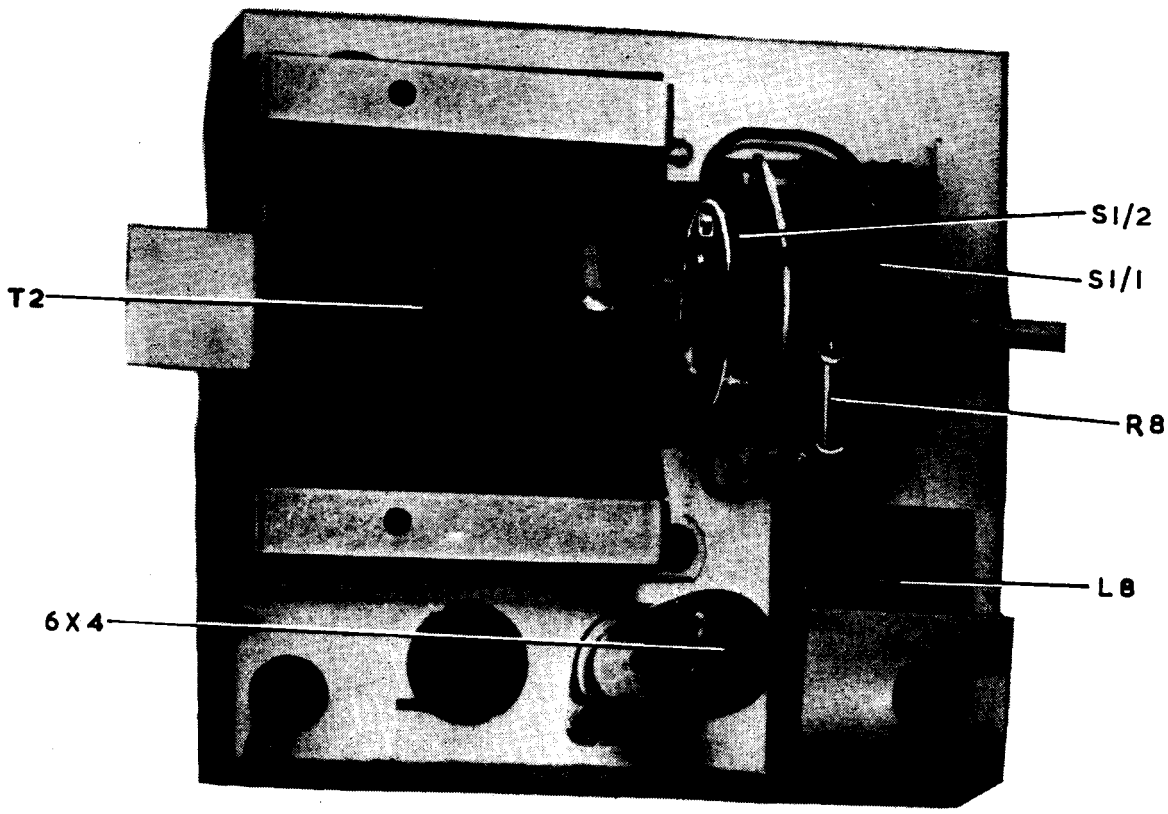
With the switch in the "ACTIVATE" position, one rectifier plate and "A" battery negative are disconnected from the chassis and connected together, thus isolating the "A" and "B" circuits. The 6X4 is then used as two half-wave rectifiers with a common cathode.

TABLE 2. (Continued)

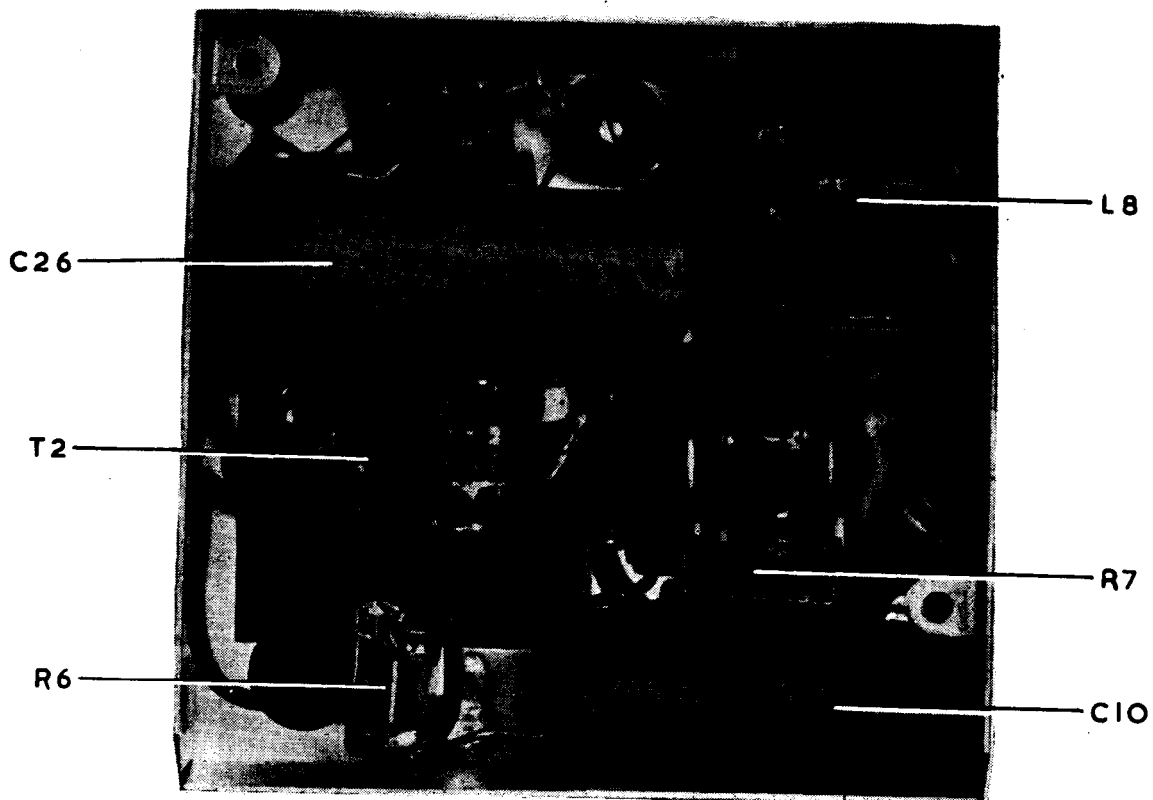
Year	Number of cases	Percentage of total cases
1997	10	0.1
1998	10	0.1
1999	10	0.1
2000	10	0.1
2001	10	0.1
2002	10	0.1
2003	10	0.1
2004	10	0.1
2005	10	0.1
2006	10	0.1
2007	10	0.1
2008	10	0.1
2009	10	0.1
2010	10	0.1
2011	10	0.1
2012	10	0.1
2013	10	0.1
2014	10	0.1
2015	10	0.1
2016	10	0.1
2017	10	0.1
2018	10	0.1
2019	10	0.1
2020	10	0.1
2021	10	0.1
2022	10	0.1
2023	10	0.1
2024	10	0.1
2025	10	0.1
2026	10	0.1
2027	10	0.1
2028	10	0.1
2029	10	0.1
2030	10	0.1

The following table provides a detailed breakdown of the data presented in the previous table, including the specific years and the corresponding number and percentage of cases for each year. The data is organized into a table with three columns: Year, Number of cases, and Percentage of total cases. The years range from 1997 to 2030, and the number of cases for each year is consistently 10, representing 0.1% of the total cases.

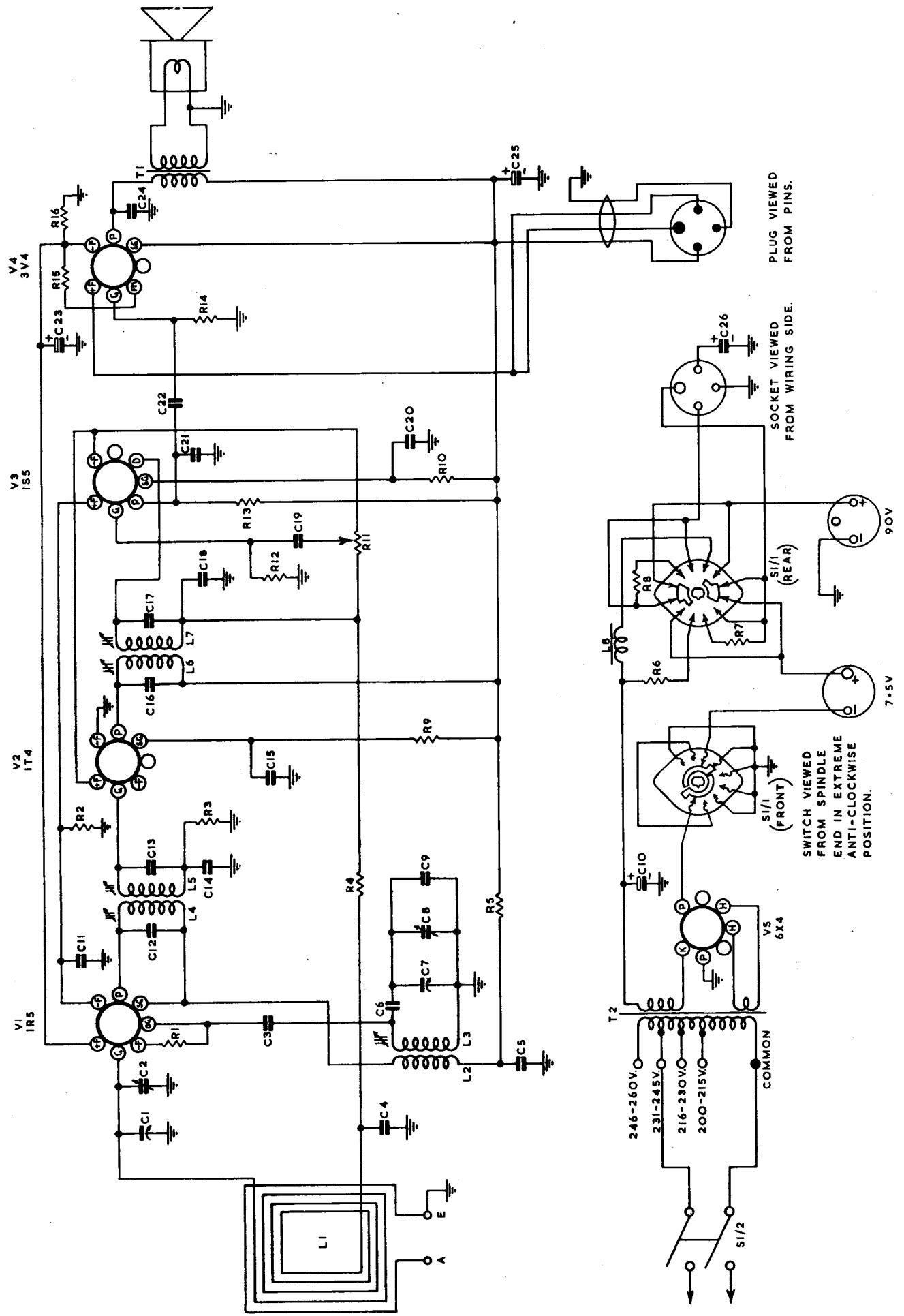
Estimated: 1000-1000

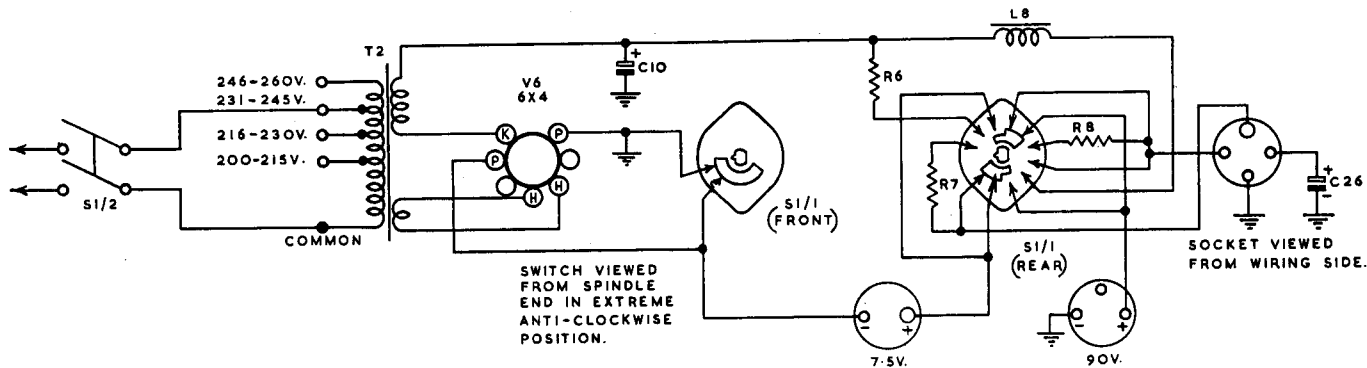


TOP VIEW POWER UNIT 545-P



UNDERNEATH VIEW POWER UNIT 545-P





POWER UNIT WITH MODIFIED SWITCH AS USED AFTER INITIAL PRODUCTION.

CIRCUIT CODE — RADIOLA 545-P

Code No.	Description	Part No.	Code No.	Description	Part No.
INDUCTORS					
L1	Loop Aerial Coil	29598	C6	470 μ F padder $\pm 2\frac{1}{2}$	
L2, L3	Oscillator Coil	25145	C7	12-445 μ F Tuning	18621
L4, L5	1st I.F. Transformer	27324	C8	3-25 μ F Trimmer	27526
L6, L7	2nd I.F. Transformer	27324	C9	14 μ F mica	
L8	H.T. Filter Choke	26865B	C10	20 μ F 200 P.V. Electrolytic	
RESISTORS					
R1	0.1 megohm $\frac{1}{2}$ watt		C11	0.4 μ F paper 200 V working	
R2	800 ohms $\frac{1}{2}$ "		C12	47 μ F silvered mica	
R3	2.5 megohms $\frac{1}{2}$ "		C13	47 μ F silvered mica	
R4	2.5 megohms $\frac{1}{2}$ "		C14	0.05 μ F paper 200V working	
R5	20,000 ohms $\frac{1}{2}$ "		C15	0.05 μ F paper 200V working	
R6	950 ohms 3 " (wire wound)		C16	47 μ F silvered mica	
R7	950 ohms 3 " (wire wound)		C17	47 μ F silvered mica	
R8	1500 ohms $\frac{1}{2}$ "		C18	200 μ F mica	
R9	0.25 megohm $\frac{1}{2}$ "		C19	0.025 μ F paper 400V working	
R10	3.2 megohms $\frac{1}{2}$ "		C20	0.05 μ F paper 200V working	
R11	1.0 megohm Volume Control	28311	C21	50 μ F mica	
R12	10 megohms $\frac{1}{2}$ watt		C22	0.025 μ F paper 400V working	
R13	0.63 megohm $\frac{1}{2}$ "		C23	25 μ F 40 P.V. Electrolytic	
R14	1.0 megohm $\frac{1}{2}$ "		C24	0.0025 μ F paper 600V working	
R15	500 ohms $\frac{1}{2}$ "		C25	40 μ F 200 P.V. Electrolytic	
R16	800 ohms $\frac{1}{2}$ "		C26	400 μ F 12 P.V. Electrolytic	
CAPACITORS					
C1	12-445 μ F Tuning	18621	TRANSFORMERS		
C2	3-25 μ F Trimmer	27526	T1	Loudspeaker Transformer	XA220
C3	70 μ F mica		T2	Power Transformer 50 C.P.S.	25815A
C4	0.05 μ F paper 200V working			40 C.P.S.	25817A
C5	0.05 μ F paper 200V working		LOUDSPEAKER		
				4 inch Permanent Magnet	BH1
			SWITCH		
			S1	Power Selector	28305

Late Models 29637

D.C. RESISTANCE OF WINDINGS

Winding	D.C. Resistance in ohms
Oscillator Coil:	
Primary (L2)	2
Secondary (L3)	6
I.F. Transformer Windings	20
Filter Choke (L8)	160
Loudspeaker Input Transformer (T1):	
Primary	450
Secondary	*
Power Transformer (T2):	
Primary	170
Secondary	80

* 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.

SOCKET VOLTAGES

VALVE	Bias Volts	Screen to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Filament Volts*
1R5 Converter	0	45	45	0.4	1.3-1.4
1T4 I.F. Amp.	0	35	90	1.0	1.3-1.4
1S5 Det., A.F. Amp., A.V.C.	0	20†	30†	0.1	1.3-1.4
3V4 Output	-5	90	88	6.0	2.6-2.8

* These will rise to 1.5V and 3.0V with a new battery and will be slightly lower than the above values when operated from the A.C. power supply.

† Calculated from measured current. An ordinary voltmeter will register a lower value. Measured with no signal input. Volume Control maximum clockwise.

A.C. Power Unit Operation:—

H.T. Secondary Volts = 115V., A.C.

6X4 Cathode to Chassis volts = 100V., D.C.

Heater Volts = 6.3V., A.C.