

TECHNICAL INFORMATION
AND SERVICE DATA

AWA **RADIOLA**

Portable Model 454-P

FOUR VALVE, BROADCAST, BATTERY OR A.C.
POWER UNIT OPERATED SUPERHETERODYNE

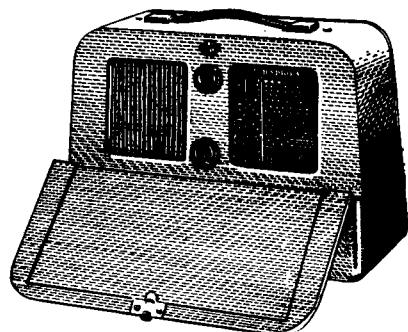
AND

Portable Model 455-P

FIVE VALVE, BROADCAST, BATTERY OR A.C.
POWER UNIT OPERATED SUPERHETERODYNE

ISSUED BY

AMALGAMATED WIRELESS (A/SIA) LTD.



ELECTRICAL SPECIFICATIONS.

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

Intermediate Frequency 455 Kc/s

Battery Complement 9V-90V Battery Pack No. 753

Power Unit Operation:

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

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.

Battery Consumption L.T. 50 mA
H.T. 12 mA (454-P)
13 mA (455-P)

Loudspeaker (Permanent Magnet):

6½ inch—code number AG26

Transformer—XA20

V.C. Impedance—3 ohms at 400 C.P.S.

Undistorted Power Output 200 milliwatts

Valve Complement:

1. 1T4 R.F. Amplifier (455-P only)
2. 1R5 Converter
3. 1T4 I.F. Amplifier
4. 1S5 Detector, A.F. Amplifier, A.V.C.
5. 3V4 Output

Controls: ON-OFF Switch, Volume, Tuning.

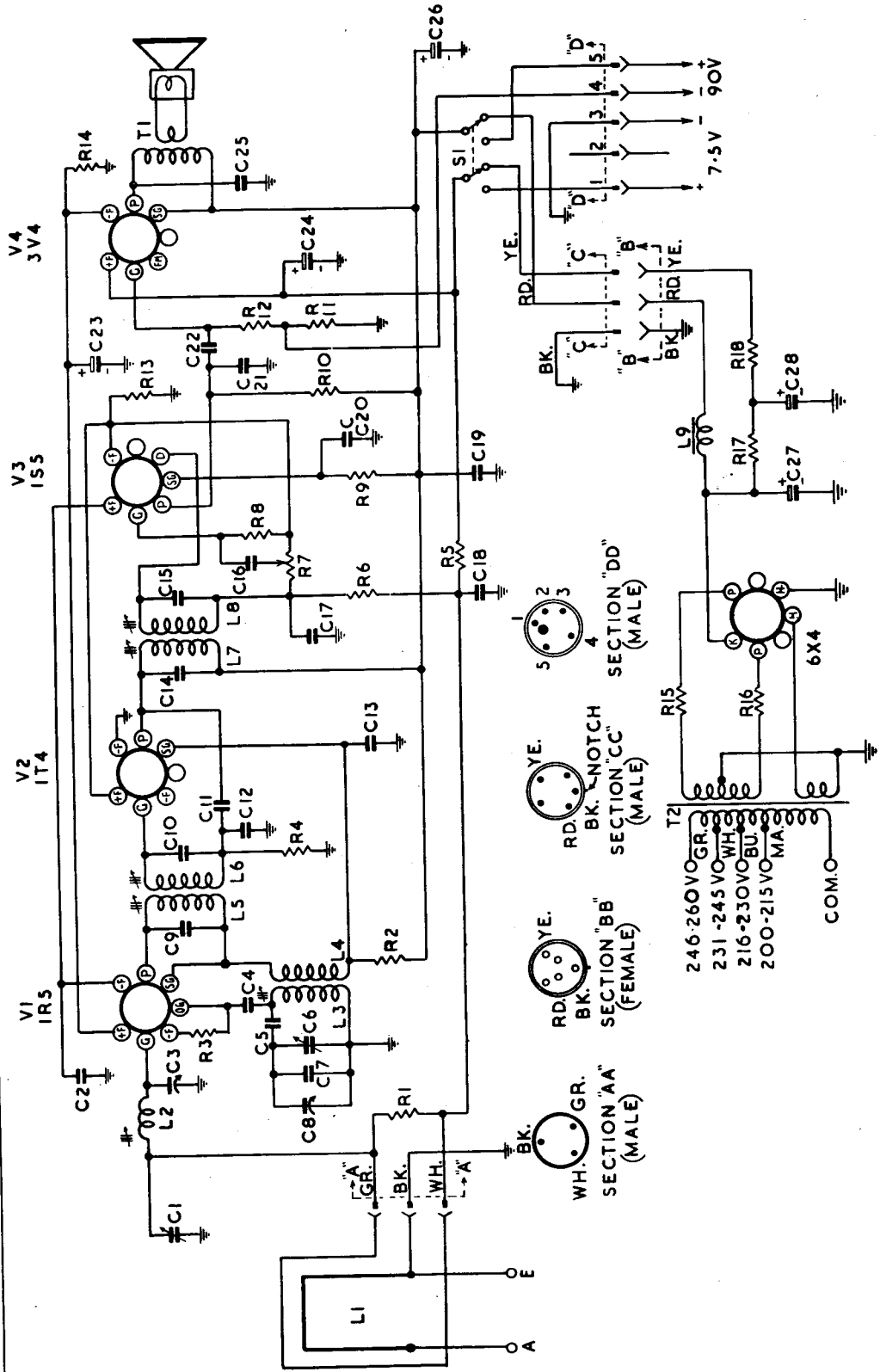
MECHANICAL SPECIFICATIONS.

	Height	Width	Depth
Cabinet Dimensions (ins.)	10½	14½	6½
Chassis Base Dimensions (ins.)	1¾	11	2⅞
Power Unit Dimensions (ins.)	5½	3½	5
Receiver Weight (complete with batteries)	16 lbs. nett		
Power Unit Weight	5 lbs. nett		

GENERAL DESCRIPTION.

The portable models 454-P and 455-P are broadcast receivers housed in cabinets attractively finished in leatherette. They embody a hinged front cover which effectively protects the dial and controls from damage, dust and weather.

Features of their design include: Tropic-proof construction, automatic volume control, magnetite cores in I.F. transformers, oscillator coils and loop coupling coils, air-dielectric trimming capacitors, straight-line tuning dial.



POWER UNIT NO. 25152.

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 adjustment 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 re-adjusted unless by skilled operators using specialised equipment.

For all alignment operations, except aerial stage, connect the "low" side of the signal generator to the receiver chassis and 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.

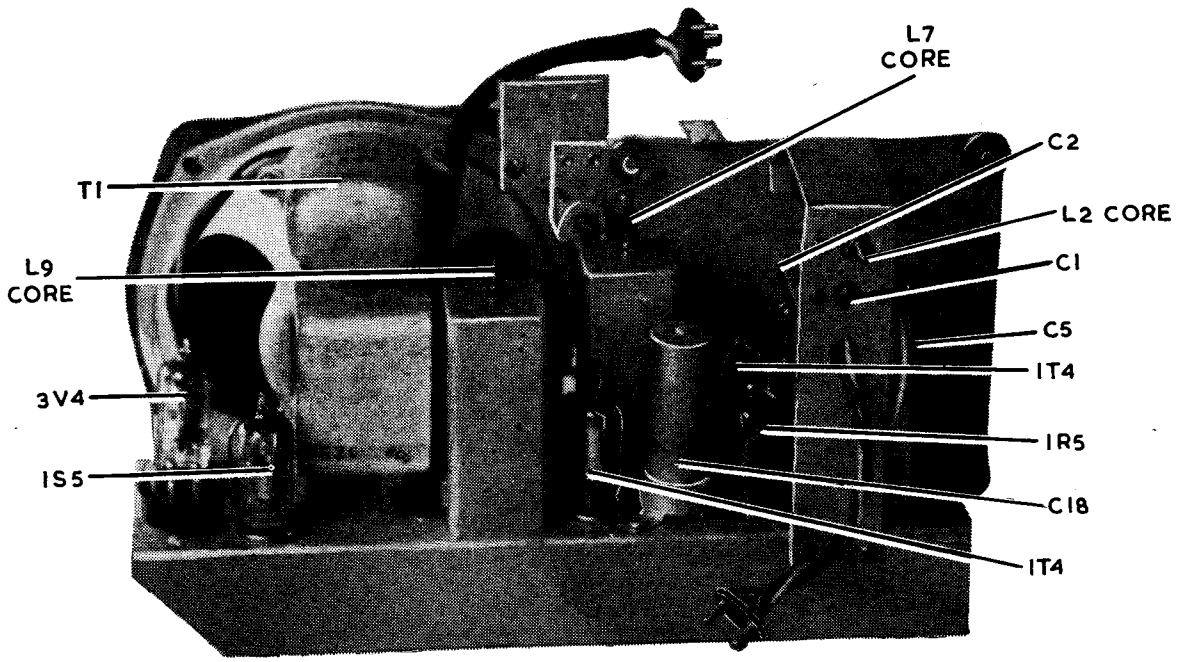
ALIGNMENT TABLE. MODEL 454-P.

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(4QL)	L8 Core
2	Aerial Section of Gang (Drive end)	455 Kc/s	540 Kc/s	L7 Core
3	Aerial Section of Gang (Drive end)	455 Kc/s	540 Kc/s	L6 Core
4	Aerial Section of Gang (Drive end)	455 Kc/s	540 Kc/s	L5 Core
Repeat the above adjustments until the maximum output is obtained.				
5	Aerial Section of Gang (Drive end)	540 Kc/s	540 Kc/s	L.F. Osc. Core Adj. (L3)
6	Aerial Section of Gang (Drive end)	1500 Kc/s(3AK)	1500 Kc/s	H.F. Osc. Adj. (C6)
The chassis should now be fitted in the cabinet and the aerial plug connected to the aerial socket.				
7	Inductively coupled to loop†	600 Kc/s(7ZL)	600 Kc/s	L.F. Aer. Core Adj. (L2) ‡
8	Inductively coupled to loop†	1500 Kc/s	1500 Kc/s	H.F. Aer. Adj. (C1) ‡

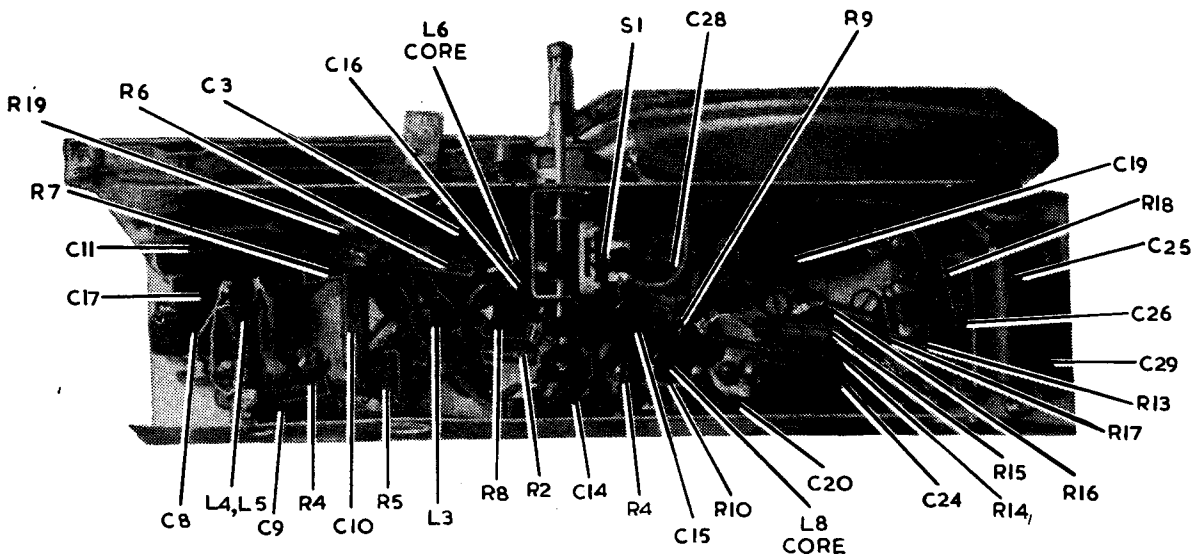
*Before removing the chassis from the cabinet, mark the alignment points on the back of the front plate assembly.

†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.

‡This adjustment is accessible through a hole in the cabinet back after removing the cover from the hole.



CHASSIS TOP VIEW MODEL 455-P



CHASSIS UNDERNEATH VIEW MODEL 455-P

D.C. RESISTANCE OF WINDINGS. MODEL 454-P.

Winding	D.C. Resistance in Ohms
Loop Coupling Coil (L2)	1.5
Oscillator Coil	
Primary (L3)	2
Secondary (L4)	8
I.F. Transformer Windings	10
Filter Choke (L9)	200
Loudspeaker Input Transformer (T1)	
Primary	540 or 650
Secondary	*
Power Unit Transformer (T2)	
Primary	300
Secondary	200

* 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.

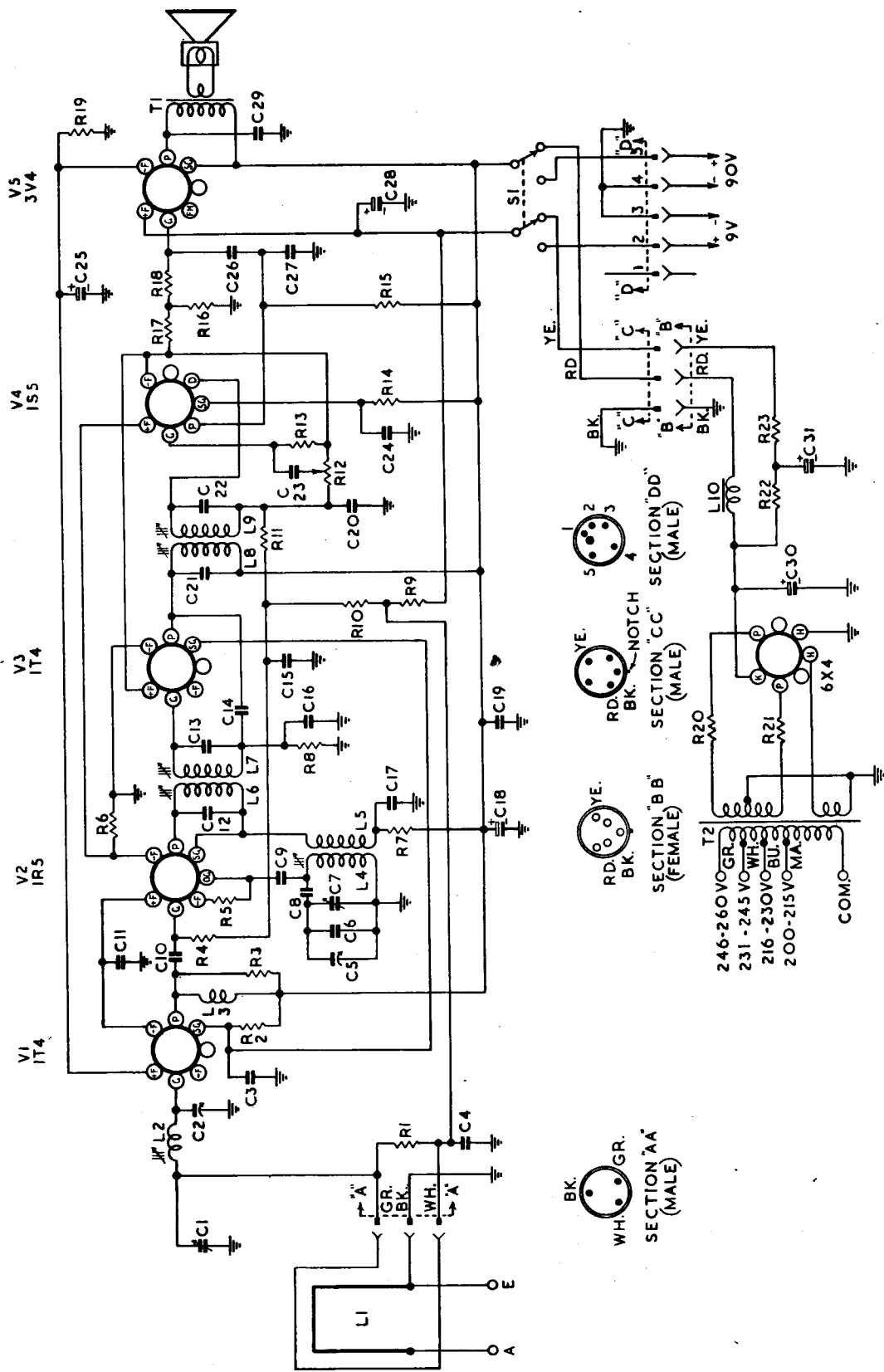
SOCKET VOLTAGES. MODEL 454-P.

Valve	Bias Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Filament Volts*
1R5 Converter	0	40	40	0.3	1.3-1.4
1T4 I.F. Amp.	0	40	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	87	87	6.0	2.6-2.8

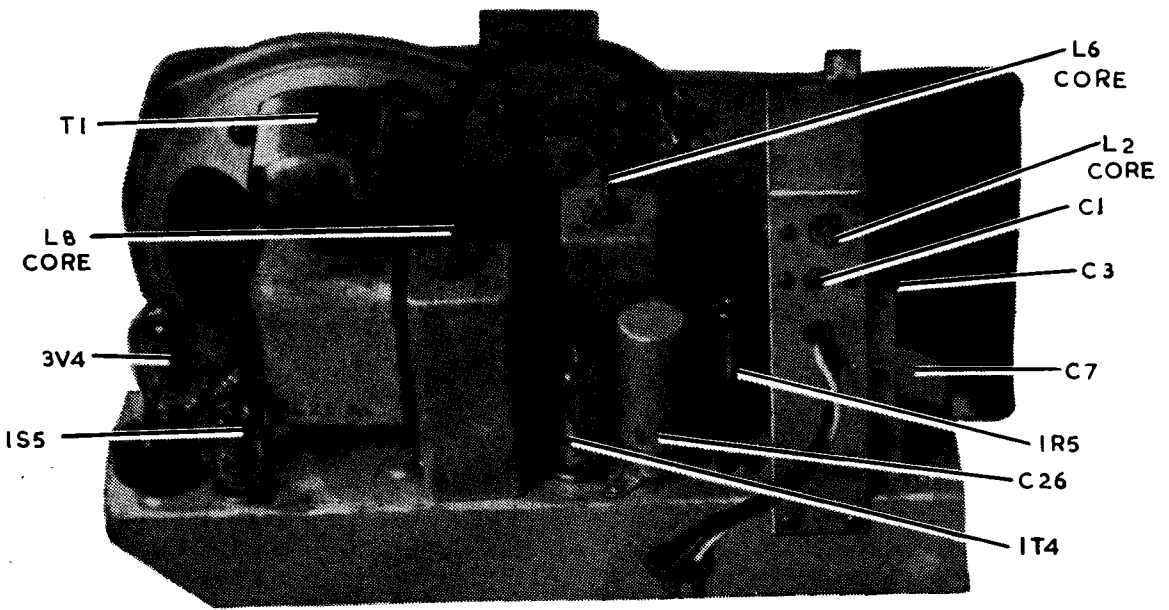
*These will rise to 1.5V and 3.0V with a new battery.

†Calculated from measured current. An ordinary voltmeter will register a lower value.

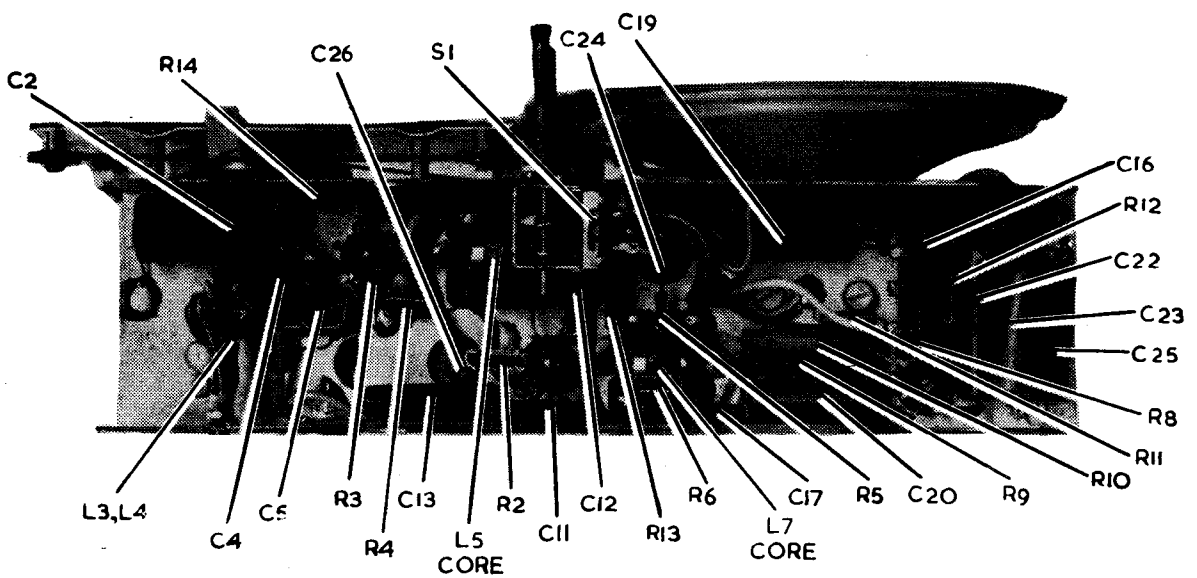
Measured with no signal input. Volume Control maximum clockwise.



POWER UNIT NO. 25152



CHASSIS TOP VIEW MODEL 454-P



CHASSIS UNDERNEATH VIEW MODEL 454-P

D.C. RESISTANCE OF WINDINGS. MODEL 455-P.

Winding	D.C. Resistance in Ohms
Loop Coupling Coil (L2)	1.5
Compensating Coil (L3)	40
Oscillator Coil	
Primary (L4)	2
Secondary (L5)	8
Filter Choke (L10)	200
I.F. Transformer Windings	10
Loudspeaker Input	
Transformer (T1)	
Primary	540 or 650
Secondary	*
Power Unit Transformer (T2)	
Primary	300
Secondary	200

* 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. MODEL 455-P.

Valve	Bias Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Filament Volts*
1T4 R.F. Amp	0	30	90	1.0	1.3-1.4
1R5 Converter	0	40	40	0.8	1.3-1.4
1T4 I.F. Amp.	0	30	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	87	90	6.0	2.6-2.8

*These will rise to 1.5V and 3.0V with a new battery.

†Calculated from measured current. An ordinary voltmeter will register a lower value.

Measured with no signal input. Volume Control maximum clockwise.

MODEL 455-P — CIRCUIT CODE.

Code No.	Description	Part No.	Code No.	Description	Part No.	Code No.	Description	Part No.
INDUCTORS.								
L1	Aerial Coil Loop	22715	R19	800 ohms $\frac{1}{2}$ watt		C18	20 uF 200 P.V. Electrolytic	
L2	Loop Coupling Coil	25166	R20	100 ohms $\frac{1}{2}$ watt		C19	0.1 uF paper 200 V working	
L3	Compensating Coil	22720	R21	100 ohms $\frac{1}{2}$ watt		C20	200 uuF mica	
L4, L5	Oscillator Coil		R22	950 ohms $\frac{3}{4}$ watts		C21	70 uuF silvered mica	
	540-1600 Kc/s	25145	R23	950 ohms 3 watts		C22	70 uuF silvered mica	
L6, L7	1st I.F. Transformer	22700	CAPACITORS.			C23	0.025 uF paper 400 V working	
L8, L9	2nd I.F. Transformer	22703	C1	2-20 uuF air trimmer	19659	C24	0.1 uF paper 200 V working	
L10	Filter Choke	8321	C2	12-445 uuF tuning	18671	C25	25 uF 40 P.V. Electrolytic	
			C3	0.05 uF paper 200 V working		C26	0.025 uF paper 400 V working	
			C4	0.05 uF paper 200 V working		C27	100 uuF mica	
R1	1.6 megohms $\frac{1}{2}$ watt		C5	12-445 uuF tuning	18671	C28	400 uF 12 P.V. Electrolytic	
R2	0.1 megohm $\frac{1}{2}$ watt		C6	14 uuF mica		C29	0.0025 uF paper 600 V working	
R3	10,000 ohms 1 watt		C7	2-20 uuF trimmer (on gang)		C30	20 uF 200 P.V. Electrolytic	
R4	1.0 megohm $\frac{1}{2}$ watt		C8	490 uuF padder $\pm 2\frac{1}{2}\%$		C31	20 uF 200 P.V. Electrolytic	
R5	0.1 megohm $\frac{1}{2}$ watt		C9	70 uuF mica		TRANSFORMERS.		
R6	1000 ohms $\frac{1}{2}$ watt		C10	100 uuF mica		T1	Loudspeaker Transformer	XA20
R7	20,000 ohms $\frac{1}{2}$ watt		C11	0.4 uF paper 200 V working		T2	Power Unit Transformer 50 C.P.S.	17896
R8	2.5 megohms $\frac{1}{2}$ watt		C12	70 uuF silvered mica			Power Unit Transformer 40 C.P.S.	17898
R9	5.0 megohms $\frac{1}{2}$ watt		C13	70 uuF silvered mica			LOUDSPEAKER.	
R10	1.6 megohms $\frac{1}{2}$ watt		C14	9 uuF mica			6 inch permanent magnet	AG26
R11	1.0 megohms $\frac{1}{2}$ watt		C15	0.01 uF paper 600 V working			SWITCHES.	
R12	0.5 megohm Volume Control	25228	C16	0.01 uF paper 600 V working		S1	Battery-ON/OFF Switch	25419
R13	10.0 megohms $\frac{1}{2}$ watt		C17	0.05 uF paper 200 V working				
R14	3.2 megohms 1 watt							
R15	0.63 megohm 1 watt							
R16	5000 ohms $\frac{1}{2}$ watt							
R17	5000 ohms $\frac{1}{2}$ watt							
R18	1.0 megohm $\frac{1}{2}$ watt							

MODEL 454-P — CIRCUIT CODE.

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INDUCTORS								
L1, L6	Aerial Coil Loop	22715	R16	100 ohms $\frac{1}{2}$ watt		C19	0.1 uF paper 200 V working	
L2	Loop Coupling Coil	25166	R17	950 ohms 3 watts		C20	0.1 uF paper 200 V working	
L3, L4	Oscillator Coil		R18	950 ohms 3 watts		C21	100 uuF mica	
	540-1600 Kc/s	25145	C1	2-20 uuF air trimmer	19659	C22	0.025 uF paper 400 v working	
L5, L6	1st I.F. Transformer	22700	C2	0.4 uF paper 200 V working		C23	25 uF 40 P.V. Electrolytic	
L7, L8	2nd I.F. Transformer	22703	C3	12-445 uuF tuning	18671	C24	400 uF 12 P.V. Electrolytic	
L9	Filter Choke	8321	C4	70 uuF mica		C25	0.0025 uF paper 600 V working	
			C5	490 uuF padder $\pm 2\frac{1}{2}\%$		C26	20 uF 200 P.V. Electrolytic	
			C6	2-20 uuF trimmer (on gang)		C27	20 uF 200 P.V. Electrolytic	
			C7	14 uuF mica	18671	C28	20 uF 200 P.V. Electrolytic	
RESISTORS.								
R1	1.6 megohms $\frac{1}{2}$ watt		C8	12-445 uuF Tuning		TRANSFORMERS.		
R2	20,000 ohms $\frac{1}{2}$ watt		C9	70 uuF silvered mica		T1	Loudspeaker Transformer	XA20
R3	0.1 megohm $\frac{1}{2}$ watt		C10	70 uuF silvered mica		T2	Power Unit Transformer	17896
R4	2.5 megohms $\frac{1}{2}$ watt		C11	9 uuF mica		T2	Power Unit Transformer	17898
R5	5.0 megohms $\frac{1}{2}$ watt		C12	0.01 uF paper 600 V working			50 C.P.S.	
R6	1.0 megohm $\frac{1}{2}$ watt		C13	0.05 uF paper 200 V working			40 C.P.S.	
R7	0.5 megohm Volume Control	25228	C14	70 uuF silvered mica		LOUDSPEAKER.		
R8	10.0 megohms $\frac{1}{2}$ watt		C15	70 uuF silvered mica		6 inch permanent magnet.....		
R9	3.2 megohms 1 watt		C16	0.025 uF paper 400 V working		SWITCHES		
R10	0.63 megohm 1 watt		C17	200 uuF mica		Battery ON/OFF Switch		
R11	50 ohms $\frac{1}{2}$ watt		C18	0.05 uF paper 200 V working		S1		25419
R12	1.0 megohm $\frac{1}{2}$ watt							
R13	800 ohms $\frac{1}{2}$ watt							
R14	630 ohms $\frac{1}{2}$ watt							
R15	100 ohms $\frac{1}{2}$ watt							