

"TRADER" SERVICE SHEET

1182

CHAMPION 825

"Serenade" 2-band A.C./D.C. Table Superhet

EMPLYING a "Selectopex" tuning control, the Champion 825 is a 3-valve (plus rectifier) 2-band miniature receiver designed to operate from A.C. or D.C. mains of 200-250 V. The wavebands covered are 200-550 m and 900-2,000 m. The plastic cabinet in which the receiver is housed is available in four pastel shades (green, blue, cream and red).

Release date and original price: August 1954, £9 2s 9d. Purchase tax extra.

CIRCUIT DESCRIPTION

Aerial input via coupling coils **L1** (M.W.) and **L2** (L.W.) to single tuned circuits **L3**, **C26** (M.W.) and **L4**, **C26** (L.W.) which precede triode hexode valve (**V1**, Mullard **UGH42**) operating as frequency changer with internal coupling between the two sections.

Oscillator grid coils **L5** (M.W.) and **L6** (L.W.) are tuned by **C28**. Parallel trimming by **C9**, **C29** (M.W.) and **C9**, **C29**, **C30** (L.W.); series tracking by **C10** (M.W.) and **C11** (L.W.). Reaction coupling from anode circuit via **L7** and **L8**, with additional coupling across the common impedance of the tracker on M.W. Oscillator stabilization by **R4**.

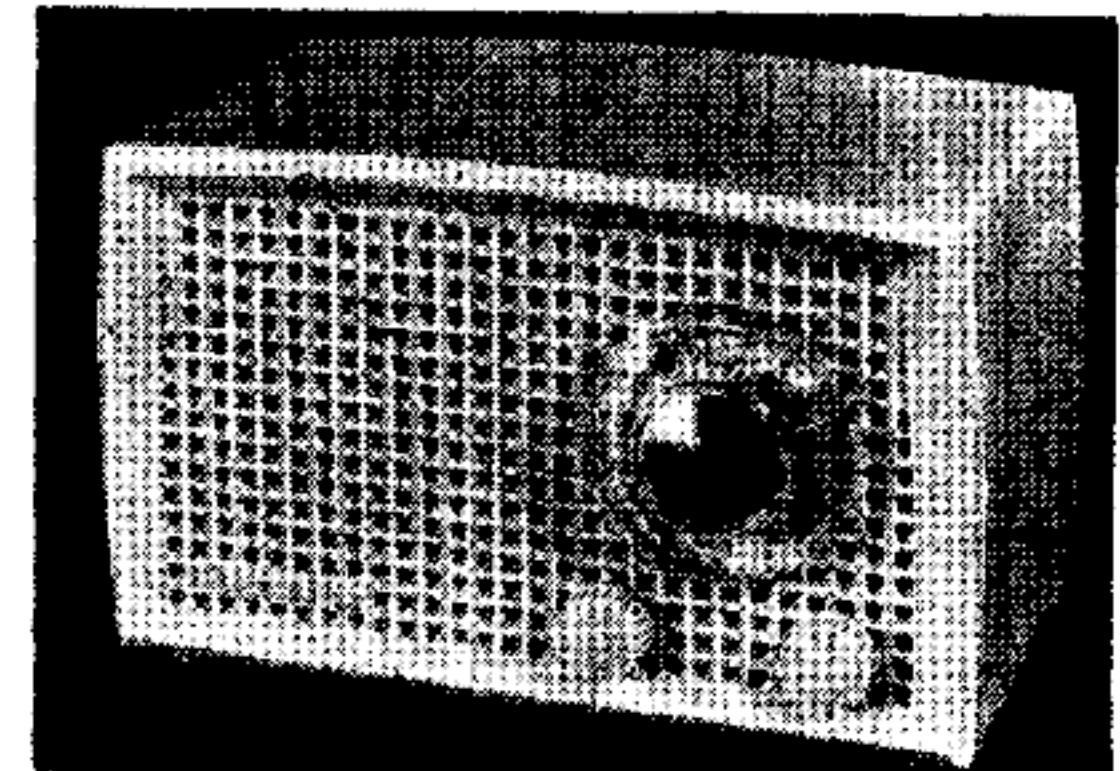
Second valve (**V2**, Mullard **UBF80**) is a double diode R.F. pentode, its pentode section operating as intermediate frequency amplifier with tuned transformer couplings **C4**, **L9**, **L10**, **C8** and **C15**, **L11**, **L12**, **C19**.

Intermediate frequency 465 kc/s.

One diode section of **V2** operates as sig-

nal detector. Audio frequency component in its rectified output is developed across volume control **R11**, which acts as diode load, and is passed via **C20** to control grid of pentode output valve (**V3**, Mullard **UL41**). I.F. filtering by **C17**. Tone correction by **C21**.

V2 pentode anode is coupled via **C16** to the second diode, and the resulting rectified output developed across **R8** is fed



Appearance of the Champion 825.

back as bias to **V1**, giving automatic gain control.

H.T. current is supplied by I.H.C. half-wave rectifier (**V4**, Mullard **UY41**), smoothing by **R17** and electrolytic capacitors **C23**, **C24**. Mains R.F. filtering by **C22**.

COMPONENTS AND VALUES

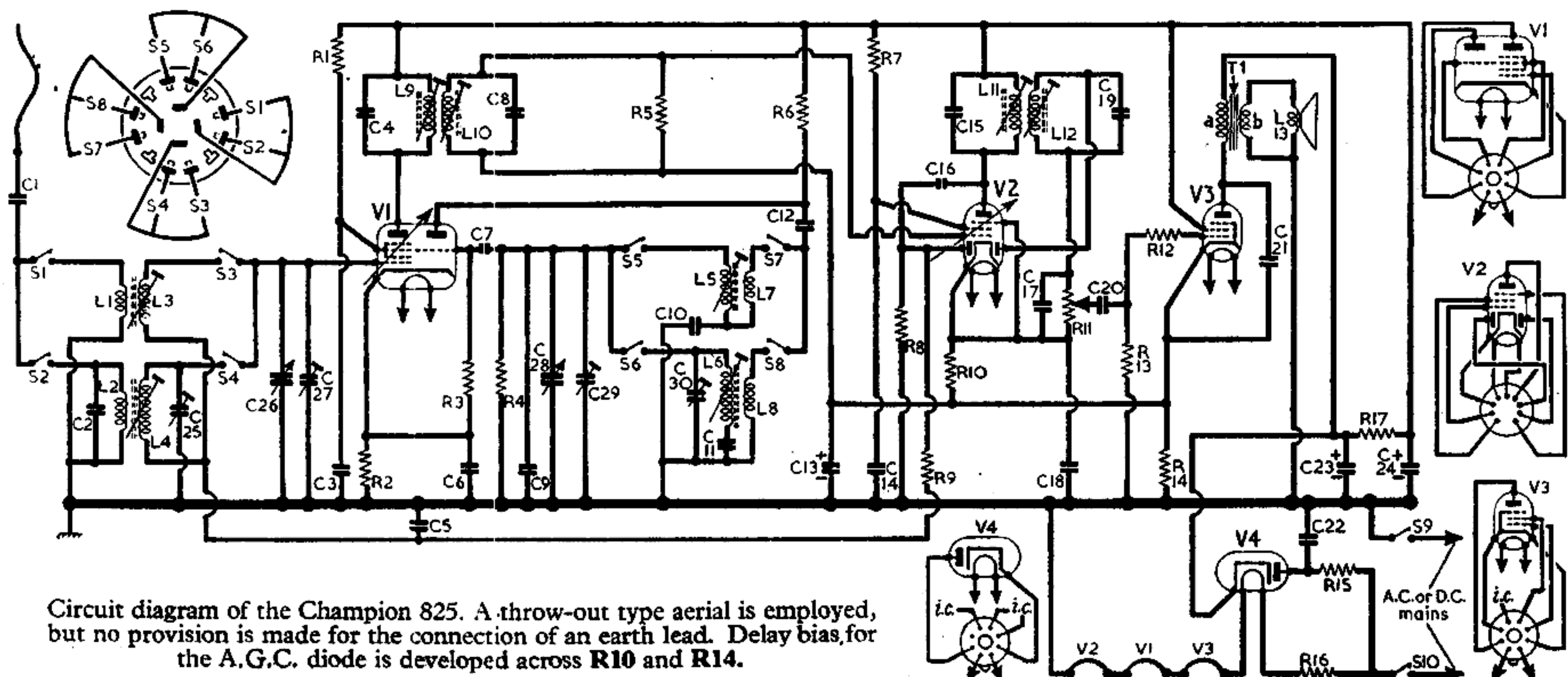
CAPACITORS

Value	Locations
470pF	—
100pF	G4
0.01μF	G8
100pF	R2
0.1μF	E3
0.05μF	G4
50pF	G4
100pF	B2
10pF	G3
550pF	F3
150pF	G4
100pF	F3
25μF	E3
0.01μF	F4
100pF	B2
50pF	E4
300pF	E4
0.05μF	F4
100pF	B2
0.01μF	E3
0.01μF	D3
0.01μF	D3
32μF	B1
32μF	B1
—	A2
—	A2
—	A2
—	A1
—	A1
—	A2

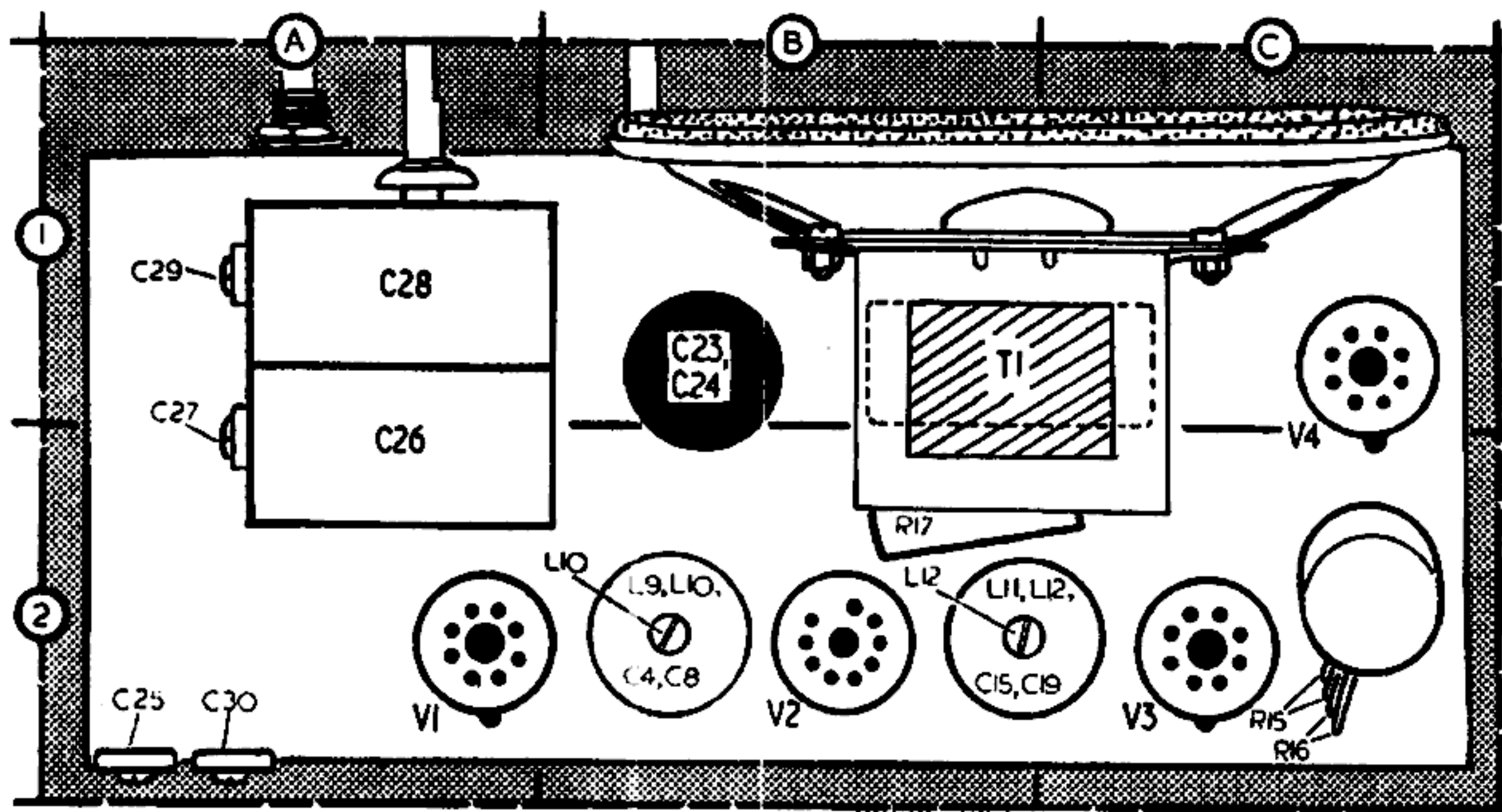
* Electrolytic. † Variable. ‡ Pre-set.

RESISTORS

Value	Locations
33kΩ	F4
180Ω	G4
47kΩ	F4
33kΩ	G3
680kΩ	F4
22kΩ	F4
56kΩ	F4
1MΩ	E4
1MΩ	E4
330Ω	F4
500kΩ	F3
22kΩ	D4
680kΩ	E3
300Ω	E3
150Ω	C2
1,150Ω	C2
2.2kΩ	B2



Circuit diagram of the Champion 825. A throw-out type aerial is employed, but no provision is made for the connection of an earth lead. Delay bias for the A.G.C. diode is developed across **R10** and **R14**.



Plan view of chassis, showing the R.F. and oscillator trimmers in A1 and A2.

2) gives the switch operations for the two control settings, starting from the fully anti-clockwise position. A dash indicates open, and C, closed.

S9, S10 are the Q.M.B. mains switches, ganged with the volume control R11.

Modification.—R5, which was shunted across L10, C8 in our receiver, may not be fitted in earlier models. The same applies to C2 and C9, which were added during production.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating from 230 V A.C. mains. The receiver was switched to M.W. and tuned to the high wavelength end of the band.

Voltages were measured with an Avo Electronic Test Meter, and as this instrument has a high internal resistance, allowance should be made for the current drawn by other types of meter. Chassis was the negative connection in each case.

Valve	Anode		Screen		Cath. V
	V	mA	V	mA	
V1 UCH42	183	3.1	80	3.4	1.75
V2 UBF80	Oscillator				
	106	4.5			
V3 UL41	183	4.4	100	1.9	15.0
V4 UY41	223	2.9	183	5.4	13.0
	195*				230†

* A.C. reading. † Cathode current, 50 mA.

OTHER COMPONENTS

Component	Approx. Values (ohms)	Location
L1	32.0	G3
L2	76.0	G4
L3	4.5	G3
L4	21.0	G4
L5	3.2	F3
L6	7.8	G4
L7	0.6	F3
L8	4.2	G4
L9	12.2	B2
L10	12.2	B2
L11	12.2	B2
L12	12.2	B2
L13	2.9	E3
T1	150.0	B1
S1-S8		G3
S9, S10		F3

nal and adjust C30 (A2) and C25 (A2) for maximum output. Repeat these adjustments until no further improvement results.

Switch Table

Switches	L.W.	M.W.
S1	—	C
S2	C	—
S3	—	C
S4	C	—
S5	—	C
S6	C	—
S7	—	C
S8	C	—

GENERAL NOTES

Switches.—S1-S8 are the waveband switches ganged together in a single rotary unit beneath the chassis. The unit is indicated in the underside illustration of the chassis and shown in detail inset in the top left-hand corner of the circuit diagram overleaf, where it is drawn as viewed from the rear of an inverted chassis. The associated switch table (col.

CIRCUIT ALIGNMENT

To make the following adjustments accessible, the chassis should be removed from its carrying case as described in col. 3.

I.F. Stages.—Connect output of signal generator, via an 0.1 μF capacitor in each lead, to control grid (pin 6) of V1 and chassis. Switch receiver to M.W. and turn gang to maximum capacitance. Feed in a 465 kc/s (645.16 m) signal and adjust the cores of L12 (location reference B2), L11 (E4), L10 (B2) and L9 (F4) for maximum output. Repeat these adjustments until no further improvement results.

R.F. and Oscillator Stages.—Transfer signal generator live lead to end of throw-out aerial lead. Check that with the gang at maximum capacitance, the cursor lines coincide with the short calibration lines at the high wavelength ends of the tuning scales.

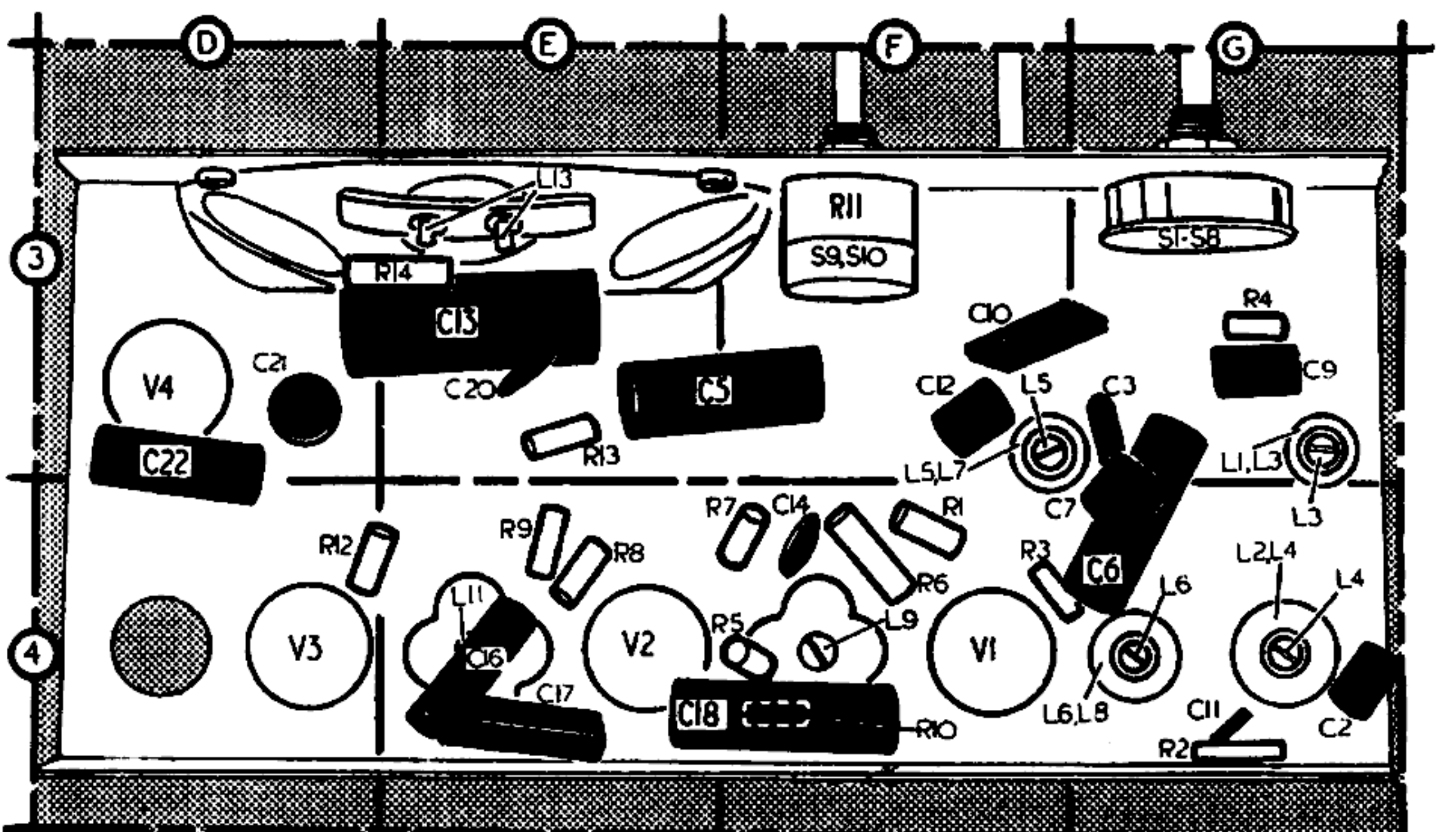
M.W.—Switch receiver to M.W., tune to 550 m, feed in a 550 m (545.4 kc/s) signal and adjust the cores of L5 (F3) and L3 (G3) for maximum output. Tune receiver to 200 m, feed in a 200 m (1,500 kc/s) signal and adjust C29 (A1) and C27 (A2) for maximum output. Repeat these adjustments until no further improvement results.

L.W.—Switch receiver to L.W., tune to 2,000 m, feed in a 2,000 m (150 kc/s) signal and adjust the cores of L6 (G4) and L4 (G4) for maximum output. Tune to 1,000 m, feed in a 1,000 m (300 kc/s) sig-

DISMANTLING

Removing Chassis.—Remove control knobs, including "Selectopex" tuning knob, from front of receiver; remove self-tapping chassis bolt securing rear edge of chassis to cabinet, and withdraw chassis rearwards out of cabinet.

To separate back cover from chassis, remove two Phillips-head plastic bolts and unsolder the aerial input lead to the chassis from the tag strip on the back cover.



Underside view of chassis showing the R.F. and oscillator core adjustments in location references F3, G3 and G4.