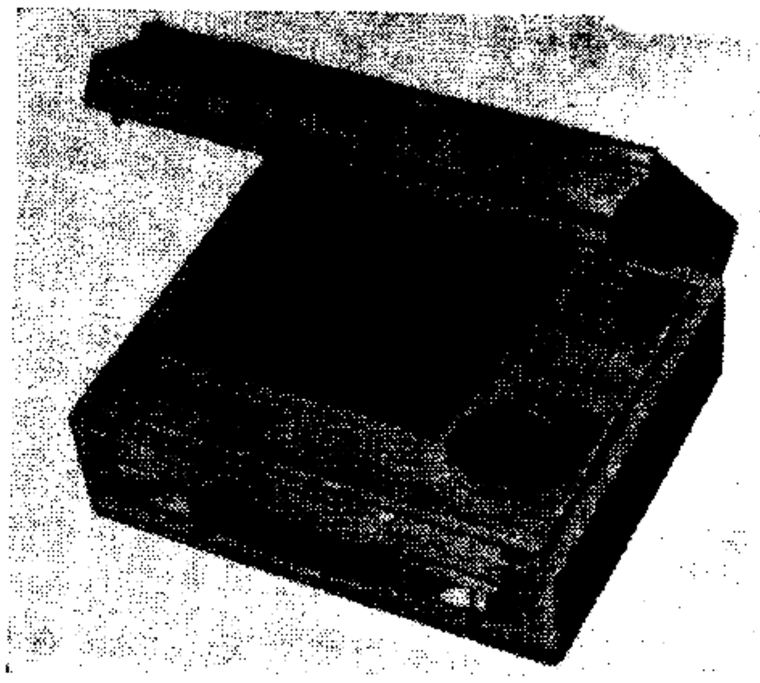
VIDOR CN441

"Lady Elizabeth" Portable Receiver

[Release date and original price: May 1958, £10 4s 8d. Purchase tax extra.



Appearance of the Vidor CN441.

THE Vidor CN441 "Lady Elizabeth" is a 4-valve 2-band all-dry battery receiver covering the wavebands 185-555m (M.W.) and 1,110-1,930m (L.W.). It is housed in an attaché case type of carrying case and is fitted with a lid-operated on-off switch, a ferrite rod aerial, and a printed circuit.

CIRCUIT DESCRIPTION

Ferrite rod aerial coils **L1** and **L2** are mounted in the hinged lid of the case. For M.W. reception, **L1** is tuned by the R.F. section of the uning gang, **C19**, and parallel trimmer **C20**. For L.W. reception, **L1** and **L2** are connected in series and tuned by **C19, C20** and close tolerance capacitor **C1**.

Heptode valve **V1** operates as frequency changer. Oscillator grid coil **L5** is tuned by the oscillator part of the tuning gang, **C22**, and parallel trimmer **C21** on M.W., and, in addition, by close tolerance capacitor **C8** on L.W. Reaction coupling from oscillator anode by **C7, L6.**

Variable-mu R.F. pentode **V2** operates as intermediate frequency amplifier with tuned transformer couplings **C5, L3, L4, C6; C10, L7, L8** and **C11.**

Intermediate frequency 470kc/s.

Diode section of diode-pentode valve **V3** is employed as detector. Audio frequency component in its rectified output is developed across volume control **R8** and passed via coupling capacitor **C14** to the pentode section of **V3,** which operates as A.F. amplifier. The D.C. potential developed across **R7, R8,**

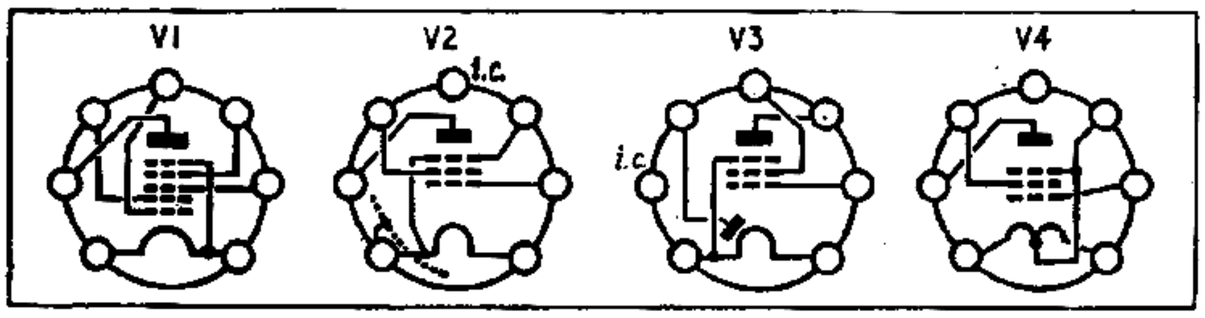
(*Continued overleaf, col. 1.*)

COMPONENT VALUES AND LOCATIONS

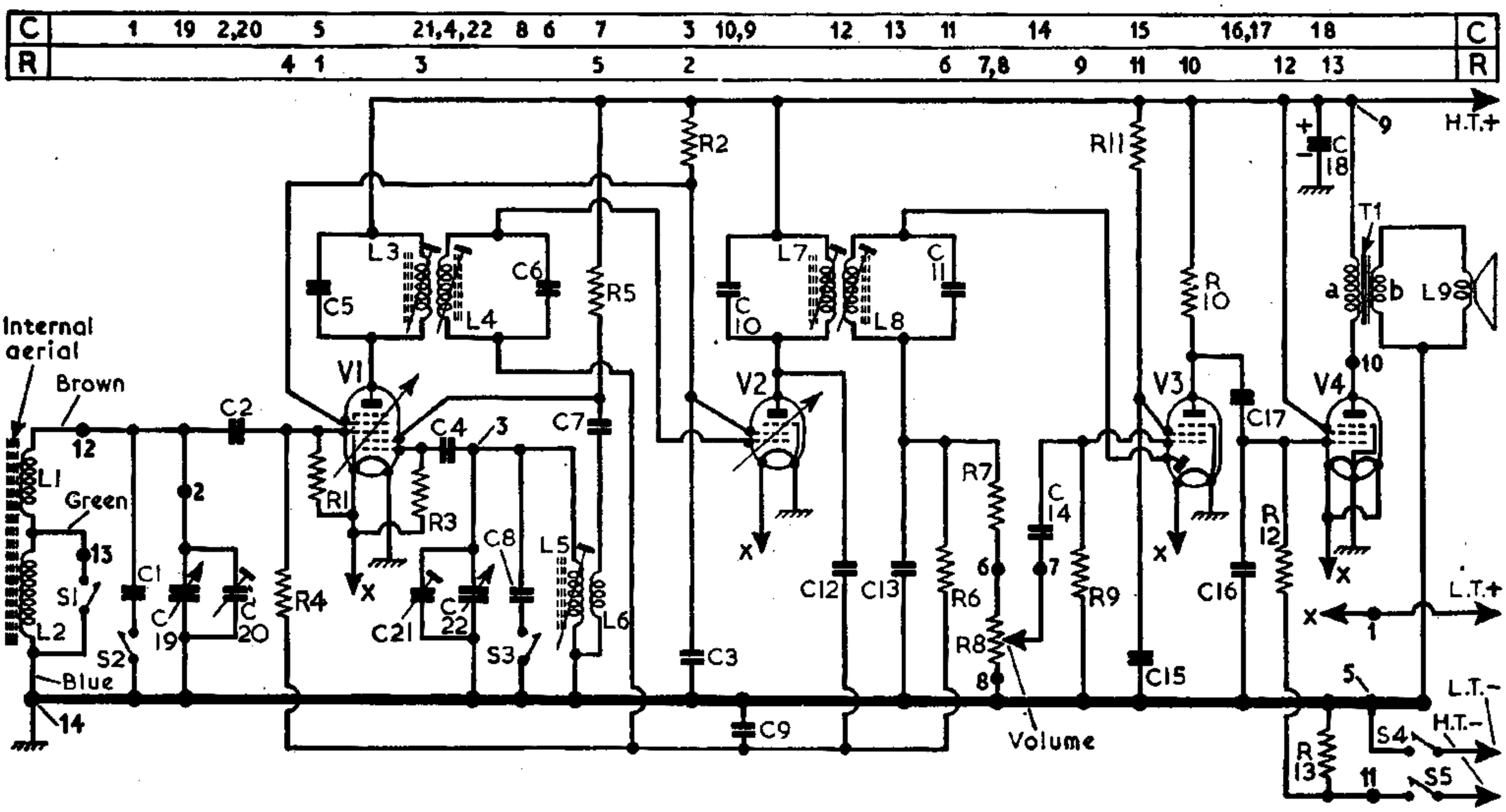
Resistors		
R1	5·6MΩ	C1
R2	33kΩ	C1
R3	27kΩ	C1
R4	4·7MΩ	C1
R5	33kΩ	B1
R6	1·8MΩ	B1
R7	100kΩ	B1
R8	1MΩ	C2
R9	10MΩ	A1
R10	1MΩ	A1
R11	2·7MΩ	A1
R12	1·8MΩ	A1
R13	680Ω	A1
Capacitors		
C1	115pF	C2
C2	100pF	C1
C3	0·03μF	B1
C4	100pF	C1
C5	65pF	B1
C6	65pF	B1
C7	470pF	C1
C8	360pF	C2
C9	0·01μF	B1
C10	65pF	B1
C11	65pF	B1
C12	5·6pF	B1
C13	100pF	B1
C14	0·001μF	A1
C15	0·01μF	B1
C16	220pF	A1
C17	0·01μF	A1
C18	6μF	C1
C19	401pF	C2
C20	30pF	C2
C21	30pF	C2
C22	165pF	C2

Coils*			
L1		0·905	—
L2		8·43	—
L3		14·8	B1
L4		14·8	B1
L5		3·17	C2
L6		—	C2
L7		14·8	B1
L8		14·8	B1
L9		3·0	B2
Other Components*			
T1	a	520.0	B2
	b	—	
S1-S5		—	C2

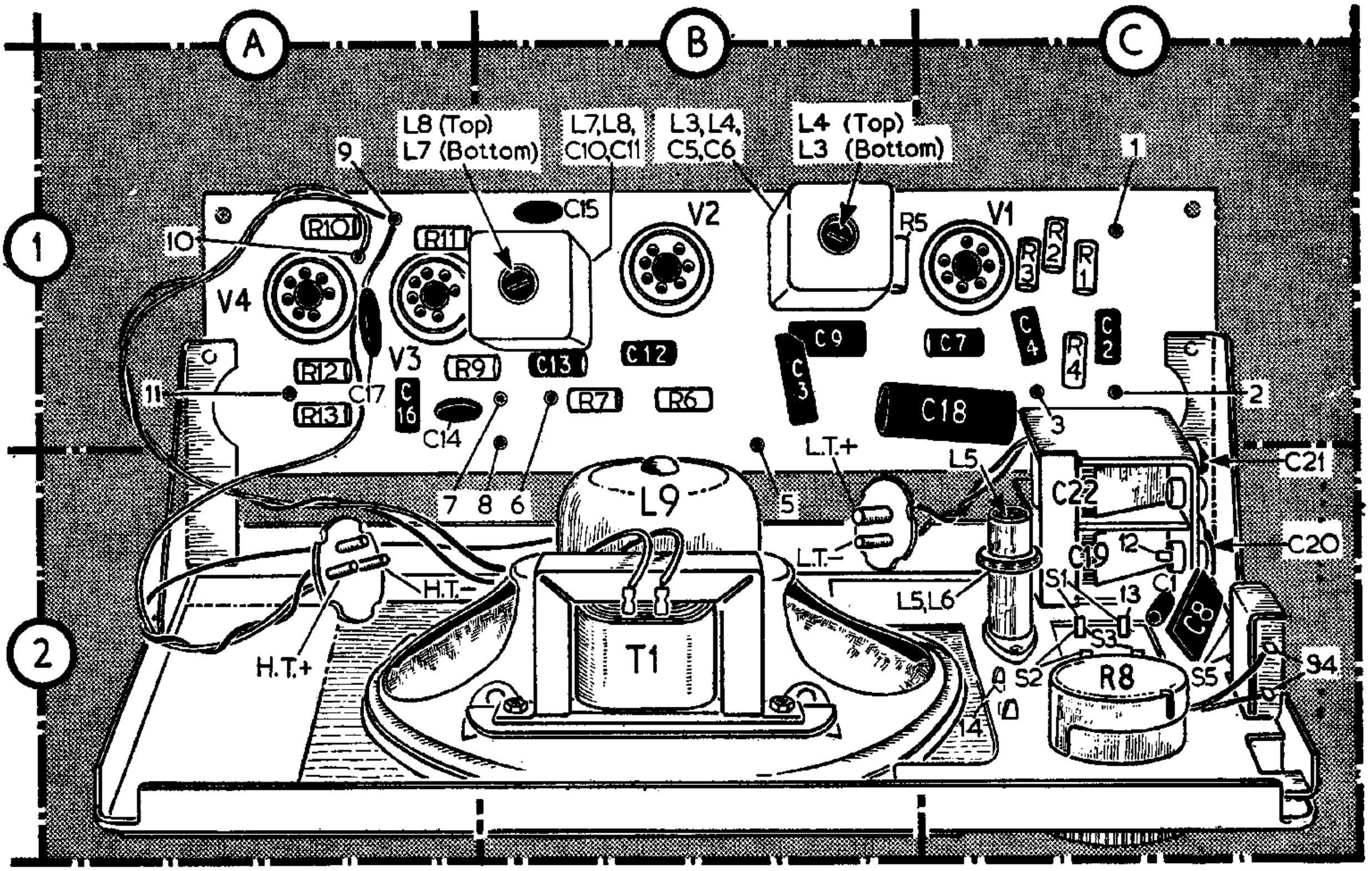
**Approximate D.C. resistance in ohms.*



Diagrams of the valve bases drawn as seen from the free ends of the pins.



Circuit diagram of the Vidor CN441. As the component and terminal numbers are printed on the circuit panel, the same numbering is used in our diagram. A location key is provided at the top of the diagram.



A view of the chassis looking down on the printed circuit panel, the panel being shown slightly out of position. The L.T. and H.T. battery plugs are shown in location references **A2** *and* **B2**, *where their connections are identified.*

Circuit Description—*continued.*

is fed back as A.G.C. bias to **V1** and **V2** via decoupling circuit **R6, C9.**

Resistance-capacitance coupling by **R10, C17** and **R12** between the anode of **V3** and pentode output valve **V4.** Grid bias for **V4** is obtained from the voltage drop across **R13.**

CIRCUIT ALIGNMENT

Equipment Required.—A signal generator, modulated 30 per cent at 400c/s; an A.C. voltmeter for use as an output meter; and a screwdriver-type trimming tool.

At all times during the alignment procedure adjust the signal generator output to give not more than 50mW audio output from the receiver.

I.F. Alignment

1.—Connect the output meter across **T1** secondary. Connect the signal generator across the front section (**C19**) of the tuning gang, and short circuit the rear section (**C22**).

2.—Switch the receiver to M.W. and turn the volume control to maximum. Feed in a modulated 470kc/s signal and adjust the cores of **L8** (B1), **L7** (B1), **L4** (B1) and **L3** (B1) in that order for maximum output. Repeat these adjustments until no further improvement in output can be obtained.

3.—Check that with the tuning gang at maximum capacitance the cursor coincides with the zero blocks separating the M.W. and L.W. tuning scales. If the cursor requires adjustment, remove the tuning knob (pull off) and rotate the cursor disc to its correct position.

4.—Loosely couple the signal generator output to the receiver by placing its output leads close to the ferrite rod aerial.

The ferrite rod aerial is mounted in the hinged lid. Access to the ferrite rod may be gained by removing the panel from the inside of the lid. To do this, first remove two screws and collars from the inner sides of the lid, then gently prise out the panel.

5.—Raise the front panel to a vertical position. Tune the receiver to 500m. Feed in a 600kc/s signal and adjust the core of **L5** (C2) for maximum output. Then slide the former of **L1** along the ferrite rod for maximum output.

6.—Tune the receiver to the 230m calibration block. Feed in a 1,300kc/s signal and adjust **C21** (C2) and **C20** (C2) for maximum output.

7.—Switch the receiver to L.W. and tune it to 1,800m. Feed in a 166.6kc/s signal and slide the former of **L2** along the ferrite rod for maximum output while rocking the tuning gang.

8.—Reseal the formers of **L1** and **L2** by softening the retaining wax with a warm soldering iron.

DISMANTLING

The majority of the components can be made accessible by raising the control panel (press its front edge and swing up on its hinges). The whole assembly may be removed from the case by unsoldering the aerial leads from the chassis and lifting the retaining hook at each hinge pin.

To remove the printed circuit panel: remove four hexagon head self-tapping screws and unsolder the leads between the chassis and the printed circuit.

To remove the metal chassis panel: remove the control knobs (pull off); remove the clamping cleat from under the 4BA speaker nut. Remove two 4BA nuts and two hexagon head self-tapping screws screwing the chassis to the control panel. Unsolder the speaker earthing lead and lift the chassis clear.

GENERAL NOTES

Switches.—S1-S3 are the waveband switches ganged in a slide-type switch unit. The unit is shown in location reference C2, where the individual switch contacts are identified. **S1** closes on M.W.; **S2** and **S3** close on L.W.

S4 and **S5** are the lid-operated battery on/off switches and are shown in location reference C2.

Batteries.—The batteries specified by the manufacturers are: H.T., Vidor L5512, rated at 90V; L.T., Vidor L5040, rated at 1.5V. It is important to connect the L.T. battery before the H.T. battery. When removing the batteries, always disconnect the H.T. battery before the L.T. battery.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those derived from the manufacturers' information. Voltages were measured on the 100V range of a Model 8 Avometer, chassis being the negative connection in each case. The receiver was switched to M.W., but there was no signal input.

The total H.T. current was 9mA and total L.T. current was 130mA. The bias voltage measured at **V4** control grid (pin 6) was −6.4V (measured on 10V range).

Valve Table

Valve	Anode		Screen	
	(V)	(mA)	(V)	(mA)
V1 DK96 { osc.	33	1·6	—	—
V1 DK96 { mixer	83	0·78	63	0·18
V2 DF96.....	83	1·27	63	0·39
V3 DAF96	20	0·055	27	0·018
V4 DL96	81	4·0	83	0·76

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