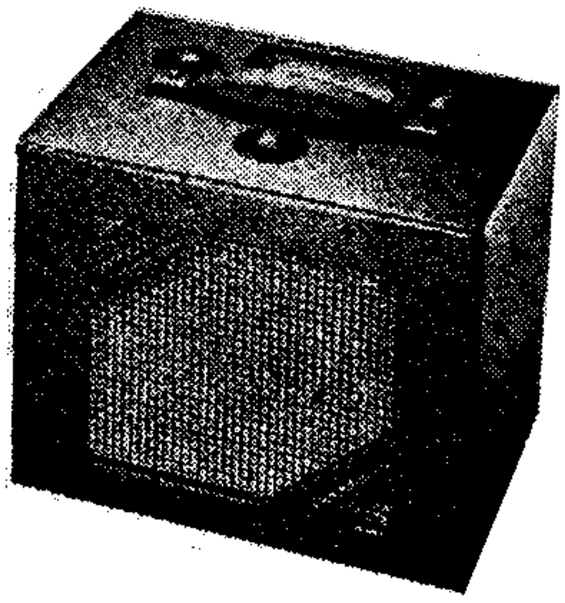
SHEET

REVISED ISSUE OF
SERVICE SHEET No. 321

EVER READY 5041 AND LISSEN 8409 BATTERY PORTABLES



The Ever Ready 5041 portable.

THE Ever Ready 5041 is a 4-valve 2-band battery-operated portable TRF receiver. The controls are at the top of the cabinet, with a carrying handle, and there is a turntable on the bottom of the cabinet.

An identical chassis is employed in the Lissen 8409 "Sunshine" portable; this *Service Sheet* therefore covers both of these receivers, but it was prepared from an Ever Ready 5041.

Release date and original price, both models: March, 1938; £6 19s 6d., *complete with batteries.*

CIRCUIT DESCRIPTION

Tuned frame aerial input **L1, L2, C13** to variable-mu hexode valve **(V1, Ever Ready metallised K50N)** with second and third grids strapped to operate as pentode RF amplifier. Gain control by potentiometer **R15** in series with limiting resistance **R16** across automatic GB potential divider.

Tuned-anode coupling by **L5, L6, C16** between **V1** and triode detector valve **(V2, Ever Ready metallised K30K)** which operates on the grid leak system with **C4** and **R4.** Reaction is applied from anode via coils **L3, L4** and controlled by variable condenser **C15.** RF filtering in anode circuit by **C6.**

Resistance-capacity coupling by **R8, C7, R9,** via RF filter **R10, C8,** between **V2** and triode AF amplifying valve **(V3, Ever Ready metallised K30K).**

Parallel-fed transformer coupling by **R11, C10, T1,** via RF stopper **R12,** between **V3** and pentode output valve **(V4, Ever Ready K70B).** Fixed tone correction in anode circuit by **C11.** GB potentials for **V1** and **V4** are automatically obtained from resistances **R13, R14,** which form a potential divider, in parallel with **R15, R16,** in HT negative lead to chassis. Auto GB circuit decoupling by large-capacity electrolytic condenser **C12.**

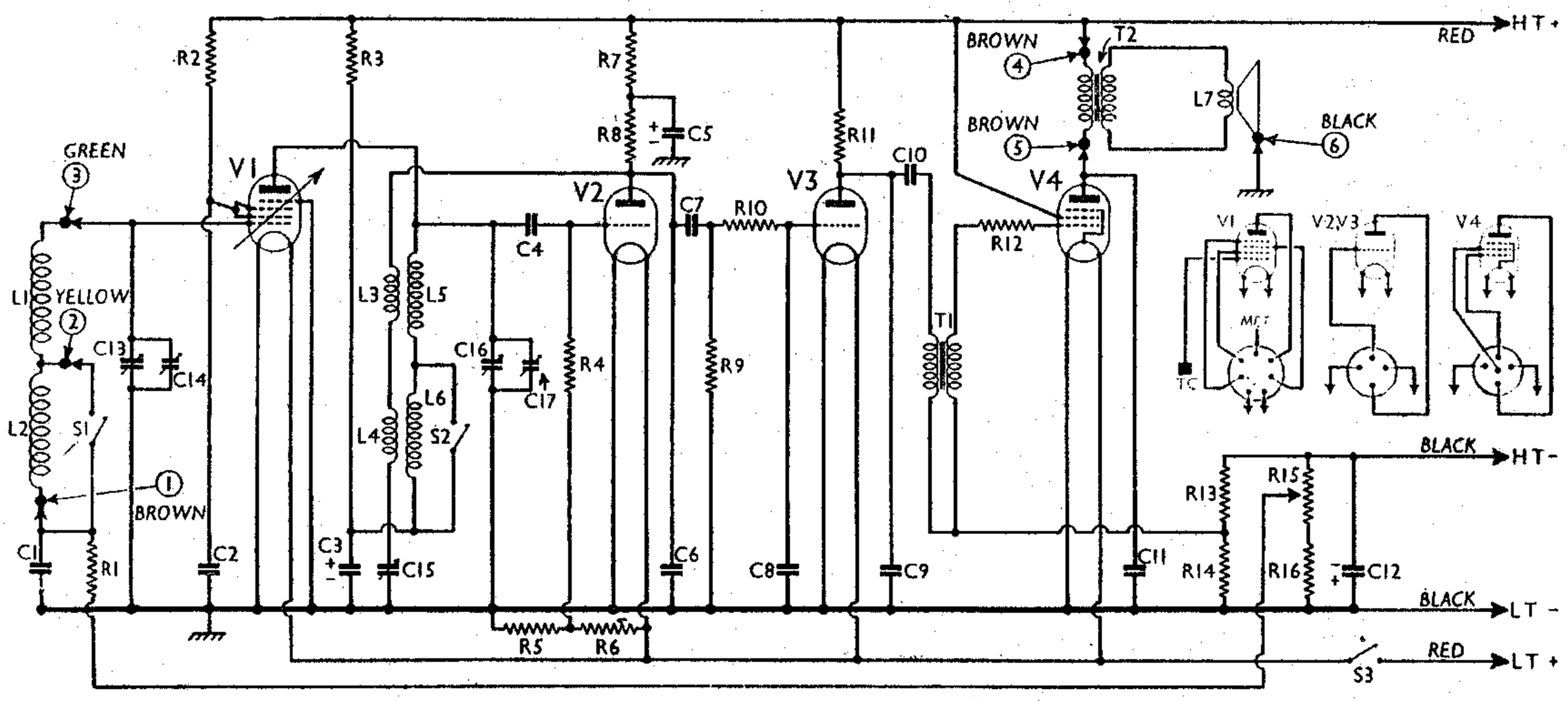
COMPONENTS AND VALUES

	RESISTORS	Values (ohms)
R1	V1 CG decoupling ...	510,000
R2	V1-SG HT feed	51,000
R3	V1 anode HT feed ...	11,000
R4	V2 CG resistor ...	2,100,000
R5	V2 GB filament pot. ...	1,500
R6	V2 GB filament pot. ...	1,500
R7	V2 anode decoupling ...	41,000
R8	V2 anode load	31,000
R9	V3 CG resistor ...	1,100,000
R10	V3 grid stopper ...	110,000
R11	V3 anode load	51,000
R12	V4 grid stopper ...	110,000
R13	Auto GB potential divider	1,000
R14	Auto GB potential divider	450
R15	V1 gain control, ganged C15	5,000
R16	V1 fixed GB	2,100

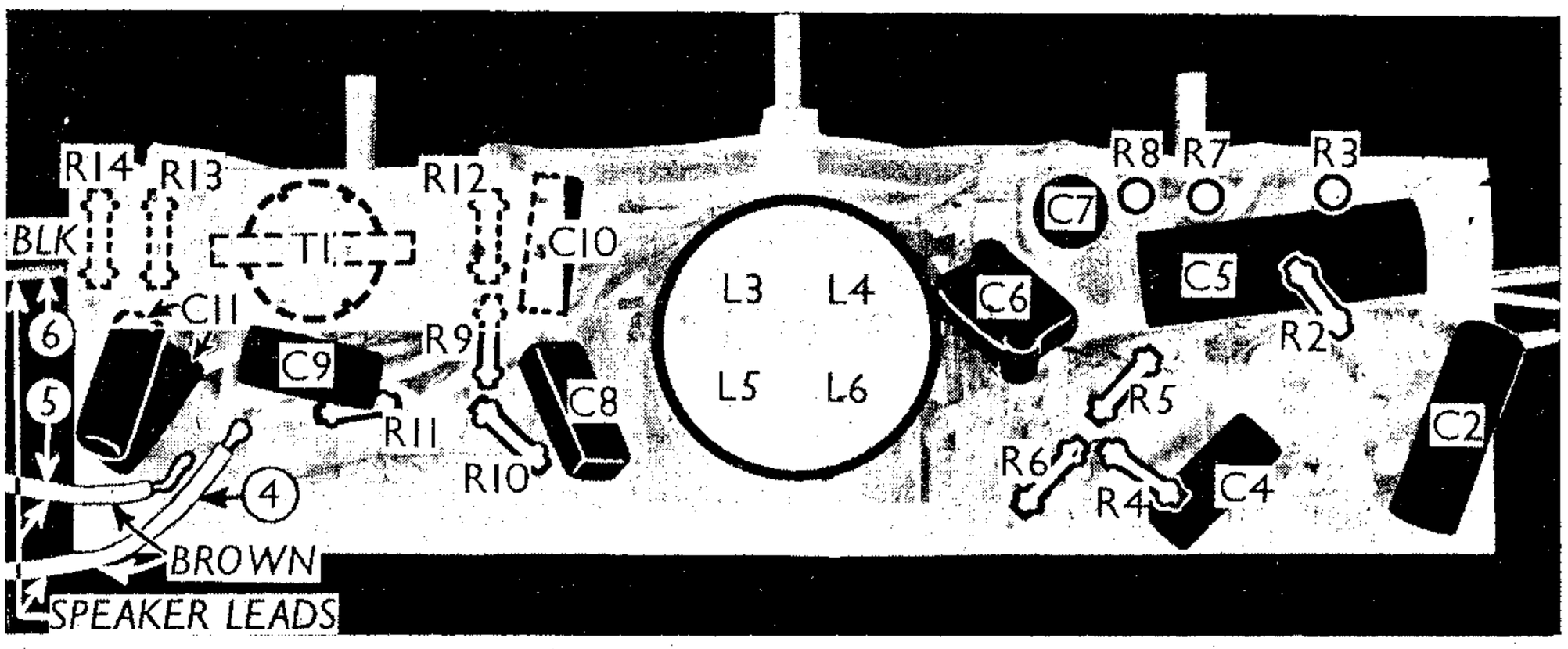
	CONDENSERS	Values (μF)
C1	V1 CG decoupling ...	0·1
C2	V1 SG decoupling ...	0·1
C3*	V1 anode decoupling ...	2·0
C4	V2 CG condenser ...	0·0001
C5*	V2 anode decoupling ...	2·0
C6	V2 anode RF by-pass ...	0·0003
C7	V2 to V3 AF coupling ...	0·1
C8	RF by-pass condensers ...	0·0001
C9	RF by-pass condensers ...	0·001
C10	AF coupling to T1 ...	0·01
C11	Fixed tone corrector ...	0·003§
C12*	Auto GB by-pass ...	50·0
C13†	Frame aerial tuning ...	—
C14‡	Frame MW trimmer ...	—
C15†	Reaction control, ganged R15	—
C16†	V1 anode tuning ...	—
C17‡	V1 anode MW trimmer	—

§ One 0.002 and one 0.001 in parallel.
* Electrolytic. † Variable. ‡ Pre-set.

	OTHER COMPONENTS	Approx. Values (ohms)
L1	Frame aerial windings ...	1·75
L2	Frame aerial windings ...	30·0
L3	Reaction coils, total ...	8·0
L4	Reaction coils, total ...	8·0
L5	V1 anode circuit tuning coils	2·75
L6	V1 anode circuit tuning coils	13·0
L7	Speaker speech coil ...	2·0
T1	Intervalve trans. Pri....	2,000·0
T1	Intervalve trans. Sec....	8,000·0
T2	Speaker input trans. Pri.	1,000·0
T2	Speaker input trans. Sec.	0·2
S1; S2	Waveband switches ...	—
S3	LT circuit switch ...	—



Circuit diagram of the Ever Ready 5041. **R15** and **C15** are ganged. An identical chassis is used in the Lissen 8409.



Front view of the chassis. The speaker leads are indicated, and they are numbered and colour-coded to agree with the markings in the circuit diagram overleaf. Several components are shown dotted through a protective covering.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating with a new HT battery reading 91 V, on load. The receiver was tuned to the lowest wavelength on the MW band and the gain control was set so that the potentiometer slider had just reached the end of the element but the vanes of the reaction condenser were not in mesh. There was no signal input, the frame aerial connections being shorted.

Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 K50N	70	0·9	53	0·3
V2 K30K	46	0·5	—	—
V3 K30K	48	0·6	—	—
V4 K70B	80	3·2	84	0·5

GENERAL NOTES

Switches.—S1, S2 are the waveband switches, and **S3** the LT circuit switch, ganged in a single unit beneath the control panel, and identified in our underchassis view. **S1** and **S2** are closed on MW and open on LW, while **S3** is only open in the "off" position.

Coils.—L1 and **L2** are the frame aerial windings, incorporated in the cabinet, the three connections being brought out to tags inside the left-hand side of the cabinet. These connections are numbered 1 to 3 in our circuit diagram, and the wires are colour-coded.

L3-L6 are in a screened unit projecting through the valve platform, and shown in both our chassis illustrations.

Gain Control.—The gain and reaction controls **R15, C15** are combined in a single unit, so arranged that only after the gain has reached its maximum is the reaction increased.

Condenser C11.—This consists of two units in parallel in our chassis.

Batteries.—LT, Ever Ready J203 2 V 20 aH celluloid-cased jelly-acid cell. HT, Ever Ready Portable No. 61 90 V HT battery. GB is automatic.

Battery Leads and Voltages.—Black lead, spade tag, LT negative; red lead, spade tag, LT positive 2 V; black lead and plug, HT negative; red lead and plug, HT positive 90 V.

DISMANTLING THE SET

Removing Chassis.—Remove the three control knobs (pull-off);
remove the back of the case, the batteries and **V1**;
unsolder from the frames and speaker the leads connecting them to chassis, including the speaker earthing lead;
remove the four bolts holding the chassis to the top of the case.
When replacing, connect the frame leads as follows, starting from the farthest tag: 1, brown; 2, yellow; 3, green.
Take the two brown leads (4 and 5) to the outer tags on the speaker transformer, and the black earthing lead (6) to the tag on the top right-hand speaker fixing screw.
Removing Speaker.—First remove the chassis as described above;
unsolder the tinned copper earthing lead from one of the speaker fixing screws, and slacken the four clamps holding the sub-baffle to the front of the case.
When replacing, the transformer should be on the right, and the leads should be connected as previously described, the tinned copper and black earthing leads going to the same tag.

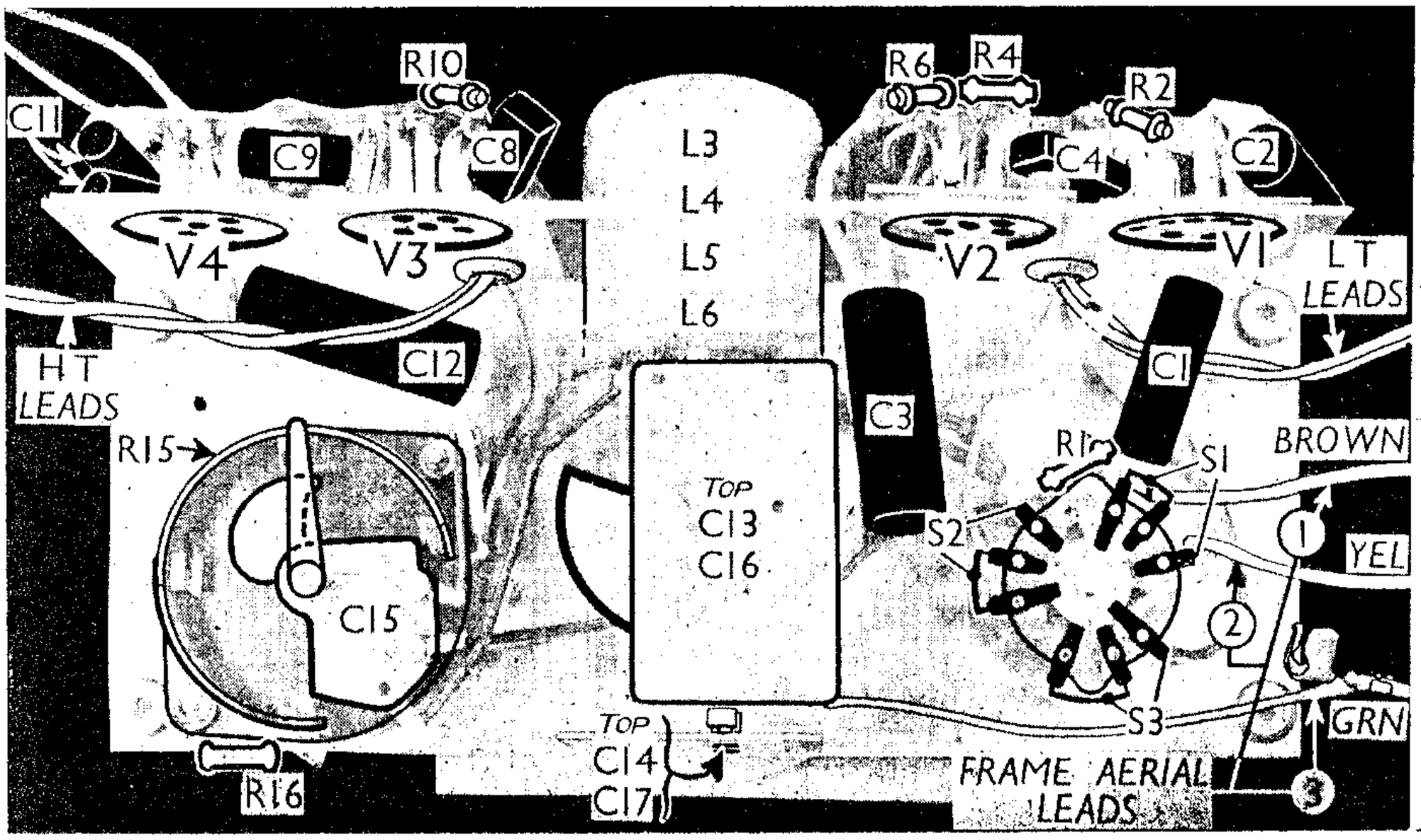
CIRCUIT ALIGNMENT

With gang at maximum, the pointer should cover the horizontal line at 2,100 m.

Couple the output from the signal generator loosely to the frame aerial windings by one or two turns of wire wound round the outside of the cabinet.

Switch set to MW, tune to 250 m on the scale, feed in a 250 m (1,200 kc/s) signal, and adjust **C17** and **C14** for maximum output, keeping the combined gain and reaction control just short of the oscillation point.

Finally, readjust **C14** slightly if necessary on an actual station of low power.



Under - chassis view. The frame aerial connections are coded to agree with those in the circuit diagram.

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