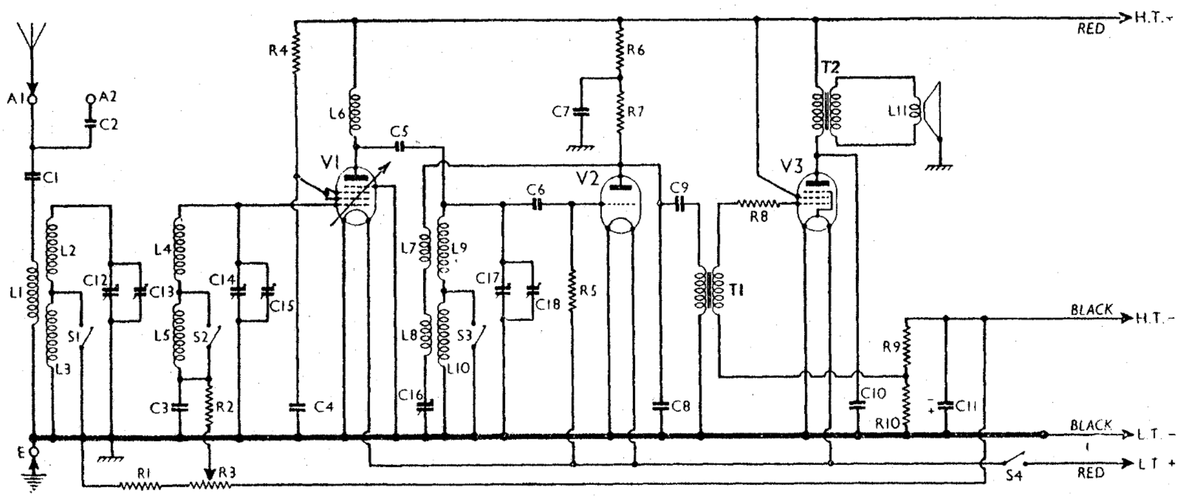

Circuit diagram of the Lissen 8306 3-valve battery receiver. No grid bias battery is used, bias being obtained by **R1, R3** and **R9, R10.**

COMPONENTS AND VALUES

	CONDENSERS	Values (μF)
C1	Aerial series condenser ..	0·0001
C2	A2 series condenser	0·00001
C3	V1 C.G. decoupling	0·1
C4	V1 S.G. decoupling	0·1
C5	V1 to V2 R.F. coupling condenser	0·00005
C6	V2 C.G. condenser	0·00005
C7	V2 anode decoupling ..	0·5
C8	V2 anode R.F. by-pass ..	0·0005
C9	A.F. coupling to T1	0·01
C10	Fixed tone corrector	0·005
C11*	V1 and V3 G.B. pots. by-pass	20·0
C12†	Band-pass pri. tuning ..	—
C13‡	Band-pass pri. M.W. trimmer	—
C14†	Band-pass sec. tuning ..	—
C15‡	Band-pass sec. M.W. trimmer	—
C16†	Reaction control	0·0005
C17†	V2 grid circuit tuning ..	—
C18‡	V2 grid circuit M.W. trimmer	—

* Electrolytic. † Variable. ‡ Pre-set.

	RESISTANCES	Values (ohms)
R1	V1 fixed G.B. resistance ..	250
R2	V1 C.G. decoupling	510,000
R3	V1 gain control	5,000
R4	V1 S.G. H.T. feed	110,000
R5	V2 grid leak	2,100,000
R6	V2 anode decoupling ..	26,000
R7	V2 anode load	110,000
R8	V3 grid stopper	110,000
R9	V3 automatic G.B. potential divider	1,500
R10		800

	OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial coupling coil	11·5
L2	Band-pass primary coils	2·8
L3		11·0
L4	Band-pass secondary coils	2·6
L5		11·0
L6	V1 anode R.F. choke ..	430·0
L7	M.W. reaction coil	3·5
L8	L.W. reaction coil	8·75
L9	V2 grid tuning coils ..	2·6
L10		11·0
L11	Speaker speech coil	2·25
T1	Intervalve trans. Pri. ..	1,200·0
	Sec. ..	5,000·0
T2	Speaker input trans Pri. ..	570·0
	Sec. ..	0·3
S1-S3	Waveband switches	—
S4	L.T. circuit switches	—

VALVE ANALYSIS

Valve voltages and currents given in the table (p. VII) are those measured in our receiver when it was operating with a new H.T. battery reading 122 V, on load. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but the reaction control was at minimum. There was no signal input.

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	110	1·3	37	0·4
V2 K30K	35	0·5	—	—
V3 K70B	108	4·0	110	0·6

GENERAL NOTES

Switches.—**S1-S3** are the waveband switches, and **S4** the L.T. circuit switch, ganged together in a single unit beneath the chassis. All the switches are indicated in our under-chassis view. In the M.W. position, all the switches are closed, and in the L.W. position all except **S4** are open. **S4** opens in the "off" position.

Coils.—**L1-L5** are on an unscreened tubular former mounted vertically on the chassis deck. **L7-L10** are also in an unscreened unit, beneath the chassis. **L6** is an R.F. choke mounted on the rear member of the chassis.

External Speaker.—No provision is made for this, but a high impedance type could be connected across the two tags on **T2** to which the brown leads from the set are connected.

Condenser C2.—This is a small condenser formed by the lead from **A2** twisted round that from **A1.**

Chassis Divergencies. — **C10** in our chassis is 0·005 μF, but is shown as 0·01 μF by the makers. **C11** is 20 μF (30 V peak), not 50 μF (12 V peak) as shown by the makers.

Batteries.—L.T., 2 V 20 AH mass type glass-cased cell, type LN 2008. H.T., 120 V Lissen H.T. battery, type LN 539. Grid bias is automatic.

Battery Leads and Voltages.—Black lead, spade tag, L.T. negative; red lead, spade tag, L.T. positive, 2 V; black lead and plug, H.T. negative; red lead and plug, H.T. positive, 120 V.

CIRCUIT ALIGNMENT

With gang at maximum, pointer should register with the horizontal line at the right of the scale.

Switch set to M.W., tune to 214 m. on scale, and feed a 214 m. (1,400 KC/S) signal into the **A1** and **E** sockets. Adjust **C18, C15** and **C13** for maximum output, keeping the set just below the oscillation point by means of **C16.** Check calibration at 300 and 500 m., with critical reaction, and see that the set tunes down to 200 m.

On L.W., check calibration at 1,200 m. and 1,700 m. by feeding in signals of these wavelengths.

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