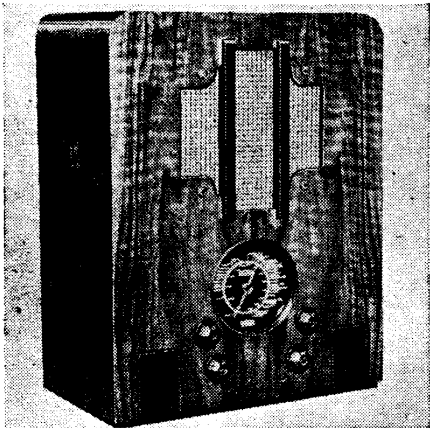


"TRADER" SERVICE SHEET

722

LISSEN 8130, 8133 AND EVER READY 5013

REVISED ISSUE OF
SERVICE SHEET No. 133



The Lissen 8130 AC/DC receiver.

The Lissen 8133 employs an identical chassis, as does also the Ever Ready 5013, but this *Service Sheet* was prepared from a Lissen 8130.

Release date, all models, 1936. Original prices: Lissen 8130, £9 9s.; 8133, (Not known); Ever Ready 5013, £9 19s. 6d.

CIRCUIT DESCRIPTION

Aerial input via series capacitor **C1**, coupling coil **L1**, and small coupling capacitor **C2**, to single-tuned circuits **L2**, **C20** (SW) and **L3**, **L4**, **C20** (MW and LW) which precede variable-mu pentode RF amplifier (**V1**, Ever Ready metallised **C50N**). Gain control is effected by variable potentiometer **R4** which varies GB applied.

Tuned-anode coupling by **L5**, **C22** (SW) and **L6**, **L7**, **C22** (MW and LW) to triode detector valve (**V2**, Ever Ready metallised **C30B**) which operates on grid leak system with **C7** and **R6**. Reaction is applied from anode by coils **L8** (SW) and **L9** (MW and LW) and controlled by variable capacitor **C24**. RF filtering by anode stopper **R9**, choke **L10** and by-pass capacitors **C8**, **C9**.

Parallel-fed auto-transformer coupling by **R8**, **C10** and **T1** to output pentode (**V3**, Ever Ready **C70D**). Fixed tone correction in anode circuit by impedance limiting filter **R10**, **C11**; two-position tone

control by fixed capacitor **C13** and plug-socket arrangement.

When the receiver is used with AC mains, HT current is supplied by half-wave rectifying valve (**V4**, Ever Ready **C10B**), which, with DC supplies, behaves as a low resistance. Smoothing by speaker field **L13** and electrolytic capacitors **C14**, **C15**.

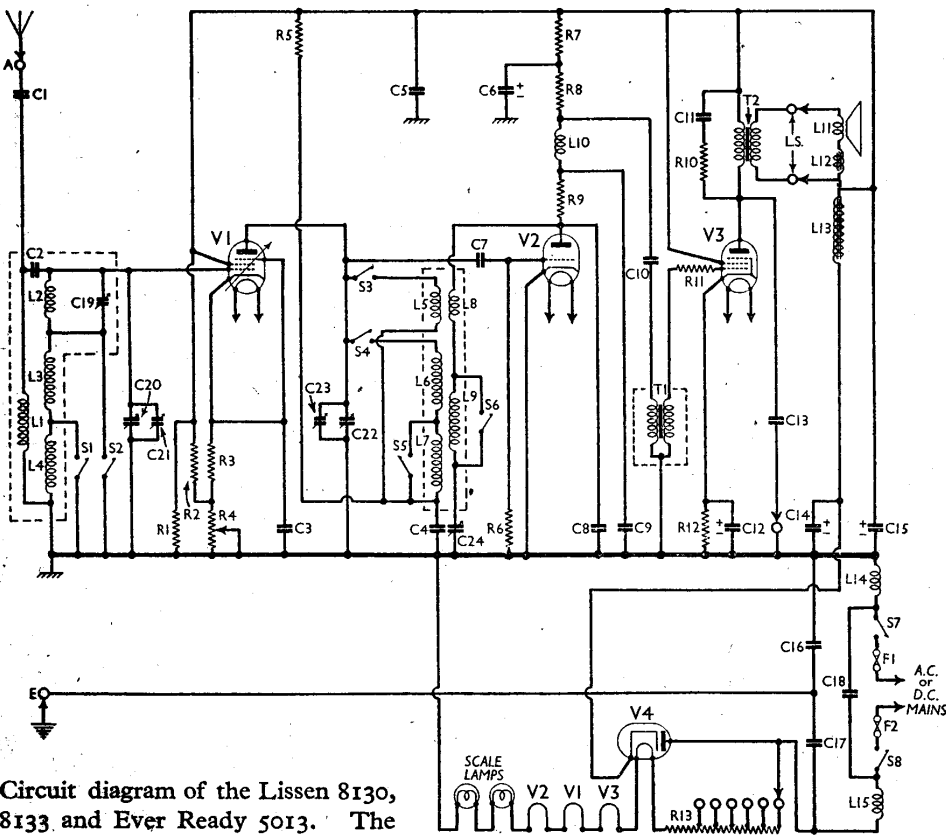
The valve-heaters are connected in series together with scale lamps and a tapped ballast resistor **R13** across mains input circuit. Chokes **L14**, **L15** and capacitors **C16**, **C17**, **C18** form a filter for the suppression of mains-borne interference.

COMPONENTS AND VALUES

RESISTORS		Values (ohms)
R1	} HT ballast resistors ... {	31,000
R2		31,000
R3	Gain control fixed min.	200
R4	V1 gain control ...	10,000
R5	V1 anode decoupling ...	5,000
R6	V2 grid leak ...	5*0,000
R7	V2 anode decoupling ...	11,000
R8	V2 anode load	50,000
R9	V2 anode RF stopper ...	2,000
R10	Part of tone corrector ...	11,000
R11	V3 grid stopper ...	26,000
R12	V3 GB resistor ...	200
R13	Heater circ. ballast, total	796*

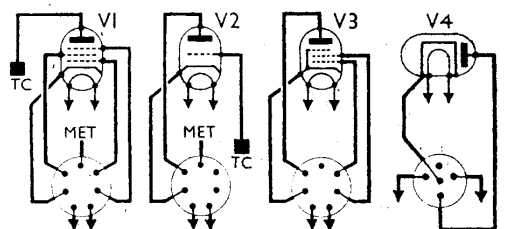
* Tapped at 545Ω + 50Ω + 50Ω + 50Ω + 50Ω + 50Ω from V4 heater.

DESIGNED to operate from AC or DC mains of 200-250 V, 40-100 c/s in the case of AC, the Lissen 8130 is a 3-valve (plus rectifier) 3-band TRF receiver. The SW range is 18.5-54 m.



CAPACITORS		Values (μF)
C1	Aerial series capacitor ...	0.0002
C2	Capacitative aerial coupling ...	0.00001
C3	V1 cathode by-pass ...	0.1
C4	V1 anode decoupling ...	0.1
C5	V1 SG decoupling ...	0.1
C6*	V2 anode decoupling ...	2.0
C7	V2 CG capacitor ...	0.00005
C8	} RF by-pass capacitors ... {	0.0001
C9		0.0003
C10	AF coupling to T1 ...	0.1
C11	Part of tone corrector ...	0.01
C12*	V3 cathode by-pass ...	50.0
C13	Tone control capacitor ...	0.01
C14*	} HT smoothing ... {	8.0
C15*		16.0
C16	} Parts of mains filter circuit ... {	0.1
C17		0.1
C18		0.1
C19†	Aerial SW trimmer ...	—
C20†	Aerial circuit tuning ...	—
C21†	Aerial MW trimmer ...	—
C22†	V1 anode circuit tuning ...	—
C23†	V1 anode MW trimmer ...	—
C24†	Reaction control ...	—

* Electrolytic. † Variable. ‡ Pre-set.



Circuit diagram of the Lissen 8130, 8133 and Ever Ready 5013. The earth socket is capacitatively coupled to the centre of the mains input circuit.

The speaker is connected via a socketed plug.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial coupling coil ...	37.9
L2	Aerial SW tuning coil ...	Very low
L3	Aerial MW and LW tuning coils.	2.3
L4		13.7
L5	V1 anode SW tuning coil	Very low
L6	V1 anode MW and LW tuning coils.	3.5
L7		14.1
L8	SW and MW reaction coils total ...	3.3
L9		310.0
L10	V2 anode RF choke ...	310.0
L11	Speaker speech coil ...	1.6
L12	Hum neutralising coil ...	0.2
L13	Speaker field coil ...	600.0
L14	Mains filter chokes ...	1.0
L15		1.0
T1	Intervalve trans. { Pri. Sec. ...	770.0
T2		1,900.0
S1-S6	Waveband switches ...	750.0
S7, S8	Mains circuit switches ...	0.36
F1, F2	Mains circuit fuses, 1A ...	—

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on 230 V AC mains, using the 230 V tapping on the ballast resistor. The volume control was at maximum but the reaction control was at minimum, and there was no signal input.

Voltages were measured on the 1,200 V scale of an Avometer, with chassis as negative.

If V2 becomes unstable when readings are being taken in the anode circuit, as in our case, it can be stabilised by connecting a 0.1 µF capacitor from anode to chassis.

Valve	Anode Voltage (V.)	Anode Current (mA)	Screen Voltage (V.)	Screen Current (mA)
V1 C50N	155	8.1	200	3.0
V2 C90B	50	2.2	—	—
V3 C70D	170	39.0	200	5.6
V4 C10B†	—	—	—	—

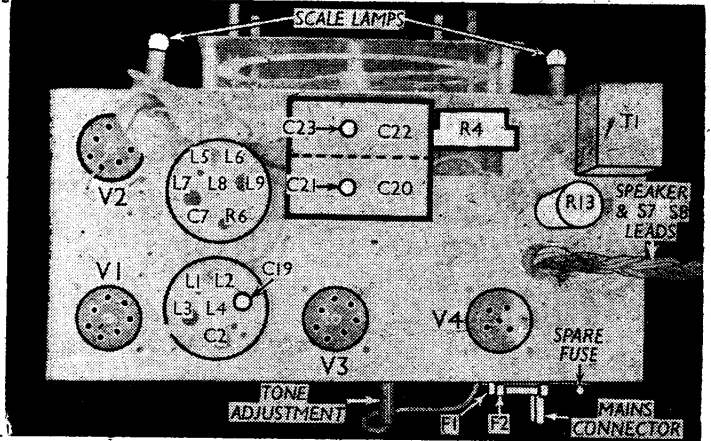
† Cathode to chassis 245 V, D.C.

DISMANTLING THE SET

A detachable bottom is fitted to the cabinet, and upon removal (four round-head wood screws) gives access to most of the under-chassis components.

Removing Chassis.—Remove the four control knobs (pull-off); remove the mains switch unit (two wood screws) from the side of the cabinet;

Plan view of the chassis. A spare fuse is fitted on the rear chassis member. C2, C19 and R6, C7 are located inside the two coil units. The leads to the speaker and S7, S8 are indicated.



free the speaker and mains switch leads from the cleats on the side of the cabinet.

If the four bolts (with washers) holding the chassis to the bottom of the cabinet are now removed, the chassis may be withdrawn to the extent of the speaker leads; or, if the speech coil plugs are removed from their sockets on the chassis, and the field coil leads are freed from their screw terminals on the speaker, the chassis may be freed entirely.

When replacing, note that the knobs are all marked with their purpose, and do not omit to replace the insulating covers over the chassis bolts.

Removing speaker.—Remove the nuts, washers and lock-washers from the four ornamental-headed bolts holding the speaker to the front of the cabinet.

When replacing, the connecting panels should be at the bottom.

GENERAL NOTES

Switches.—S1-S6 are the ganged waveband switches clearly shown in the under-chassis illustration. The table (col. 3) gives their positions for the three control knob settings, a dash indicating open, and C, closed.

S7, S8 are the QMB mains circuit switches in a moulded plastic unit fitted at one side of the cabinet. A paxolin plate at the rear gives easy access to the contacts.

Coils.—The tuning coils L1-L4 and L5-L7 are in two screened units mounted on the chassis deck. The first unit also contains C2 and the SW aerial trimmer C19, while the second contains the reaction coils L8, L9 and two further components C7, R6.

L10 is the detector anode RF choke, and L14, L15 the mains filter chokes, all of which are mounted beneath the chassis.

Capacitors C14, C15 are two 350 V dry electrolytics in one unit with a common negative (black) lead. The yellow lead is the positive of C14 (8 µF), and the red lead the positive of C15 (16 µF).

Resistor R11 is a 796 Ω heater circuit ballast resistance mounted on the chassis deck. It is tapped for mains voltage adjustment from 200 to 250 V in 10 V steps.

Scale Lamps.—These are two Ever Ready MES types rated at 3.5 V, 0.3 A.

Fuses F1, F2 are standard 1½ in. 1 A cartridge types. A spare is fitted.

External Speaker.—This should be of the low-impedance (1.5 to 2.5 Ω) type.

Sockets and socketed plugs provide for its connection.

Switch Table

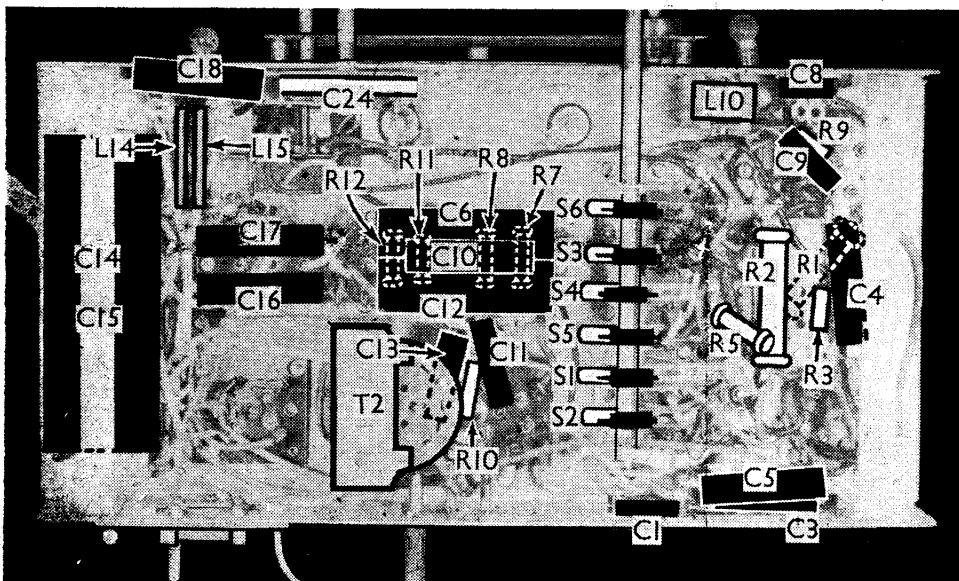
Switch	SW	MW	LW
S1	C	C	—
S2	C	—	—
S3	C	—	—
S4	—	C	C
S5	C	C	—
S6	C	—	—

CIRCUIT ALIGNMENT

Adjusting Scale Pointer.—Rotate the gang unit until pointers are at the higher wavelength ends of scales. Push a flat-ended rod through the hole in the side of the gang screen and against the vanes. Rock the moving vanes by means of the tuning knob until it is felt that they are fully in mesh. If the pointers do not coincide with the horizontal line dividing the scale, release the centre fixing screw and adjust them to this position.

MW.—Rotate the gang until the pointers are at the lower wavelength ends of the scales, switch receiver to MW, turn volume control to maximum and reaction control to minimum. Apply a 202 m (1,484 kc/s) modulated signal to the aerial socket and trim C21 and C23 for maximum output.

SW.—Switch to SW and feed in an 18.4 m (16.3 Mc/s) signal. Adjust reaction control until receiver is just below oscillation point and adjust C19 for maximum output while rocking the gang. If necessary, readjust reaction control to keep receiver below oscillation point.



Under-chassis view. All the waveband switches are identified. The mains switches S7, S8 are mounted on the cabinet.