

"TRADER" SERVICE SHEET

757

REVISED ISSUE OF  
SERVICE SHEET No. 185

# LISSEN 8305 & EVER READY 5027

CIRCUIT DESCRIPTION

Aerial input via fixed series capacitor **C1** and coupling coil **L1** to inductively-coupled band-pass filter. Primary coils **L2, L3** are tuned by **C15**; secondary coils **L4, L5** are tuned by **C17**.

First valve (**V1, Ever Ready metallised A50P**) is a variable-mu RF pentode operating as signal frequency amplifier. Gain control by variable cathode resistor **R4** which varies GB applied.

Choke-fed tuned-grid coupling by **L6, C4, L9, L10, C20** between **V1** and triode detector valve (**V2, Ever Ready metallised A30D**) which operates on grid leak system with **C5** and **R5**. Reaction is applied from anode by coils **L7, L8** and controlled by variable capacitor **C19**. Provision for connection of gramophone pick-up in grid circuit. Anode RF filtering by **C7**.

Resistance-capacitance coupling by **R7, C8** and **R8**, via further elements of the RF filter **R9, C9**, between **V2** and pentode output valve (**V3, Ever Ready A70D**). Fixed tone correction in CG circuit by **C9**, and in anode circuit by **C11**; two-point tone control by **C12** and plug-socket arrangement. Provision for connection of high-impedance external speaker across primary of internal speaker transformer **T1**.

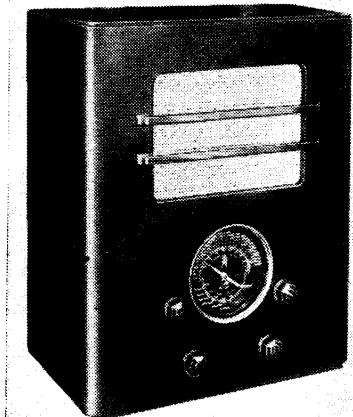
HT current is supplied by IHC full-wave rectifying valve (**V4, Ever Ready A11B**). Smoothing by speaker field **L13** and dry electrolytic capacitors **C13, C14**.

COMPONENTS AND VALUES

RESISTORS		Values (ohms)	
R1	} V1 SG HT potential divider ...	10,000	
R2		50,000	
R3		V1 fixed GB ...	100
R4		V1 gain control ...	21,000
R5		V2 grid leak ...	2,000,000
R6		V2 anode decoupling ...	25,000
R7		V2 anode load ...	25,000
R8		V3 CG resistor ...	260,000
R9		V3 CG RF stopper ...	100,000
R10		V3 GB resistor ...	150

CAPACITORS		Values (μF)
C1	Aerial series capacitor	0-0001
C2	V1 SG decoupling ...	0-1
C3	V1 cathode by-pass ...	0-1
C4	RF coupling ...	0-00005
C5	V2 CG capacitor ...	0-0001
C6	V2 anode decoupling ...	0-5
C7	V2 anode RF by-pass ...	0-001
C8	V2 to V3 AF coupling ...	0-025
C9	RF by-pass ...	0-0005
C10*	V3 cathode by-pass ...	50-0
C11	} Tone correctors ...	0-002
C12		0-01
C13*		8-0
C14*	} HT smoothing capacitors	8-0
C15†	Band-pass pri. tuning ...	—
C16‡	B-P pri. MW trimmer ...	—
C17‡	Band-pass sec. tuning ...	—
C18‡	B-P sec. MW trimmer ...	—
C19†	Reaction control ...	0-0005
C20†	V2 grid circuit tuning ...	—
C21‡	V2 grid MW trimmer ...	—

\* Electrolytic. † Variable. ‡ Pre-set.

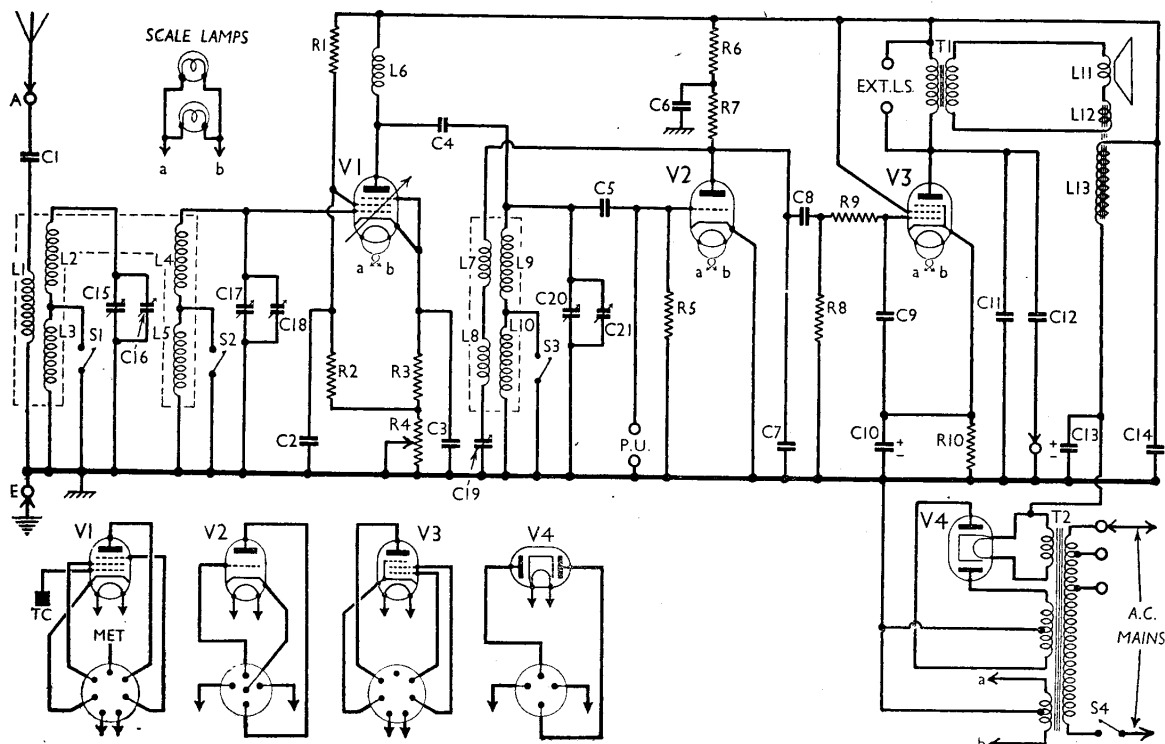


The Lissen 8305.

THE Lissen 8305 is a 3-valve (plus rectifier) AC receiver suitable for mains of 200-250 V, 40-100 c/s, and has provision for using both a gramophone pick-up and ext. LS. It is known as the "Olympian."

The Ever Ready 5027 employs an identical chassis, and is covered by this Service Sheet, which was, however, prepared from a sample Lissen receiver.

Release date and original price, both models: 1937; £7 7s.



Circuit diagram of the Lissen 8305 and Ever Ready 5027 TRF battery receivers. **R4** and **C19** are independent gain and reaction controls. Tone control is a plug and socket device associated with **C12**. An external volume control is required when a pick-up is used.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial coupling coil ...	11.0
L2	Band-pass primary coils	2.5
L3		10.0
L4	Band-pass secondary coils ...	2.5
L5		10.0
L6	V1 anode RF choke ...	480.0
L7	Reaction coils, total ...	9.0
L8		2.5
L9	V2 grid tuning coils ...	10.0
L10		1.9
L11	Speaker speech coil ...	0.2
L12	Hum neutralising coil ...	2,000.0
L13	Speaker field coil ...	265.0
T1	Speaker input trans. {	Pri. 0.3
		Sec. 46.0
T2	Mains {	Pri., total 0.05
		Heater sec. 0.15
		Rect. heat. sec. 350.0
		HT sec., total —
S1-S3	Waveband switches ...	—
S4	Mains circuit switch ...	—

**DISMANTLING THE SET**

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

free the speaker leads from the cleat on the strip across the back of the cabinet.

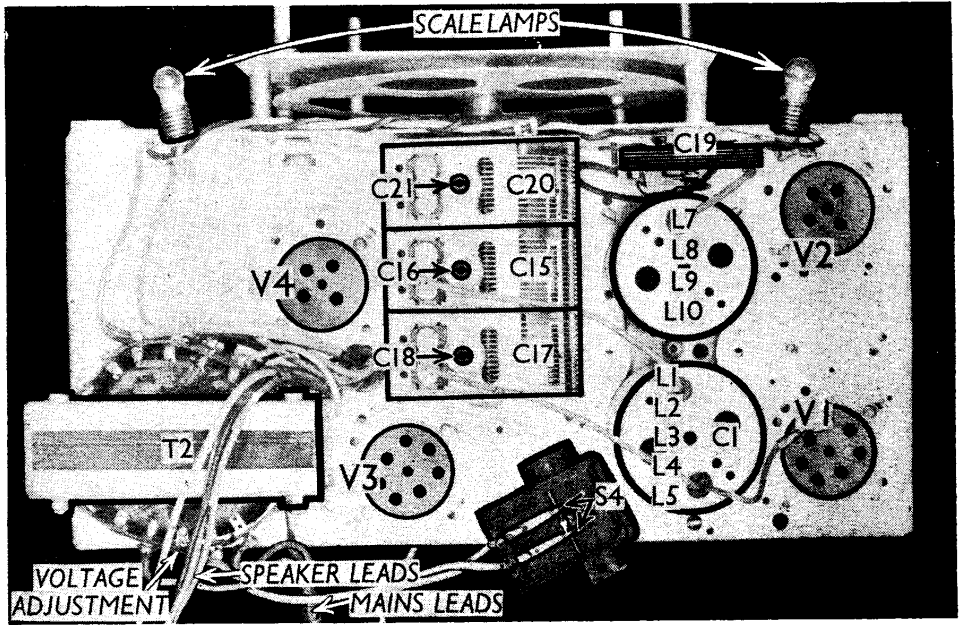
If the four bolts (with washers) holding the chassis to the bottom of the cabinet are now removed, the chassis may be withdrawn to the extent of the speaker leads, which is sufficient for normal purposes.

To free chassis entirely, unsolder the leads from the tags on the speaker transformer.

When replacing, connect the speaker leads as follows, numbering the tags from left to right as seen from the rear: 1, red; 2, blue; 3, black. The brown earthing lead goes to a tag on one of the fixing screws.

**Removing Speaker.**—Remove the four screws (with plain washers and spring washers on three of them) holding the speaker to the sub-baffle.

When replacing, the transformer should go at the bottom, and the leads should be connected as described previously.



Plan view of the chassis. S4 is shown attached by its leads, but actually it fits in the side of the cabinet. Cx is inside the Lx-L5 coil unit.

**VALVE ANALYSIS**

Valve voltages and current given in the table below are those measured in our receiver when it was operating on mains of 220 V, using the 216-235 V tapping on the mains transformer. 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

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 A50P	265	12.0	190	4.1
V2 A30D	145	2.9	—	—
V3 A70D	260	40.0	270	5.4
V4 A11B	350†	—	—	—

scale of an Avometer, chassis being negative.

**GENERAL NOTES**

**Switches.**—S1-S3 are the waveband switches, ganged in a single unit beneath the chassis, and individually marked in our under-chassis view. They are all closed on the MW band and open on the LW.

S4 is the QMB mains switch, in a moulded unit mounted at the right hand side of the cabinet.

**Coils.**—L1-L5 and L7-L10 are in two screened units on the chassis deck, the first also containing C1.

L6 is an RF choke, mounted beneath the chassis.

**Scale Lamps.**—These are two Ever Ready 6.2 V, 0.3 A, MES types.

**External Speaker.**—Two sockets are provided at the rear of the chassis for a high-impedance (8,000 Ω) external speaker.

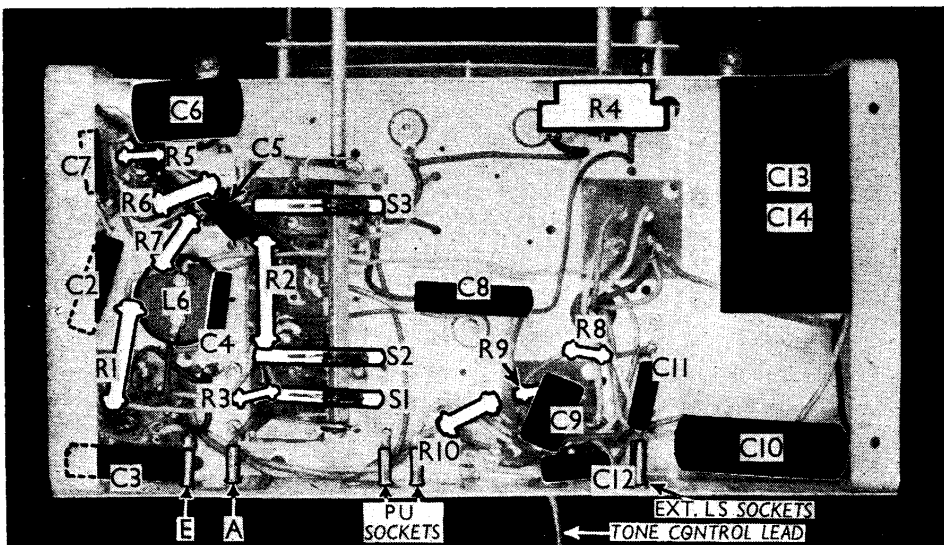
**Capacitors C13, C14.**—These are two 8 μF dry electrolytic types, in a single carton mounted beneath the chassis. The black lead is the common negative, the red lead is the positive of C13 and the yellow the positive of C14.

**CIRCUIT ALIGNMENT**

With the gang at maximum capacitance, the pointers should coincide with the horizontal line dividing the MW and LW scales.

Connect a signal generator to the A and E sockets, and feed in a 220 m (1,364 kc/s) signal. Switch set to MW, tune to 220 m on scale, and with gain control at maximum and reaction at minimum, adjust C16, C18 and C21 for maximum output.

Now gradually increase reaction until receiver is just short of oscillation, and readjust C21, and also C16 and C18 if necessary. If receiver commences to oscillate, slacken off reaction slightly.



Under-chassis view. The waveband switches S1-S3 are identified, as are also the various sockets in the rear member.