

LISSEN 8301

Three-valve, plus rectifier, two-waveband superhet. The output stage incorporates a double diode pentode and first two valves are AVC controlled. Suitable for operation on 200-250 v, 40-100 cycle mains. Manufactured by Lissen, Ltd., Service Department, Angel Road, Edmonton, London, N.18.

SIGNALS are fed via coupling coil L1 to the inductively coupled band-pass filter L2 (MW), L3 (LW), tuned by VC1 and L4 (MW), and L5 (LW), tuned by VC2. From the latter the signals are fed direct to the grid of the frequency changer V1.

V1 derives standing bias from the cathode resistor R2, decoupled by C4, while the grid circuit is connected to the AVC line with decoupling components R1 and C3.

The oscillator coils are L6 (MW) and L7 (LW), in the grid circuit, with L8 and L9 the anode reaction windings.

These connect to the HT line via the dropper R4, which also feeds the screening grid of V1. C7 is the decoupling condenser.

The oscillator grid condenser and leak are C6 and R3, and the oscillator coils are tuned by the VC3 section of the triple gang condenser. Connecting sections VC2 and VC3 of this component will be found what appears to be a length of insulated wire, but this is actually the capacity C5, which is inserted in this part of the circuit as the frequency changer neutralising capacity.

From the anode circuit of V1 the IF signal is transferred by the IF transformer L10, L11, to the grid of the IF amplifying pentode V2. The grid circuit is returned to the AVC line with R7 and C8 as decoupling components. V2 is cathode biased by R5, decoupled by C9.

A second IF transformer L12, L13, hands on the signal to the signal diode of V3 which is a double diode pentode output valve. R8 is the load resistance, filtered by C11, and the LF signal is fed via C10 to the volume control R6, from this component the signal is fed to the grid of the pentode section of V3.

The AVC diode of V3 is fed from L13 via C14, R11 being the load resistance from which the grid circuits of V1 and V2

are controlled. V3 is biased by the cathode resistor R9, decoupled by C13.

A permanent degree of tone correction is effected by C15, while the output transformer L14, L15, transfers the signal from the anode circuit of V3 to the energised moving-coil loudspeaker.

The HT circuit is of conventional design, V4 being a full-wave rectifier, the output from which is smoothed by the loudspeaker field winding L17 and C16.

GANGING

IF Circuits.—Short circuit VC3 and inject a 455 kcs signal between the control grid of V1 and chassis.

Adjust T1, T2, T3 and T4 in that order for maximum output. Remove short from VC3.

MW Band.—See that the scale pointer registers with the 180° line on the scale when the gang condenser is at maximum capacity.

Adjust T8 (nearest top of chassis) approximately two-thirds in and adjust the pointer to the 214m mark on scale.

Inject a 214m signal into the A and E sockets and adjust T5 for maximum output. Then adjust T6 and T7 for best results.

Tune the receiver so that the pointer is on the 500m mark and inject a signal of

500m. Adjust T8 for maximum output.

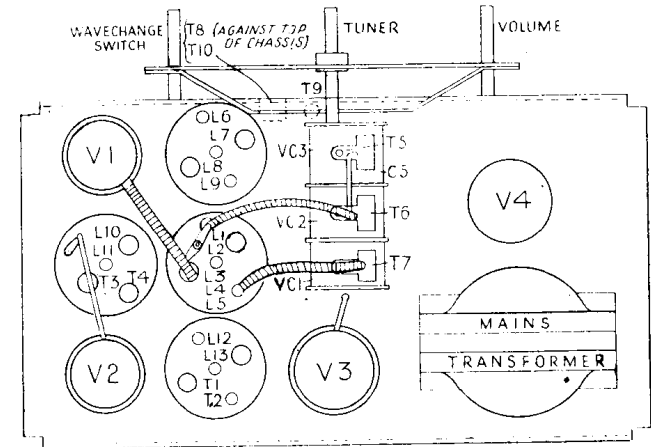
Check the adjustments of T5, T6 and T7 on 214m, and after check the calibration at 500m and adjust T8 if necessary.

LW Band.—Check that pointer registers to 180° line on scale with the gang at maximum capacity.

Adjust T10, approximately half-way in and set pointer against 1200m mark on scale. Switch receiver to LW and inject a signal of 1200m. to the A and E sockets. Adjust T9 (on underside of chassis) for maximum output.

Set pointer against 1700m scale mark and adjust T10 for maximum output on a signal of that wavelength.

Check adjustment of T9. Go over MW adjustments again for best results.



VALVE READINGS

V	Type	Electrode	Volts	Ma.
1	A80A (Ever-Ready)	Anode	255	2.25
		Osc anode	55	2.5
		Screen	70	5
2	A50P	Cathode	2	—
		Anode	255	9.5
		Screen	170	3.5
3	A27D	Cathode	2.25	—
		Anode	250	37
		Screen	260	7
4	A11D	Cathode	6	—
		Cathode	360	63

RESISTANCES

R	Ohms	R	Ohms
1	110,000	7	510,000
2	200	8	510,000
3	51,000	9	150
4	25,000	10	260,000
5	75	11	260,000
6	500,000	12	25,000

CONDENSERS

C	Mfds	C	Mfds
1	50 mmfd	10	.05
2	50 mmfd	11	.0002
3	.1	12	.1
4	.1	13	.50
5	*	14	10 mmfd
6	100 mmfd	15	.01
7	2	16	8
8	.1	17	.8
9	.1		

* See circuit description.

Early Pye Receiver

WE had an early Pye set to repair. It would only produce very faint results on the lower medium wave range. As it was a 2 H F straight gang, we decided to check the tuning gang. The rotor bearings had worn loose.

On centring the rotor the set worked faintly over both bands. Valves were OK. We found the armature had bent. We reversed the armature and the set worked well.—J.H.

The Lissen 8301 is a straightforward three-valve, plus rectifier, superhet for operation from AC mains. The output valve is a combined double diode and high-slope pentode making a stage of first LF amplification unnecessary. The aerial input circuit is of band-pass design.

