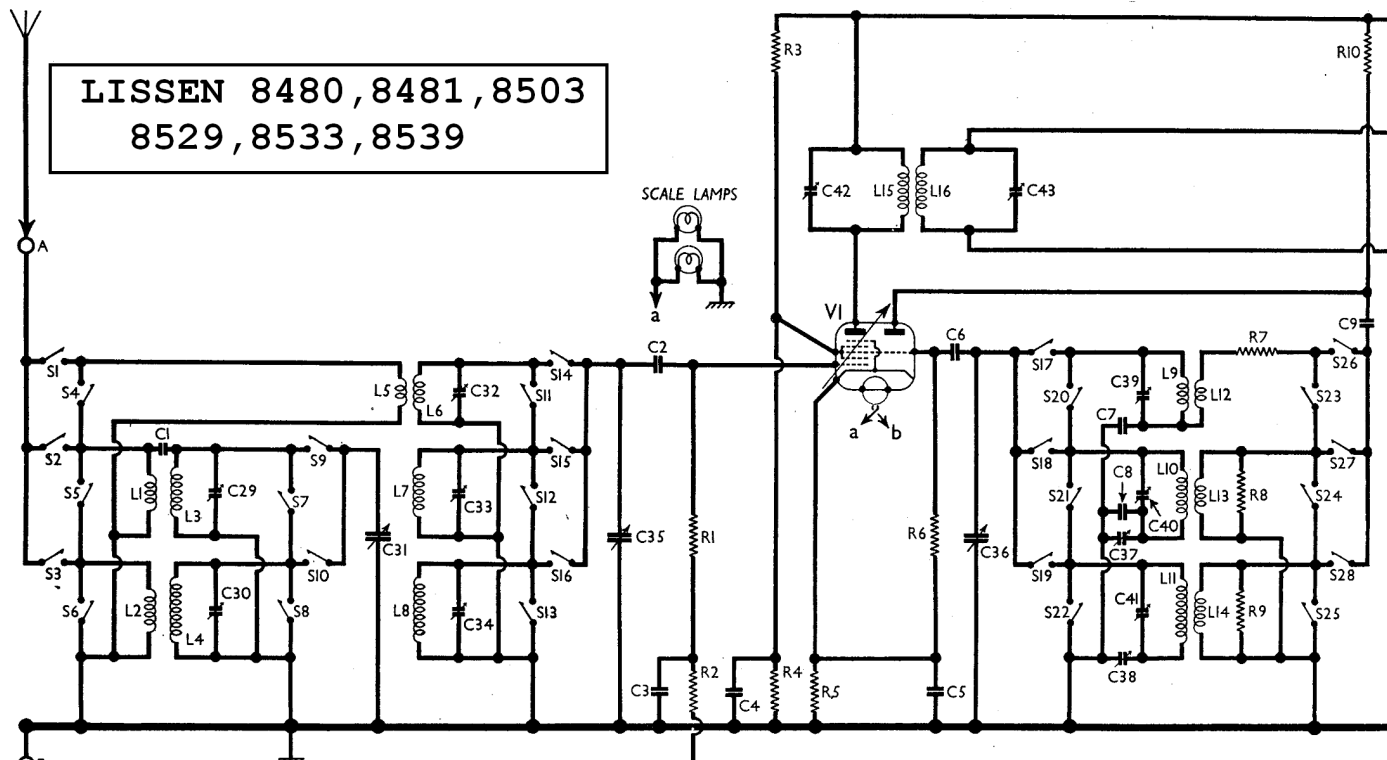


**LISSEN 8480, 8481, 8503
8529, 8533, 8539**



RESISTANCES

		Values (ohms)
R1	V1 heptode CG resistance	1,100,000
R2	V1 heptode CG decoupling	220,000
R3	V1 SG HT potential divider	25,000
R4	resistances	30,000
R5	V1 fixed GB resistance	200
R6	V1 osc. CG resistance	50,000
R7	Osc. SW reaction damping	150
R8	Osc. MW reaction damping	1,500
R9	Osc. LW reaction damping	5,100
R10	V1 osc. anode HT feed	30,000
R11	V2 SG HT feed	80,000
R12	V2 fixed GB resistance	250
R13	V2 anode HT feed	2,100
R14	V3 signal diode load re-	250,000
R15	sistances	250,000
R16	IF stopper	110,000
R17	Manual volume control	500,000
R18	V3 triode GB and AVC	1,600
R19	delay resistances	3,100
R20	V3 triode anode decoupling	10,000
R21	V3 triode anode load	50,000
R22	V3 AVC diode load	1,100,000
R23	AVC line decoupling	250,000
R24	Variable tone control	2,000,000
R25	V4 CG resistance	510,000
R26	Fixed tone corrector	250,000
R27	V4 grid stopper	50,000
R28	V4 GB resistance	150
R29	V5 anode current limiting	75
R30	resistances	75

OTHER COMPONENTS

		Approx. Values (ohms)
L1	Aerial MW coupling coil	17-0
L2	Aerial LW coupling coil	140-0
L3	Band-pass primary coils	2-5
L4	Aerial SW coupling coil	45-0
L5	Aerial SW tuning coil	2-2
L6	Band-pass secondary coils	Very low
L7	Osc. circuit SW tuning coil	48-0
L8	Osc. circuit MW tuning coil	Very low
L9	Osc. circuit LW tuning coil	1-7
L10	Oscillator SW reaction	4-5
L11	Oscillator MW reaction	0-2
L12	Oscillator LW reaction	3-0
L13	1st IF trans. Pri.	10-0
L14	1st IF trans. Sec.	28-0
L15	2nd IF trans. Pri.	28-0
L16	2nd IF trans. Sec.	28-0
L17	Speaker speech coil	2-0
L18	HT smoothing choke	260-0
L19	Speaker input Pri.	600-0
L20	Speaker input Sec.	0-4
T1	Mains Pri., total	20-0
T2	Heater sec.	0-1
T3	Rect. heat. sec.	0-1
T4	HT sec., total	400-0
S1-S28	Waveband switches	—
S29, S30	Radio/gram change switches	—
S31	Mains switch, ganged R17	—

CONDENSERS

		Values (μF)
C1	Aerial MW "top" coupling	0-000005
C2	V1 heptode CG condenser	0-0005
C3	V1 heptode CG decoupling	0-05
C4	V1 SG decoupling	0-1
C5	V1 cathode by-pass	0-1
C6	V1 osc. CG condenser	0-0001
C7	Osc. circuit SW tracker	0-0057
C8	Osc. circ. MW fixed tracker	0-0003
C9	V1 osc. anode coupling	0-0003
C10	V2 CG decoupling	0-1
C11	V2 SG decoupling	0-1
C12	V2 anode decoupling	0-1
C13	V2 cathode by-pass	0-1
C14	IF by-pass	0-00005
C15	Coupling to V3 AVC diode	0-00001
C16	IF by-pass	0-00005
C17	AF coupling to V3 triode	0-05
C18*	V3 triode CG decoupling	50-0
C19*	V3 triode anode decoupling	2-0
C20*	V3 cathode by-pass	50-0
C21	Part of variable tone control	0-0005
C22	V3 triode to V4 AF coupling	0-05
C23*	V4 cathode by-pass	50-0
C24*	HT smoothing capacitors	16-0
C25*	V5 anode RF by-pass condensers	24-0
C26	V5 anode RF by-pass condensers	0-005
C27	Mains RF by-pass	0-005
C28	Band-pass pri. MW trimmer	0-01
C29†	Band-pass pri. MW trimmer	0-0001
C30†	Band-pass pri. LW trimmer	0-0001

CONDENSERS

		Values (μF)
C31†	Band-pass pri. tuning	—
C32†	Aerial circuit SW trimmer	0-00002
C33†	Band-pass sec. MW trimmer	0-0001
C34†	Band-pass sec. LW trimmer	0-0001
C35†	Band-pass sec. and SW aerial tuning	0-0001
C36†	Osc. circuit tuning	—
C37†	Osc. circuit MW tracker	0-0003
C38†	Osc. circuit LW tracker	0-0003
C39†	Osc. circuit SW trimmer	0-00002
C40†	Osc. circuit MW trimmer	0-0001
C41†	Osc. circuit LW trimmer	0-0001
C42†	1st IF trans. pri. tuning	0-0001
C43†	1st IF trans. sec. tuning	0-0001
C44†	2nd IF trans. pri. tuning	0-0001
C45†	2nd IF trans. sec. tuning	0-0001

* Electrolytic. † Variable. ‡ Pre-set.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our

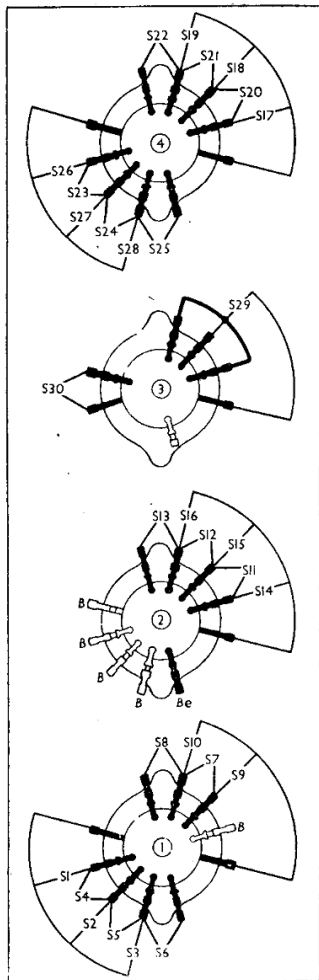
Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 ECH3	239 Oscillator	2.2 4.2	92	3.0
V2 EF9	102	6.2	88	1.8
V3 EBC3	222	1.9	—	—
V4 EL3	133	31.9	239	4.8
V5 AZ1	215 249†	—	—	—

† Each anode, AC.

receiver when it was operating on mains of 235 V, using the 216-235 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium wave band, and the volume control was at maximum, but there was no signal input.

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

Diagrams of the four switch units, drawn as seen looking from the front of the underside of the chassis. They are numbered to correspond with the order in which they appear when so viewed, with unit No. 4 at the top.



Switch Table

Switch	LW	MW	SW	Gram
S1	—	—	○	—
S2	—	○	—	—
S3	○	—	—	—
S4	—	—	—	—
S5	—	—	—	—
S6	—	○	—	—
S7	—	—	—	—
S8	—	○	—	—
S9	—	—	—	—
S10	○	—	—	—
S11	—	—	—	—
S12	—	—	—	—
S13	—	○	—	—
S14	—	—	—	—
S15	—	○	—	—
S16	○	—	—	—
S17	—	—	—	—
S18	—	○	—	—
S19	○	—	—	—
S20	—	—	—	—
S21	—	—	—	—
S22	—	○	—	—
S23	—	—	—	—
S24	—	—	—	—
S25	—	○	—	—
S26	—	—	—	—
S27	—	○	—	—
S28	—	—	—	—
S29	○	—	—	—
S30	—	—	—	—

CIRCUIT ALIGNMENT

IF Stages.—Connect signal generator, via a 0.1 μ F condenser, to control grid (top cap) of V1, and to chassis. Short circuit C36 and switch set to MW. Feed in a 452 KC/S signal, and adjust C45, C44, C43 and C42 in turn for maximum output. Check these settings, then remove the short circuit from C36.

RF and Oscillator Stages.—With gang at maximum, pointer should be horizontal. Connect signal generator via a suitable dummy aerial to the A and E sockets.

LW.—Switch set to LW, and adjust C38 to about two-thirds its maximum setting. Tune to 1,000 m on scale, feed in a 1,000 m (300 KC/S) signal, and adjust C41, then C34 and C30, for maximum output. Feed in a 1,700 m (176.3 KC/S) signal, tune it in, and adjust C38 for maximum output, while rocking the gang for optimum results. Repeat the 1,000 m adjustments.

MW.—Switch set to MW, and adjust C37 to about three-quarters its maximum setting. Tune to 214 m on scale, feed in a 214 m (1,400 KC/S) signal, and adjust C40, then C33 and C29, for maximum output. Feed in a 500 m (600 KC/S) signal, tune it in, and adjust C37 for maximum output, while rocking the gang for optimum results. Repeat the 214 m adjustments.

SW.—Switch set to SW, and tune to 15 MC/S on scale. Feed in a 15 MC/S (20 m) signal, unscrew C39 fully, then screw it up to the first peak encountered, and adjust accurately for maximum output. Then adjust C32 for maximum output. Feed in a 6 MC/S (50 m) signal and tune it in, then adjust the top turn of L9 for maximum output, while rocking the gang slightly for optimum results. Repeat the 15 MC/S adjustments.