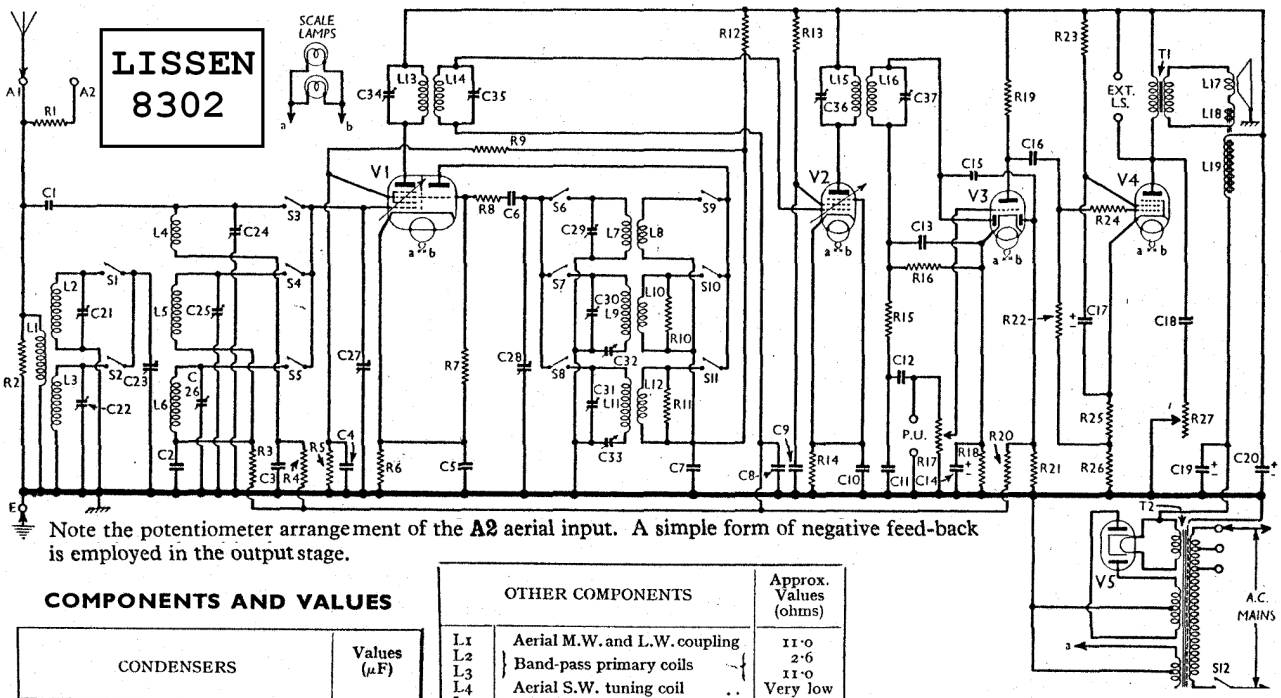


Note the potentiometer arrangement of the **A2** aerial input. A simple form of negative feed-back is employed in the output stage.

COMPONENTS AND VALUES

	CONDENSERS	Values (μF)
C1	Aerial S.W. coupling	0·00001
C2	V1 hex. C.G. decoupling (M.W. and L.W.)	0·1
C3	Aerial circuit S.W. tracker	0·01
C4	V1 S.G. decoupling	0·1
C5	V1 cathode by-pass	0·1
C6	V1 osc. C.G. condenser	0 0001
C7	V1 osc. anode decoupling	0·1
C8	V2 C.G. decoupling	0·1
C9	V2 S.G. decoupling	0·1
C10	V2 cathode by-pass	0·1
C11	I.F. by-pass	0·0002
C12	A.F. coupling to V3 triode	0·05
C13	I.F. by-pass	0·0002
C14*	V3 cathode by-pass	50·0
C15	V3 A.V.C. diode coupling	0·00001
C16	V3 triode to V4 A.F. coupling	0·05
C17*	V4 S.G. decoupling	8·0
C18	Part of T.C. filter	0·05
C19*	H.T. smoothing	8·0
C20*	H.T. smoothing	8·0
C21‡	Band-pass pri. M.W. trimmer	0·00004
C22‡	Band-pass pri. L.W. trimmer	0·0001
C23†	Band-pass pri. tuning	0·00054
C24‡	Aerial S.W. trimmer	0·00004
C25‡	Band-pass sec. M.W. trimmer	0·00004
C26‡	Band-pass sec. L.W. trimmer	0·0001
C27†	Band-pass sec. and S.W. tuning	0·00054
C28†	Oscillator circuit tuning	0·00054
C29‡	Osc. circuit S.W. trimmer	0·00004
C30‡	Osc. circuit M.W. trimmer	0·00004
C31‡	Osc. circuit L.W. trimmer	0·0001
C32‡	Osc. circuit M.W. tracker	0·0006
C33‡	Osc. circuit L.W. tracker	0·0006
C34‡	1st I.F. trans. pri. tuning	—
C35‡	1st I.F. trans. sec. tuning	—
C36‡	2nd I.F. trans. pri. tuning	—
C37‡	2nd I.F. trans. sec. tuning	—

	RESISTANCES	Values (ohms)
R1	A2 aerial feed potentiometer	110,000
R2	A2 aerial feed potentiometer	10,000
R3	V1 hex. C.G. decoupling (M.W. and L.W.)	100,000
R4	V1 hex. C.G. decoupling (S.W.)	100,000
R5	Part V1 S.G. H.T. potentiometer	20,000
R6	V1 fixed G.B. resistance	150
R7	V1 osc. C.G. resistance	26,000
R8	V1 osc. C.G. stabiliser	200
R9	Part V1 S.G. H.T. potentiometer	5,000
R10	Osc. circuit M.W. stabiliser	1,000
R11	Osc. circuit L.W. stabiliser	2,000
R12	V1 osc. anode and S.G. H.T. feed	10,000
R13	V2 S.G. H.T. feed	25,000
R14	V2 fixed G.B. resistance	100
R15	I.F. stopper	100,000
R16	V3 signal diode load	500,000
R17	Manual volume control	500,000
R18	V3 G.B. resistance	300
R19	V3 triode anode load	20,000
R20	A.V.C. line decoupling	100,000
R21	V3 A.V.C. diode load	510,000
R22	V4 C.G. resistance	260,000
R23	V4 S.G. H.T. feed	2,500
R24	V4 C.G. I.F. stopper	20,000
R25	V4 G.B.; part neg. feed-back pot.	150
R26	Part negative feed-back pot.	250
R27	Variable tone control	50,000

	OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial M.W. and L.W. coupling	11·0
L2	Band-pass primary coils	2·6
L3	Band-pass primary coils	11·0
L4	Aerial S.W. tuning coil	Very low
L5	Band-pass secondary coils	2·4
L6	Band-pass secondary coils	11·5
L7	Osc. circuit S.W. tuning coil	Very low
L8	Oscillator anode S.W. reaction	0·2
L9	Osc. circuit M.W. tuning coil	1·75
L10	Oscillator anode M.W. reaction	6·5
L11	Osc. circuit L.W. tuning coil	5·0
L12	Oscillator anode L.W. reaction	8·3
L13	1st I.F. trans. Pri.	7·0
L14	1st I.F. trans. Sec.	7·0
L15	2nd I.F. trans. Pri.	7·0
L16	2nd I.F. trans. Sec.	7·0
L17	Speaker speech coil	1·75
L18	Hum neutralising coil	0·1
L19	Speaker field coil	2,000·0
T1	Speaker input trans. Pri.	800·0
T1	Speaker input trans. Sec.	0·1
T2	Mains trans. Pri. total	46·0
T2	Mains trans. Heat. sec. total	0·1
T2	Mains trans. Rect. heat. sec.	0·2
T2	Mains trans. H.T. sec. total	380·0
S1-S11	Waveband switches	—
S12	Mains switch, ganged R17	—

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 230 V, using the 216-235 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but there was no signal input.

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

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 A36B*	255	1·9	70	3·8
V2 A50P	255	9·2	160	3·3
V3 A23A	125	6·0	—	—
V4 A70D	225	33·0	235	5·4
V5 A11D	350†	—	—	—

* Oscillator anode 100 V, 7·4 mA.
† Each anode, A.C.

GENERAL NOTES

Switches.—**S1-S11** are the wavechange switches, ganged in two rotary units beneath the chassis. The units are indicated in our under-chassis view, and shown in detail in the diagram on page IV. The table (p. IV) gives the switch positions for the three control settings, starting from fully anti-clockwise. O indicates open, and **C** closed.

S12 is the Q.M.B. mains switch, ganged with the volume control **R17.**

Coils.—**L1-L6** are in a tubular unscreened unit beneath the chassis. **L7-L12** and the I.F. transformers **L13, L14** and **L15, L16** are in three screened units on the chassis deck. Note that the **L7-L12** unit also contains **R10** and **R11.**

Scale Lamps.—These are two Ever Ready M.E.S. types, rated at 6·2 V 0·3 A.

CIRCUIT ALIGNMENT

I.F. Stages.—Short circuit the oscillator tuning coils by a wire across **C28.** Feed in a 455 KC/S signal between control grid (top cap) of **V1** and chassis, and adjust **C37, C36, C35** and **C34** in turn for maximum output, in the order given. Re-check, then remove the short on **C28.**

R.F. and Oscillator Stages.—With gang at maximum, pointer should cover the horizontal lines on the scale. Set **C32** approximately two-thirds in.

Switch set to M.W., tune to 214 m. on scale, feed a 214 m. (1,400 KC/S) signal into the **A1** and **E** sockets, and adjust **C30, C25** and **C21,** for maximum output.

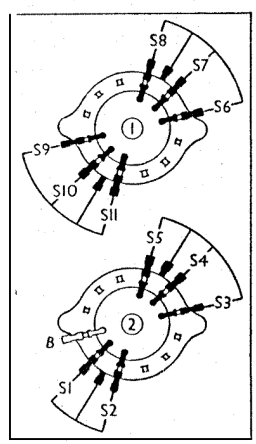
Tune to 500 m. on scale, feed in a 500 m. (600 KC/S) signal and adjust **C32** for maximum output.

Return to 214 m. and re-adjust **C30, C25** and **C21,** then return to 500 m., and if the pointer does not indicate 500 m. when the signal is accurately tuned, re-adjust **C32** until it does. Check calibration at 214, 300 and 500 m.

Switch set to L.W., and set **C33** about one-third in. Tune to 1,200 m. on scale, feed in a 1,200 m. (250 KC/S) signal, and adjust **C31,** then **C26** and **C22,** for maximum output. Tune to 1,700 m. on scale, feed in a 1,700 m. (176·5 KC/S) signal, and adjust **C33** for maximum output. Return to 1,200 m., and re-adjust **C31, C26** and **C22,** then re-adjust **C33** until the 1,700 m. signal is accurately tuned at 1,700 m. on the scale.

SWITCH TABLE AND DIAGRAM

Switch	S.W.	M.W.	L.W.
S1	O	C	O
S2	O	O	C
S3	C	O	O
S4	O	C	O
S5	O	O	C
S6	C	O	O
S7	O	C	O
S8	O	O	C
S9	C	O	O
S10	O	C	O
S11	O	O	C



Switch diagrams, looking from the rear of the underside of the chassis.