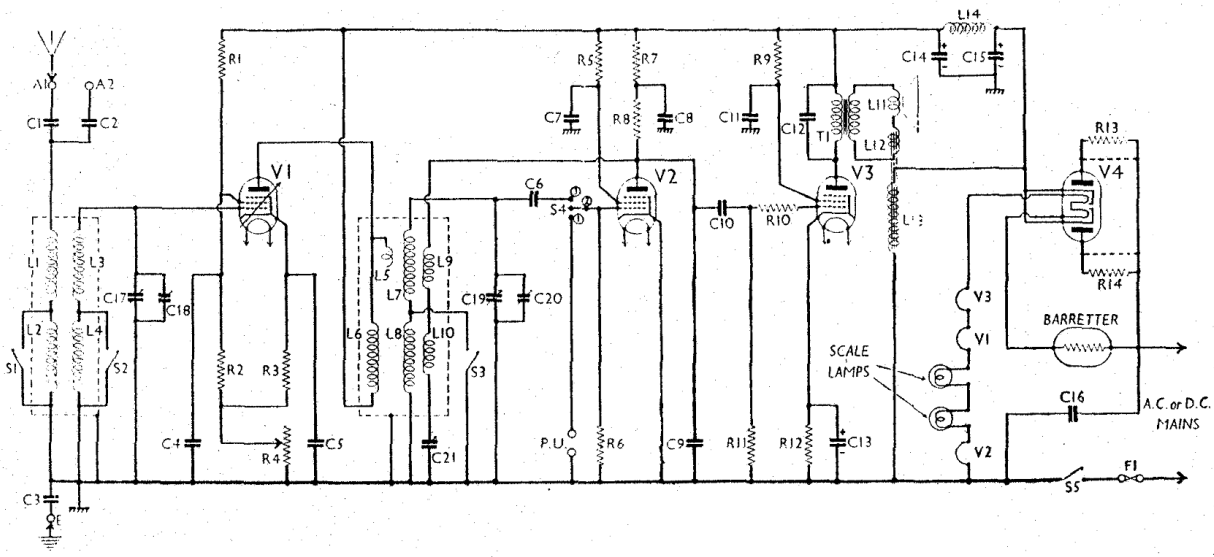
LOTUS - 66



The circuit diagram of the Lotus Model 66 Universal receiver. Note that the coupling coil L5 has only one end connected. The switch S4 has its contacts numbered as in our under-chassis view. In our chassis R13 and R14 are omitted, and dotted lines indicate the connections to the anodes of V4.

Resistances		Values (ohms)
R1	V1 S.G. pot. divider	50,000
R2	V1 S.G. pot. divider	50,000
R3	V1 fixed G.B. resistance	400
R4	V1 gain control	10,000
R5	V2 S.G. H.T. feed	250,000
R6	V2 grid leak	250,000
R7	V2 anode decoupling	20,000
R8	V2 anode resistance	50,000
R9	V3 aux. grid H.T. feed	20,000
R10	V3 grid H.F. stopper	50,000
R11	V3 grid resistance	500,000
R12	V3 G.B. resistance	400
R13*	V4 anodes resistances	50
R14*	V4 anodes resistances	50

* Not in our chassis.

Condensers		Values (μF.)
C1	Aerial series condensers	0.001
C2	Aerial series condensers	0.0001
C3	Earth blocking condenser	0.01
C4	V1 S.G. by-pass	0.1
C5	V1 cathode by-pass	0.1
C6	V2 grid condenser	0.0001
C7	V2 S.G. by-pass	0.1
C8	V2 anode decoupling	0.1
C9	V2 anode H.F. by-pass	0.0003
C10	L.F. coupling to V3	0.01
C11	V3 aux. grid by-pass	0.1
C12	V3 anode tone compensator	0.02
C13	V3 cathode by-pass, electrolytic	25.0
C14	H.T. smoothing, electrolytics	25.0
C15	H.T. smoothing, electrolytics	8.0

Condensers (cont.)		Values (μF)
C16	Mains by-pass	0.1
C17	Aerial circuit tuning	0.0005
C18	Aerial circuit trimmer	—
C19	H.F. circuit tuning	0.0005
C20	H.F. circuit trimmer	—
C21	Reaction condenser	0.0003
C22*	Across speaker field winding	4.0

* Not in our chassis.

Other Components		Values (ohms)
L1	Aerial coupling coils	10.0
L2	Aerial coupling coils	100.0
L3	Aerial tuning coils	3.5
L4	Aerial tuning coils	12.0
L5	M.W. H.F. coupling coil	Very Low
L6	L.W. H.F. coupling coil	230.0
L7	H.F. circuit tuning coils	3.5
L8	H.F. circuit tuning coils	12.0
L9	Reaction coils	8.0
L10	Reaction coils	8.0
L11	Speaker speech coil	2.2
L12	Hum neutralising coil	0.1
L13	Speaker field winding	10,000
L14	H.T. smoothing choke	430
T1	Speaker input trans. Pri.	450
T1	Speaker input trans. Sec.	0.3
S1-S3	Wave-band switches, ganged	—
S4	Radio-gramophone switch	—
S5	Mains switch, ganged R4	—
F1*	500 mA fuse	—

* May be 800 mA.

VALVE ANALYSIS

The voltage and current readings listed in the table are those obtained from an average chassis working with a 230 V 50 c.p.s. A.C. mains supply. No aerial or earth connections were made, and the gain control was set at maximum and the reaction control at minimum.

All voltages were measured on the 1,200 V scale of an Avometer.

Valve	Anode Volts	Anode Current (mA)	Screen Volts	Screen Current (mA)
V1 S2034N	240	3·5	85	1·4
V2 S2035N	85	2·0	40	0·85
V3 P2460	220	40·0	120	6·0
V4 G3112*	—	—	—	—

* Cathodes to chassis 270 V D.C.

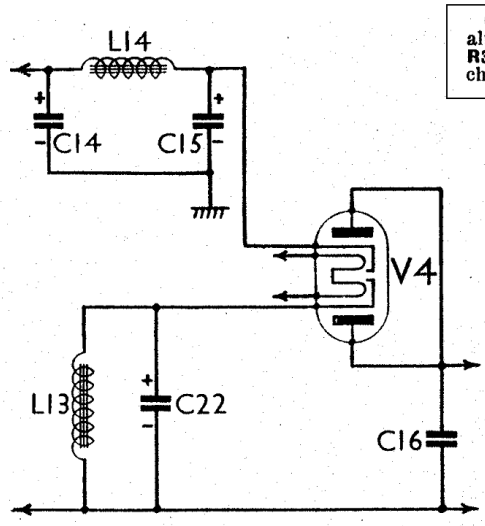
CIRCUIT ALIGNMENT

This involves only the adjustment of C18 and C20 at somewhere around 250 m (1,200 kc/s), manipulating the reaction control as required to attain maximum output, with a very small input, when finally setting C20.

If a signal generator is used it should be connected via a MW dummy aerial to A and E sockets. There are no LW adjustments, but calibration and sensitivity should be checked at several points on both hands.

Alternative Rectifier Circuit. — The rectifier circuit may be as shown in our main circuit diagram, or as in the separate small diagram on this page. In the first case the two cathodes are connected together, while in the second they are separate. In this case one-half of the valve supplies H.T. for the set (when used on A.C.), and the other supplies the speaker field energising current. Note that **R13** and **R14** are omitted, and **C22** (electrolytic) is added in the second case.

Chassis Divergencies.—In addition to the alternative rectifier circuit, the connections of **R3** and **R4** may be differently arranged in some chassis, the slider of **R4** going to chassis.



Alternative output circuit, in which the extra condenser C22 is introduced, but R13 and R14 are omitted. Note that the cathodes of V4 are separated.