

PHILIPS MODEL 838U "THREE" (Cont.)

Neither this nor any of the other sealed condensers should be disturbed.

Quick Tests.—Voltages between the two outer terminals on the speaker transformer and chassis (taken on 230 A.C. mains) :—

Front : 185 v., H.T. smoothed;

Back : 160 v., V3 anode.

Removing Chassis.—Remove the valves on the right and free the stud on the coppered

driving band from the shaped catch for the pointer.

Remove the knobs (grub screw), remove four holding screws from underneath, and ease the chassis out.

The speaker leads need not be unsoldered if the screw holding the cleat for the cable is slackened and the cable released. (The screw is threaded to the chassis without a nut inside.)

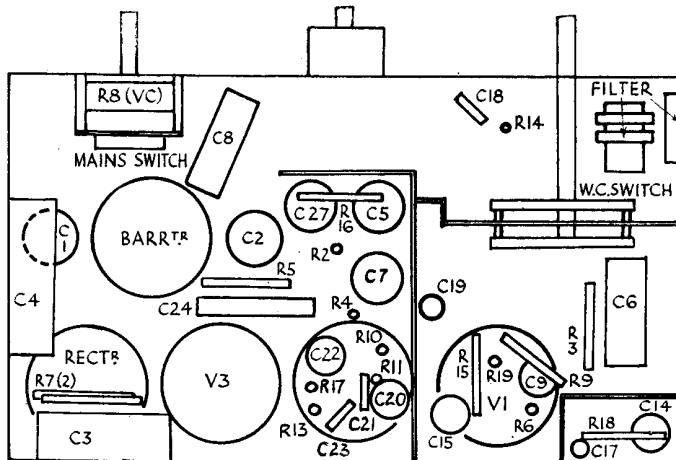
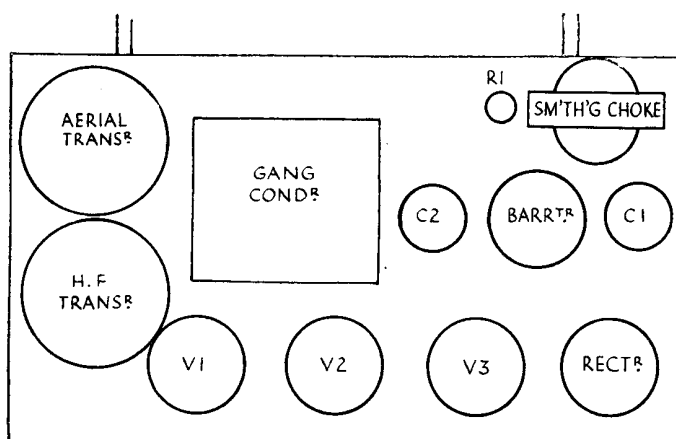
To reveal the components, remove the screening plate by undoing the two screws holding the lugs at the back of the chassis.

General Notes.—The order of the heater wiring is : Barretter, pilot lamp, rectifier, V3, V1, V2.

The pilot lamp is a Philips' type 8070. To replace a lamp undo the knurled nut at the top of the pillar.

The resistance R17 is in the lead to the grid of V3.

Replacing Chassis.—Cleave the speaker lead. Replace the screen underneath the chassis, lay the chassis inside the cabinet and engage the pointer catch on the stud. Replace the holding screws and knobs.



The chassis layouts of the Philips 838U receiver. As the drawing on the right shows there is some sub-chassis screening.

LOTUS 66 A.C.-D.C. RECEIVER

Circuit.—The H.F. valve, S.2034N met. (Tungram valves are used) has a tuned secondary transformer as aerial coupling. Volume is controlled by varying the bias and coupling to the next valve is by tuned secondary H.F. transformer.

The detector valve, S2035N met. (V2) operates as a power-grid detector with reaction, and is resistance-capacity coupled to the output valve, a P.2460 (V3).

This valve has a grid stabilising resistance and is tone-compensated by a condenser between the anode and H.T. +.

Mains equipment consists of : Half-wave

rectifier (full-wave valve with anodes and cathodes in parallel), smoothing choke in the positive H.T. lead, and electrolytic conden-

VALVE READINGS

Valve.	Type.	Electrode.	Volts.	M.A.
1	S.2034N met. (5)	anode ..	230	3.6
		screen ..	78	
2	S.2035N met. (5)	anode ..	104	1.7
		screen ..	43	
3	P.2460 (5)*	anode ..	216	35
		aux. grid ..	110	

* The grid terminal is at the top of the bulb, and the No. 2 (grid) pin is the aux. grid.

sers. The valve heaters are fed through a Philips 1928 barretter lamp.

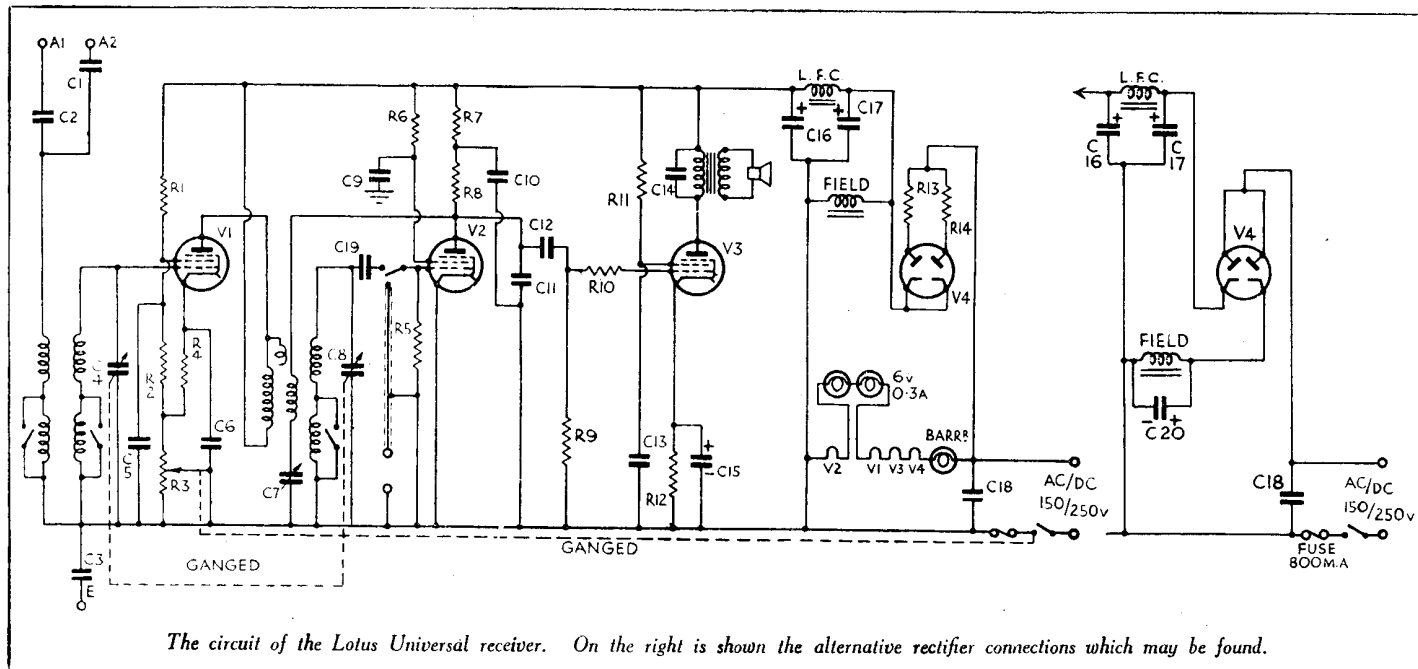
The pilot lamps are 6-v. .3-amp. types in series with the heater supply.

The 10,000-ohm speaker field is connected directly across the unsmoothed H.T.

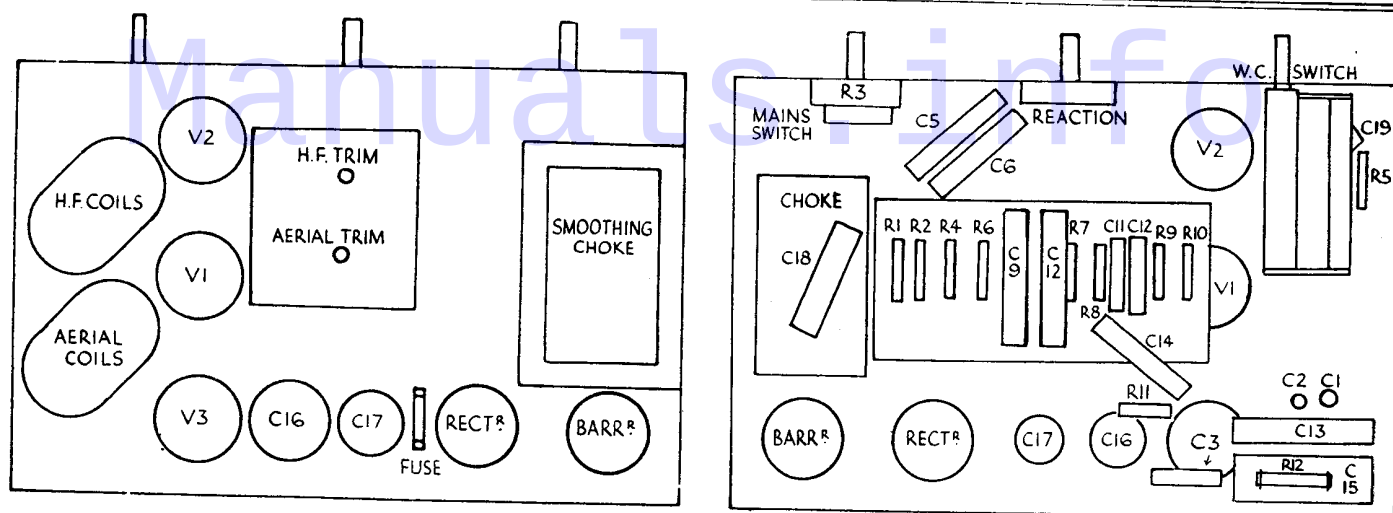
Special Notes.—Alternative rectifier connections may be found, and the extra diagram shows the alterations. In some models R13 and R14 may be absent.

On both A.C. and D.C. mains the chassis may be live in relation to earth.

Quick Tests.—Between the terminals on (Continued on opposite page.)



The circuit of the Lotus Universal receiver. On the right is shown the alternative rectifier connections which may be found.



As these layouts show the chassis design of the Lotus model 66 is orderly and straightforward.

the speaker transformer and chassis (mains voltage 225 volts A.C.):—

Left (1) Red, chassis.

(2) Blue, 230 v., H.T. smoothed.

(3) Blue, 216 v., V3 anode.

(4) Yellow, 256 v., H.T. unsmoothed.

Note that as the primary of the transformer (2) and (3) is not connected to the speaker field, it is immaterial to which of the two middle tags the blue leads are connected.

Removing Chassis.—Remove the four holding screws. Remove the knobs (grub screw) and lift the chassis out.

General Notes.—The lay-out and wiring are particularly simple and require no description.

Replacing Chassis.—Lay the chassis

inside the cabinet, replace the holding screws and knobs.

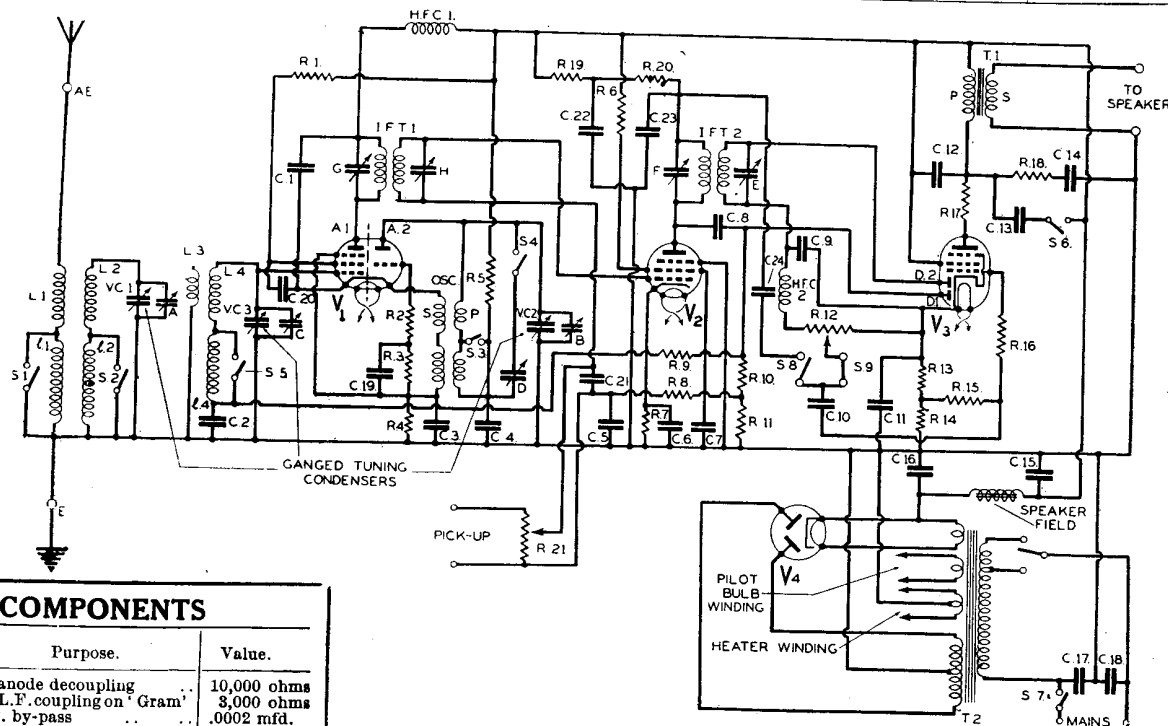
RESISTANCES

R.	Purpose.	Ohms.
1	Top part of V1 screen ptr.	50,000
2	Lower part of V1 screen ptr.	25,000
3	Var. bias resistance	10,000
4	Fixed part of bias resistance	400
5	V2 grid leak	.25 meg.
6	Voltage dropping to V2 screen	25,000
7	V2 anode decoupling	20,000
8	V2 anode L.F. coupling	50,000
9	V3 grid leak	.5 meg.
10	V3 grid stabiliser	50,000
11	Voltage dropping to V3 aux. grid	20,000
12	V3 cathode bias	400
—	Speaker field	10,000

CONDENSERS

C.	Purpose.	Mfd.
1	Series aerial	.001
2	Series aerial	.0001
3	Series earth	.01
5	V1 screen by-pass	.1
6	V1 cathode by-pass	.1
9	V2 screen by-pass	.1
10	V2 anode decoupling	.1
11	V2 anode H.F. by-pass	.0003
12	L.F. coupling	.1
13	V3 aux-grid by-pass	.1
14	Tone compensating V3 anode	.02
15	V3 cathode by-pass	.25 (25 v.)
16	H.T. smoothing	.25 (350 v.)
17	H.T. smoothing	.8 (450 v.)
18	H.F. by-pass from mains	.1
19	V2 grid reservoir	.0001

Ultra Model 22 Radiogram Circuit



COMPONENTS

Component.	Purpose.	Value.
R19	V2 anode decoupling	10,000 ohms
R20	V2 L.F. coupling on 'Gram'	3,000 ohms
C21	H.F. by-pass	.0002 mfd.
C22	Decoupling H.T. to V2*	.5 mfd.
C23	Decoupling H.T. to V2 (by-pass on Gram)	.002 mfd.
C24	L.F. coupling on 'Gram.'	.1 mfd.

*If bad hum is experienced a 2 mfd. electrolytic condenser part No. 44/0063 should be used.

The Ultra model 22 table receiver was dealt with on page 116 of the September, 1934, "Service Engineer." Here is the modified version of the circuit which is employed in the radiogram model of the receiver. Components of different value to those in the table model are given in the list on the left.