

COSSOR 368 MAINS "THREE" (Cont.)

Mains equipment consists of: Transformer, 442 BU rectifier, speaker field in the positive H.T. lead, and electrolytic condensers.

The pilot lamps are 6.5 v. .3 amp. type.

Quick Tests.— Voltages between the terminals on the speaker transformer and chassis, counting from the outside:—

- (1) Blue, H.T. unsmoothed, 340 v.;
- (2) Red, V3 anode, 230 v.;
- (3) and (4) Yellow, H.T. smoothed, 240 v.

Removing Chassis.—Remove the knobs (grub screw), undo the speaker leads from the speaker transformer, release the mains

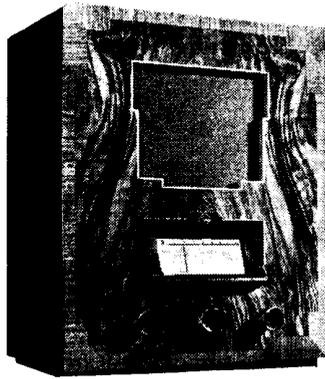
cable from the cleat, remove the holding screws from underneath and lift the chassis out.

General Notes.—Of the three leads from the condenser block, red is C18, white is C17 and black is common negative.

The wiring and lay-out of this set are particularly simple, and all the components are readily accessible.

Replacing Chassis.—Lay the chassis inside the cabinet, replace the holding screws and knobs, cleat the mains lead and re-connect the speaker leads in the same order.

VALVE READINGS				
No signal. Volume control at maximum.				
Valve.	Type.	Electrode.	Volts.	M.A.
1	MVS Pen. met (7)	anode ..	215	2
		aux. grid ..	120	1
2	MS Pen. met. (7)	anode ..	55	1.8
		aux. grid ..	35	.4
3	41 MP (5)	anode ..	230	30



The Philips 838U "three" for AC.-DC. mains.

PHILIPS UNIVERSAL 838U

and coupling to the next valve is by another tuned secondary transformer.

The detector valve, SP13 met. (V2), operates as a semi power-grid detector with a very low value of grid condenser. Coupling to the next valve is by resistance capacity filter.

The output valve, Pen. 26 (V3), has both an H.F. stopper and a stabilising re-

sistance in the grid circuit, and is tone compensated by a condenser across the primary of the output transformer.

Mains equipment consists of: Barretter, type C1; half-wave rectifier, type CY1; and a choke in the positive H.T. lead, with electrolytic condensers.

Special Notes.—The grid return of V1 is connected to a tapping in the grid leak of V2, providing a form of A.V.C.

The reservoir condenser C19 in the grid of V2 is a 25-mmfd. semi-variable condenser.

(Continued on next page.)

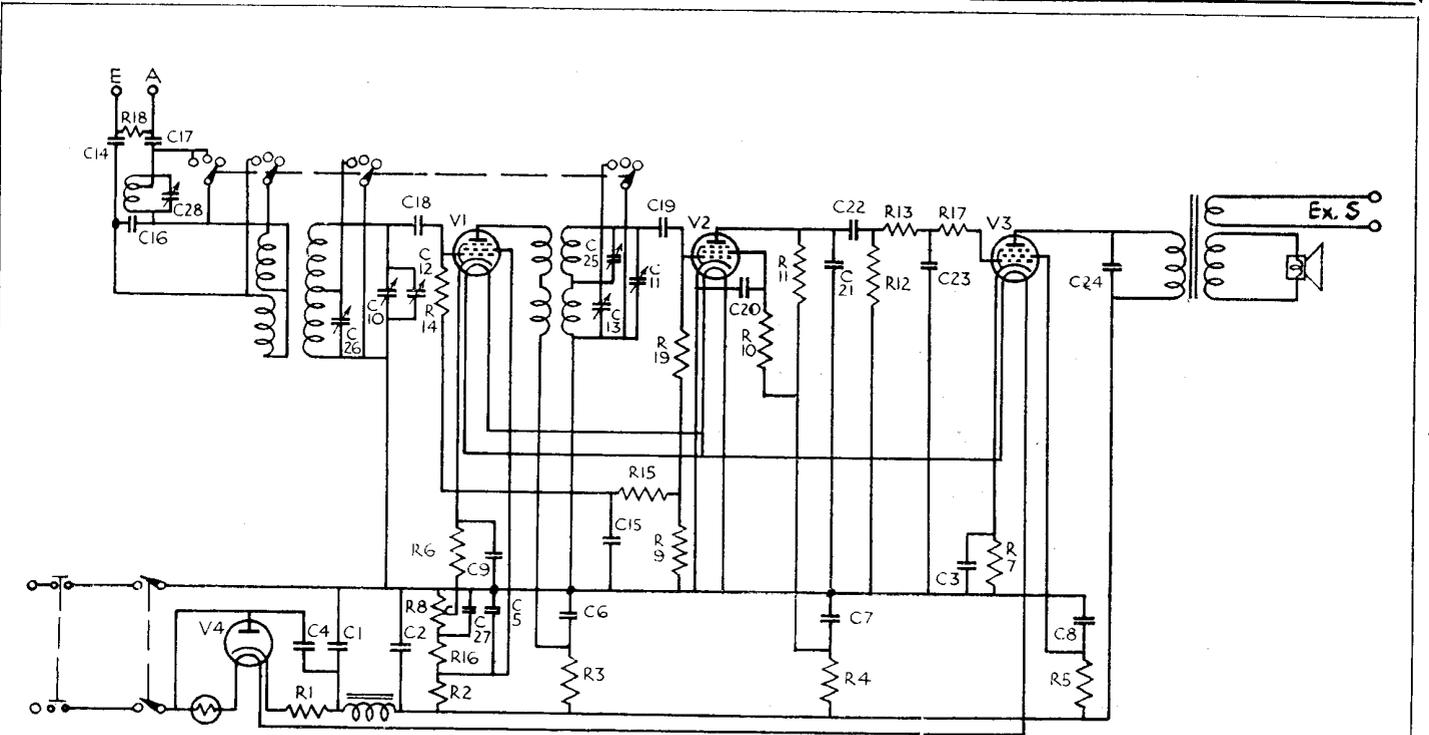
Circuit.—The H.F. valve, VP13A met. (V1), is preceded by a tuned secondary aerial transformer with a Droitwich filter. Volume is controlled by cathode resistance,

VALVE READINGS				
No signal. Mullard Universal valves are used. Readings obtained on 220v. A.C. supply.				
Valve.	Type.	Electrode.	Volts.	M.A.
1	VP13A met.(P)	anode ..	180	2.7
		aux. grid ..	85	.9
2	SP13 met. (P)	anode ..	30	.5
		aux. grid ..	25	.5
3	Pen.26 (P)	anode ..	160	35
		aux. grid ..	85	4.5

RESISTANCES		
R.	Purpose.	Ohms.
1	Series with rect. cathode ..	315
2	Top part of ptr. to V1 aux. grid ..	20,000 (1)
3	Decoupling V1 anode ..	1,000 (1/2)
4	Decoupling V2 anode ..	20,000 (1)
5	Voltage dropping to V3 aux. grid ..	20,000 (1/2)
6	V1 cathode bias (fixed) ..	400 (1/2)
7	V2 cathode bias (fixed) (2) in parallel ..	640 ea.(1)
8	V.C. ptr. ..	6,000
9	V2 grid leak (part) ..	.64 meg(1/2)
10	Voltage dropping to V2 aux. grid ..	1 meg. (1/2)
11	V2 anode coupling ..	.32 meg.(1/2)
12	V3 grid leak ..	.64 meg.(1/2)
13	V3 grid, H.F. stopper ..	.1 (1/2)
14	V1 grid leak ..	1.25 (1/2)
15	Decoupling V1 grid ..	.8 (1/2)
16	Middle part of ptr. to V1 aux. grid ..	25,000 (1/2)
17	V3 grid stabiliser ..	1,000
18	Across A and E input ..	.1 meg.(1/2)
19	V2 grid leak (part) ..	1.25meg. (1/2)

Bracketed figures denote wattage rating.

CONDENSERS			
C.	Purpose.		Mfd.
1	H.T. smoothing ..	el.	32
2	H.T. smoothing ..	el.	32
3	V3 cathode by-pass ..	el.	25
4	H.F. by-pass from rectifier ..		.1
5	V1 aux. grid by-pass ..		.5
6	Decoupling V1 anode ..		.1
7	Decoupling V2 anode ..		.5
8	V3 aux. grid by-pass ..		.5
9	V1 cathode by-pass ..		.1
14	Series earth ..		.1
15	Decoupling V1 grid ..		.1
17	Series aerial ..		.001
18	V1 grid ..		64mmfd
20	V2 aux. grid by-pass ..		.1
21	H.F. by-pass from V2 anode ..		.000125
22	L.F. coupling ..		.02
23	H.F. by-pass from V3 grid ..		.000125
24	Tone compensating V3 anode ..		.004
27	Decoupling V1 bias ptr. ..		.5



The provision of a form of A.V.C. by connecting the grid return of V1 to a tapping on the grid leak of V2 is an original feature in the circuit of the Philips 838U.

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.)

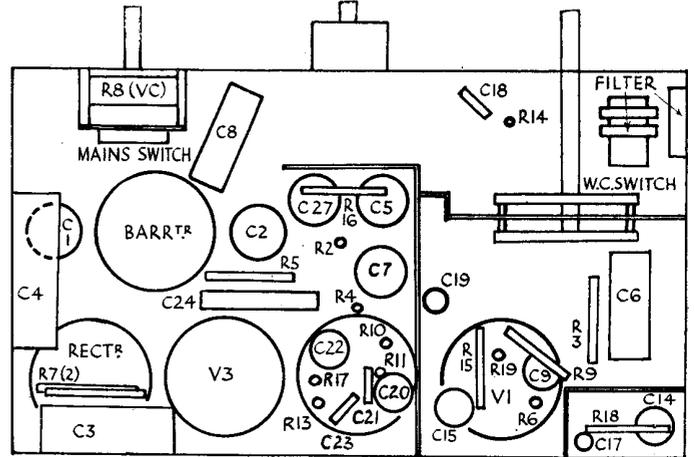
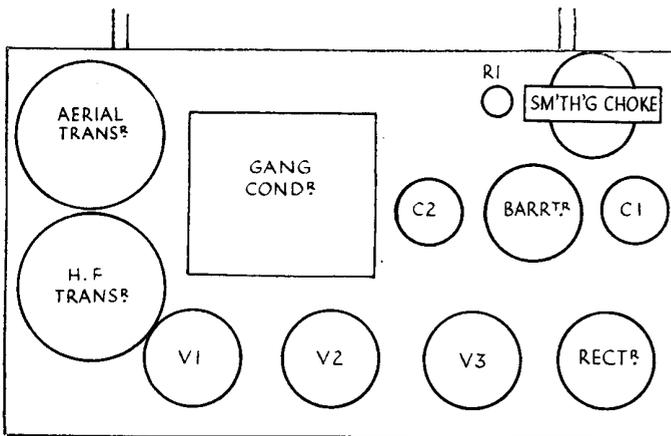
To reveal the components, remove the screening plate by undoing the two screws holding the lugs at the back of the chassis.

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.—Cleat 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 ..	48	
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.

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

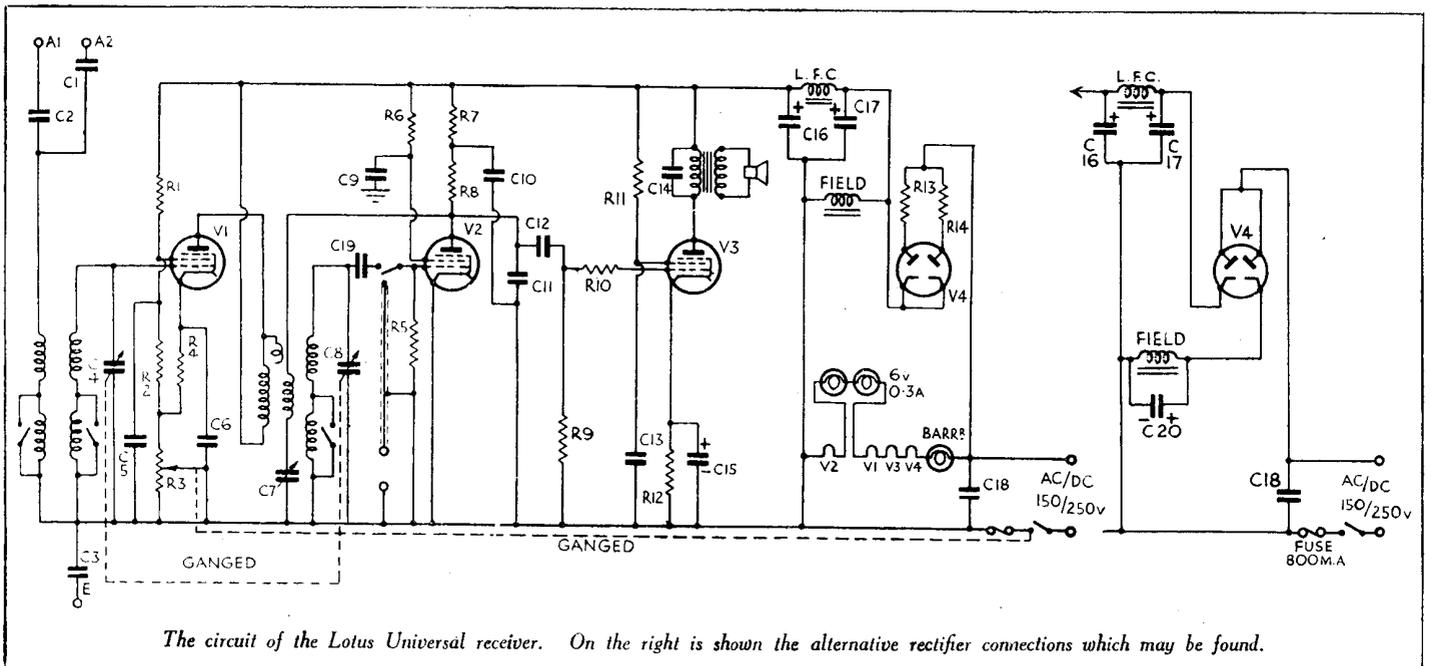
The pilot lamps are 6-v. .3-amp. types in series with the heater supply.

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.