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# PORTOGRAM UNIMIDGE

Four valve, plus rectifier, three waveband superhet for operation from AC/DC supplies of 110 and 200-250 volts. Made by Portogram Radio Electrical Industries, Ltd., Preil Works, St. Rule St., London, SW8.

CIRCUIT of this three-waveband AC/DC superhet consists of V1, a triode-hexode frequency changer and oscillator, followed by a pentode IF amplifier V2; the IF signal is demodulated by the diode section of V3 and LF amplifica-

tion is provided by the triode portion of this valve, which is RC coupled to V4, an output pentode. The output of V4 is fed into a 5-in. mains-energised speaker, the field of which is used for HT smoothing.

Aerial circuit is quite orthodox. On SW the aerial is inductively coupled by L1 to the grid coil L2. On MW and LW, however, bottom-end coupling is used via C4 to L3 (MW) and L4 (LW).

AVC is fed to grid of V1 through R2, C3 being an isolating capacitor for the AVC line. The triode-oscillator circuit uses tuned grid coils and inductive parallel-fed anode feedback.

It should be noted that on MW and LW the padding capacitors C8 and C9 are connected on the grid side of L7 and L8. Capacity-tuned iron core IF transformers are used in the IF circuit, AVC being applied to grid of V2 in series with secondary of IFT1.

The secondary of IFT2 feeds the signal diode of V3, R9 being the signal diode load. The AVC diode is fed from the primary of IFT2. R14, the volume control, is in the triode grid circuit of V3.

V3 is resistance capacity coupled by R13, C15, R15 to grid of V4, the pentode output valve. R18 in the anode circuit is a stopper resistor to prevent parasitic oscillations.

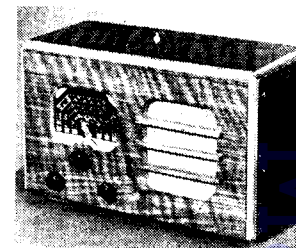
High-tension is provided by a half-wave rectifier V5, and is smoothed by the speaker field coil L17 and capacitors C20, C21. R19 is a current limiter and C22 is to eliminate tuneable modulation hum.

Heaters of V1-V5 are connected in series and obtain their current from the tapped mains dropper resistor R20-R23.

Dial lamps are connected in series and shunted across a section R23 of the mains dropper resistor. S4, the mains on off switch, is operated by the volume control.

Chassis removal.—Remove the three control knobs on front of cabinet. Remove back of cabinet. Unfasten the two dial lampholders

Continued overleaf.



## RESISTORS

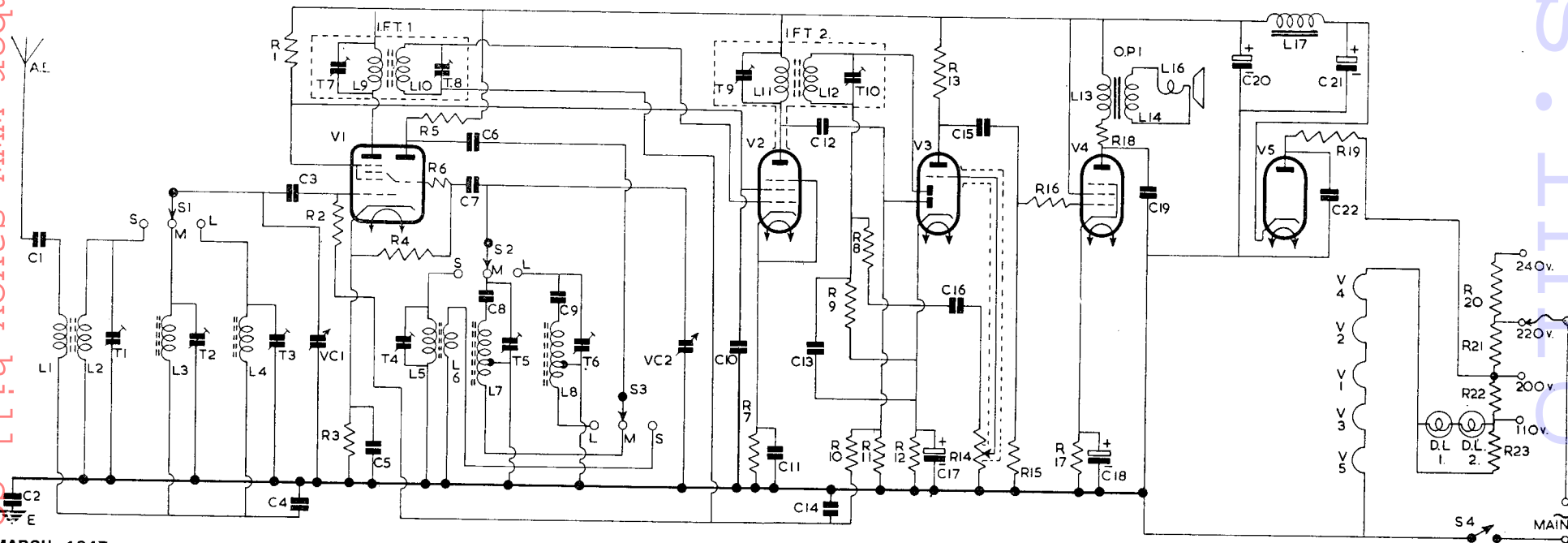
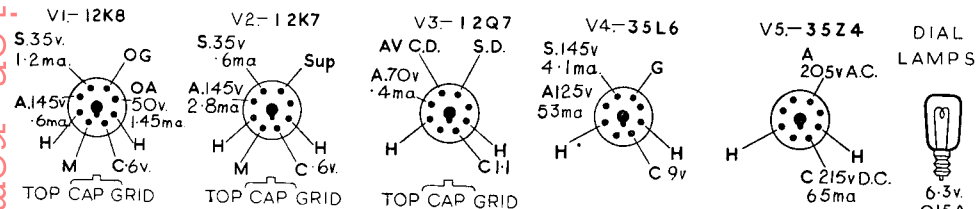
R	Ohms
1	56 K, 1/2 W
2	1 M, 1/2 W
3	220, 1/2 W
4	56 K, 1/2 W
5	56 K, 1/2 W
6	33, 1/2 W
7	220, 1/2 W
8	56 K, 1/2 W
9	100 K, 1/2 W
10	500 K, 1/2 W
11	500 K, 1/2 W
12	3.3 K, 1/2 W
13	100 K, 1/2 W
14	500 K, Potr with Switch
15	1 M, 1/2 W
16	3.3 K, 1/2 W
17	150, 1/2 W
18	100, 1/2 W
19	30, 1/2 W
20	100
21	100 Mains Dropper
22	500 850
23	150

## CAPACITORS

C	Mfds
1	500 pF Mica
2	.002 Tubular 1,000 v
3	100 pF Silver Mica
4	.002 Mica
5	.1 Tubular 350 v
6	500 pF Mica
7	100 pF Silver Mica
8	350 pF Silver Mica
9	150 pF Silver Mica
10	.1 Tubular 350 v
11	.1 Tubular 350 v
12	100 pF Silver Mica
13	100 pF Silver Mica
14	.1 Tubular 350 v
15	.1 Tubular 350 v
16	.1 Tubular 350 v
17	25 Electrolytic 25 v
18	25 Electrolytic 25 v
19	.01 Tubular 500 v
20	32 Electrolytic 250 v
21	23 Electrolytic 250 v
22	.05 Tubular 350 v

## INDUCTORS

L	Ohms	L	Ohms
1	Very Low	9	4.5
2	Very Low	10	4.5
3	2	11	4.5
4	2	12	4.5
5	Very Low	13	230
6	7	14	.25 taken with L14
7	3	16	across L16
8	8	17	1,000 L.S. Field



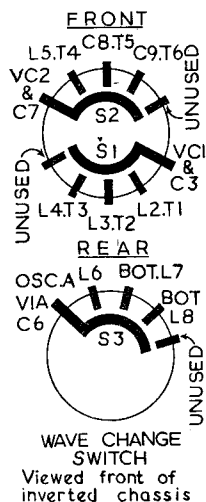
# PORTOGRAM UNIMIDGE

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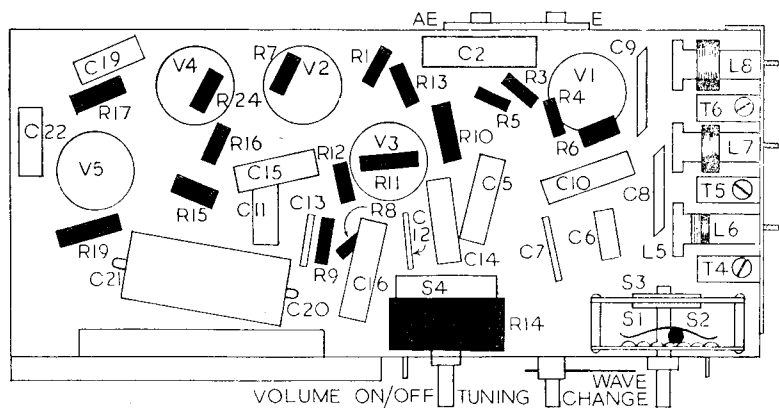
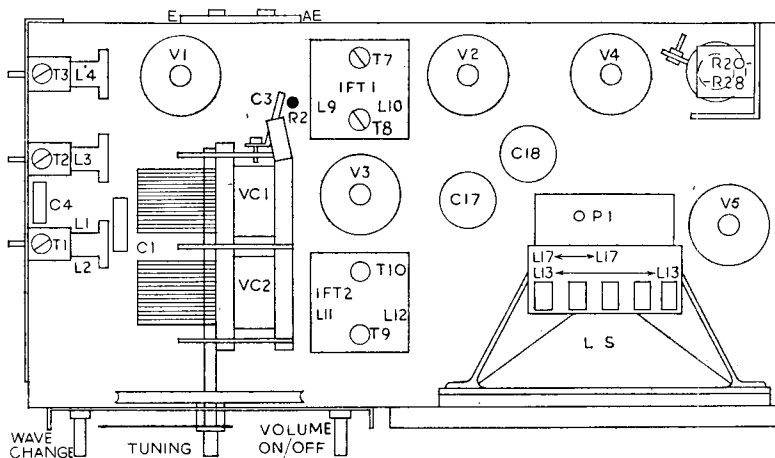
from the front panel. Remove the three chassis bolts underneath the cabinet.

Complete chassis can now be withdrawn.

Before switching on after reassembling make sure the dial lampholders are not in contact with any part of the chassis, as failure to do so may cause the mains dropper resistor to overheat and the dial lamps may be burnt out.



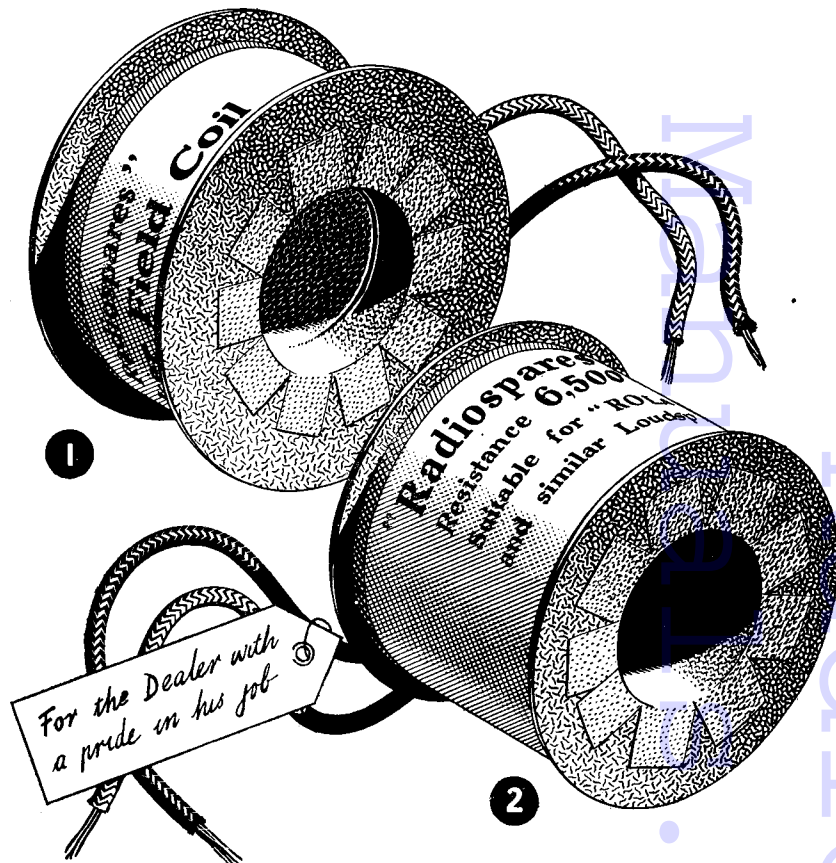
Left, details of the wave change switch as viewed from the front of the inverted chassis. Below: how parts are arranged on the top of the compact chassis.



As shown by the under chassis layout, the trimmers for RF and oscillator circuits are grouped on the right-hand side of the chassis.

## TRIMMING INSTRUCTIONS

Apply signal as stated below.	Tune receiver to	Trim in order stated for maximum output.
(1) 465 Kc to grid of V1 via .1 capacitor	550 metres	T10, T9, T8 and T7.
(2) 600 Kc to AE socket	500 metres	Core of L7, L3.
(3) 1.5 Mc, as above...	200 metres	T5, T2.
(4) Repeat (2) and (3) until at 500 and 200 M max. output is obtained without further adjustment being necessary.		
(5) 150 Kc to AE socket	2,000 metres	Core of L8, L4.
(6) 300 Kc, as above...	1,000 metres	T6, T3.
(7) Repeat (5) and (6) until at 2,000 and 1,000 M. max. output is obtained without further adjustment being necessary.		
(8) 6 Mc to AE socket	50 metres	Core of L5, L1.
(9) 15 Mc, as above ...	20 metres	T4, T1.
(10) Repeat (8) and (9) for max. output at both points.		
(11) Connect AE and E and check for performance on all wavebands.		



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