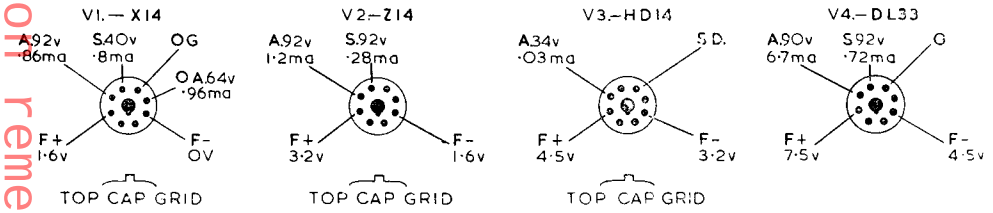
DOUBLE DECCA MODEL 46

Four-valve, plus metal rectifier, portable superhet, covering three wavebands and for operation from internal all-dry batteries or from AC or DC mains of 100-120 *and* 200-250 *volts. Made by Decca Record Co., Ltd., 1-3, Brixton Road, London, SW9.*

THIS set is designed to operate from AC/DC mains or from self-contained batteries.

Circuit consists of a heptode frequency changer and oscillator V1, followed by a variable-mu HF pentode IF amplifier V2. A single-diode triode valve V3 is employed as a second detector, AVC and AF amplifier. A pentode output valve V4 is used in the final stage to drive a 5-in. PM speaker.



On battery operation, HT voltage and automatic bias for V4 is obtained from an Ever-Ready 90 v, B107, and LT from Ever-Ready 7.5 v, Alldry 31.

On mains a metal rectifier is used for AC supplies to provide both HT and LT voltages. On DC supplies the rectifier merely acts as a low resistance in the circuit.

Aerial input circuit consists of a frame aerial L1, with a small loading coil L2 on MW. On LW an additional loading coil L3 is switched in by S1. On SW external aerial and earth are required, fed *via* a small capacitor C3, to a tapping on the SW coil L4. AVC is applied to control grid of V1 on all wavebands *via* R1 decoupled by C13.

Oscillator portion of V1 consists of L5 (LW) coil, L6 and L7 inductively coupled MW coils, and L8 and L9 inductively coupled SW coils, connected in a parallel fed circuit.

On LW the oscillator anode feedback voltage is developed across the fixed padder C8. On MW and SW, however, L7 and L8 provide the necessary feedback voltages.

IF amplifier V2 is used in quite an orthodox circuit, AVC being fed in series with secondary L11 of IFT1 to its grid. A single diode is used to

Continued overleaf

RESISTORS

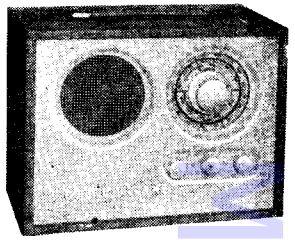
R	Ohms	
1	4 meg., ¼ w	
2	68 k, ¼ w	
3	22 k, ¼ w	
4	220 k, ¼ w	
5	6.8 meg., ¼ w	
6	1 meg. potentiometer	
7	10 meg., ¼ w	
8	1 meg., ¼ w	
9	5 k, ¼ w	
10	2.2 meg., ¼ w	
11	2.2 k, 2 w	
12	400, ½ w	
13	1220, 2 w	
14	200, 1 w	
15	100 k, ¼ w	
16	250, ¼ w	not fitted
17	50, ¼ w	using DL33

CAPACITORS

C	Mfds.	
1	85 pf silver mica	
2	.05 tubular 350 v	
3	40 pf silver mica	
4	100 pf mica	
5	.01 tubular 350 v	
6	500 pf mica	
7	170 pf silver mica	
8	260 pf silver mica	
9	30 pf silver mica	
10	670 pf silver mica	
11	.005 silver mica	
12	500 pf mica	
13	.01 tubular 350 v	
14	.25 tubular 350 v	
15	150 pf mica	
16	.002 mica	
17	20 mf electrolytic 12 v	
18	.01 tubular 350 v	
19	20 mf electrolytic (not fitted with DL33)	
20	16	electrolytic 350 v
21	16	electrolytic 350 v
22	200 electrolytic 15 v	
23	8 electrolytic 500 v	
24	100 pf silver mica	
25	100 pf silver mica	
26	100 pf silver mica	
27	200 pf silver mica	
28	.005 tubular 350 v	

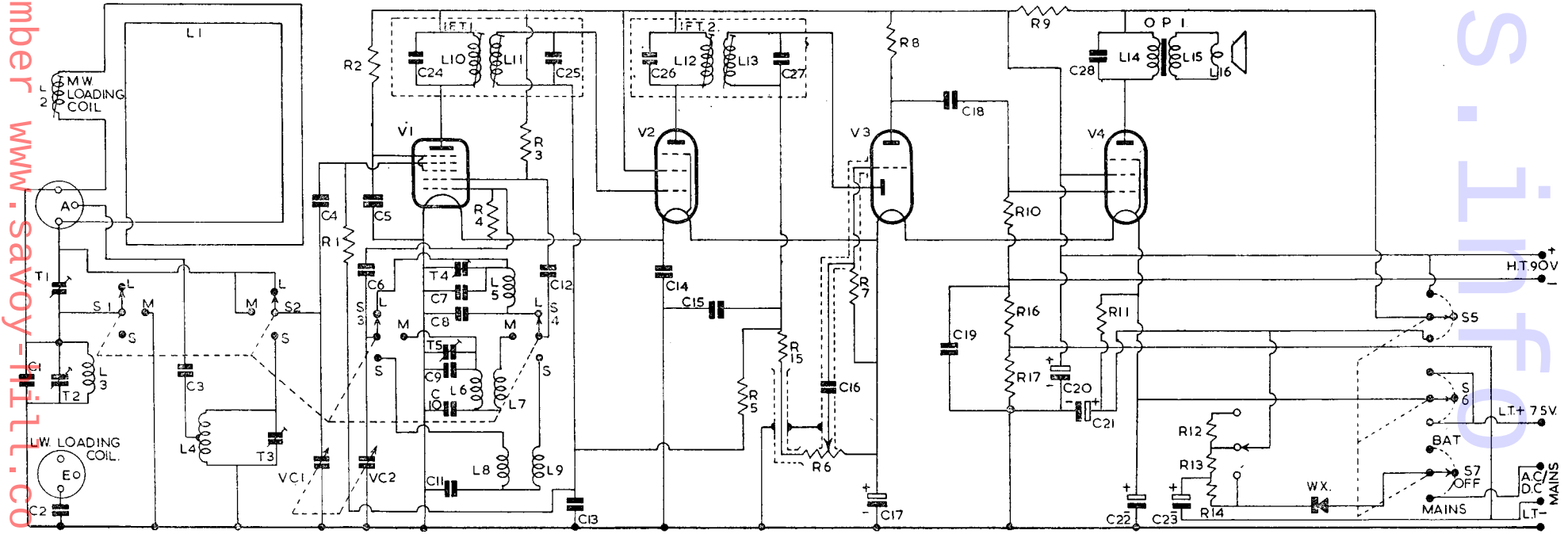
INDUCTORS

L	Ohms
1	1.5
2	.5
3	7
4	Very low
5	12
6	5
7	1.5
8	Very low
9	.5
10	8.5
11	8.5
12	8.5
13	6
14	450
15	Very low
16	2.5



TRIMMING INSTRUCTIONS

Apply Signal as stated below	Tune Receiver to	Adjust in Order stated for Max. Output
(1) 380 Kc loosely cpld. to top cap of V2, S/C VC2	200 metres vol. control max.	Core L13, L12
(2) 380 Kc similarly to top cap of V1	Ditto	Core L11, L10
(3) 15 Mc to AE & E sockets	20 metres	T3, check at 10 Mc & 6 Mc
(4) 14 Mc (approx.) to frame AE (clip sig/gen lead to outer covering of AE)	214 metres	T5, T1
(5) 600 Kc as above ..	500 metres	Core L2 re-check (4) and check also at 1000 Kc
(6) 250 Kc as above ..	1,200 metres	T4, T2, check at 160 Kc



DOUBLE DECCA — *Contd.*

provide **detection and AVC** voltages, the DC component developed across R6 and R15 being used as AVC voltage. R15, C15 and the capacity of the screened lead to R6 form an RF filter. V4 is an **output** pentode and obtains bias from the potential developed across R16 and R17 in the negative HT lead to chassis and also from the sum of the filament voltages of V1-V3.

Power supply—When used on batteries R9 is short-circuited by S5. S6 switches the LT battery to the series connected filament of V1 and V4. S7 is used to switch the mains input to rectifier. Main voltage adjustment is accomplished by varying the series resistance in the rectified HT circuit. Tappings are provided across R12, R13 and R14 for this purpose. R12-R14 with C23 and C21 are used for smoothing.

When on mains operation filament current is obtained from the HT circuit *via* R11. C22 provides LT circuit smoothing. A fuse is incorporated in the voltage adjusting link plug.

The HT and LT batteries remain in circuit during mains operation to stabilise HT and LT supplies and also to simplify the change-over switching.

Removing chassis—Remove control knobs, four pieces cloth covering the chassis bolts, undo bolts. Remove back of cabinet and withdraw frame aerial (plugged in to two three-pin sockets).

Remove chassis and speaker from cabinet, taking care not to foul the metal rectifier on the two fixing bolts for the carrying handle.

Remove screws holding metal base plate underneath chassis and carefully take off plate. Chassis is now fully exposed for servicing.

Reassembling—When replacing chassis the four pieces of cloth should be firmly stuck over the chassis bolt heads as these become live on mains supply.

Valve alternatives—Valves may be either Osram or Mullard types; circuit shown is for the Osram series. For the Mullard series circuit is modified as follows :—

R16, R17, C19 are omitted.

Pin 1 of valveholders V1 and V2 are connected to chassis.

On the chassis the screening cans of V2 and V3 are not fitted.

Effect of these alterations is that additional bias for V4 (which was developed across R16, R17) is removed and becomes only that which is provided from the series filaments of V1-V3.

Screening of V1-V3 is by means of the metallising of the actual valves.