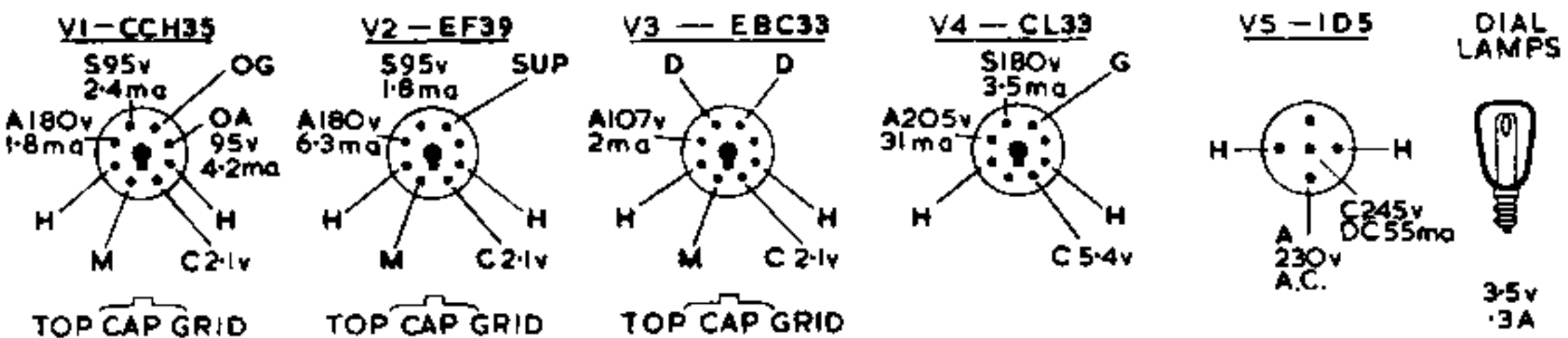
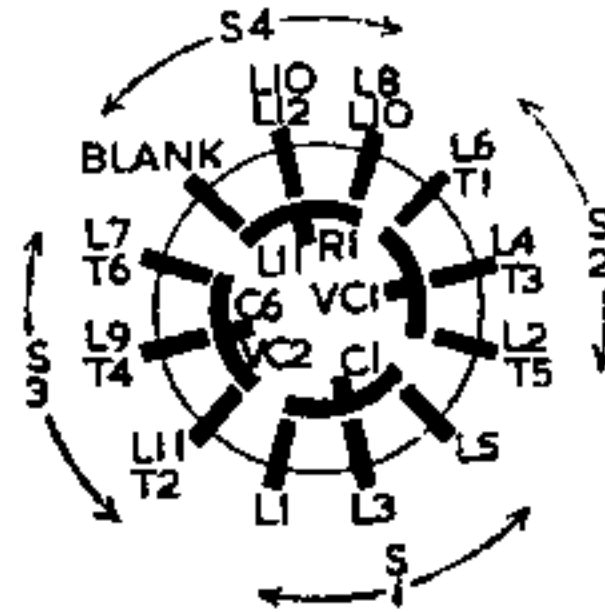
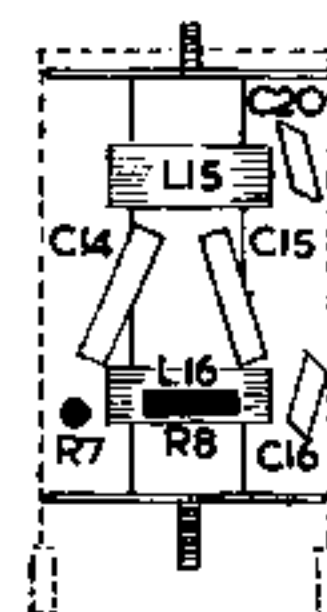
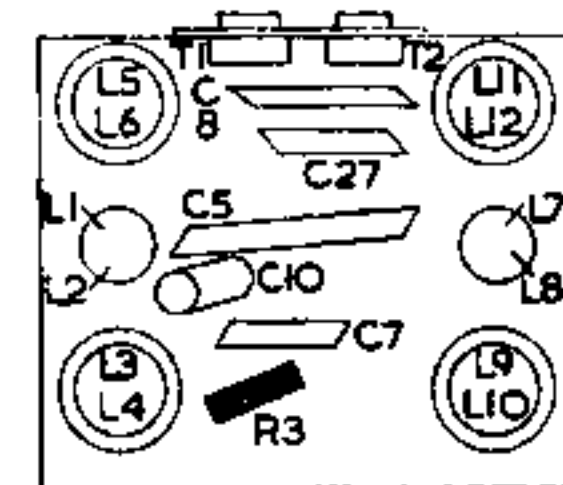
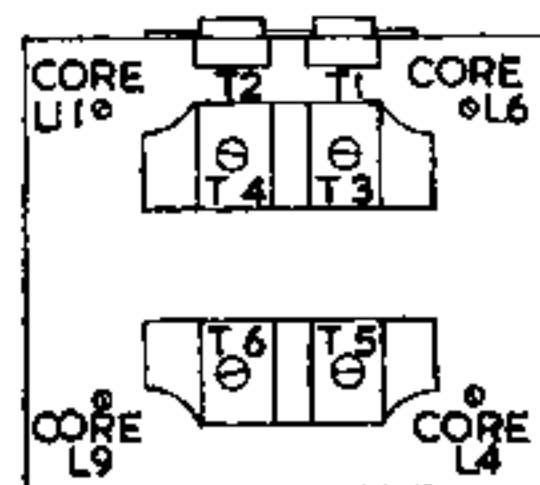


Five valve, 3-waveband, AC/DC superhet in horizontal, semi-midget style, walnut-veneered cabinet. Has permanently attached "throw-out" type aerial. Manufactured by A. J. Balcombe, Ltd., 52-58, Tabernacle Street, London, EC2.

Circuit description and alignment instructions, see overleaf.

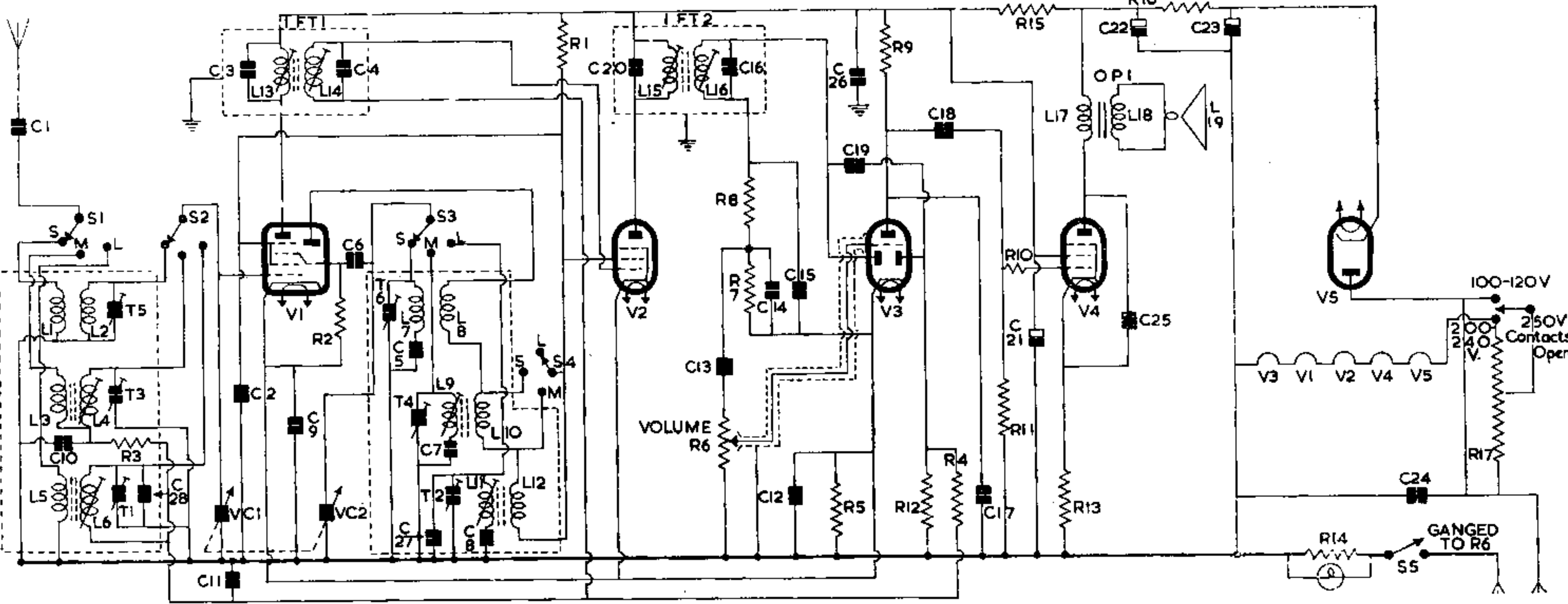


RESISTORS

R	Ohms	Watts
1	10K	1/2 W
2	47K	1/2 W
3	680	1/2 W
4	2.2M	1/2 W
5	100	1/2 W
6	1M Potentiometer (with 5w.)	1/2 W
7	470K	1/2 W
8	47K	1/2 W
9	47K	1/2 W
10	47K	1/2 W
11	470K	1/2 W
12	1M	1/2 W
13	150	1/2 W
14	40 Wirewound	1/2 W
15	1.5K	2 W
16	560	2 W
17	700 Line cord (tapped 100-600)	2 W

CAPACITORS

C	Mfids	Type
1	200pf Silver Mica	
2	.1 Tubular 350V	
3	100pf Silver Mica	
4	100pf Silver Mica	
5	5,600pf Silver Mica	
6	47pf Silver Mica	
7	575pf Silver Mica	
8	200pf Silver Mica	
9	.1 Tubular 350V	
10	.005 Tubular 350V	
11	.05 Tubular 250V	
12	.25 Tubular 350V	
13	.005 Tubular 500V	
14	100pf Ceramic	
15	100pf Ceramic	
16	100pf Silver Mica	
17	200pf Ceramic	
18	.005 Tubular 1,000V	
19	100pf Silver Mica	
20	100pf Silver Mica	
21	16 Electrolytic 350V	
22	16 Electrolytic 350V	
23	8 Electrolytic 500V	
24	.05 Tubular 500V	
25	.005 Tubular 500V	
26	.1 Tubular 350V	
27	47pf Silver Mica	
28	47pf Silver Mica (not fitted on model tested)	



INDUCTORS

L	Ohms
1	very low
2	very low
3	.5
4	1.8
5	78
6	15
7	very low
8	.5
9	1.5
10	.5
11	4.5
12	.5
13	5.5
14	5.5
15	7.0
16	6.5
17	300
18	very low
19	2.5

Circuit diagram, chassis diagrams and components tables are grouped together for quick reference on the preceding page.

CIRCUIT consists of a triode-hexode frequency-changer V1 feeding into a variable-mu RF pentode IF amplifier V2. A double-diode-triode V3 is used for detection, automatic volume control and audio amplification. The output stage uses a power-amplifier pentode V4 which drives a five-inch permanent-magnet loudspeaker. HT is provided by a half-wave, indirectly heated rectifier V5.

Aerial, consisting of approximately 25 ft. of insulated wire, is connected through isolating capacitor C1 to S1 and thence to aerial coupling coils L1 (SW), L3 (MW) and L5 (LW).

The aerial tuned circuits L2 (SW), L4 (MW), L6 (LW) are connected by S2 to grid V1 and to tuning capacitor VC1. T5 (SW), T3 (MW), T1 (LW) are trimmers. C28 is additional capacity across T1.

AVC is applied to grid V1 on MW from R3 and decoupled by C10. On LW operation it is obtained from R4 and decoupled by C11. Cathode bias is obtained from R5 and decoupled by C9.

Screen voltage is obtained from R1, which also supplies screen V2 and oscillator anode V1. C2 is decoupling capacitor. L13, C3, primary of IFT1 is in the anode circuit of V1.

Oscillator is connected in a tuned grid, series-fed arrangement. S3 connects tuned circuits L7 (SW), L9 (MW), L11 (LW) to oscillator grid, through coupling capacitor C6, and to tuning capacitor VC2. T6 (SW), T4 (MW), T2 (LW) are trimmers, and C5, C7, C8 are associated padders. C27 is additional LW trimming capacity.

R2, C6 provide automatic oscillator grid bias. Anode reaction coils L8, L10, L12 are series connected in the oscillator HT circuit and unwanted coils are shorted out by S4. Oscillator HT is drawn from R1.

IF amplifier operates at 460 kc/s. L14, C4, secondary of IFT1, applies signal to grid V2. AVC is fed to grid in series with L14, from R4 and decoupled by C11. Cathode bias is obtained from R5 and decoupled by C12. Screen voltage is drawn from R1, in common with screen and oscillator anode V1. L15, C20, which form the primary of IFT2, are in the anode circuit of V2.

Demodulator. L16, C16, the secondary of IFT2, applies the IF signal to one of the diode anodes V3. R7 is the diode load resistor and R8, C14, C15 constitute an IF filter.

Automatic volume control. C19 feeds signal from secondary of IFT2 to other diode anode V3. R12 is diode load resistor and R4, C11, AVC line decoupling. R5 provides delay voltage.

Audio amplifier. C13 feeds rectified signal to R6, the volume control, and thence to grid of triode section V3. Cathode bias is provided by R5 and decoupled by C12. R5 also provides cathode bias for V1 and V2. R9 is anode load resistor and C17 is RF by-pass capacitor.

Output stage. C18 feeds signal from anode V3 to grid V4, the pentode output valve. R11 is grid resistor and R10 grid stopper. Cathode bias is provided by R13. Negative feedback is introduced here by not decoupling R13.

Screen voltage is obtained from R15 and decoupled by C21. R15 also supplies anodes and

screens of V1 to V3. Primary L17, of output matching transformer OP1 is in the anode circuit. C25 is fitted as tone corrector and also to prevent self oscillation taking place in V4. L18, the secondary of OP1, feeds into L19, the low-impedance speech coil of a five-inch, permanent-magnet loudspeaker.

High tension is obtained from an indirectly heated, half-wave rectifier V5. Its anode voltage is provided by the mains input supply. Resistance capacitance smoothing is provided by R16, C22, C23. C24 is to eliminate modulation hum.

Heaters V1-V5 are connected in series and obtain their current through dropper resistor R17. Provision is made to short out portions of R17 when 110V and 240V mains supplies are used. S5, which is ganged to volume control R6, is the on/off switch.

Dial light is connected across R14 which is in the chassis side of the mains supply.

Removal of chassis from cabinet. Remove three knobs on front of cabinet. Unwind aerial from supports on rear panel of cabinet and remove panel. Unfasten four wood screws holding cabinet feet and remove same. Chassis bolts are now exposed and can be removed and chassis withdrawn.

TRIMMING INSTRUCTIONS

Apply Signal as Stated below	Tune Receiver to	Trim in Order Stated for Max. Output
1) 460 kc/s to grid V1 via .01 capacitor ...	550 metres	L16, L15, L14, L13.
2) 15 mc/s to aerial lead via dummy aerial ...	20 metres	T6, T5.
3) 545 kc/s as above	550 metres	Cores of L9, L4.
4) 1.2 mc/s as above	250 metres	T4, T3. Repeat (3) & (4) until max. output is obtained.
5) 150 kc/s as above	2,000 metres	Cores of L11, L6.
6) 300 kc/s as above	1,000 metres	T2, T1. Repeat (5) & (6) until max. output is obtained.