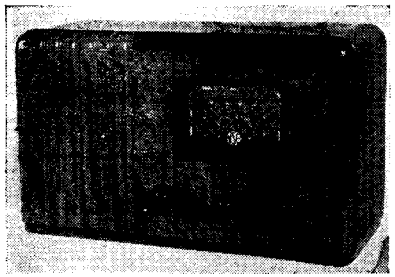
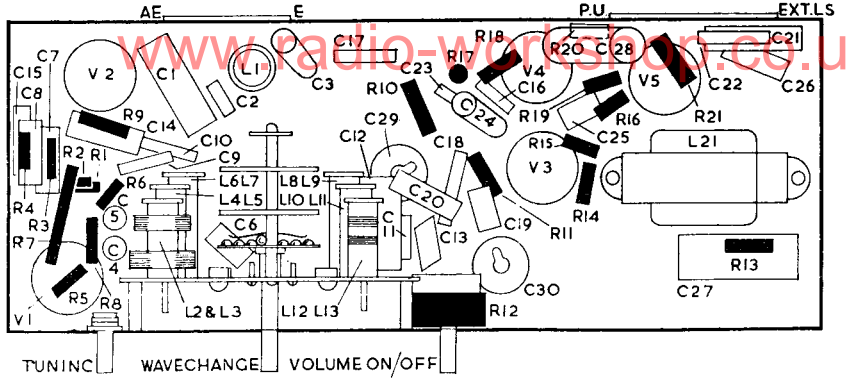
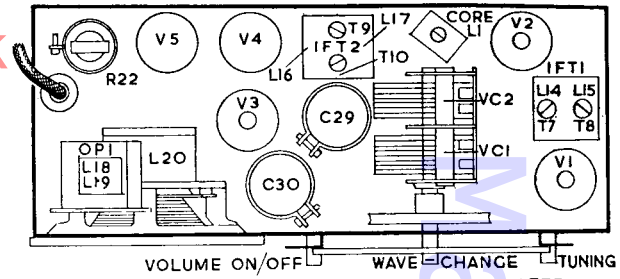
VSE U101







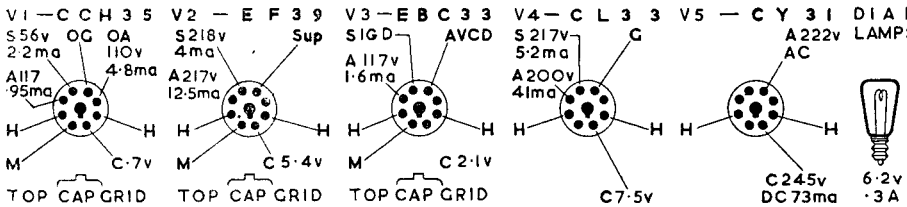
Five-valve, three-waveband AC/DC superhet for 100-120 and 200-250V mains. Fitted with extension loudspeaker and pick-up sockets and for use with external aerial and earth connection. Housed in walnut veneer wood cabinet. Manufactured by the V.S.E. Construction Co., Ltd., 5-7, Denman Street, London, W1.

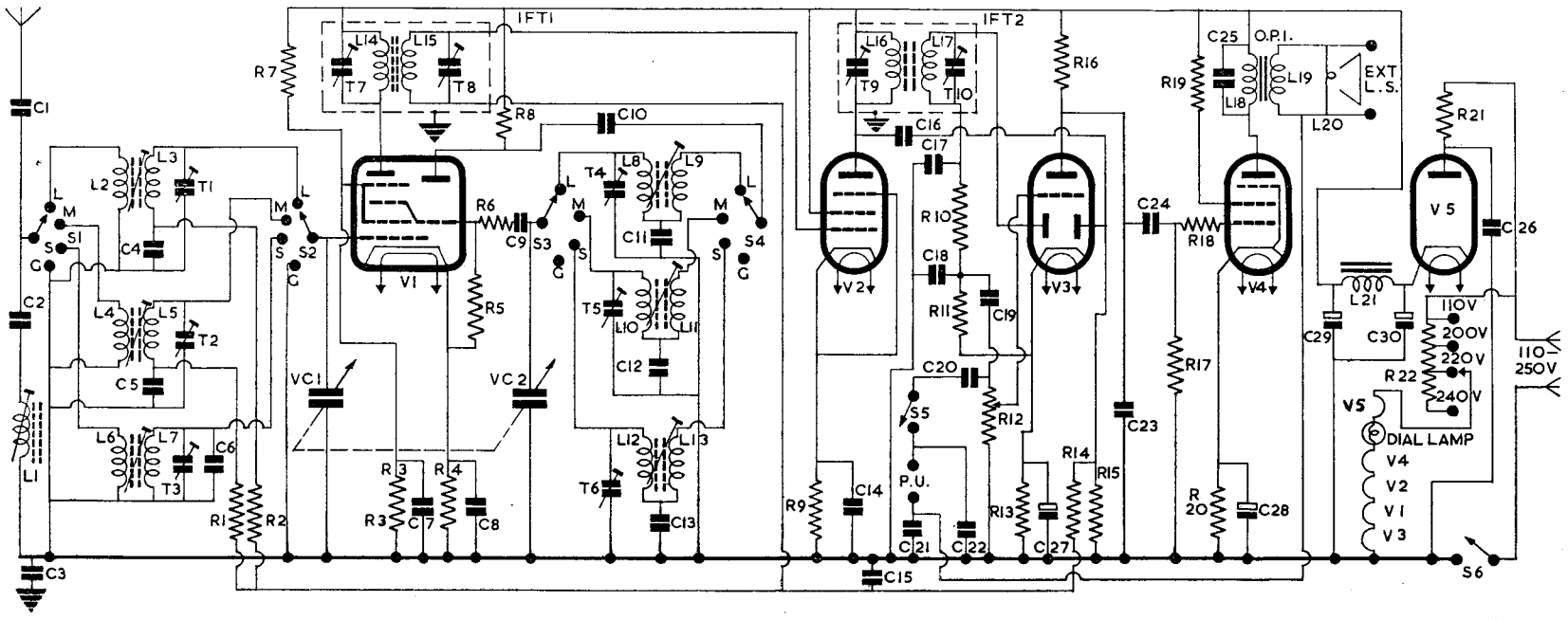
CAPACITORS

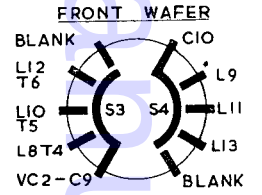
C	Capacity	Type
1	.005 tubular 1,000 v	
2	50pf tubular ceramic	
3	.1 tubular 750 v	
4	.1 tubular 350 v	
5	.1 tubular 350 v	
6	.25pf silver mica	
7	.1 tubular 350 v	
8	.1 tubular 350 v	
9	100pf mica	
10	250pf tubular ceramic	
11	175pf silver mica	
12	460pf silver mica	
13	5,700pf silver mica	
14	.1 tubular 350 v	
15	.1 tubular 350 v	
16	100pf Mica	
17	250pf tubular ceramic	
18	250pf tubular ceramic	
19	.02 tubular 750 v	
20	.02 tubular 750 v	
21	.1 tubular 750 v	
22	250pf tubular ceramic	
23	250pf tubular ceramic	
24	.02 tubular 750 v	
25	.005 tubular 500 v	
26	.02 tubular 1,000 v	
27	50 electrolytic 12 v	
28	50 electrolytic 25 v	
29	32 electrolytic 350 v	
30	32 electrolytic 350 v	

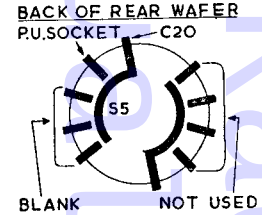
INDUCTORS

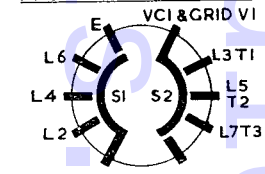
L	Ohms
1	9.5
2	65
3	17
4	15.5
5	3
6	9
7	very low
8	9
9	2.5
10	3.5
11	1.25
12	very low
13	7.5
14, 15, 16	4.5
17	
18	450
19	very low
20	2.5
21	300











RESISTORS

R	Ohms	Watts
1	470 k	½ W
2	470 k	½ W
3	22 k	½ W
4	100	½ W
5	56 k	½ W
6	220	½ W
7	33 k	1 W
8	22 k	½ W
9	330	½ W
10	100 k	½ W
11	470 k	½ W
12	1 meg potentiometer with switch	
13	1.5 k	½ W
14	470 k	½ W
15	470 k	½ W
16	56 k	½ W
17	680 k	½ W
18	1.2 k	½ W
19	100	½ W
20	180	½ W
21	100	5 W
22	860 tapped mains dropper (100 + 100 + 500 + 160)	

VSE U101 — *Continued*

CIRCUIT consists of a triode-hexode frequency-changer V1, coupled by iron-cored IF transformer to V2, the IF amplifier. A second iron-cored IF transformer couples V2 to the second detector V3, a double-diode triode, the triode section of which is used as an AF amplifier. The output valve V4, a power amplifier pentode, feeds into a 5-in. PM speaker. HT is supplied by a half-wave indirectly-heated rectifier V5.

Aerial is fed through isolating capacitor C1 to S1, and thence to aerial coupling windings L2 (LW), L4 (MW), L6 (SW). An IF filter consisting of L1, C2 is connected across aerial input and earth.

Grid tuned windings L3 (LW), L5 (MW), L7 (SW), are connected by S2 to V1 and to tuning capacitor VC1. T1, T2, T3 are associated trimmers, and C6 is additional fixed capacitor across SW trimmer T3.

AVC is applied to grid V1 on LW, from R2, and decoupled by C4, and on MW from R1, decoupled by C5. Cathode bias for V1 is provided by R4 decoupled by C8. Screen voltage is obtained from potential divider R1, R3, and is decoupled by C7. L14, T7, which form the primary of IFT1, are in the anode circuit of V1.

Oscillator is connected in a tuned-grid parallel-fed anode circuit. S3 connects the tuned windings L8 (LW), L10 (MW), L12 (SW) to oscillator grid and to tuning capacitor VC2. T4 (LW), T5 (MW), T6 (SW) are trimming capacitors, and C11, C12, C13 are padders.

C9 is grid coupling capacitor and R6 is limiter resistor. R5 is oscillator grid resistor. R5, C9 provide leak-condenser bias.

S4 connects the anode reaction coils L9 (LW), L11 (MW), L13 (SW) to anode, through coupling capacitor C10. R8 is oscillator anode load resistor.

IF amplifier V2 operates at a frequency of 465 kc/s. L15, T8, the secondary of IFT1, feed signal to grid V2, a variable-mu RF pentode. AVC is applied to grid V2 in series with secondary L15 of IFT1. Cathode bias is provided by R9 and decoupled by C14. Screen voltage is obtained from HT line direct. L16, T9, which form the primary of IFT2, are in the anode circuit of V2.

Signal rectification. L17, T10, forming the secondary of IFT2, apply signal to one diode of V3. R11 is diode load resistor and R10, C17, C18 constitute an IF filter.

Automatic volume control. C16 feeds signal from anode V2 to second diode V3. R15 is diode load and R14, C15, provide AVC line decoupling. Delay voltage is provided by cathode bias developed across R13, C27.

AF amplifier. C19 feeds rectified signal to volume control R12 and thence to grid of triode section V3. Cathode bias is obtained from R13 and decoupled by C27. R16 is anode load resistor and C23 anode HF bypass capacitor.

Pick-up. Sockets isolated from "live" chassis by C20, C21 are fitted. S5, which is ganged to S1–S4, and which is closed in the fourth (PU) position of S1–S5, connects PU across the volume control R12. C22 is fitted to limit the high frequencies.

Output stage. C24 feeds signal from anode V3 to grid V4, the pentode output valve. R18 is grid stopper and R17 grid resistor. R20, decoupled by C28, provides cathode bias. Screen voltage is obtained from HT line through R19, a stopper resistor.

L18, primary of OP1, the output matching transformer, is in the anode circuit V4. C25 is tone correction capacitor. L19, the secondary of OP1, drives a L20, the speech coil of a 5-in. PM speaker, one side of which is earthed through C21, the capacitor used for isolating the PU socket. Extension sockets are fitted across L19 to allow the use of a low impedance extension speaker.

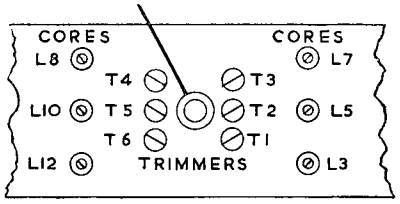
High tension is obtained from a half-wave indirectly-heated rectifier V5, its anode voltage being that of the mains supply. R21 is a current limiter resistor and C26 reduces modulation hum. L21, C29, C30 provide choke-capacity smoothing for the HT supply.

Heaters of V1 to V5 and dial light are series connected and obtain their current from the mains through dropper resistor R22, which is tapped for 100–120 and 200–250 V supplies.

S6, which is ganged to volume control R12, is the on-off switch.

Removal of chassis. Remove three control knobs and back of cabinet (held in place by press studs at top edge). Unfasten four chassis bolts on underside of cabinet. Chassis, complete with speaker, can now be withdrawn.

Chassis bolts and brackets are insulated by rubber grommets from the main chassis, as a safety measure, and if these are removed for servicing, care should be taken when replacing to ensure good insulation.



TRIMMING INSTRUCTIONS

Apply signal as stated below	Tune Receiver to	Trim in Order stated for Max. Output
1) 465 kc/s to grid V1 *via* .01 capacitor ..	—	T10 T9 T8 T7
2) 375 kc/s as above ..	800 metres	T4
3) 150 kc/s as above ..	2000 metres	Core of L8. Repeat (2) and (3)
4) 1.5 mc/s as above ..	200 metres	T5
5) 545 kc/s as above ..	550 metres	Core of L10. Repeat (4) and (5)
6) 18.75 mc/s as above	16 metres	T6
7) 6 mc/s as above ..	50 metres	Core of L12. Repeat (6) and (7)
8) 300 kc/s to AE socket via dummy aerial	1,000 metres	T1
9) 150 kc/s as above ..	2,000 metres	Core of L3. Repeat (8) and (9)
10) 1.2 mc/s as above ..	250 metres	T2
11) 600 kc/s as above ..	500 metres	Core of L5. Repeat (10) & (11)
12) 15 mc/s as above ..	20 metres	T3
13) 6 mc/s as above ..	50 metres	Core of L7. Repeat (12) & (13)