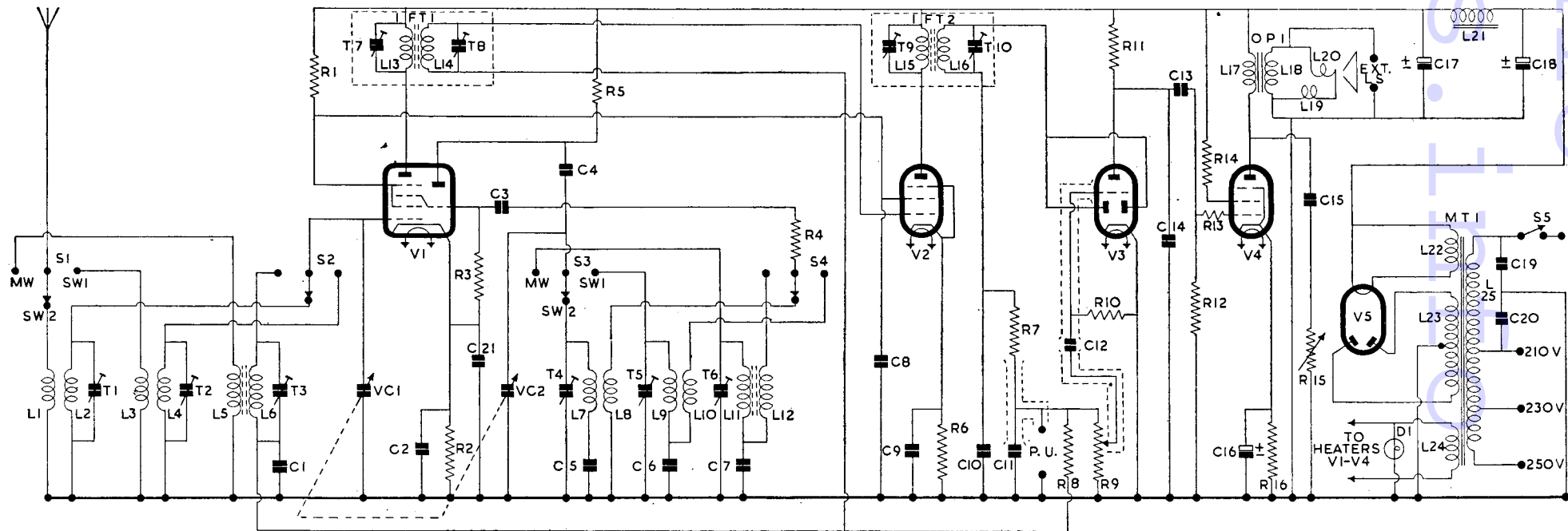
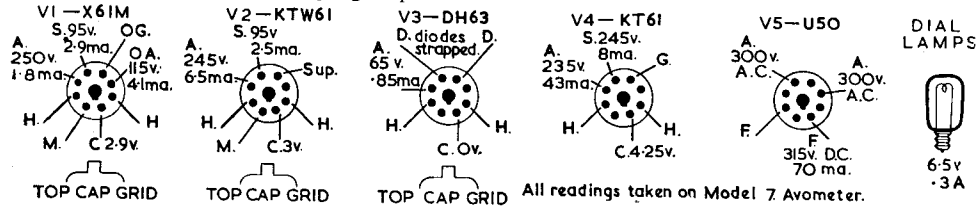


# HALE PWR 2/3

Five valve, three-band AC superhet for overseas use; fully tropicalised. Walnut cabinet; provision for external speaker and pickup. Made by Hale Electric Co., Ltd., Radio Works, Talbot Road, West Ealing, London, W13.

**CIRCUIT:** A triode-hexode frequency changer and local oscillator V1 feeds a variable-mu HF tetrode IF amplifier V2. The IF signal is demodulated and amplified by a double-diode triode V3, which supplies AVC voltages to V1 and V2. Output stage, a power amplifying tetrode V4, drives an 8-in. energised speaker. V5 is a directly-heated rectifier.

**Aerial Circuit:** Three separate aerial transformer coils are employed. The MW coil is a variable iron-dust core type, but SW1 and SW2 are air core type. VC1 is aerial tuning capacitor. Cathode bias for V1 is derived from R2, decoupled by C2. AVC is applied to grid of V1 on MW only, C1 being isolating and decoupling capacitor.



S1 and S2 switch the aerial and grid connections of the coils.

**Oscillator.**—Three separate oscillator coils are connected in a parallel-fed tuned anode circuit; VC2 is oscillator tuning.

The MW coil has a variable iron-dust core; SW1 and SW2 have air cores. They are switched by S3 and S4. On MW and SW1 grid feedback voltages are developed across padders C7 and C6 and also inductively by means of L12 and L10. On SW2 inductive coupling only is provided by L8, the padder C5 being in series with the tuned anode coil L7. Leak-condenser bias is developed by R3 C3.

R4, a limiter resistor, is shown in the circuit diagram but may not be fitted on all models.

**IF Amplifier** operates at 465KC. IFT1 and 2 are capacity tuned iron-dust core transformers. AVC is fed in series with secondary L14 of IFT1, to grid of IF amplifier V2. Cathode bias is derived from R6 and decoupled by C9. The screen voltages for V1 and V2 are supplied from R1 and decoupled by capacitor C8.

**Signal Rectification and AVC.**—The two diodes of V3 are strapped together and fed from L16, the secondary of IFT2. R9, the volume control, is the diode load. R7, C10 and C11 comprise an IF filter network.

AVC voltage is taken from the top of R9, R8 with C1 provides decoupling for the AVC line to grid of V1 and V2. PU sockets are fitted across R9.

**LF Amplifier.**—Triode portion of V3 is used as an LF amplifier. C12 feeds the rectified signal to the grid. R10 is its grid resistor.

Bias is developed by R10 C12, the cathode being connected direct to chassis. R11 is the anode load of V3; C14 is anode HF filter capacitor.

**Output Stage** is a high-mu tetrode V4. Signals are applied by C13. R12 is the grid resistor and R13 a grid stopper. Cathode bias is derived from R16 and decoupled by C16. Screen voltage is taken from HT line via R14, a stopper resistor.

OPI, the LS output transformer, is in the anode circuit. R15 and C15 are a variable tone control. Secondary of OPI drives an 8-in. energised speaker. L19, a hum bucking coil, is in series with L20 the LS speech coil. Extension LS sockets are fitted across the secondary of OPI.

**HT Supply** is from a directly-heated full-wave rectifier V5. Anode voltages are supplied from L23, the HT secondary of MT1, the mains input transformer. L22 supplies filament voltage for V5. L21, the field coil of the LS, together with C17 and C18, provide the HT smoothing.

Heaters of V1-V4 and Dial Light are supplied from L24.

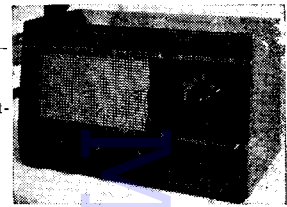
**Mains Input Voltages.**—Primary L25 of mains input transformer is tapped for voltages from 200-250V AC 50cps. C19, C20 from a modulation hum filter. S5, ganged to the tone control, is the mains on/off switch.

**Removal of Chassis.**—Unfasten the four chassis bolts underneath the cabinet. Chassis complete with speaker may now be withdrawn from cabinet.

**TRIMMING NOTES OVERLEAF.**

**RESISTORS**

R	Ohms	Wattage
1	33K	1W
2	330	1/4W
3	47K	1/4W
4	47	1/4W (not fitted on some models)
5	33K	1W
6	330	1/4W
7	56K	1/4W
8	2.2M	1/4W
9	500K	Potentiometer
10	10M	1/4W
11	270K	1/4W
12	470K	1/4W
13	47K	1/4W
14	120	1/4W
15	50K	Potentiometer with Switch
16	100	1W



**INDUCTORS**

L	Ohms
1	17
2	Very low
3	8.5
4	Very low
5	1.25
6	2.25
7	Very low
8	50
9	Very low
10	14.5
11	2.5
12	.5
13	4.5
14	4.5
15	4.5
16	4.5
17	290
18	Very low
19	Very low
20	1.5
21	1,000
22	Very low
23	500
24	Very low
25	23 Total primary

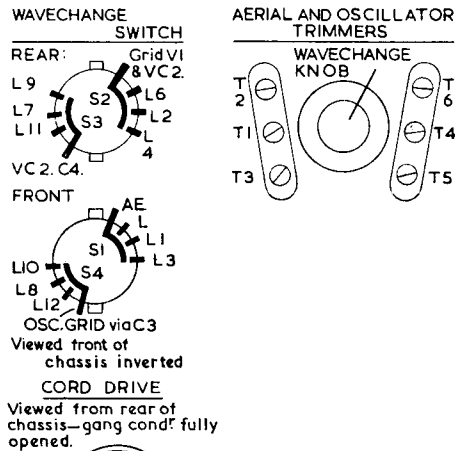
**CAPACITORS**

C	Mfd
1	.1 Tubular 500V
2	.1 Tubular 500V
3	50pF Mica
4	.002 Mica
5	2,400pF Silver Mica
6	5,000pF Silver Mica
7	600pF Silver Mica
8	.1 Tubular 500V
9	.1 Tubular 500V
10	100pF Mica
11	100pF Mica
12	.002 Mica
13	.01 Tubular 1,000V
14	300pF Silver Mica
15	.02 Tubular 750V
16	.25 Electrolytic 25V
17	.16 Electrolytic 450V
18	.8 Electrolytic 450V

Radio Hobbies Ltd.

# HALE PWR 2/3—Contd.

## TRIMMING INSTRUCTIONS



Apply signal as stated below	Tune receiver to	Trim in order stated for Max. output
(1) 465 Kc to top cap V1 via .01 capacitor	—	T10, T9, T8, T7
(2) 600 Kc to AE socket via dummy aerial	500 metres	Core of L11, L6
(3) 1.5 Mc as above	200 metres	16, 13. Repeat (2) & (3) until at both points Max. output is obtained without further adjustment being necessary.
(4) 7.5 Mc as above	40 metres (SW2)	T4, T1
(5) 15 Mc as above	20 metres (SW1)	T5, T2

After (4) & (5) have been carried out sensitivity and calibration should be checked over each waveband.

