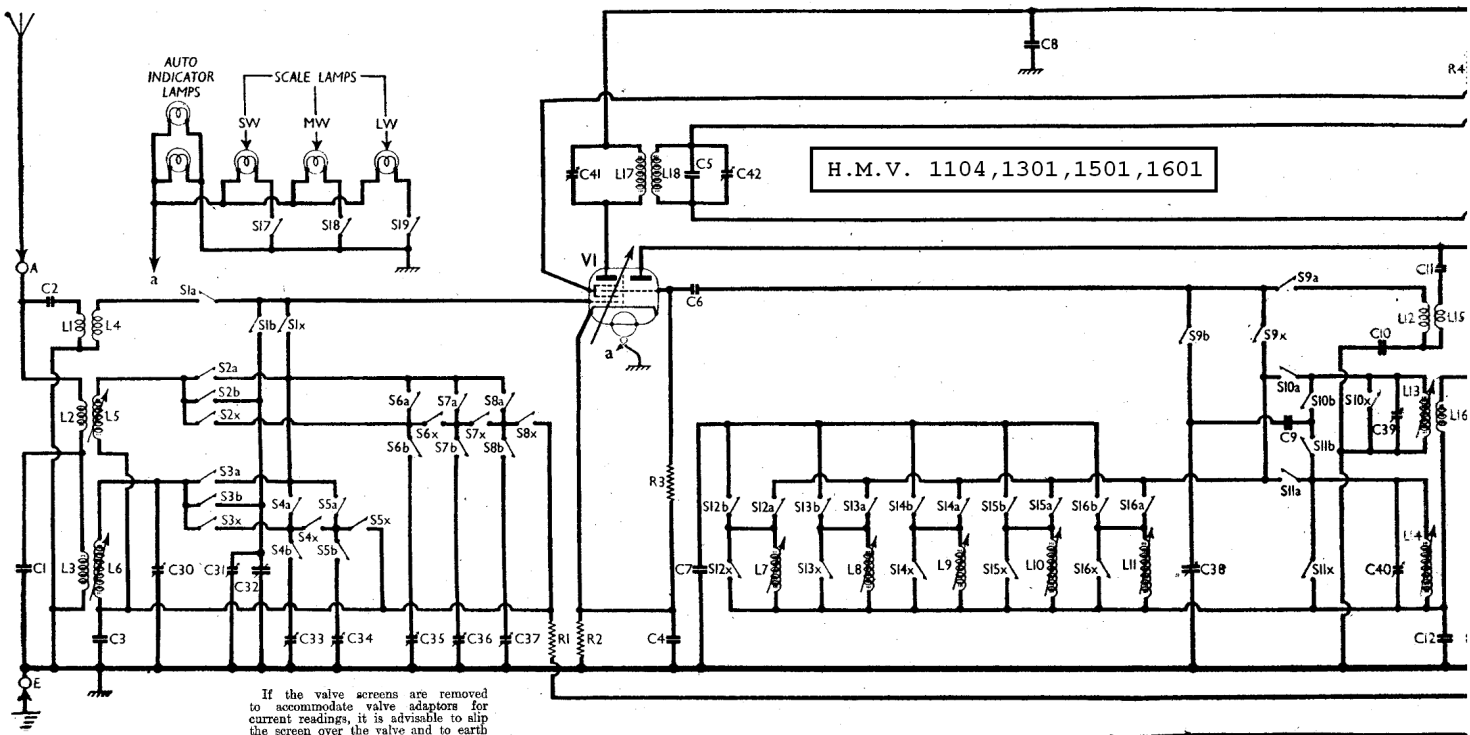

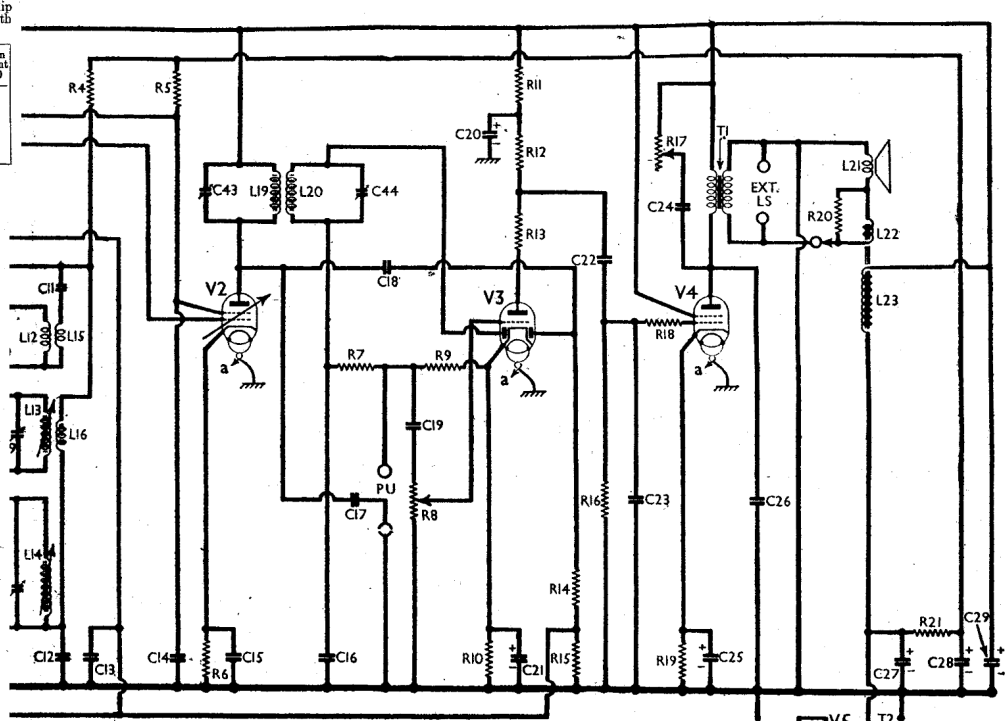

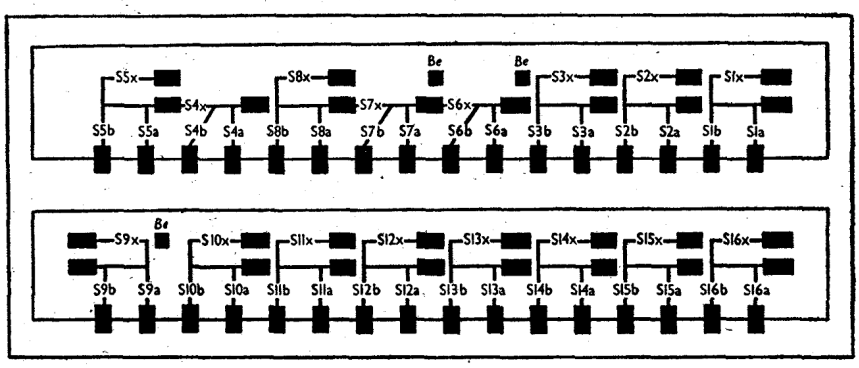

Diagrams of the press-button switch unit. The upper one is the view looking at the underside of the chassis, while the lower one shows the switches on the side facing the chassis deck.

RESISTANCES		Values (ohms)
R1	V1 hexode CG decoupling...	220,000
R2	V1 fixed GB resistance ...	350
R3	V1 osc. CG resistance ...	50,000
R4	V1 osc. anode HT feed ...	23,000
R5	V1, V2 SG's HT feed ...	22,000
R6	V2 fixed GB resistance ...	350
R7	IF stopper	100,000
R8	Manual volume control ...	2,000,000
R9	V3 signal diode load ...	500,000
R10	V3 triode GB ; AVC delay ...	2,200
R11	V2 triode anode decoupling ...	100,000
R12	V3 triode anode load resistances	23,000* 75,000
R13	V3 AVC diode load resistances	500,000 1,500,000
R14	V4 CG resistance	150,000
R15	Variable tone control ...	50,000
R16	V4 grid stopper	23,000
R17	V4 GB resistance	100
R20	Hum neut. coil shunt ...	0-5
R21	V1 osc. anode and V1, V2 SG's HT feed resistance ...	23,000

CONDENSERS		Values (μF)
C1	Image suppressor	0·0005
C2	Aerial SW series condenser	0·000035
C3	V1 hexode CG decoupling...	0·05
C4	V1 cathode by-pass... ...	0·05
C5	1st IF trans. sec. trimmer...	0·00025
C6	V1 osc. CG condenser ...	0·000075
C7	Osc. circuit auto fixed tuning capacity	0·00023
C8	HT circuit RF by-pass ...	0·1
C9	Osc. circuit MW tracker ...	0·0005
C10	Osc. circuit SW tracker ...	0·005
C11	V1 osc. anode SW coupling	0·00005
C12	Osc. circuit LW tracker ...	0·00035
C13	V2 CG decoupling	0·05
C14	V1, V2 SG's decoupling ...	0·05
C15	V2 cathode by-pass... ...	0·05
C16	IF by-pass	0·0001
C17	Radio muting condenser ...	0·05
C18	Coupling to V3 AVC diode	0·0001
C19	AF coupling to V3 triode ...	0·05
C20*	V3 triode anode decoupling	4·0
C21*	V3 cathode by-pass... ...	50·0
C22	V3 triode to V4 AF coupling	0·05
C23	IF by-pass	0·00035
C24	Part of variable tone control	0·05
C25*	V4 cathode by-pass	50·0
C26	Fixed tone corrector ...	0·0023
C27*	HT smoothing condensers	16·0
C28*		4·0
C29*		8·0
C301	Aerial circuit LW trimmer	—
C311	Aerial circuit MW trimmer	—
C321	Aerial circuit manual tuning	—
C331	Aerial circuit LW auto tuning condensers	—
C341		
C351	Aerial circuit MW auto tuning condensers	—
C361		
C371		
C381	Osc. circuit manual tuning	—
C391	Osc. circuit MW trimmer ...	—
C401	Osc. circuit LW trimmer ...	—
C411	1st IF trans. pri. tuning ...	—
C421	1st IF trans. sec. tuning ...	—
C431	2nd IF trans. pri. tuning ...	—
C441	2nd IF trans. sec. tuning ...	—

*Electrolytic. †Variable. ‡Pre-set.

OTHER COMPONENTS		Approx values (ohms)
L1	Aerial SW coupling coil	0·7
L2	Aerial MW coupling coil	24·0
L3	Aerial LW coupling coil	59·0
L4	Aerial SW tuning coil...	0·1
L5	Aerial MW tuning coil	2·25
L6	Aerial LW tuning coil	17·5
L7	Oscillator circuit MW auto tuning coils ...	3·5
L8		3·6
L9		5·5
L10	Oscillator circuit LW auto tuning coils ...	10·0
L11		10·0
L12	Osc. circuit SW tuning coil	0·1
L13	Osc. circuit MW manual tuning	3·0
L14	Osc. circuit LW manual tuning	7·5

OTHER COMPONENTS (*Continued*)		Approx values (ohms)
L15	Oscillator SW reaction	0·8
L16	Oscillator MW reaction	1·75
L17	1st IF trans.	Pri. ... 6·5
L18		Sec. ... 2·75
L19	2nd IF trans.	Pri. ... 4·0
L20		Sec. ... 4·0
L21	Speaker speech coil ...	4·0
L22	Hum neutralising coil	0·3
L23	Speaker field coil ...	1,600·0
T1	Output trans.	Pri. ... 370·0
		Sec. ... 0·5
T2	Mains trans.	Pri., total ... 30·0
		Heater sec. ... 0·1
		Rect. heat sec. 0·1
		HT sec., total 630·0
S1a, b, x to S8a, b, x	Aerial circuit wave-band switches ...	—
S8a, b, x to S8a, b, x	Aerial circ. auto station selector switches ...	—
S8a, b, x to S11a, b, x	Oscillator circuit wave-band switches ...	—
S12a, b, x to S16a, b, x	Osc. circ. auto station selector switches ...	—
S17–S19	Scale lamps switches...	—
S20	Mains switch, ganged R17	—

If the valve screens are removed to accommodate valve adaptors for current readings, it is advisable to slip the screen over the valve and to earth it while the reading is being taken.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 X65	244	1·25	65	2·5
	103	3·4		
V2 KTW61	244	6·1	65	1·9
V3 DH63	88	0·7	—	—
V4 KT61	230	38·0	244	7·2
V5 U50	334†	—	—	—

† Each anode, A.C.

CIRCUIT ALIGNMENT

IF Stages.—Switch set to MW, turn tone control fully clockwise, and gang condenser and volume control to maximum. Connect signal generator via a 0·1 μF condenser to grid (top cap) of **V1**, and chassis. Leave existing top cap connector in place. Feed in a 465 KC/S signal, and adjust **C44, C43, C42** and **C41** in turn for maximum output. Repeat these adjustments.

RF and Oscillator Stages.—Check that the pointer covers the 192m mark on the MW scale, when the gang is at minimum. If adjustment is necessary, slide the pointer up or down the drive wire. Connect signal generator, via a suitable dummy aerial, to **A** and **E** sockets.

SW.—Switch set to SW, tune to 50m on scale, and feed in a 50m (6 MC/S) signal. Adjust loops of **L4** and **L12** for maximum output. Repeat until no further improvement results. Check sensitivity at 16·8m (17·86 MC/S).

MW.—Switch set to MW, turn gang to minimum, and feed in a 192 m (1,562·5 KC/S) signal. Adjust **C39** for maximum output. Tune to 220m on scale, feed in a 220m (1,363·6 KC/S) signal, and adjust **C31** for maximum output. Tune to 530m on scale, feed in a 530m (566 KC/S) signal, and adjust cores of **L13** and **L5** for maximum output. Only slight adjustments should be necessary. Repeat the MW adjustments.

LW.—Switch set to LW, tune to 1,000m on scale, feed in a 1,000m (300 KC/S) signal, and adjust **C40**, then **C30**, for maximum output. Tune to 1,750m on scale, feed in a 1,750m (171·4 KC/S) signal, and adjust cores of **L14** and **L6** for maximum output. Repeat the 1,000m adjustments.

Finally, check adjustments of all press-button trimmers.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 229 V, using the 224-255 V tap on the mains transformer. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but there was no signal input.

Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.