

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating with a new HT battery reading 120V on load.

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 400V scale of a model 7 Universal Avometer, chassis being negative.

While the screen currents of **V1** and **V2** are being measured, a 0.1 μF non-inductive condenser should be connected directly to the screen (pins 6 and 7) of **V2** holder and chassis, and the present decoupling condenser **C13** should be left directly connected to pin 3 of **V1**.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 FC2A	115	0.5	45	0.75
V2 VP2B	115	2.5	45	0.5
V3 TDD2A	110	1.5	115	—
V4 PM22A	110	3.0	115	0.5

CONDENSERS		Values (μF)
C1	A2 series condenser ...	—
C2	Aerial MW "top" coupling ...	0.000006
C3	AVC line decoupling ...	0.1
C4	1st IF transformer tuning condensers ...	0.0001
C5	V1 osc. CG condenser ...	0.0001
C6	Osc. circuit SW1 tracker ...	0.0007
C7	Osc. circuit SW2 tracker ...	0.005
C8	Osc. circuit MW and LW tracker ...	0.0013
C9	Osc. circ. MW fixed trimmer ...	0.000657
C10	Osc. circ. LW fixed trimmer ...	0.00002
C11	HT circuit reservoir ...	0.00026
C12	V1, V2 SG's decoupling ...	1.0
C13	2nd IF transformer tuning condensers ...	0.1
C14	IF by-pass condensers ...	0.0001
C15	AF coupling to V3 triode ...	0.00015
C16	Coupling to V3 AVC diode ...	0.00015
C17	Part of fixed tone corrector ...	0.005
C18	Part of tone control ...	0.00002
C19	Fixed tone corrector ...	0.01
C20	Auto GB circuit by-pass ...	0.001
C21	Aerial circuit SW1 trimmer ...	20.0
C22	Aerial circuit MW trimmer ...	0.00003
C23	Aerial circuit tuning ...	0.00003
C24	Oscillator circuit tuning ...	0.000452
C25	Osc. circuit MW trimmer ...	0.000452
C26	Osc. circuit LW trimmer ...	0.00003
C27	Osc. circuit LW trimmer ...	0.00003
C28	Osc. circuit MW trimmer ...	0.00003
C29	Osc. circuit LW trimmer ...	0.00003

* Electrolytic. † Variable. ‡ Pre-set.

COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 osc. CG resistance ...	47,000
R2	SW1 and SW2 reaction damping ...	1,000
R3	V1, V2 SG's HT feed ...	47,000
R4	IF stopper ...	47,000
R5	V3 signal diode load ...	470,000
R6	Manual volume control ...	1,000,000
R7	AVC line decoupling ...	1,000,000
R8	V3 AVC diode load ...	1,000,000
R9	Part of fixed tone corrector ...	47,000
R10	V4 grid stopper ...	100,000
R11	Part of tone control ...	220,000
R12	V1, V2 fixed GB; V4 GB; and AVC delay pot. divider.	100
R13		330

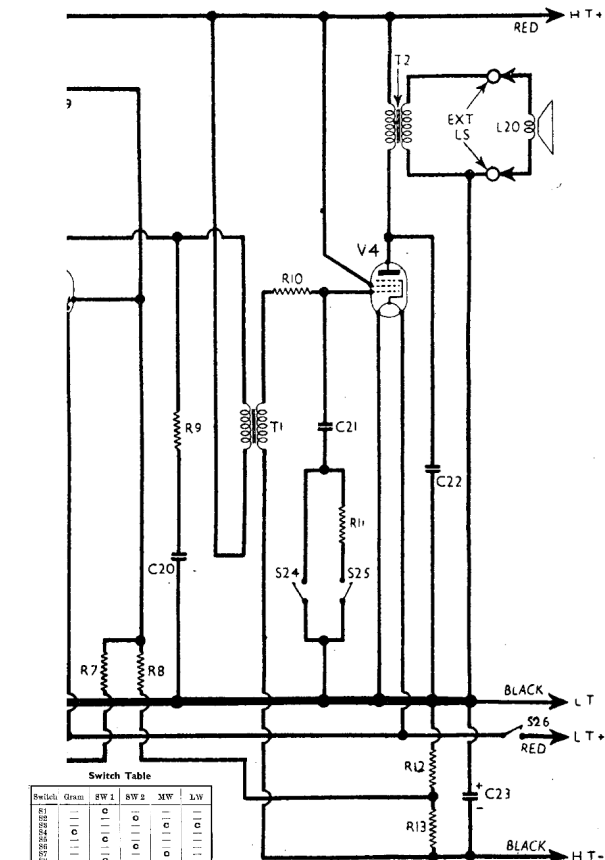
CIRCUIT ALIGNMENT

IF Stages.—Connect signal generator, via a 0.1 μF condenser, to control grid (top cap) of **V1** and chassis. Connect a 100,000 Ω resistance between the control grid and chassis. Switch set to LW, and turn gang and volume control to maximum. Feed in a 465 KC/S signal, and adjust the cores of **L17** and **L16** for maximum output. Remove the condenser and resistance.

The second IF transformer **L18**, **L19** is permanently adjusted at the works, and should not be interfered with.

RF and Oscillator Stages.—See that the scale is properly fitted, and that the bottom edge of the glass is horizontal. With the gang at maximum the pointer should coincide with the right-hand ends of the clear sections of the scales. Connect signal generator, via a suitable dummy aerial, to **A** and **E** sockets.

MW.—Switch set to MW, tune to 200 m on scale, feed in a 200 m (1,500 KC/S) signal, and adjust **C28**, then **C25**, for maximum output. There are no variable tracking condensers, but the settings should be checked at 550 m (546 KC/S).



Switch	SW 1	SW 2	MW	LW
SW1	1	1	1	1
SW2	1	1	1	1
SW3	1	1	1	1
SW4	1	1	1	1
SW5	1	1	1	1
SW6	1	1	1	1
SW7	1	1	1	1
SW8	1	1	1	1
SW9	1	1	1	1
SW10	1	1	1	1
SW11	1	1	1	1
SW12	1	1	1	1
SW13	1	1	1	1
SW14	1	1	1	1
SW15	1	1	1	1
SW16	1	1	1	1
SW17	1	1	1	1
SW18	1	1	1	1
SW19	1	1	1	1
SW20	1	1	1	1
SW21	1	1	1	1
SW22	1	1	1	1
SW23	1	1	1	1
SW24	1	1	1	1
SW25	1	1	1	1
SW26	1	1	1	1
SW27	1	1	1	1
SW28	1	1	1	1
SW29	1	1	1	1
SW30	1	1	1	1
SW31	1	1	1	1
SW32	1	1	1	1

LW.—Switch set to LW, tune to 1,200 m on scale, feed in a 1,200 (250 KC/S) signal, and adjust **C29** for maximum output. Check at 2,000 m (150 KC/S).

SW2.—There are no adjustments on this band, the circuits being fixed-tuned at the works.

SW1.—Switch set to band 1 (second position, the first being fully anti-clockwise), feed in a 14 m (21.4 MC/S) signal, and tune it in accurately. Adjust **C24** for maximum output, while rocking the gang for optimum results. Check at 50 m (6 MC/S).

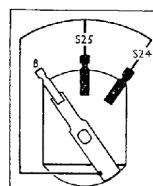
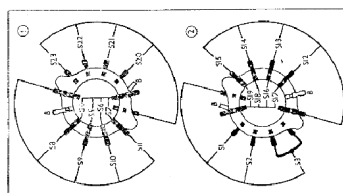


Diagram of the tone control switch unit. Its position is indicated in the under-chassis view above.



Diagrams of the wavelength switch units, drawn as seen when looking in the directions indicated in the under-chassis view.