

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	2.5	—	—
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		0.0001
C6	V1 osc. CG condenser ...	0.00007
C7	Osc. circuit SW1 tracker	0.005
C8	Osc. circuit SW2 tracker	0.0013
C9	Osc. circuit MW and LW tracker ...	0.000657
C10	Osc. circ. MW fixed trimmer ...	0.00002
C11	Osc. circ. LW fixed trimmer ...	0.00026
C12	HT circuit reservoir ...	1.0
C13	V1, V2 SG's decoupling ...	0.1
C14	2nd IF transformer tuning condensers ...	0.0001
C15		0.0001
C16	IF by-pass condensers ...	0.00015
C17		0.00015
C18	AF coupling to V3 triode	0.005
C19	Coupling to V3 AVC diode	0.00002
C20	Part of fixed tone corrector	0.01
C21	Part of tone control ...	0.001
C22	Fixed tone corrector ...	0.001
C23*	Auto GB circuit by-pass ...	20.0
C24†	Aerial circuit SW1 trimmer ...	0.00003
C25‡	Aerial circuit MW trimmer ...	0.00003
C26†	Aerial circuit tuning ...	0.000452
C27†	Oscillator circuit tuning ...	0.000452
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

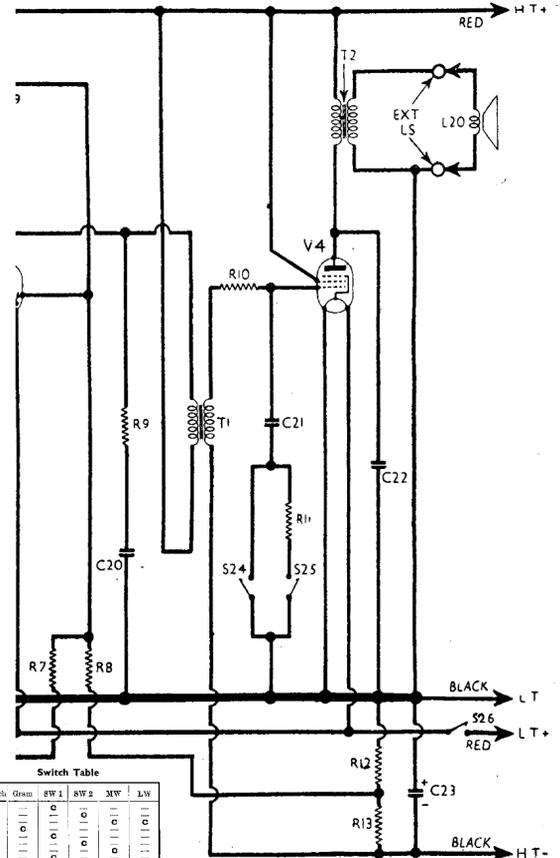
CIRCUIT ALIGNMENT

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 Table

Switch	Band	SW 1	MW	LW
S1	1	o	o	o
S2	1	o	o	o
S3	1	o	o	o
S4	1	o	o	o
S5	1	o	o	o
S6	1	o	o	o
S7	1	o	o	o
S8	1	o	o	o
S9	1	o	o	o
S10	1	o	o	o
S11	1	o	o	o
S12	1	o	o	o
S13	1	o	o	o
S14	1	o	o	o
S15	1	o	o	o
S16	1	o	o	o
S17	1	o	o	o
S18	1	o	o	o
S19	1	o	o	o
S20	1	o	o	o
S21	1	o	o	o
S22	1	o	o	o
S23	1	o	o	o
S24	1	o	o	o
S25	1	o	o	o

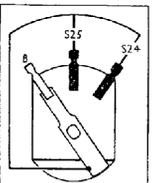
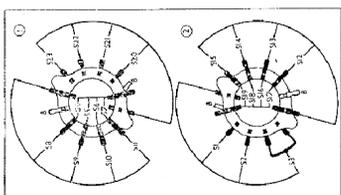


Diagram of the tone control switch unit. Its position is indicated in the under-chassis view above.



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

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).