

COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	A2 aerial series resistance ..	100,000
R2	V1 pentode CG decoupling ..	100,000
R3	V1 osc. CG resistance ..	20,000
R4	Osc. MW reaction damping ..	2,000
R5	V1 SG HT feed resistances ..	50,000
R6		50,000
R7	V3 signal diode load ..	500,000
R8	IF stopper ..	100,000
R9	Variable tone control ..	500,000
R10	Manual volume control ..	500,000
R11	V3 triode CG resistance ..	1,000,000
R12	V3 triode anode load ..	50,000
R13	AVC line decoupling ..	500,000
R14	V4 CG resistance ..	500,000
R15	V3 triode and V4 automatic GB resistances ..	300
R16		200

CONDENSERS		Values (μF)
C1	Band-pass coupling ..	0.01
C2	Aerial MW and LW coupling ..	0.000018
C3	Small coupling ..	Very low
C4	V1 osc. CG condenser ..	0.0001
C5	HT circuit RF by-pass ..	0.1
C6	V1 SG decoupling ..	0.1
C7	V2 CG decoupling ..	0.1
C8	IF by-pass ..	0.001
C9	Part of variable tone control ..	0.005
C10	AF coupling condensers to V3 triode ..	0.02
C11		0.02
C12	V3 triode to V4 AF coupling ..	0.02
C13*	Auto GB by-pass ..	50.0
C14	Fixed tone corrector ..	0.002
C15*	HT reservoir condenser ..	2.0
C16†	Band-pass pri. MW trimmer ..	—
C17†	Band-pass pri. LW trimmer ..	—
C18†	Band-pass primary tuning ..	0.0005
C19†	Band-pass sec. MW trimmer ..	—
C20†	Band-pass sec. LW trimmer ..	—
C21†	Band-pass secondary and Aerial SW tuning ..	0.0005
C22†	Oscillator circuit tuning ..	0.0005
C23†	Osc. circuit MW tracker ..	—
C24†	Osc. circuit LW tracker ..	—
C25†	Osc. circuit MW trimmer ..	—
C26†	Osc. circuit LW trimmer ..	—
C27†	1st IF trans. pri. tuning ..	—
C28†	1st IF trans. sec. tuning ..	—
C29†	2nd IF trans. pri. tuning ..	—
C30†	2nd IF trans. sec. tuning ..	—

* Electrolytic. † Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)
L1	High impedance aerial coils ..	13.5
L2		35.0
L3	Band-pass primary coils ..	3.5
L4		20.0
L5	Aerial SW coupling coil ..	0.1
L6	Aerial SW tuning coil ..	Very low
L7	Band-pass secondary coils ..	2.75
L8		20.0
L9	Osc. circuit SW tuning coil ..	Very low
L10	Osc. circuit MW tuning coil ..	4.5
L11	Osc. circuit LW tuning coil ..	14.0
L12	Oscillator SW reaction ..	0.1
L13	Oscillator MW reaction ..	3.8
L14	Oscillator LW reaction ..	6.6
L15	1st IF trans. { Pri. ..	70.0
L16		70.0
L17	2nd IF trans. { Pri. ..	70.0
L18		70.0
L19	Speaker speech coil ..	3.5
T1	Speaker input { Pri. ..	850.0
	trans. { Sec. ..	0.8
S1-S22	Waveband switches ..	—
S23	Scale lamp switch ..	—
S24	Internal speaker switch ..	—
S25	HT circuit switch } ganged	—
S26	LT circuit switch } R10	—

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 FC2A	128	0.5	35	0.9
	125	2.2	—	—
V2 VP2	128	2.2	128	0.6
V3 TDD2A	95	0.4	—	—
V4 PM22A	126	2.6	128	0.4

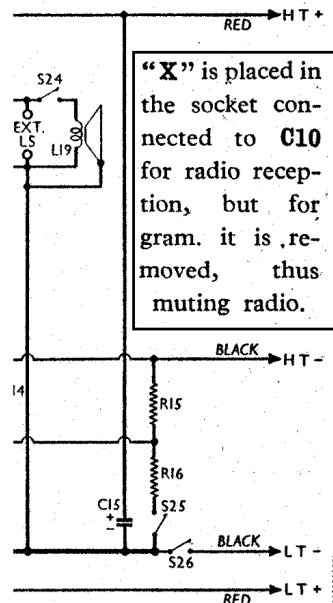
VALVE ANALYSIS

Valve voltages and currents given in the table above are those measured in our receiver when it was operating with a new HT battery reading 135 V 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 400 V scale of a model 7 Universal Avometer, chassis being negative.

GENERAL NOTES

Switches.—S1-S22 are the waveband switches, in three rotary units beneath the chassis. These are indicated in our under-chassis view, and shown in detail in the diagrams in col. 3, where the first two units are as seen from the front of the underside of the chassis, and the third from the rear. The table (col. 2) gives the switch positions for the three control settings, starting from fully anti-clockwise. A dash indicates open, and C closed.



S23 is the scale lamp switch, of the leaf type, which closes when the tuning knob is pushed in.

S24 is the internal speaker muting switch, associated with the external speaker sockets at the rear of the chassis. When the special plug is inserted, and rotated anti-clockwise, S24 opens and breaks the internal speaker speech coil circuit.

S25, S26 are the QMB HT and LT circuit switches, ganged with the volume control R10. They have one common tag, and their positions are indicated in the under-chassis view.

Coils.—The RF and oscillator coils L1-L14 are disposed in nine unscreened units beneath the chassis, and are identified in our under-chassis view. Six of the units are fitted with trimmers. The IF transformers L15, L16 and L17, L18 are in two screened units on the chassis deck, with their associated trimmers.

Scale Lamp.—This is an MES type, rated at 2.5 V (the current is not indicated). It is switched into circuit by pressing in the tuning knob and so closing S23.

TABLE AND DIAGRAMS OF SWITCH UNITS

Switch	LW	MW	SW
S ₁	—	0	0
S ₂	—	—	0
S ₃	—	—	0
S ₄	—	0	0
S ₅	—	0	—
S ₆	0	—	—
S ₇	—	—	0
S ₈	—	0	0
S ₉	—	—	0
S ₁₀	—	0	—
S ₁₁	0	—	—
S ₁₂	—	—	0
S ₁₃	—	0	—
S ₁₄	0	—	—
S ₁₅	—	—	0
S ₁₆	—	0	0
S ₁₇	—	0	0
S ₁₈	—	0	0
S ₁₉	—	—	0
S ₂₀	—	0	—
S ₂₁	0	—	—
S ₂₂	—	—	0

vided at the rear of the chassis for a low impedance (2-5 Ω) external speaker. A special plug is provided, and by rotating it after insertion, S₂₄ can be caused to mute the internal speaker.

Pick-up Connections.—There are three sockets and a plug (X) on a flying lead at the rear of the chassis, for connecting a pick-up and muting radio. The plug should be in the lowest socket for radio; when using a pick-up, pull out the plug, and plug the pick-up into the centre and bottom socket, with the screen plugged into the top socket. If the screen is joined to one of the two pick-up plugs, this plug should be in the centre socket, the top socket being left blank, or used for plug X, thus connecting R₈ to chassis. The bottom socket is connected to C₉, C₁₀; the other two are connected to chassis.

Condensers C₂, C₃.—These are two small condensers, formed by twisted insulated wires. C₂ is beneath the chassis, supported on number 3 switch unit, while C₃ is between the C₂₁ and C₂₂ units of the gang, above the chassis.

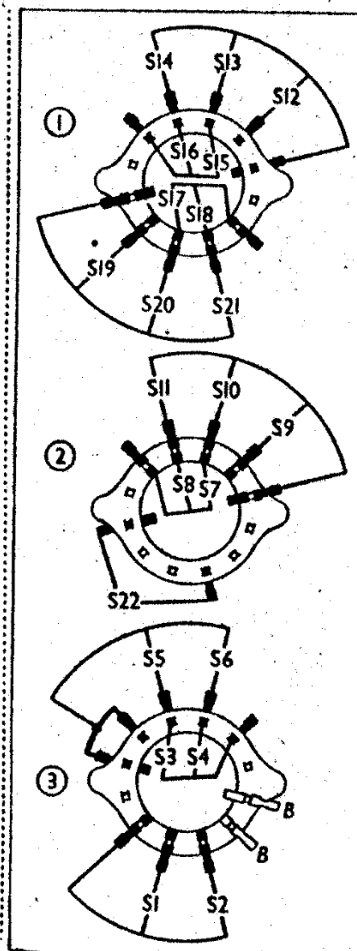
Trackers C₂₃, C₂₄.—These are in a dual unit beneath the chassis. The nut adjusts C₂₃, and the screw C₂₄.

Chassis Divergency.—C₈ is shown as 0.0005 μF by the makers, but was 0.001 μF in our chassis.

Batteries.—Recommended batteries are LT, Exide GFG4C, Fuller MYG, Oldham ZLG3; HT, Drydex H1131, Ever Ready Portable 53, G.E.C. BB371, Siemens Full o'Power 1314, Fuller S 854. The LT is a 2 V cell, and the HT a 135 V dry battery. GB is automatic.

Battery Leads and Voltages.—Black lead, spade tag, LT negative; red lead, spade tag, LT positive 2 V; black lead and plug, HT negative; red lead and plug, HT positive 135 V.

Switch diagrams, looking at the units in the directions of the arrows in the under-chassis view.



CIRCUIT ALIGNMENT

IF Stages.—Connect signal generator to control grid (top cap) of V₁ and chassis. Feed in a 464 KC/S signal, and adjust C₃₀, C₂₉, C₂₈, C₂₇ for maximum output.

RF and Oscillator Stages.—With gang at maximum, pointer should coincide with the right hand vertical line of each scale. Connect signal generator to A₁ and E sockets, via a suitable dummy aerial.

MW.—Switch set to MW, and tune to 214 m (black dot) on scale. Feed in a 214 m (1,400 KC/S) signal, and adjust C₂₅, then C₁₉ and C₁₆ for maximum output. Feed in a 500 m (600 KC/S) signal, tune it in, and adjust C₂₃ (nut) for maximum output, while rocking the gang for optimum results. Re-check the settings of C₂₅, C₁₉ and C₁₆ at 214 m.

LW.—Switch set to LW, and tune to 1,000 m on scale. Feed in a 1,000 m (306 KC/S) signal, and adjust C₂₆, then C₂₀ and C₁₇, for maximum output. Feed in a 1,714 m (175 KC/S) signal, tune it in, and adjust C₂₄ (screw) for maximum output, while rocking the gang for optimum results. Re-check the settings of C₂₆, C₂₀ and C₁₇ at 1,000 m. There are no SW alignment adjustments.