

L1 and C3 form a 342 m rejector circuit on the LW band.

COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 SG HT feed ..	25,000
R2	V1 hexode CG resistance ..	500,000
R3	V1 hexode CG decoupling resistance ..	500,000
R4	V1 fixed GB resistance ..	200
R5	V1 osc. CG resistance ..	50,000
R6	Osc. circuit SW stabiliser ..	75
R7	V1 osc. anode HT feed ..	40,000
R8	V2 CG decoupling resistance ..	500,000
R9	V2 fixed GB resistance ..	200
R10	IF stopper ..	70,000
R11	V3 signal diode load ..	300,000
R12	Manual volume control ..	500,000
R13	V3 AVC diode load ..	500,000
R14	AVC delay voltage and ..	140
R15	V4 GB resistances ..	160
R16	V4 anode circuit stabiliser ..	150

CONDENSERS		Values (μF)
C1	Aerial series condenser ..	0.0004
C2	Earth blocking condenser ..	0.02
C3	Aerial circuit 342 m rejector tuning ..	0.000012
C4	V1 SG decoupling ..	0.1
C5	V1 hexode CG condenser ..	0.0001
C6	V1 hexode CG decoupling ..	0.02
C7	V1 cathode by-pass ..	0.1
C8	V1 osc. CG condenser ..	0.0002
C9	Osc. circuit SW fixed tracker ..	0.003
C10	Osc. circuit MW fixed tracker ..	0.0003
C11	Osc. circuit LW fixed trimmer ..	0.00006
C12	V1 osc. anode coupling ..	0.0001
C13	V2 CG decoupling ..	0.02
C14	V2 cathode by-pass ..	0.1
C15	IF by-pass ..	0.0001
C16	AF coupling to V4 ..	0.02
C17	PU isolating condenser ..	0.02
C18	Coupling to V3 AVC diode ..	0.0001
C19	V4 CG decoupling ..	0.1
C20*	V4 cathode by-pass ..	50.0
C21	V3, V4 cathodes RF by-pass ..	0.0001
C22	V4 anode tone corrector ..	0.006
C23*	HT smoothing ..	8.0
C24*	HT smoothing ..	16.0
C25	Mains RF filter condensers ..	0.006
C26	Mains RF filter condensers ..	0.02
C27	V1 heater RF by-pass ..	0.01
C28†	Aerial circuit SW trimmer ..	—
C29†	Aerial circuit MW trimmer ..	—
C30†	Aerial circuit LW trimmer ..	—
C31†	Aerial circuit tuning ..	—
C32†	Osc. circuit SW trimmer ..	—
C33†	Osc. circuit MW trimmer ..	—
C34†	Osc. circuit LW trimmer ..	—
C35†	Osc. circuit MW tracker ..	0.00022
C36†	Osc. circuit LW tracker ..	0.00022
C37†	Osc. circuit tuning ..	—
C38†	1st IF trans. pri. tuning ..	—
C39†	1st IF trans. sec. tuning ..	—
C40†	2nd IF trans. pri. tuning ..	—
C41†	2nd IF trans. sec. tuning ..	—
C42†	Variable tone control ..	0.0005

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial circuit 342 m rejector coil ..	6.0
L2	Aerial circuit SW coupling coil ..	0.3
L3	Aerial circuit SW tuning coil ..	0.05
L4	Aerial circuit MW coupling coil ..	14.5
L5	Aerial circuit MW tuning coil ..	3.5
L6	Aerial circuit LW coupling coil ..	75.0
L7	Aerial circuit LW tuning coil ..	16.5
L8	Osc. circuit SW grid reaction ..	0.5
L9	Osc. circuit SW tuning coil ..	0.05
L10	Osc. circuit MW grid reaction ..	5.25
L11	Osc. circuit MW tuning coil ..	2.0
L12	Osc. circuit LW grid reaction ..	5.75
L13	Osc. circuit LW tuning coil ..	5.0
L14	1st IF trans. Pri. ..	8.0
L15	1st IF trans. Sec. ..	8.0
L16	2nd IF trans. Pri. ..	8.0
L17	2nd IF trans. Sec., total ..	8.0
L18	Speaker speech coil ..	1.7
L19	HT smoothing choke ..	400.0
L20	Mains filter chokes ..	2.0
L21	Mains filter chokes ..	2.0
Tr	Speaker input trans. Pri. ..	650.0
	Speaker input trans. Sec. ..	0.03
S1-S18	Waveband switches ..	—
S19	Mains switch, ganged R12 ..	—
F1	Mains circuit fuse ..	—

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on AC mains of 232 V. 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.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 TH2320	210	3.0	75	5.4
	Oscillator	75		
V2 VP13C	210	8.9	210	3.4
V3 10Dr	—	—	—	—
V4 Pen36C	180	41.0	210	6.4
V5 1D5†	—	—	—	—

† Cathode to chassis, 240 V DC.

GENERAL NOTES

Switches.—S1-S18 are the waveband switches, ganged in two rotary units beneath the chassis. The units are indicated in our under-chassis view and are shown in detail in the diagrams on p. IV, as seen looking in the directions of the arrows in the under-chassis view.

The table (p. IV) gives the switch positions for the three control settings, starting from fully clockwise. A dash indicates *open* and *C* closed.

S19 is the QMB mains switch, ganged with the volume control R12.

Coils.—All the RF and oscillator coils are in pairs on six tubular or wood formers in two screened compartments beneath the chassis, with their parallel pre-set trimmers mounted above them. There is one trimmer to each pair of coils, which are indicated in our under-chassis view. In the case of the SW band the two coils on each former are interwound but in each case the tuned coil is of thick bare copper wire.

The rejector circuit coil L1 is iron-cored and, tuned by C3, is included to prevent break-through on LW from the London Regional transmitter.

L1 is provided with a core adjustment for accurate setting, which is indicated in our plan chassis view.

L20 and L21 are on separate formers beneath the chassis.

The IF transformers, L14, L15 and L16, L17, are in two screened units on the chassis deck with their associated trimmers.

Scale Lamp.—The tuning scale is flood-lit by a high voltage lamp with a large bulb and an MES base which is fixed to the inside of the front of the cabinet. It is rated at 200-250 V 15 W, and is connected across the mains input.

Fuse F1.—This is held in clips mounted on the L21 former, beneath the chassis. It is a 1 in. glass tubular type, rated at 1.0 A.

External Speaker.—Two sockets are provided on a panel at the rear of the

* Electrolytic. † Variable. ‡ Pre-set.

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cabinet for a high impedance (7,000-10,000 Ω) external speaker. The sockets are not isolated.

Condensers C23, C24.—These are two dry electrolytics in a single carton beneath the chassis, having a common negative (black) lead. The yellow lead is the positive of C23 (8 μ F) and the red the positive of C24 (16 μ F).

Condenser C9.—This consists actually of two moulded bakelite condensers connected in parallel. The capacity (6.003 μ F) is the total capacity of the pair and is marked only on one of them.

CIRCUIT ALIGNMENT

IF Stages.—Connect across C37 a 0.01 μ F swamp condenser and turn volume control to maximum. Remove top cap from V1 and connect one lead of the signal generator in its place, the other lead being connected to chassis.

Feed in a 465KC/S signal and adjust C41, C40, C39 and C38 in that order for maximum output, keeping the generator output as low as possible consistent with an adequate reading on the meter. Repeat the process until the maximum peak is obtained on the meter. Remove swamp condenser and replace cap on V1.

RF and Oscillator Stages.—Tune to 220 m on the scale, feed in a 220 m signal to A and E sockets via a 0.0002 μ F condenser, with the receiver switched to MW, and adjust C33 and C29 for maximum output. Next tune to 500 m on the scale, feeding in a 500 m signal and adjust MW tracker C35 for maximum output whilst rocking the gang. Return to 220 m and adjust C33 and C29 accurately.

Switch receiver to LW, tune to 1,200 m on scale, feed in a 1,200 m signal and adjust C34 and C30 for maximum output. Tune to 1,875 m and adjust LW tracker C36 whilst rocking the gang, finally returning to 1,200 m and accurately adjusting C34 and C30

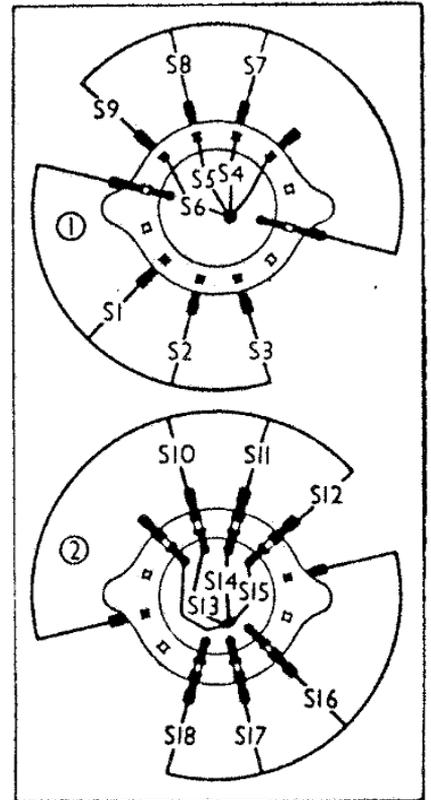
Switch on SW, tune to 19 m on scale,

feed in a 19 m signal and accurately adjust C32 and C28.

Whilst alignment of any stage is carried out the volume control must be kept at maximum and the input from the signal generator progressively reduced as the circuits come into line, so that the output is no greater than is necessary to give an adequate reading on the meter, in order to avoid overloading in the receiver.

SWITCH DIAGRAMS AND TABLE

Diagrams of the two switch units, looking in the directions of the arrows in the under-chassis view.



Switch	SW	MW	LW
S1	C	—	—
S2	—	C	—
S3	—	C	C
S4	—	C	C
S5	C	—	C
S6	C	C	—
S7	C	C	—
S8	—	C	—
S9	—	—	C
S10	C	—	—
S11	—	C	—
S12	—	C	C
S13	—	C	C
S14	C	C	C
S15	C	C	—
S16	C	—	—
S17	—	C	—
S18	—	—	C