

Circuit diagram of the Mullard MB5 battery receiver. The MB5E has an identical circuit, but L1, C4, C21 then becomes an Athlone and not a Droitwich, retractor.

COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	A2 series resistance	250,000
R2	Aerial pot. and V1 gain control	50,000
R3	V1 fixed GB	8,000
R4	V1 CG resistance	1,000,000
R5	V1 SG HT feed	100,000
R6	V1 anode HT feed	10,000
R7	V1 anode stabiliser	200
R8	V2 reaction stabiliser	200
R9	V2 grid leak	2,000,000
R10	V2 SG HT feed	250,000
R11	V2 anode load resistance	100,000
R12	V3 CG resistance	500,000
R13	V3 CG RF stopper	200,000
R14	Automatic GB potential divider resistances	1,000
R15		320

VALVE ANALYSIS

Valve voltages and currents given in the table (col. 2) are those measured in our receiver when it was operating with an HT battery reading 120 V, on load. The receiver was tuned to the lowest wavelength on the medium band, the volume control was at maximum and the reaction control at minimum. There was no signal input.

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

In our chassis V3 was grade "A."

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 VP2B	90	1.8	48	0.6
V2 SP2	40	0.6	45	0.2
V3 PM22D	104	3.4	110	0.8

GENERAL NOTES

Switches.—S1 is the Droitwich retractor switch, and S2-S5 the waveband switches, ganged in two rotary units beneath the chassis. These are indicated in our under-chassis view, and shown in detail in the diagrams on page 14, where unit 1 is that nearest to the switch knob, and unit 2 that nearest to the chassis.

The table (page 14) gives the switch positions for the three control settings in the case of the MB5 model, starting from fully anti-clockwise. A dash indicates open, and C, closed.

In the MB5E, the first position (fully anti-clockwise) is for the MW band, the second is for the MW band with an Athlone retractor, and the third for the LW band. S1 thus closes in the first and third positions, and opens in the second, and the other switches are transposed to the different waveband positions of the control.

S6, S7 are the battery circuit switches, ganged with the gain control R2, and shown in our general view of the receiver assembly.

Coils.—L1 is beneath the chassis. L2-L5 and L6-L9 are in two screened units above the chassis, each containing one trimmer at the tops of the units. L10 is in a large flat unit, beneath the chassis.

Trimmer C21.—The retractor trimmer C21 is mounted on the chassis deck.

External Speaker.—No provision is made for this, but a low resistance (40)

type could be connected across the two outer tags on the internal speaker connection panel.

Trimmer C5.—This is shown as a variable wire trimmer in the makers' information, but in our chassis is a 20μF fixed trimmer.

Batteries.—LT, 2V accumulator cell; HT, 120 V dry battery.

Battery Leads and Voltages.—Lead with black spade tag, LT negative; red spade tag, LT positive 2 V; green plug, HT negative; yellow plug, HT positive 2, +120 V; blue plug, HT positive 1, according to letter coding of V3; A, +120V (plug into side of yellow plug); B, +110 V.

CIRCUIT ALIGNMENT

Fit the usual Mullard 15 degree jig to the gang condenser, and turn gang until it presses against the jig. Connect signal generator to A1 and E sockets, switch set to MW, and turn reaction control to minimum and gain control to maximum. Feed in a 1,430 KC/S (210 m) signal, and adjust C22 and C25 for maximum output.

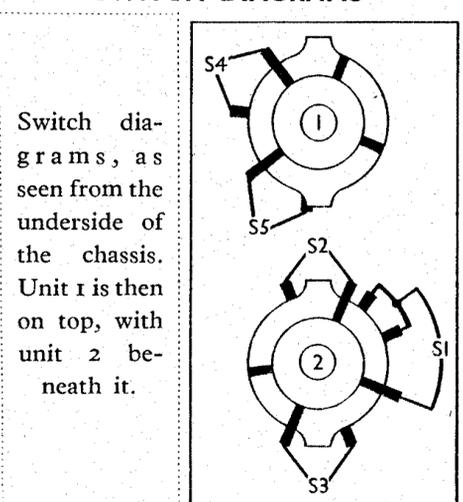
Switch set to LW (Droitwich retractor position), feed in a 200 KC/S (1,500 m) signal, and adjust C21 for minimum output.

SWITCH TABLE

Switch	MW	LW	LW(D)*
S1	C	C	—
S2	C	—	—
S3	C	—	—
S4	—	—	—
S5	C	—	—

* LW plus Droitwich filter.

SWITCH DIAGRAMS



Switch diagrams, as seen from the underside of the chassis. Unit 1 is then on top, with unit 2 beneath it.

CONDENSERS		Values (μF)
C1	A1 series condenser	0.002
C2	Auto GB RF by-pass	0.1
C3	Aerial LW coupling shunt	0.0001
C4	Droitwich retractor fixed trimmer	0.000106
C5	Aerial circuit LW trimmer	0.00002
C6	V1 CG condenser	0.0001
C7	V1 CG decoupling	0.1
C8	V1 SG decoupling	0.1
C9	V1 anode decoupling	0.1
C10	HT circuit RF by-pass	0.05
C11	HT isolating condenser	0.05
C12	V2 CG condenser	0.00002
C13	V2 CG and LT RF by-pass	0.1
C14	V2 SG decoupling	0.1
C15	V2 anode circuit RF by-pass	0.0001
C16	condensers	0.00025
C17	V2 to V3 AF coupling	0.01
C18	Fixed tone corrector	0.002
C19*	HT reservoir condenser	8.0
C20*	Auto GB by-pass	50.0
C21†	Droitwich retractor tuning	0.00003
C22†	Aerial circuit MW trimmer	0.00003
C23†	Aerial circuit tuning	0.00049
C24†	Reaction control	0.0002
C25†	V1 anode MW trimmer	0.00003
C26†	V1 anode circuit tuning	0.00049

* Electrolytic. † Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Droitwich retractor coil	38.0
L2	Aerial MW coupling coil	26.0
L3	Aerial LW coupling coil	100.0
L4	Aerial MW tuning coil	4.5
L5	Aerial LW tuning coil	40.0
L6	Reaction coils	6.0
L7		31.0
L8	V1 anode MW tuning coil (total)	4.5
L9	V1 anode LW tuning coil	40.0
L10	V2 anode RF choke	340.0
L11	Speaker speech coil	4.0
T1	Output trans. { Pri. Sec.}	1,500.0 0.3
S1	Droitwich retractor switch	—
S2-S5	Waveband switches	—
S6	HT circuit switch	—
S7	LT circuit switch	—