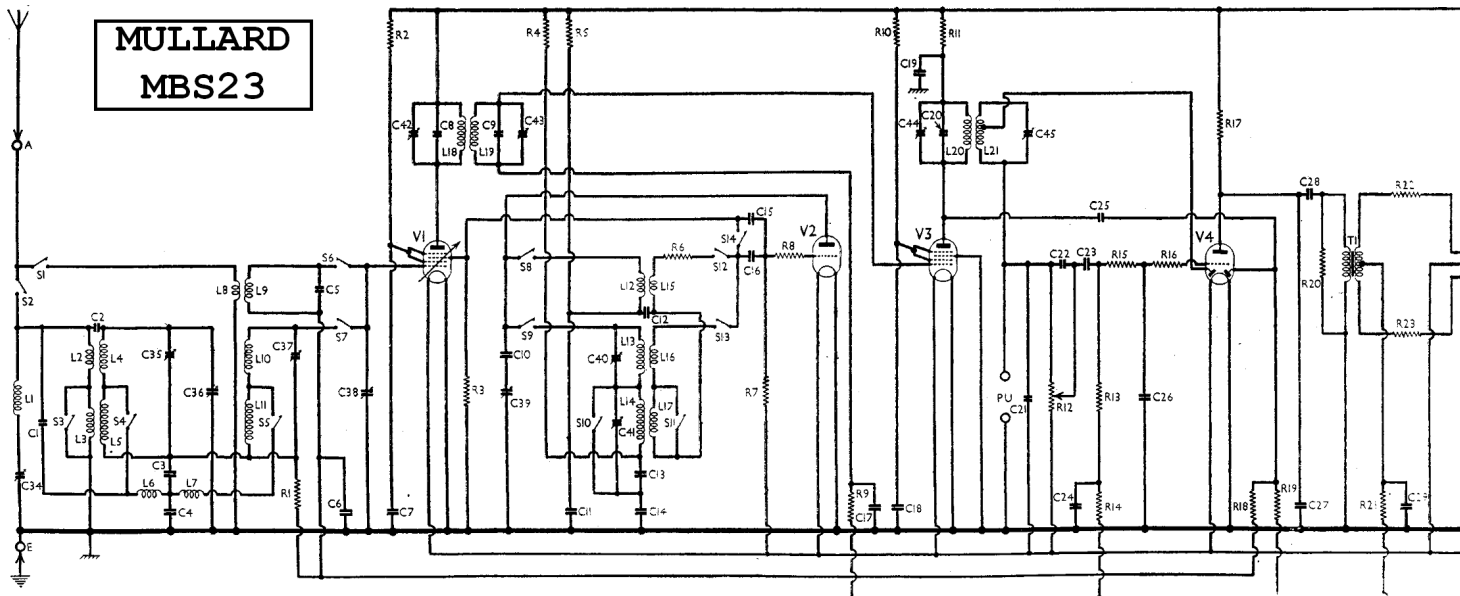


MULLARD MBS23

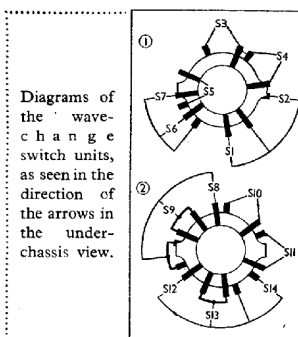


RESISTANCES		Values (ohms)
R1	V1 CG decoupling ...	100,000
R2	V1 SG HT feed resistance	200,000
R3	V1 injector grid resistance	800,000
R4	V2 anode MW and LW HT feed ...	50,000
R5	V2 anode SW HT feed ...	20,000
R6	Osc. reaction SW damping	16
R7	V2 CG resistance	16,000
R8	V2 CG stabiliser ...	50
R9	V3 CG decoupling ...	1,000,000
R10	V3 SG HT feed ...	160,000
R11	V3 anode HT feed ...	5,000
R12	Manual volume control; V4 signal diode load ...	500,000
R13	V4 triode CG resistance ...	1,000,000
R14	V4 triode CG decoupling ...	200,000
R15	IF filter resistance ...	200,000
R16	V4 triode grid stopper ...	200,000
R17	V4 triode anode HT feed ...	50,000
R18	AVC line decoupling ...	1,000,000
R19	V4 AVC diode load ...	1,000,000
R20	V1 primary shunt ...	32,000
R21	V5 CG's decoupling ...	100,000
R22	V5 CG's stopper resistances ...	10,000
R23	V1 fixed; V2, V3 triode and V4 auto GB resistances...	50
R24		10,000
R25		1,000

OTHER COMPONENTS		Approx values (ohms)
L1	Aerial IF filter coil ...	100-0
L2	Aerial MW coupling coil ...	25-0
L3	Aerial LW coupling coil ...	95-0
L4	Band-pass primary coils ...	4-0
L5		38-0
L6		0-7
L7	Band-pass coupling coils ...	0-7
L8	Aerial SW coupling coil ...	2-0
L9	Aerial SW tuning coil ...	0-1
L10	Band-pass secondary coils ...	4-0
L11		38-0
L12	Osc. circuit SW tuning coil...	0-2
L13	Osc. circuit MW tuning coil	10-0
L14	Osc. circuit LW tuning coil	28-0
L15	Oscillator SW reaction ...	0-1
L16	Oscillator MW reaction ...	4-0
L17	Oscillator LW reaction ...	8-0
L18	1st IF trans. (Pri. ...	115-0
L19	(Sec. ...	115-0
L20	2nd IF trans. (Pri. ...	115-0
L21	(Sec., total ...	115-0
L22	Speaker speech coil ...	3-5
T1	Intervalve trans. (Pri., total	600-0
	(Sec., total ...	3,000-0
T2	Output trans. (Pri. total, ...	2,800-0
	(Sec. ...	0-7
S1-S14	Waveband switches ...	—
S15	LT circuit switch/ganged	—
S16	HT circuit switch/R12	—

SWITCH TABLE AND DIAGRAMS

Switch	SW	MW	LW
S1	—	—	—
S2	—	—	—
S3	—	—	—
S4	—	—	—
S5	—	—	—
S6	—	—	—
S7	—	—	—
S8	—	—	—
S9	—	—	—
S10	—	—	—
S11	—	—	—
S12	—	—	—
S13	—	—	—
S14	—	—	—



Diagrams of the wave change switch units, as seen in the direction of the arrows in the under-chassis view.

CONDENSERS		Values (μF)
C1	Image suppressor ...	0-00004
C2	MW coupling condenser ...	0-000016
C3	Band pass coupling condenser	0-016
C4	densers ...	0-025
C5	Aerial SW trimmer ...	0-000027
C6	V1 CG SW decoupling ...	0-05
C7	V1 SG decoupling ...	0-05
C8	1st IF transformer fixed trimmer condensers	0-000064
C9		0-000064
C10	HT isolating condenser ...	0-05
C11	Osc. circuit SW tracker ...	0-0027
C12	Reaction coupling condenser	0-01
C13	Osc. circuit LW tracker ...	0-000725
C14	Osc. circuit MW tracker ...	0-001615
C15	V1 to V2 CG's SW coupling	0-0005
C16	V2 CG condenser ...	0-0001
C17	V3 CG decoupling ...	0-05
C18	V3 SG decoupling ...	0-05
C19	V3 anode decoupling ...	0-01
C20	2nd IF trans. pri. trimmer	0-00005
C21	IF by-pass ...	0-00005
C22	Tone compensator ...	0-00005

CONDENSERS (Continued)		Values (μF)
C23	AF coupling to V4 triode...	0-01
C24	V4 triode CG decoupling ...	0-05
C25	Coupling to V4 AVC diode...	0-00001
C26		0-0001
C27	IF by-pass condensers ...	0-0005
C28	AF coupling to T1 ...	0-2
C29	V5 CG's decoupling...	0-1
C30		0-001
C31	Fixed tone correctors	0-001
C32*	HT reservoir condenser ...	8-0
C33*	Auto GB by-pass ...	50-0
C34†	Aerial IF filter tuning	0-0001
C35†	Band-pass pri. MW trimmer ...	0-00003
C36†	Band-pass pri. tuning	0-00049
C37†	Band-pass sec. MW trimmer	0-00003
C38†	Band-pass sec. and aerial SW tuning ...	0-00049
C39†	Oscillator circuit tuning	0-00049
C40†	Osc. circuit MW trimmer...	0-00003
C41†	Osc. circuit LW trimmer...	0-00003
C42†	1st IF trans. pri. tuning ...	0-00003
C43†	1st IF trans. sec. tuning ...	0-00003
C44†	2nd IF trans. pri. tuning ...	0-00003
C45†	2nd IF trans. sec. tuning ...	0-0001

VALVE ANALYSIS

Valve voltages and currents given in the table below 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, 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 VP2B	110	0-45	30	0-3
V2 PM2HL	47	1-1	34	0-45
V3 VP2B	101	1-3	30	0-45
V4 TDD2A	72	0-7	—	—
V5 QP22B	107*	2-1*	110	0-6

* Each anode.

CIRCUIT ALIGNMENT

IF Stages.—Switch set to LW, turn gang to minimum and volume control to maximum. Connect signal generator to control grid (top cap) of V3 (via a 0-032 μF condenser) and chassis, and feed in a 128 KC/S signal. Adjust C44 and C45 for maximum output.

Connect a 25,000 Ω resistor and 0-1 μF condenser in series between anode of V1 and chassis, and connect signal generator, via the 0-032 μF condenser to control grid (top cap) of V1 and chassis. Feed in a 128 KC/S signal, and adjust C43 for maximum output. Transfer series resistance and condenser from anode circuit of V1, and connect them from control grid of V3 to chassis. Adjust C42 for maximum output, then remove damping circuit.

RF and Oscillator Stages.—A Mullard 15 deg. jig must be used to obtain the correct gang setting for trimming at the lower ends of the wavebands. The volume control should be at maximum, and the signal generator must be connected via a standard dummy aerial to A and E sockets.

MW.—Fit 15 deg. jig, switch set to MW, and turn gang until it bears on jig. Connect a 25,000 Ω resistor and 0-1 μF condenser in series between anode of V1 and chassis. Feed in a 1,442 KC/S (208 m) signal, and adjust C40, C37, C35, then C37 and C40 again, for maximum output. ✓

LW.—Switch set to LW, and set gang to jig. Keep the damping circuit connected to V1, feed in a 395 KC/S (760 m) signal, and adjust C41 for maximum output. Remove damping circuit.

IF Filter.—Switch set to LW, turn gang and volume control to maximum, feed in a strong 128 KC/S signal, and adjust C34 for minimum output.