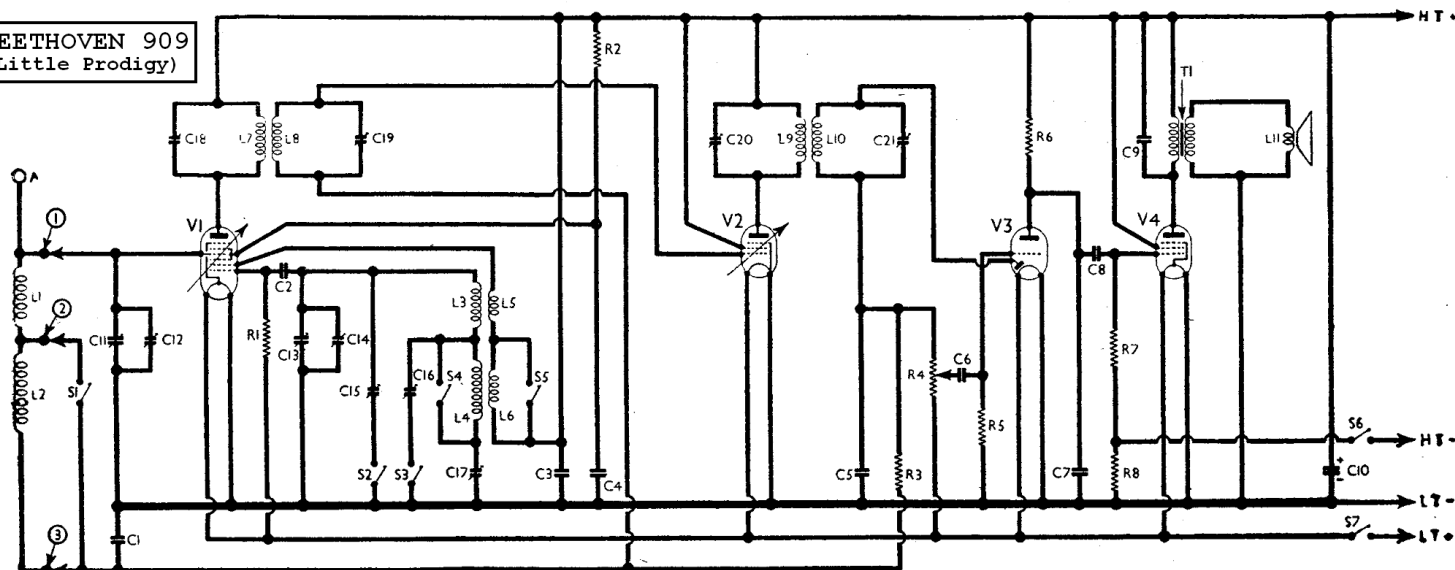


BEETHOVEN 909 (Little Prodigy)



RESISTANCES			Values (ohms)
R1	V1 osc. CG resistance	...	250,000
R2	V1 SG HT feed	...	35,000
R3	AVC line decoupling	...	2,000,000
R4	Manual volume control; V3 signal diode load	...	500,000
R5	V3 triode CG resistance	...	2,000,000
R6	V3 triode anode load	...	500,000
R7	V4 CG resistance	...	2,000,000
R8	V4 auto GB resistance	...	950

CONDENSERS			Values (μF)
C1	AVC line decoupling	...	0.1
C2	V1 osc. CG condenser	...	0.00015
C3	HT circuit RF by-pass	...	0.1
C4	V1 SG decoupling	...	0.1
C5	IF by-pass	...	0.00015
C6	AF coupling to V3 triode	...	0.01
C7	IF by-pass	...	0.00015
C8	V3 triode to V4 AF coupling	...	0.0025
C9	Fixed tone corrector	...	0.0025
C10*	HT reservoir condenser	...	4.0
C11†	Frame aerial tuning	...	—
C12†	Frame aerial MW trimmer	...	—
C13†	Oscillator circuit tuning	...	—
C14†	Osc. circuit MW trimmer	...	—
C15†	Osc. circuit LW trimmer	...	0.00004
C16†	Osc. circuit MW tracker	...	0.00035
C17†	Osc. circuit LW tracker	...	0.00025
C18†	1st IF trans. pri. tuning	...	—
C19†	1st IF trans. sec. tuning	...	—
C20†	2nd IF trans. pri. tuning	...	—
C21†	2nd IF trans. sec. tuning	...	—

* Electrolytic. † Variable. ‡ Pre-set

OTHER COMPONENTS			Approx Values (ohms)
L1	Frame aerial windings	...	1.5
L2	Osc. circuit MW tuning coil	...	16.0
L3	Osc. circuit LW tuning coil	...	5.0
L4	Oscillator MW reaction	...	9.0
L5	Oscillator LW reaction	...	4.25
L6	Oscillator LW reaction	...	7.5
L7	1st IF trans. Pri.	...	10.0
L8	1st IF trans. Sec.	...	10.0
L9	2nd IF trans. Pri.	...	10.0
L10	2nd IF trans. Sec.	...	10.0
L11	Speaker speech coil	...	2.5
T1	Output trans. Pri.	...	240.0
S1-S5	Waveband switches	...	0.2
S6	HT circuit switch	ganged	—
S7	LT circuit switch	R4	—

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating with a new 90V HT battery reading 92V on load. The receiver was tuned to the lowest wavelength on the MW band and the volume control was at maximum. The three frame aerial leads were joined together.

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 DK1	82	1.2	50	0.9
V2 DF1	82	0.6	82	0.33
V3 DAC1	19	0.08	—	—
V4 DL2	80	4.1	82	0.8

CIRCUIT ALIGNMENT

IF Stages.—Connect signal generator, via a 0.1μF condenser, to control grid (top cap) of V1, and to chassis. Switch set to MW, feed in a 450.5 KC/S signal, and adjust C21, C20, C19 and C18 in turn for maximum output.

RF and Oscillator Stages.—With gang at minimum, pointer should cover 200m mark on scale. Couple signal generator to external A socket.

Switch set to MW and turn gang to minimum. Feed in a 200 m (1,500 KC/S) signal and adjust C14 for maximum output. Switch set to LW, and with gang still at minimum, feed in an 895 m (335 KC/S) signal and adjust C15 for maximum output.

Turn gang to maximum, and with set switched to LW, feed in a 2,040 m (147 KC/S) signal and adjust C17 for maximum output. Re-adjust C15 at 895 m if necessary. Switch set to MW, and with gang at maximum, feed in a 550 m (543 KC/S) signal and adjust C16 for maximum output. Re-adjust C14 at 200 m if necessary.

Remove signal generator, and tune in a weak station near 200 m. Adjust C12 for maximum output. Next tune in a LW station at about 1,700 m and re-adjust C17, while rocking the gang, for maximum output. Finally tune in a MW station at about 450 m, and re-adjust C16, while rocking the gang, for maximum output.

SWITCH TABLE

Switch	MW	LW
S1	—	—
S2	—	—
S3	—	—
S4	—	—
S5	—	—

Diagram of the S1-S5 unit, as seen looking from the front of the chassis, after removal of the speaker

