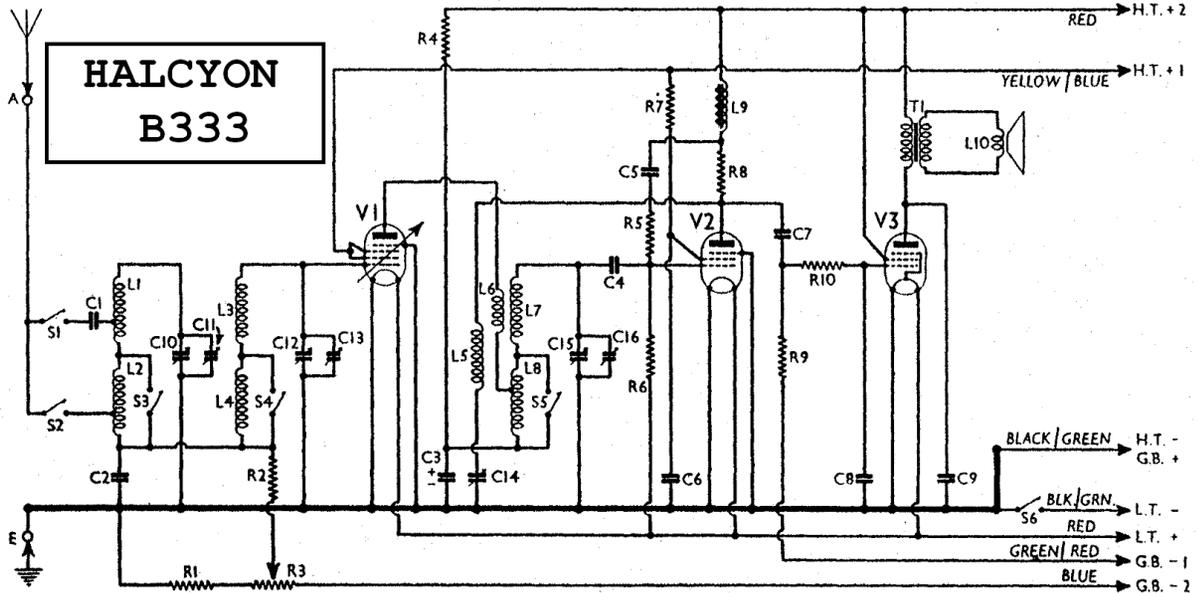


Circuit diagram of the Halcyon B333 3-valve battery receiver. V1 is a hexode, operating as a pentode. Note the choke capacity coupled A.F. stage and the feed-back circuit of V2.



COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 fixed G.B. resistance	10,000
R2	V1 C.G. decoupling	10,000
R3	V1 gain control	100,000
R4	V1 anode H.T. feed	10,000
R5	Feed-back resistance	10,000,000
R6	V2 grid leak	1,000,000
R7	V2 S.G. H.T. feed	33,000
R8	V2 anode R.F. stopper	1,000
R9	V3 C.G. resistance	500,000
R10	V3 C.G. R.F. stopper	100,000

CONDENSERS		Values (μF)
C1	Aerial M.W. series condenser	0.0003
C2	Band-pass bottom coupling	0.025
C3*	V1 anode decoupling	2.0
C4	V2 C.G. condenser	0.0001
C5	Feed-back condenser	0.0005
C6	V2 S.G. decoupling	0.1
C7	V2 to V3 A.F. coupling	0.01
C8	V3 C.G. R.F. by-pass	0.0003
C9	Fixed tone corrector	0.002
C10†	Band-pass pri. tuning	—
C11†	Band-pass pri. M.W. trimmer	—
C12†	Band-pass sec. tuning	—
C13†	Band-pass sec. M.W. trimmer	—
C14†	Reaction control	0.0005
C15†	V1 anode circuit tuning	—
C16†	V1 anode M.W. trimmer	—

OTHER COMPONENTS		Approx. Values (ohms)
L1	Band-pass primary coils	2.75
L2		14.0
L3	Band-pass secondary coils	2.5
L4		14.75
L5	Reaction coil	7.0
L6	V1 anode circuit coupling coil	7.8
L7	V1 anode M.W. tuning coil	2.5
L8	V1 anode L.W. tuning coil	32.0
L9	V2 anode A.F. coupling choke	4,000.0
L10	Speaker speech coil	4.5
T1	Speaker input trans. { Pri... Sec...	700.0 0.15
S1-S5	Waveband switches	—
S6	L.T. circuit switch, ganged R3	—

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating with an H.T. battery reading 114 V on the H.T. section, on load. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but the reaction control was at minimum. There was no signal input.

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

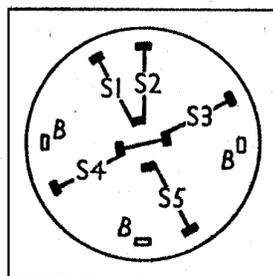
Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 VP2B ..	70	4.0	72	2.0
V2 SP2	105	0.8	60	0.3
V3 PM22A	110	5.5	114	0.9

GENERAL NOTES

Switches.—S1-S5 are the waveband switches in a rotary unit mounted on a bracket on the chassis deck, and operated by a knob at the side of the chassis. A diagram of the unit, looking towards the rear of it, is given on this page. The table

below gives the switch positions for the two control settings, starting from fully anti-clockwise. A dash indicates open, and C closed.

Switch	M.W.	L.W.
S1	C	—
S2	—	C
S3	C	—
S4	—	—
S5	C	—



Switch diagram, looking towards the rear of the S1-S5 unit mounted above the chassis.

S6 is the Q.M.B. L.T. circuit switch, ganged with the gain control R3.

Coils.—L1 and L2 are in an unscreened unit on the chassis deck. L3, L4 and L5-L8 are in two unscreened units beneath the chassis. The individual coils are indicated in our under-chassis view.

L9 is an iron-cored choke beneath the chassis.

External Speaker.—No provision is made for this, but a high impedance type could be connected across the appropriate tags on the speaker input transformer T1.

Batteries.—L.T., 2 V 45 AH L.T. cell is recommended, size not greater than 3½ in. by 3½ in. by 7½ in. high. H.T. and G.B., 120 V combined H.T. and G.B. battery, with 6 V of G.B. and 114 V of H.T., size not greater than 9 in. by 7½ in. by 3 in.

Battery Leads and Voltages.—Black/green lead, spade tag, L.T. negative; red lead, spade tag, L.T. positive 2 V; black/green lead, black plug, H.T. negative and G.B. positive; yellow/green lead, yellow plug, H.T. positive 72 V; red lead and plug, H.T. positive 114 V; green/red lead, green plug, G.B. negative 3 V; blue lead and plug, G.B. negative 4.5 V. Note that the G.B. is across R1 and R3 continuously, and thus has a steady drain of 0.04 mA approximately, even when the set is off.

Valve V2.—V2 is shown by the makers as being a VP2B hexode (as V1), but in our chassis it was an SP2 pentode.

CIRCUIT ALIGNMENT

Connect signal generator to A and E sockets, switch set to M.W., tune to 210 m. on scale and feed in a 210 m. signal. Adjust C16, C13 and C11 for maximum output. Advance the reaction control C14, and keeping the set just short of oscillation, re-adjust C16, and also C13 and C11, if necessary.

Check performance at 500 m., 1,000 m. and 1,875 m., making slight readjustments as a compromise, if necessary.