

R17 is a slow discharge resistance for the G.B. cells.

COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	A2 aerial feed potentiometer	110,000
R2	V1 pent. C.G. decoupling (M.W. and L.W.)	11,000
R3	V1 pent. C.G. decoupling (S.W.)	110,000
R4	V1 osc. C.G. resistance	16,000
R5	V1 osc. anode M.W. and L.W. H.T. feed	51,000
R6	V2 C.G. decoupling	110,000
R7	V2 S.G. H.T. feed	110,000
R8	V3 signal diode load	510,000
R9	L.F. stopper	51,000
R10	Manual volume control	500,000
R11	V3 triode anode load	51,000
R12	V3 A.V.C. diode load resistances	510,000
R13	V4 C.G. resistance	260,000
R14	A.V.C. line decoupling	510,000
R15	V4 C.G. resistance	510,000
R16	G.B. battery discharge resistance	350,000
R17	G.B. battery discharge resistance	4

OTHER COMPONENTS (Continued)		Approx. Values (ohms)
L15	2nd I.F. trans. { Pri. Sec. }	6.5
L16	Speaker speech coil	1.6
L17	Speaker input trans. { Pri. Sec. }	650.0
T1	Waveband switches	0.2
S1	L.T. circuit switch	—
S11	G.B. circuit switch	—
S12		—
S13		—

VALVE ANALYSIS

Valve voltages and currents given in the table (col. 3) are those measured in our receiver when it was operating with a new H.T. battery reading 139 V overall, 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 K80B	{ 134 Oscillator 50	{ 0.6 1.4	48	2.1
V2 K50N	134	1.6	35	0.5
V3 K23B	85	0.8	—	—
V4 K70B	128	6.2	134	1.0

GENERAL NOTES

Switches.—S1-S11 are the waveband switches, and S12, S13 the battery circuit 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 IV, where they are as seen looking from the rear of the underside of the chassis.

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

Coils.—L1-L6 are in a tubular un-screened unit beneath the chassis, while L7-L12 are in a screened unit on the chassis deck.

The I.F. transformers L13, L14 and L15, L16 are in two further screened units on the chassis deck, with their associated trimmers.

External Speaker.—Two sockets are provided at the rear of the chassis for a high impedance (16,000 O) external speaker.

Trimmers and Trackers.—With the exception of those of the I.F. transformers, all the trimmers and trackers are adjustable through holes in the chassis deck. There are ten of these in all.

CIRCUIT ALIGNMENT

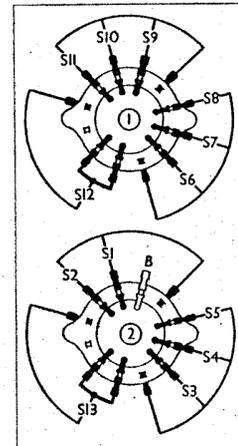
I.F. Stages.—Short circuit C23, then connect signal generator to control grid (top cap) of V1 and chassis and feed in a 455 KC/S signal. Adjust C32, C31, C30 and C29 in that order for maximum output. Re-check these settings, then remove short from C23.

R.F. and Oscillator Stages.—With gang at maximum, pointer should register with the horizontal line at the right-hand side of the scale. Connect signal generator to A1 and E sockets.

M.W.—Set C27 about two-thirds in

SWITCH TABLE AND DIAGRAM

Switch	Off	S.W.	M.W.	L.W.
S1	—	—	C	C
S2	—	—	—	—
S3	—	C	—	—
S4	—	—	C	—
S5	—	—	—	C
S6	—	—	—	—
S7	—	C	—	—
S8	—	—	C	—
S9	—	—	—	C
S10	—	—	C	—
S11	—	—	—	C
S12	—	C	C	C
S13	—	—	C	C



Diagrams of the two switch units, as seen looking from the rear of the underside of the chassis. They include the battery switches (S12, S13).

CONDENSERS		Values (µF)
C1	Aerial S.W. coupling condenser	0.00001
C2	V1 pent. C.G. decoupling (M.W. and L.W.)	0.1
C3	Aerial circuit S.W. tracker	0.01
C4	V1 osc. C.G. condenser	0.0001
C5	V1 osc. anode M.W. and L.W. R.F. by-pass	0.1
C6	V1 S.G. decoupling	0.1
C7	V2 C.G. decoupling	0.1
C8	V2 S.G. decoupling	0.1
C9	I.F. by-pass condensers	0.0002
C10	A.F. coupling to V3 triode	0.0001
C11	Coupling to V3 A.V.C. diode	0.05
C12	V3 triode to V4 A.F. coupling	0.00001
C13	Fixed tone corrector	0.05
C14	H.T. reservoir condenser	2.0
C15	Band-pass pri. M.W. trimmer	0.00004
C16	Band-pass pri. L.W. trimmer	0.0001
C17	Band-pass pri. tuning	0.00054
C18	Aerial circuit S.W. trimmer	0.00004
C19	Band-pass sec. M.W. trimmer	0.00004
C20	Band-pass sec. L.W. trimmer	0.0001
C21	Band-pass sec. and S.W. aerial tuning	0.00054
C22	Oscillator circuit tuning	0.00054
C23	Osc. circuit S.W. trimmer	0.00004
C24	Osc. circuit M.W. trimmer	0.00004
C25	Osc. circuit L.W. trimmer	0.0001
C26	Osc. circuit M.W. tracker	0.0006
C27	Osc. circuit L.W. tracker	0.0004
C28	1st I.F. trans. pri. tuning	—
C29	1st I.F. trans. sec. tuning	—
C30	2nd I.F. trans. pri. tuning	—
C31	2nd I.F. trans. sec. tuning	—
C32		—

† Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial M.W. and L.W. coupling	12.0
L2	Band-pass primary coils	2.5
L3	Aerial S.W. tuning coil	12.0
L4	Band-pass secondary coils	2.5
L5	Osc. circuit S.W. tuning coil	12.0
L6	Oscillator S.W. reaction	Very low
L7	Osc. circuit M.W. tuning coil	0.35
L8	Oscillator M.W. reaction	1.8
L9	Osc. circuit L.W. tuning coil	7.5
L10	Oscillator L.W. reaction	5.3
L11	1st I.F. trans. { Pri. Sec. }	17.5
L12		6.5
L13		6.5
L14		6.5

Feed in a 7.5 MC/S (40 m.) signal, tune it in, and adjust end turn of L4 to give maximum output. Return to 15 MC/S, and re-adjust C24 and C19 carefully.

S.W.—Tune to 15 MC/S (20 m.) on scale and feed in a 15 MC/S signal. Screw C24 fully in, then carefully unscrew until the first peak is reached (with C24 at the higher capacity). Then adjust C19 for maximum output.

and tune to 214 m. on scale. Feed in a 214 m. (1,400 KC/S) signal, and adjust C25, then C20 and C16, for maximum output.

Tune to 500 m. on scale, feed in a 500 m. (600 KC/S) signal, and adjust C27 for maximum output. Repeat adjustments on 214 m., then return to 500 m. and see that pointer is on 500 m. mark when receiving the signal; if it is not, re-adjust C27 slightly. Check calibration at 214 m., 300 m. and 500 m.

L.W.—Set C28 about one-third in, and tune to 1,200 m. on scale. Feed in a 1,200 m. (250 KC/S) signal and adjust C26, then C21 and C17, for maximum output.

Tune to 1,700 m. on scale, feed in a 1,700 m. (176 KC/S) signal, and adjust C28 for maximum output. Repeat adjustments at 1,200 m., then return to 1,700 m. and see that pointer is on 1,700 m. mark when receiving the signal; if it is not, re-adjust C28 slightly. Check calibration at 1,200 m. and 1,700 m.