

RI - ARIA

CIRCUIT ALIGNMENT

I.F. Stages.—Remove existing control grid (top cap) connector of V1 and connect signal generator, via a 0.01 μ F series capacitor and 100,000 Ω parallel resistor, to top cap and chassis. Turn volume control to maximum and short-circuit C25. Feed in a 455 kc/s (659.3 m) signal, and adjust C34, C33, C32 and C31, in that order, for maximum output. Remove shunt and replace top cap connector.

R.F. and Oscillator Stages.—With the gang at minimum the pointer should be horizontal at the left-hand side of the scale.

Transfer signal generator leads to A and E sockets via a dummy aerial.

S.W.—Switch set to S.W., tune to 20 m on scale, feed in a 20 m (15 Mc/s) signal, and adjust C26, then C21, for maximum output.

M.W.—Switch set to M.W., tune to 250 m on scale, feed in a 250 m (1,200 kc/s) signal, and adjust C27 for maximum output. Tune to 500 m on scale, feed in a 500 m (600 kc/s) signal, and adjust C29 for maximum output. Repeat the 250 m and 500 m adjustments until accurate calibration is achieved. Then tune to 231 m on scale, feed in a 231 m (1,299 kc/s) signal, and adjust C22 for maximum output.

L.W.—Switch set to L.W., tune to 1,000 m on scale, feed in a 1,000 m (300 kc/s) signal, and adjust C28 for maximum output. Tune to 1,800 m on scale, feed in a 1,800 m (167 kc/s) signal, and adjust C30 for maximum output. Repeat the 1,000 m and 1,800 m adjustments until accurate calibration is achieved. Then tune to 882 m on scale, feed in a 882 m (340 kc/s) signal, and adjust C23 for maximum output.

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

OTHER COMPONENTS

		Approx. Values ohms
L1	Aerial S.W. coupling coil ...	0.4
L2	Aerial M.W. coupling coil ...	1-9
L3	M.W. harmonic rejector ...	27-0
L4	Aerial L.W. coupling coil ...	5-2
L5	Aerial S.W. tuning coil ...	Very low
L6	Aerial M.W. tuning coil ...	1-3
L7	Aerial L.W. tuning coil ...	18-3
L8	Osc. S.W. tuning coil ...	Very low
L9	Osc. M.W. tuning coil ...	1-2
L10	Osc. L.W. tuning coil ...	18-0
L11	Osc. S.W. reaction coil ...	0-4
L12	Osc. M.W. reaction coil ...	2-6
L13	Osc. L.W. reaction coil ...	6-5
L14	1st I.F. trans. { Pri. ...	3-0
L15	1st I.F. trans. { Sec. ...	3-0
L16	2nd I.F. trans. { Pri. ...	3-0
L17	2nd I.F. trans. { Sec. ...	3-0
L18	Speaker speech coil ...	2-5
L19	H.T. smoothing choke ...	220-0
T1	Output trans. { Pri. ...	150-0
	Output trans. { Sec. ...	0-5
S1-S12	Waveband switches ...	—
S13	Mains switch, ganged R10 ...	—

VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 TH233	200	4-2	90	7-2
	Oscillator	5-0		
V2 VP133	200	11-5	200	2-5
V3 PEN453DD	190	48-0	200	10-0
V4 U403*	—	—	—	—

* Cathode to chassis, 225 V, D.C.

RESISTORS

		Values (ohms)
R1	V1 hept. C.G. decoupling	500,000
R2	V1 S.G. H.T. feed ...	15,000
R3	V1 fixed G.B. resistor ...	100
R4	V1 osc. C.G. resistor ...	10,000
R5	V1 osc. anode H.T. feed ...	25,000
R6	V2 C.G. decoupling ...	500,000
R7	V2 fixed G.B. resistor ...	200
R8	I.F. stopper ...	100,000
R9	V3 signal diode load ...	500,000
R10	Manual volume control ...	1,000,000
R11	V3 G.B. and A.V.C. delay ...	150
R12	A.V.C. diode load ...	500,000
R13	Variable tone control ...	100,000
R14	Heater ballast resistor ...	635*

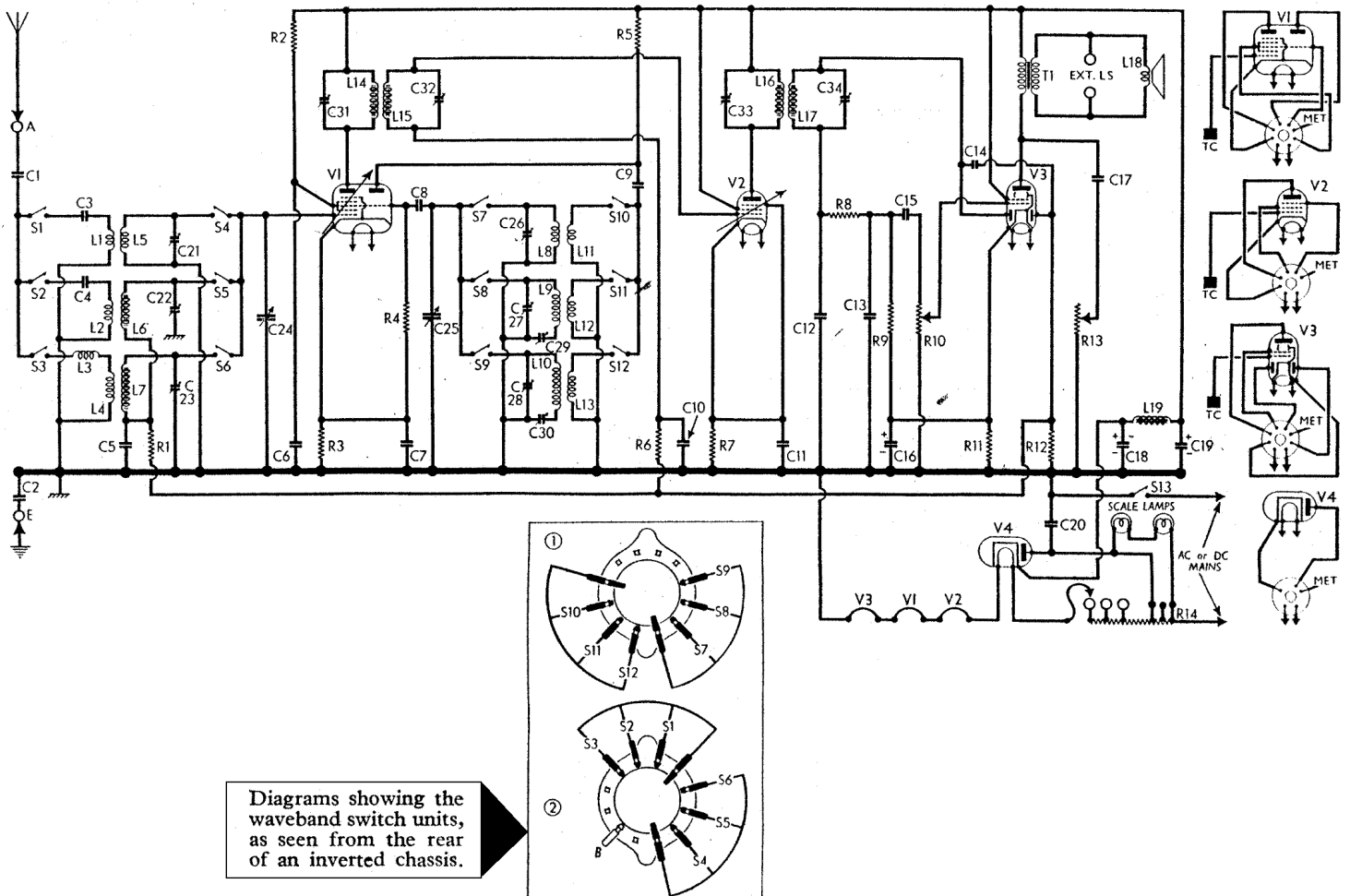
* Tapped at 100 Ω + 100 Ω + 385 Ω + 15 Ω + 35 Ω from V4 heater.

CAPACITORS

		Values (μ F)
C1	Aerial isolator ...	0.001
C2	Earth isolator ...	0.01
C3	Aerial series coupling cap. ...	0.0001
C4	acitors ...	0.0001
C5	V1 hept. C.G. decoupling	0.1
C6	V1 S.G. decoupling ...	0.1
C7	V1 cathode by-pass ...	0.1
C8	V1 osc. C.G. capacitor ...	0.0001
C9	V1 osc. anode coupling ...	0.01
C10	V2 C.G. decoupling ...	0.05
C11	V2 cathode by-pass ...	0.1
C12	I.F. by-pass capacitors {	0.0002
C13	V3 A.V.C. diode coupling	0.0001
C14	V3 A.V.C. coupling to V3 tet. ...	0.00005
C15	V3 cathode by-pass ...	0.01
C16*	Part variable tone control	25-0
C17	H.T. smoothing capacitors {	0.05
C18*		8-0
C19*		16-0
C20	Mains R.F. by-pass ...	0.01
C21	Aerial circ. S.W. trimmer	0.00005
C22	Aerial circ. M.W. trimmer	0.0001
C23	Aerial circ. L.W. trimmer	0.0001
C24	Aerial circuit tuning ...	0.00055
C25	Oscillator circuit tuning ...	0.00055
C26	Osc. circ. S.W. trimmer ...	0.00005
C27	Osc. circ. M.W. trimmer ...	0.00012
C28	Osc. circ. L.W. trimmer ...	0.00012
C29	Osc. circ. M.W. tracker ...	0.00082
C30	Osc. circ. L.W. tracker ...	0.00025
C31	1st I.F. trans. pri. tuning	0.00025
C32	1st I.F. trans. sec. tuning	0.00025
C33	2nd I.F. trans. pri. tuning	0.00025
C34	2nd I.F. trans. sec. tuning	0.00025

* Electrolytic. † Variable. ‡ Pre-set.

Intermediate frequency 455 kc/s.



Diagrams showing the waveband switch units, as seen from the rear of an inverted chassis.