

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 ECH35	213	2.2	90	2.8
	Oscillator	3.0		
V2 EF39	213	6.1	96	1.75
V3 EBC33	107	2.4	—	—
V4 EL33	250	37.0	213	4.0
V5 5Z4G	236†	—	—	—
	27	0.18 (Pin 3)	—	—
	22	0.2 (Pin 6)	—	—
T.I. EM34	213	Target	—	—
		0.33 (Pin 5)	—	—

† Each anode, A.C.

RESISTORS		Values (ohms)
R1	V1 hex. C.G. resistor	470,000
R2	V1 S.G. H.T. potential	22,000
R3	divider resistors	33,000
R4	V1 fixed G.B. resistor	220
R5	V1 osc. C.G. resistor	47,000
R6	Osc. S.W.1 stabiliser	47
R7	Osc. S.W.2 stabiliser	470
R8	Osc. L.W. stabiliser	2,200
R9	V1 osc. anode H.T. feed	27,000
R10	V2 S.G. H.T. feed	68,000
R11	V2 fixed G.B. resistor	330
R12	I.F. stopper	100,000
R13	V3 signal diode load	330,000
R14	Manual volume control	1,000,000
R15	Feed-back limiter	56,000
R16	V3 grid stopper	47,000
R17	V3 G.B.; A.V.C. delay	1,000
R18	V3 triode H.T. decoupling	10,000
R19	V3 triode anode load	33,000
R20	Feed-back series resistor	1,000,000
R21	V2 C.G. decoupling	470,000
R22	A.V.C. line decoupling	470,000
R23	V3 A.V.C. diode load	470,000
R24	T.L. triode anode load resistors	1,000,000
R25		470,000
R26	V4 C.G. resistor	470,000
R27	V4 grid stopper	47,000
R28	V4 G.B. resistor	150
R29	H.T. smoothing resistor	2,000

Switch.	S.W.1	S.W.2	M.W.	L.W.	Gram.
S1	C	—	—	—	—
S2	—	C	—	—	—
S3	—	—	C	—	—
S4	—	—	—	C	—
S5	—	C	C	C	C
S6	C	C	C	C	C
S7	C	C	C	C	C
S8	C	C	C	C	C
S9	C	C	C	C	C
S10	C	C	C	C	C
S11	C	C	C	C	C
S12	C	C	C	C	C
S13	C	C	C	C	C
S14	C	C	C	C	C
S15	C	C	C	C	C
S16	C	C	C	C	C
S17	C	C	C	C	C
S18	C	C	C	C	C
S19	C	C	C	C	C
S20	C	C	C	C	C
S21	C	C	C	C	C
S22	C	C	C	C	C
S23	C	C	C	C	C
S24	C	C	C	C	C
S25	C	C	C	C	C
S26	C	C	C	C	C
S27	C	C	C	C	C
S28	C	C	C	C	C
S29	C	C	C	C	C
S30	C	C	C	C	C
S31	C	C	C	C	C
S32	C	C	C	C	C
S33	C	C	C	C	C
S34	C	C	C	C	C
S35	C	C	C	C	C

CIRCUIT ALIGNMENT

I.F. Stages.—Connect signal generator leads via a 0.1 μ F capacitor to control grid (top cap) of V1 and chassis, turn the gang and volume control to maximum, and the tone control fully anti-clockwise. Feed in a 465 kc/s (645.16 m) signal, slacken the lock-nuts, and adjust the cores of L18, L19, L20 and L21 for maximum output, reducing the input as the circuits come into line. Tighten lock-nuts.

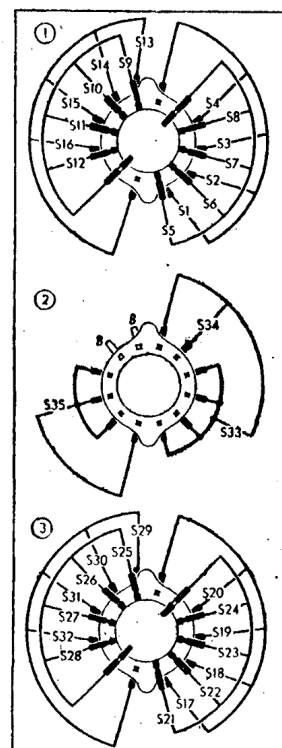
CAPACITORS		Values (μ F)
C1	I.F. filter tuning	0.0005
C2	Aerial M.W. shunt	0.00025
C3	Aerial L.W. shunt	0.001
C4	Aerial L.W. fixed trimmer	0.00002
C5	V1 hex. C.G. capacitor	0.0001
C6	V1 hex. C.G. decoupling	0.1
C7	V1 S.G. decoupling	0.1
C8	1st I.F. transformer tuning capacitors	0.0001
C9		0.0001
C10	V1 cathode by-pass	0.1
C11	V1 osc. C.G. capacitor	0.0001
C12	H.T. circuit R.F. by-pass	0.25
C13	Osc. circ. S.W.1 tracker	0.0054
C14	Osc. circ. S.W.2 tracker	0.0018
C15	Osc. circ. M.W. tracker	0.000538
C16	Osc. circ. L.W. tracker	0.00016
C17	Osc. L.W. fixed trimmer	0.00005
C18	V1 osc. anode coupling	0.0001
C19	V2 C.G. decoupling	0.1
C20	V2 S.G. decoupling	0.1
C21	2nd I.F. transformer tuning capacitors	0.0001
C22		0.0001
C23	V2 cathode by-pass	0.1
C24	I.F. by-pass capacitors	0.0001
C25		0.0001
C26	V3 A.V.C. diode coupling	0.0001
C27*	V3 cathode by-pass	60.0
C28	A.F. coupling to V3 triode	0.01
C29	V3 triode decoupling	0.5
C30	Feedback potential divider	0.0005
C31	capacitors	0.001
C32	A.F. coupling to V4 C.G.	0.02
C33		0.01
C34	Tone control capacitors	0.04
C35	Fixed tone corrector	0.005
C36*		32.0
C37*	H.T. smoothing capacitors	32.0
C38†	Aerial circ. S.W.1 trimmer	0.00004
C39†	Aerial circ. S.W.2 trimmer	0.00004
C40†	Aerial circ. M.W. trimmer	0.00004
C41†	Aerial circ. L.W. trimmer	0.00004
C42†	Aerial circuit tuning	—
C43†	Osc. circ. S.W.1 trimmer	0.00004
C44†	Osc. circ. S.W.2 trimmer	0.00004
C45†	Osc. circ. M.W. trimmer	0.00004
C46†	Osc. circ. L.W. trimmer	0.00004
C47†	Oscillator circuit tuning	—

* Electrolytic. † Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)
L1	I.F. rejector coil	4.5
L2	Aerial S.W.1 coupling coil	0.57
L3	Aerial S.W.2 coupling coil	1.25
L4	Aerial M.W. coupling coil	15.0
L5	Aerial L.W. coupling coil	24.0
L6	Aerial S.W.1 tuning coil	0.05
L7	Aerial S.W.2 tuning coil	0.4
L8	Aerial M.W. tuning coil	2.75
L9	Aerial L.W. tuning coil	18.5
L10	Osc. S.W.1 reaction coil	0.4
L11	Osc. S.W.2 reaction coil	1.4
L12	Osc. M.W. reaction coil	1.75
L13	Osc. L.W. reaction coil	4.0
L14	Osc. S.W.1 tuning coil	0.05
L15	Osc. S.W.2 tuning coil	0.35
L16	Osc. M.W. tuning coil	1.8
L17	Osc. L.W. tuning coil	7.5
L18	1st I.F. trans. { Pri. ...	10.0
L19		10.0
L20	2nd I.F. trans. { Pri. ...	10.0
L21		10.0
L22	Speaker speech coil	2.0
T1	Output trans. { Pri., total ...	350.0
		0.25
T2	Mains { Pri., total ...	27.5
	Heater sec. ...	0.2
	Rect. heat. sec. ...	0.15
	H.T. sec., total ...	440.0
S1-S35	Waveband switches	—
S36, S37	Tone control switches	—
S38	Mains switch, ganged R14	—

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Diagrams of the three wave band switch units are seen on the right, drawn as they appear when viewed from the rear of an inverted chassis. B indicates a blank tag. On the left is the associated switch table.



R.F. and Oscillator Stages.—Transfer signal generator leads to A and E sockets via a suitable dummy aerial. With the gang at maximum the pointer should be horizontal, and it should be directly behind the mark at the high-wavelength end of the M.W. band scale.

I.F. Filter.—Switch set to M.W., feed in a 465 kc/s (645.16 m) signal, and adjust the core of L1 for minimum output.

S.W.1.—Switch set to S.W.1 (Band 1), tune to 13.3 m (170 m mark on Band 3 scale), feed in a 13.3 m (22.5 Mc/s) signal, and adjust C43, then C38, for maximum output.

S.W.2.—Switch set to S.W.2 (Band 2), tune to 48 m (170 m mark on Band 3 scale), feed in a 48 m (6.25 Mc/s) signal, and adjust C44, then C39, for maximum output.

M.W.—Switch set to M.W. (Band 3), tune to 170 m on scale, feed in a 170 m (1.765 kc/s) signal, and adjust C45, then C40, for maximum output. Tune to 526 m (spot on scale), feed in a 526 m (570 kc/s) signal, and adjust the cores of L16 and L8 for maximum output. Repeat the 170 m and 526 m adjustments until no improvement results.

L.W.—Switch set to L.W. (Band 4), tune to 750 m (170 m mark on Band 3 scale), feed in a 750 m (400 kc/s) signal, and adjust C46, then C41, for maximum output. Tune to 2,000 m on scale, feed in a 2,000 m (150 kc/s) signal, and adjust the cores of L17 and L9 for maximum output. Repeat the 750 m and 2,000 m adjustments until no improvement results.