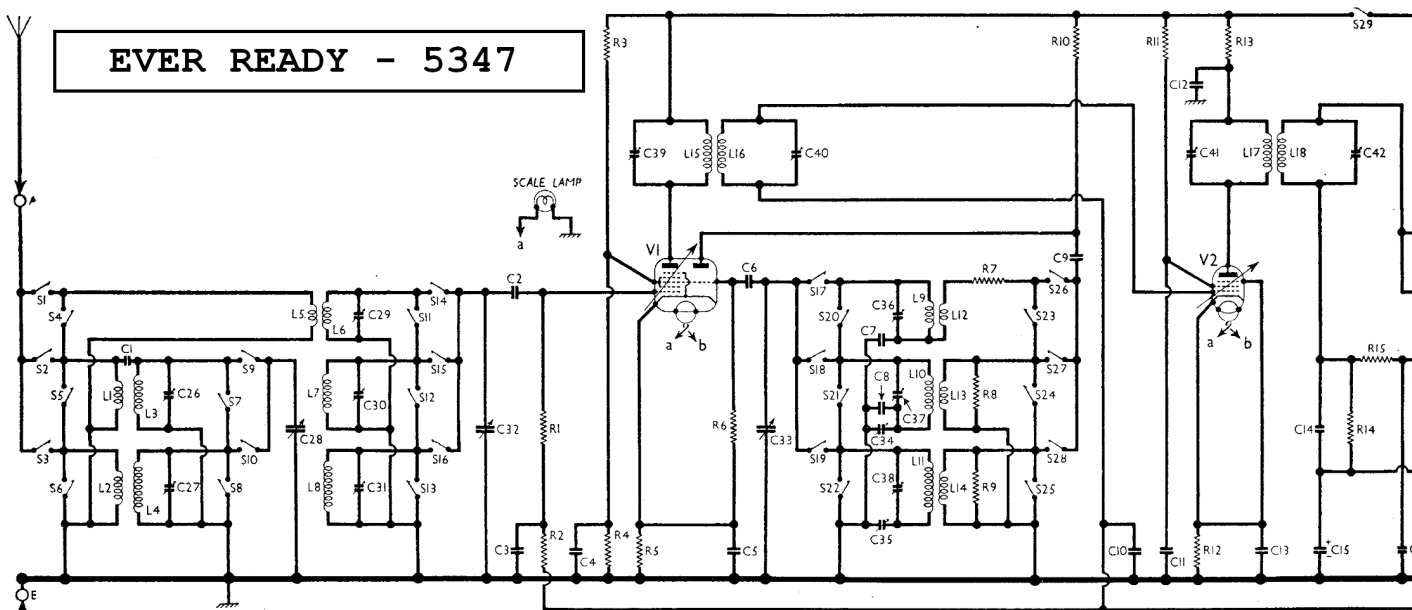


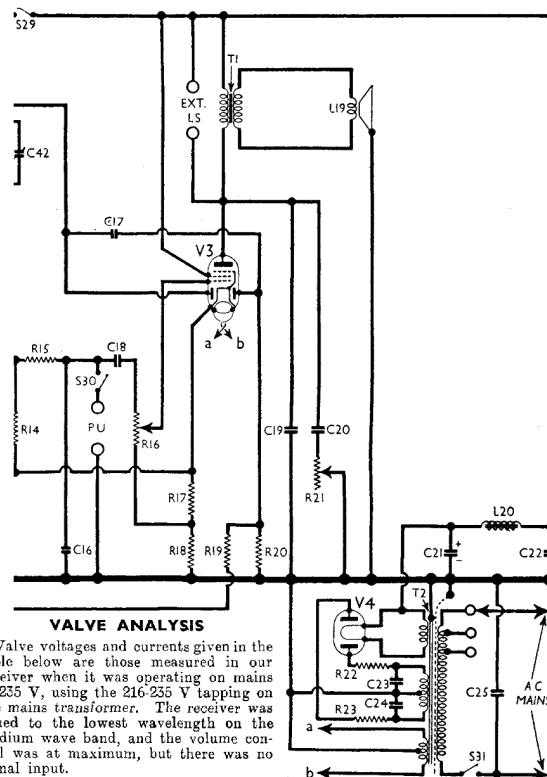
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CONDENSERS		Values (μF)
C1	Aerial MW "top" coupling	0.000005
C2	V1 heptode CG condenser	0.0005
C3	V1 heptode CG decoupling	0.05
C4	V1 SG decoupling	0.1
C5	V1 cathode by-pass	0.1
C6	V1 osc. CG condenser	0.0001
C7	Osc. circuit SW tracker	0.0057
C8	Osc. circ. MW fixed tracker	0.0003
C9	V1 osc. anode coupling	0.0003
C10	V2 CG decoupling	0.1
C11	V2 SG decoupling	0.1
C12	V2 anode decoupling	0.1
C13	V2 cathode by-pass	0.1
C14	IF by-pass	0.00005
C15*	V3 cathode by-pass	25.0
C16	IF by-pass	0.00005
C17	Coupling to V3 AVC diode	0.00001
C18	AF coupling to V3 pentode	0.05
C19	Fixed tone corrector	0.005
C20	Part of variable tone control	0.04
C21*	HT smoothing condensers	16.0
C22*	V4 anode RF by-pass condensers	24.0
C23	V4 anode RF by-pass condensers	0.005
C24	Mains RF by-pass	0.005
C25	Band-pass pri. MW trimmer	0.01
C26†	Band-pass pri. LW trimmer	0.0001
C27†	Band-pass pri. tuning	0.0001
C28†	Aerial circuit SW trimmer	0.00002
C29†	Band-pass sec. MW trimmer	0.0001
C30†	Band-pass sec. LW trimmer	0.0001
C31†	Band-pass sec. and SW aerial tuning	0.0001
C32†	Osc. circuit tuning	—
C33†	Osc. circuit MW tracker	0.0003
C34†	Osc. circuit LW tracker	0.0003
C35†	Osc. circuit SW trimmer	0.00002
C36†	Osc. circuit MW trimmer	0.0001
C37†	Osc. circuit LW trimmer	0.0001
C38†	1st IF trans. pri. tuning	0.0001
C39†	1st IF trans. sec. tuning	0.0001
C40†	2nd IF trans. pri. tuning	0.0001
C41†	2nd IF trans. sec. tuning	0.0001
C42†	2nd IF trans. sec. tuning	0.0001

RESISTANCES		Values (ohms)
R1	V1 heptode CG resistance	1,000,000
R2	V1 heptode CG decoupling	250,000
R3	V1 SG HT potential divider resistances	25,000
R4	V1 fixed GB resistance	30,000
R5	V1 osc. CG resistance	200
R6	Osc. SW reaction damping	47,000
R7	Osc. MW reaction damping	150
R8	Osc. LW reaction damping	1,500
R9	V1 osc. anode HT feed	5,100
R10	V2 SG HT feed	30,000
R11	V2 fixed GB resistance	80,000
R12	V2 anode HT feed	250
R13	V3 signal diode load	2,100
R14	IF stopper	600,000
R15	Manual volume control	100,000
R16	V3 pentode GB and AVC delay resistances	500,000
R17	V3 AVC line decoupling	150
R18	V3 AVC diode load	100
R19	Variable tone control	250,000
R20	V4 anodes current limiting resistances	1,100,000
R21		50,000
R22		75
R23		75

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial MW coupling coil	17.0
L2	Aerial LW coupling coil	140.0
L3	Band-pass primary coils	2.5
L4	Aerial SW coupling coil	2.2
L5	Aerial SW tuning coil	Very low
L6	Band-pass secondary coils	2.5
L7	Osc. circuit SW tuning coil	48.0
L8	Osc. circuit MW tuning coil	Very low
L9	Osc. circuit LW tuning coil	2.7
L10	Oscillator SW reaction	4.5
L11	Oscillator MW reaction	0.2
L12	Oscillator LW reaction	3.0
L13	1st IF trans. Pri.	10.0
L14	1st IF trans. Sec.	28.0
L15	2nd IF trans. Pri.	28.0
L16	2nd IF trans. Sec.	28.0
L17	Speaker speech coil	2.0
L18	HT smoothing choke	260.0
L19	Speaker input Pri. trans.	500.0
L20	Speaker input Sec. trans.	0.4
T1	Mains trans. Heater sec.	20.0
T2	Mains trans. Rect. heat. sec.	0.1
S1-S23	Waveband Radio/gram change switches	260.0
S29, S30	Mains switch, ganged	—
S31	R16	—



VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 235 V, using the 216-235 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium wave 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 ECH8	250	2.2	106	2.1
V2 EF9	225	4.8	75	2.3
V3 6BL1	230	34.0	250	4.6
V4 AZ1	267†	—	—	—

† Each anode, AC.

Switch Table

Switch	LW	MW	SW	Gram
S1				
S2				
S3				
S4				
S5				
S6				
S7				
S8				
S9				
S10				
S11				
S12				
S13				
S14				
S15				
S16				
S17				
S18				
S19				
S20				
S21				
S22				
S23				
S24				
S25				
S26				
S27				
S28				
S29				
S30				

CIRCUIT ALIGNMENT

IF Stages.—Connect signal generator, via a 0.1 μF condenser, to control grid (top cap) of V1, and to chassis. Short circuit C33 and switch set to MW. Feed in a 452 KC/S signal, and adjust C42, C41, C40 and C39 in turn for maximum output. Check these settings, then remove the short circuit from C33.

RF and Oscillator Stages.—With gang at maximum, pointer should be horizontal. Connect signal generator via a suitable dummy aerial to the A and E sockets.

LW.—Switch set to LW, and adjust C35 to about two-thirds its maximum setting. Tune to 1,600 m on scale, feed in a 1,000 m (300 KC/S) signal, and adjust C38, then C31 and C27, for maximum output. Feed in a 1,700 m (176.3

KC/S) signal, tune it in, and adjust C35 for maximum output, while rocking the gang for optimum results. Repeat the 1,600 m adjustments.

MW.—Switch set to MW, and adjust C34 to about three-quarters its maximum setting. Tune to 214 m on scale, feed in a 214 m (1,400 KC/S) signal, and adjust C37, then C30 and C26, for maximum output. Feed in a 500 m (600 KC/S) signal, tune it in, and adjust C34 for maximum output, while rocking the gang for optimum results. Repeat the 214 m adjustments.

SW.—Switch set to SW, and tune to 15 MC/S on scale. Feed in a 15 MC/S (20 m) signal, unscrew C36 fully, then screw it up to the first peak encountered, and adjust accurately for maximum output. Then adjust C29 for maximum output. Feed in a 6 MC/S (50 m) signal and tune it in, then adjust the top turn of L9 for maximum output, while rocking the gang slightly for optimum results. Repeat the 15 MC/S adjustments.

