ULTRA - U506

Intermediate frequency 465 kc/s.

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	I.F. filter coil ...	7·5	A2
L2	Aerial coupling coils	47·0	A1
L3	Aerial coupling coils	175·0	N4
L4	Aerial tuning coils	3·0	A1
L5	Aerial tuning coils	20·0	N4
L6	Oscillator tuning coils	3·5	L4
L7	Oscillator tuning coils	7·5	L5
L8	Osc. M.W. react. ...	1·75	L4
L9	1st I.F. trans. Pri.	7·0	B2
L10	1st I.F. trans. Sec.	7·0	B2
L11	2nd I.F. trans. Pri.	7·0	C2
L12	2nd I.F. trans. Sec.	6·0	C2
L13	Speech coil	3·0	E1
T1	Output trans. Pri.	300·0	H4
	Output trans. Sec.	0·75	H4
S1-S7	W/band switches...	—	N3
S8	Mains sw., g'd R6...	—	K3

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 10C1	186 Oscillator 49	1·3 2·7	50	4·4
V2 10F9	186	3·0	50	1·0
V3 10LD11	39	1·5	—	—
V4 10P13	179	26·0	186	6·3
V5 U404	†	—	—	—

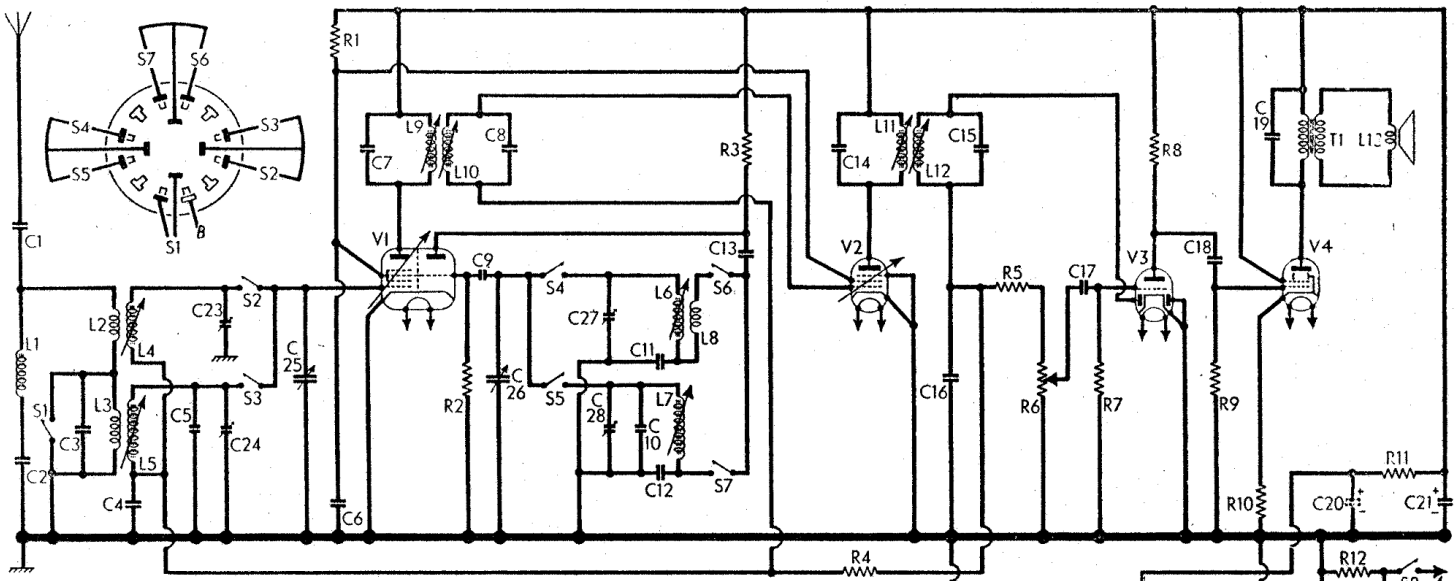
† Cathode to chassis 244 V, D.C.

RESISTORS		Values (ohms)	Locations
R1	S.G.'s H.T. feed ...	27,000	K5
R2	V1 osc. C.G. ...	22,000	N5
R3	Osc. anode load ...	56,000	M5
R4	A.G.C. decoup. ...	1,000,000	L4
R5	I.F. stopper ...	100,000	K4
R6	Volume control ...	1,000,000	K3
R7	V3 triode C.G. ...	4,700,000	H4
R8	V3 triode load ...	100,000	H5
R9	V4 C.G. resistor ...	330,000	H5
R10	V4 G.B. resistor ...	270	G4
R11	H.T. smoothing ...	1,200	D2
R12	Scale lamp shunt...	33	J4
R13	V5 surge limiter ...	100	F4
R14	Heater ballast ...	980†	E2

† Tapped at 700Ω + 200Ω + 80Ω from V5 heater.

CAPACITORS		Values (μF)	Locations
C1	Aerial isolator ...	0·005	A2
C2	I.F. filter tune ...	0·0001	A2
C3	Aerial L.W. shunt	0·0001	M4
C4	A.G.C. decoupling	0·05	M5
C5	Aerial L.W. trim....	0·00003	M4
C6	S.G.'s decoupling...	0·05	K4
C7	1st I.F. transformer tuning	0·0001	B2
C8	1st I.F. transformer tuning	0·0001	B2
C9	V1 osc. C.G. ...	0·000075	N4
C10	Osc. L.W. trimmer	0·000075	M5
C11	Osc. M.W. tracker	0·00045	L4
C12	Osc. L.W. tracker...	0·0002	L4
C13	Osc. anode coup. ...	0·0001	N4
C14	2nd I.F. transformer tuning	0.0001	C2
C15	2nd I.F. transformer tuning	0·00018	C2
C16	I.F. by-pass ...	0·00027	J4
C17	A.F. coupling capacitors	0·01	J4
C18	A.F. coupling capacitors	0·01	H5
C19	Tone corrector ...	0·01	H3
C20*	H.T. smoothing capacitors	16·0	C1
C21*	H.T. smoothing capacitors	24·0	C1
C22	Mains R.F. by-pass	0·01	F4
C23‡	Aerial M.W. trim....	0·00007	A1
C24‡	Aerial L.W. trim....	0·00007	N4
C25†	Aerial tuning ...	0·000[illegible]04	B1
C26†	Oscillator tuning ...	0·00[illegible]0394	B2
C27‡	Osc. M.W. trim. ...	0·00[illegible]07	N4
C28‡	Osc. L.W. trim. ...	0·00[illegible]07	N4

* Electrolytic. †, Variable. ‡ Pre-set.



CIRCUIT ALIGNMENT

The chassis must be removed from the cabinet before commencing operations.

I.F. Stages.—Connect signal generator, via an 0.1 μF isolating capacitor in each lead, to control grid (pin 6) of **V1** and chassis, switch set to M.W., turn gang and volume control to maximum, and feed in a 465 kc/s (645.16 m) signal. Adjust the cores of **L12, L11, L10** and **L9** (location references J5, C2, M5, B2) for maximum output, progressively attenuating the input signal as the circuits are aligned to minimize A.G.C. action. Finally, disconnect "live" signal generator lead from **V1.**

R.F. and Oscillator Stages.—With the gang at maximum capacitance the pointer should be horizontal. It may be adjusted in position by rotating it on the gang spindle. Transfer "live" signal generator lead to attached aerial connecting tag (A2), via a suitable dummy aerial.

I.F. Filter.—With the set switched to M.W., feed in a 465 kc/s signal, and adjust the core of **L1** (A2) for minimum output.

M.W.—With the set switched to M.W., tune to 230 m on scale, feed in a 230 m (1,304 kc/s) signal, and adjust **C27** (N4) and **C23** (A1) for maximum output. Tune to 500 m on scale, feed in a 500 m (600 kc/s) signal, and adjust the cores of **L6** (L4) and **L4** (A1) for maximum output. Repeat these operations until no improvement results.

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** and **C24** (N4) 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 **L7** (L5) and **L5** (M4) for maximum output. Repeat these operations until no improvement results.