

ULTRA 6158

Resistors

R1	18kΩ	C2	C9	100pF	C1
R2	5.1kΩ	C2	C10	12pF	C1
R3	1.5kΩ	C2	C11	300pF	C2
R4†	47kΩ	B2	C12	0.04μF	C2
R5	42kΩ	B1	C13	12pF	C1
R6†	220kΩ	B1	C14**	250pF	B1
R7	330Ω	B2	C15**	6.2pF	C1
R8	10kΩ	B1	C16	0.047μF	C1
R9	2.7kΩ	B1	C17	—	B2
R10	330Ω	B2	C18**	10pF	B1
R11†	150kΩ	B1	C19	—	B1
R12	4.7kΩ	B1	C20	0.04μF	B1
R13	1kΩ	B1	C21	0.04μF	B1
R14	5kΩ	C2	C22	10μF	B1
R15	12kΩ	A1	C23	0.04μF	B1
R16	5.6kΩ	A1	C24	0.04μF	B1
R17	220Ω	A2	C25	—	B1
R18	3.3kΩ	A1	C26	0.02μF	B1
R19	120kΩ	A1	C27	0.01μF	B2
R20	220Ω	A1	C28	4.7μF	A2
R21	68Ω	A2	C29	30μF	A2
R22	1.5kΩ	A2	C30	100μF	A1
R23	220Ω	A1	C31	33μF	A1
R24	0.5Ω	A1	C32**	0.01μF	A1
			C33**	0.01μF	A2
			C34	100μF	A1
			C35	0.04μF	B2

Capacitors

C1	5.6pF	C1
C2	12pF	C1
C3	300pF	C2
C4	12pF	C1
C5**	15pF	C1
C6	0.02μF	C2
C7	0.022μF	C1
C8**	40pF	C1

Circuit alignment

Equipment required. — An r.f. signal generator amplitude modulated 30 per cent at 400c/s; an audio power output meter of 8Ω impedance, terminated in a miniature jack plug, or alternatively an Avometer model 8, set to the 2.5V a.c. range, a 0.1μF capacitor and an r.f. coupling coil.

Connect the output meter via the earphone socket, thereby disconnecting the loudspeaker. If, however, a model 8 Avometer is to be used the output should be measured across the loudspeaker. During alignment attenuate input signal so that an audio output not greater than 50mW is maintained with the volume control at maximum. This will ensure minimum alignment error due to a.g.c. action.

1. — Switch receiver to m.w., rotate tuning gang to maximum capacitance and feed in a 475kc/s a.m. signal via a 0.1μF capacitor to the junction **C3** and common pole **S1**. Adjust **L15/L16**, **L13/L14** and **L11/L12** in that order for maximum output. Repeat these adjustments, in the same order until no further improvement can be obtained.

2. — Transfer signal generator output to r.f. coupling coil and loosely couple coil to the receiver internal aerial. Tune receiver to 500m. and feed in a 600kc/s a.m. signal. Adjust for maximum output, **L8/L10**, and **L1/L2** by sliding along ferrite rod.

Coils and transformers*

L1	6Ω	C2
L2	—	C1
L3	15Ω	C2
L4	—	C1
L5	—	C2
L6	—	C2
L7	4Ω	C2
L8	2Ω	C2
L9	—	C2
L10	—	C2
L11	3.5Ω	B2
L12	—	B2
L13	3.5Ω	B1
L14	—	B1
L15	3.5Ω	B1
L16	—	B1
L17	8Ω	C2
T1	1-2 40Ω	A2
	2-3 40Ω	
	4-6 100Ω	
T2	1-2 2Ω	A2
	2-3 2Ω	
	4-6 —	

Miscellaneous

W1	1N6	B1
X1‡	D22A	A1
S1-S6	—	C1
S7	—	B2
S8§	—	A2
TmS††	—	A2

* Approximate d.c. resistance in ohms.
† Not fitted in some receivers.

** Subject to variation in value.
‡ Thermistor.
§ Automatic wind switch, located in clock unit.
†† Time switch in clock unit.

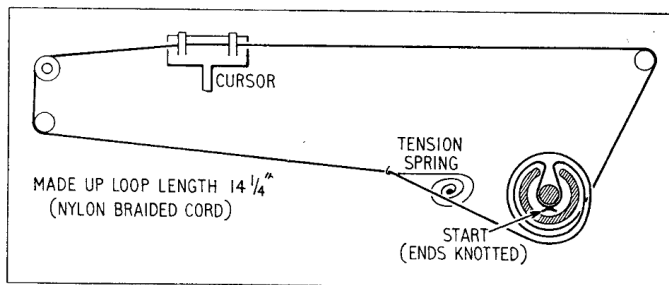
Transistor table

Transistor	Emitter (V)	Base (V)	Collector (V)
TR1	2SA466*	0.5	0.525
TR2	2SA466†	0.2	0.325
TR3	2SA466§	0.35	0.5
TR4	2SB54	0.12	0.22
TR5	2SB54	0.7	0.85
TR6	2SB56	—	0.2
TR7	2SB56	—	0.2

* May be type 2SA470.
† May be type 2SA49.
§ May be type 2SA53.
Quiescent current 16.5mA.

Transistor analysis

Transistor voltages quoted in the table overleaf were obtained from information supplied by the manufacturers. They are negative with respect to positive line, and were measured with a 20,000Ω/V meter under quiescent conditions.



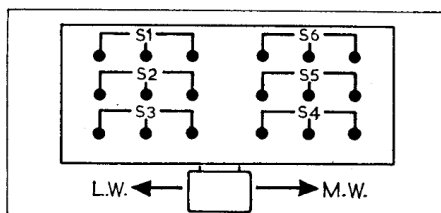
3. — Tune receiver to 200m. and feed in a 1,500kc/s a.m. signal. Adjust **C13** and **C2** for maximum output.

4. — Repeat operations 2 and 3 for optimum results.

5. — Switch receiver to l.w., tune to 2,000m. and feed in a 150kc/s a.m. signal. Adjust for maximum output, **L6/L7** and **L3/L4** by sliding along the ferrite rod.

6. — Tune receiver to 1,000m. and feed in 250kc/s a.m. signal. Adjust **C10** and **C4** for maximum output.

7. — Repeat operations 5 and 6 for optimum results.



* Approximate d.c.
resistance in ohms.
† In schedule A receivers
C81 is 470pF.
In model 3156
C81 is 100pF.
‡ In schedule A receivers
C87 is 390pF.
Not fitted in
model 3156.
§ Model 3156 only.

All schedule A chassis. – Capacitor **C87** is 390pF and is connected between the common poles of **S23**, **S24** and the junction of **R42**, **C81** and **C83**. The remote poles of these switches are connected to the collector of **TR7**. This circuit is also shown dotted on the main circuit diagram.