Supplement to Wireless & Electrical Trader, 24 July 1965

"TRADER" SERVICE SHEET

1713

EVER READY Sky Baby

Portable Transistor Radio Receiver

Release date and original price: May 1965, £9 10s. Purchase tax extra.

HOUSED in a plastics case with collapsible carrying handle, Ever Ready Sky Baby is a portable battery-operated radio receiver which employs six transistors and features a d.c. stabilized complementary push-pull output stage.

It covers long and medium wavebands using a ferrite rod aerial with press-button waveband switching. Audio output is greater than 200mW for 10 per cent harmonic distortion. External sockets are provided for car aerial input and earphone or tape output.

Transistor Table

Transistor		Emitter (V)	Base (V)	Collector (V)
TR1	AF117	1·64	1·72	7·30
TR2	AF117	0·62	0·91	7·30
TR3	AC127	3·05	2·98	0·56
TR4	OC81D	0·39	0·56	4·66
TR5	OC81	4·82	5·08	9·00
TR6	AC127	4·82	4·66	—

TRANSISTOR ANALYSIS

Transistor voltages given in the table in col. 1 were taken from information supplied by the manufacturers. They were measured on a high impedance electronic voltmeter. Since some of the base resistors are of a comparatively high value, the voltage readings obtained on a current consuming meter may give inaccurate indications of transistor bias, i.e. base voltages may read lower than emitter voltages.

Total quiescent battery current is normally 13mA, but under extreme temperature conditions may rise as high as 19mA. Using a sine wave input, current consumption is 29mA for 50mW output and 49mA for 200mW output. Average total for music at normal listening level should be 17.5mA.

CIRCUIT ALIGNMENT

Equipment Required.—An a.m. signal generator; an audio output meter and an r.f. coupling coil.

(*Continued overleaf, col.* 1)

COMPONENT VALUES & LOCATIONS

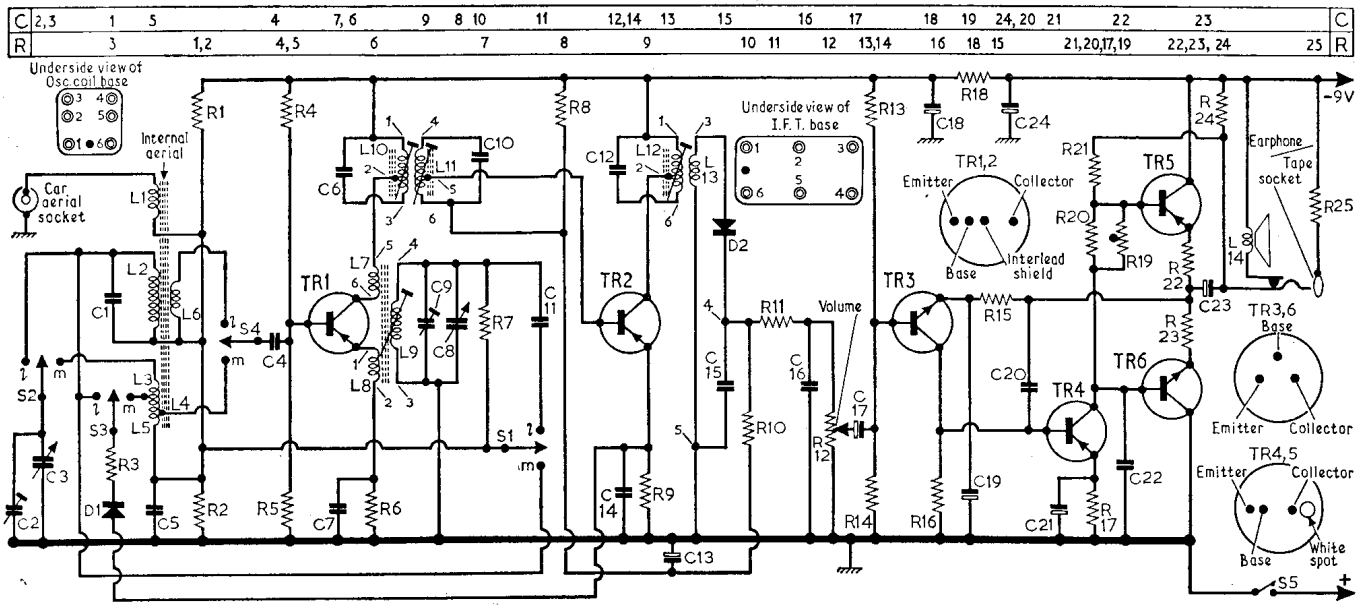
Resistors		
R1	10kΩ	B2
R2	470Ω	B1
R3	1kΩ	B1
R4	30kΩ	A1
R5	10kΩ	A1
R6	1kΩ	A2
R7	150kΩ	B2
R8	43kΩ	C2
R9	150Ω	B2
R10	6·8kΩ	C2
R11	470Ω	C2
R12	2·5kΩ	D1
R13	30kΩ	C1
R14	22kΩ	C1
R15	2·7kΩ	C2
R16	1kΩ	C1
R17	150Ω	C1
R18	240Ω	D2
R19	VA1039	D2
R20	150Ω	D2
R21	1·5kΩ	D2
R22	4·7Ω	D2
R23	4·7Ω	D2
R24	470Ω	D2
R25	36Ω	D2

Capacitors		
C1	30pF	C1
C2	20pF	B1
C3	180pF	B1
C4	0·01μF	A1
C5	0·5μF	B1
C6	300pF	B2
C7	0·02μF	A1
C8	80pF	B1
C9	20pF	B1
C10	300pF	B2
C11	170pF	B2
C12	250pF	C2
C13	10μF	C1
C14†	1μF	B2
C15	0·01μF	C2
C16	0·05μF	B2
C17	0·5μF	D1
C18	160μF	C2
C19	160μF	C2
C20	750pF	C2
C21	25μF	C1
C22	0·01μF	D2
C23	160μF	D2
C24	160μF	D2

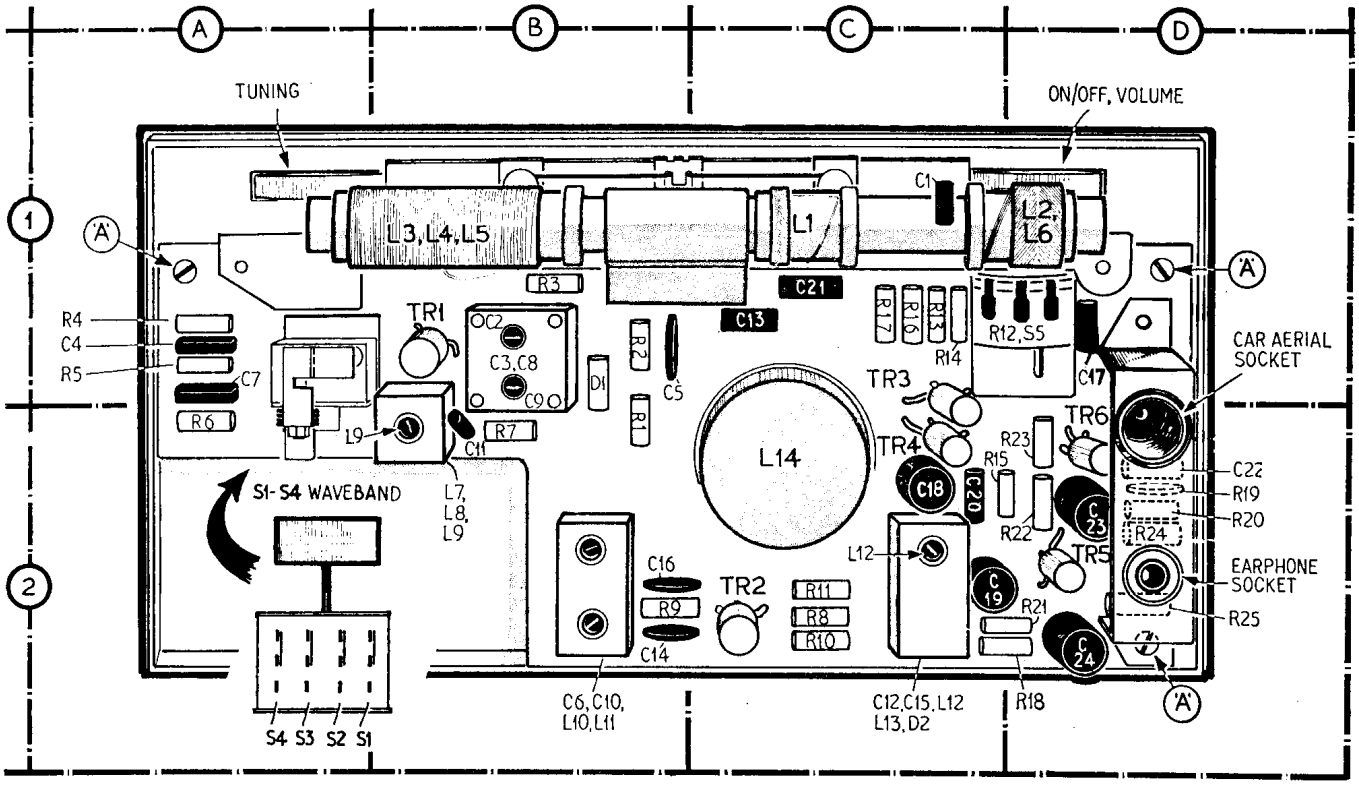
Miscellaneous		
D1	OA79	B1
D2	OA90	C2
S1-S4	—	A2
S5	—	D1

Coils		
L1	—	C1
L2	—	D1
L3	—	B1
L4	—	B1
L5	—	B1
L6	—	D1
L7	—	B2
L8	—	B2
L9	—	A2
L10	—	B2
L11	—	B2
L12	—	C2
L13	—	C2
L14	35Ω	C2

†*Two ·5μF capacitors in parallel in our sample receiver.*



Circuit diagram of Ever Ready Sky Baby. Damping diode **D1** *is brought into conduction and effectively shunts the ferrite rod aerial windings on strong signals, when* **TR2** *emitter current through* **R9** *falls to a predetermined level by normal a.g.c. action*



Rear view of the receiver with the back cover removed, showing component locations

Continued—

1.—Connect the audio output meter in place of the loudspeaker. Connect the signal generator to the r.f. coupling coil and loosely couple the coil to the receiver. Switch receiver to m.w. and turn the tuning gang to its mid-position. Turn the volume control to maximum.

2.—Radiate a 470kc/s 30 per cent modulated signal, and adjust the cores of **L12, L11** and **L10** for maximum output; repeating if necessary.

3.—Lay the receiver on its face and remove the back cover, then place the back cover on the bench so that its top just touches the top of the receiver front moulding, to ensure that the electrical effect of the metal handle is similar to normal working conditions.

4.—Switch receiver to l.w. and set the cursor to 15. Feed in a 200kc/s signal or use the B.B.C. Light Programme broadcast signal and adjust **L9** for maximum output.

5.—Adjust **L2** for maximum output.

6.—Switch receiver to m.w. and fully open the tuning gang. Feed in a 1,635kc/s signal and adjust **C9** for maximum output.

7.—Feed in a 1,400kc/s signal and tune receiver to this signal. Adjust **C2** for maximum output.

8.—Feed in a 600kc/s signal and tune receiver to this signal. Adjust **L3/4/5** for maximum output.

9.—Repeat operations 5, 7 and 8 as necessary.

OUTPUT STAGE

The emitter of preamplifier **TR3** is connected to the emitter junction of **TR5** and **TR6,** where any voltage change will affect the emitter/collector current of **TR3** and consequently the voltage drop along its collector load **R16.** Since the audio section is d.c. coupled throughout, this action has the effect of stabilizing the output stage base bias conditions.

Audio signals developed across the volume control **R12** are a.c. coupled to **TR3** and from **TR3** collector directly coupled to the base of the driver **TR4.** The output from **TR4** developed across its collector load **R21** is fed simultaneously to the bases of **TR5** and **TR6.** On positive half-cycles, **TR6** conducts and **TR5** is cut-off, while on negative half-cycles **TR5** conducts and **TR6** is cut-off. This produces voltage variations at the junction of **R22** and **R23** which are passed via **C23** to the loudspeaker **L14.**

GENERAL NOTES

Dismantling.—To remove the receiver assembly from its case, lay the receiver on its face and remove the back cover.

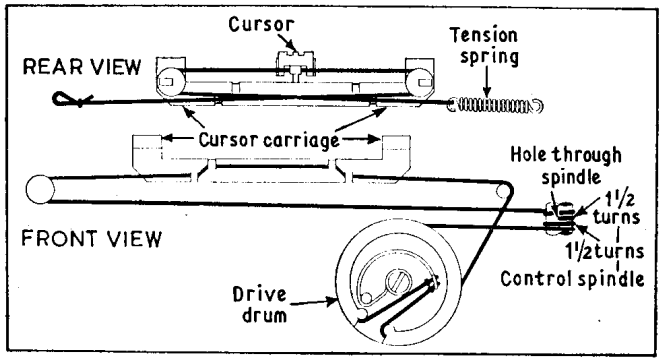
Remove two screws securing the back fixing bracket to the loudspeaker magnet and lift off the bracket.

Remove three screws marked "A" in the chassis illustration.

Lift out the chassis to the extent of the speaker leads which may be unsoldered if necessary.

Switches.—S1-S4 are the waveband switches which are shown in location reference A2 on the chassis illustration, with details given inset. **S5** is the battery on/off switch which is ganged with the volume control.

Battery.—Ever Ready PP6 (9V).



Scale drive assembly which comprises two separate drive cords; one for the cursor, and another for the cursor carriage. For clarity, these are illustrated as seen from opposite sides of the receiver

Printed in Great Britain by Cornwall Press, Ltd., Paris Garden, Stamford Street, London, S.E.1, and Published by Iliffe Electrical Publications, Ltd., Dorset House, Stamford Street, London, S.E.1