

**Switches.**—S1 is the waveband switch assembly shown in location reference A2 on the printed panel. S2 (location reference A2) is operated by the car aerial socket shutter and effects the change of input from the ferrite rod aerial to the screened m.w. and l.w. aerial tuning coils. S3 and S4 are the battery on/off switches.

**Batteries.**—Access to the batteries is obtained by turning anti-clockwise, the circular battery compartment cover on the left-hand side of the case. Five Ever Ready L.P. U11 or equivalent are required for replacement. (The receiver manufacturers recommend that non-leakproof equivalents are not used; to avoid corrosive discharge damage.)

**Transistor Table**

Transistor	Emitter (V)	Base (V)	Collector (V)
TR1 AF115	0.95	1.0	5.2
TR2 AF117	0.85	1.1*	3.6
TR3 AF117	0.85	1.1*	5.4
TR4 AC127	3.10	2.95	0.25
TR5 OC81D	—	0.25	3.6
TR6 AC127	3.8†	3.6	—
TR7 OC81	3.8†	4.0	7.5

\*Measured at junctions R5/L16 and R8/L18 respectively.

†Measured at the junction R22/R23.

**Resistors**

R1	18kΩ	C1
R2	4.7kΩ	C1
R3	1kΩ	C2
R4	220Ω	C2
R5*	39kΩ	D2
R6	8.2kΩ	D2
R7	680Ω	C2
R8	18kΩ	D2
R9	4.7kΩ	D1
R10	560Ω	D2
R11	1kΩ	D2
R12	470Ω	E2
R13	10kΩ	D1
R14	12kΩ	D1
R15	10Ω	D1
R16	680Ω	C2
R17	1.5kΩ	D1
R18	1kΩ	E1
R19	470Ω	E1
R20	56Ω	E2
R21	390Ω	E1
R22	2.2Ω	E2
R23	2.2Ω	E2
R24	100kΩ	E1
R25	270kΩ	B2
R26†	2.2kΩ	E1
VR1	5kΩ	E1
VR2	25kΩ	E1

**Capacitors**

C1	2,200pF	B1
C2	68pF	B2
C3	0.01μF	B1
C4	1,000pF	A2
C5	0.02μF	B2

C6	2,200pF	B1
C7	1,500pF	B2
C8	290pF	B2
C9	265pF	A2
C10	30pF	L8
C11	0.05μF	C1
C12	0.05μF	C2
C13	10μF	D2
C14	10μF	C1
C15	2,200pF	D2
C16	0.02μF	D2
C17	0.05μF	D2
C18	0.01μF	D2
C19	0.01μF	D2
C20	0.22μF	E1
C21	200μF	D2
C22	300μF	D1
C23	300μF	E2
C24	300μF	E2
C25	5,000pF	D1
C26	0.05μF	E1
C27†	250pF	C2
C28	560pF	C2
C29	250pF	D2
C30†	250pF	D2
TC1	5pF	C1
TC2	5pF	B2
TC3	15pF	B2
TC4	15pF	B1
VC1	—	B2
VC2	—	B2

**Coils**

L1	—	B1
L2	—	D1
L3	—	C1

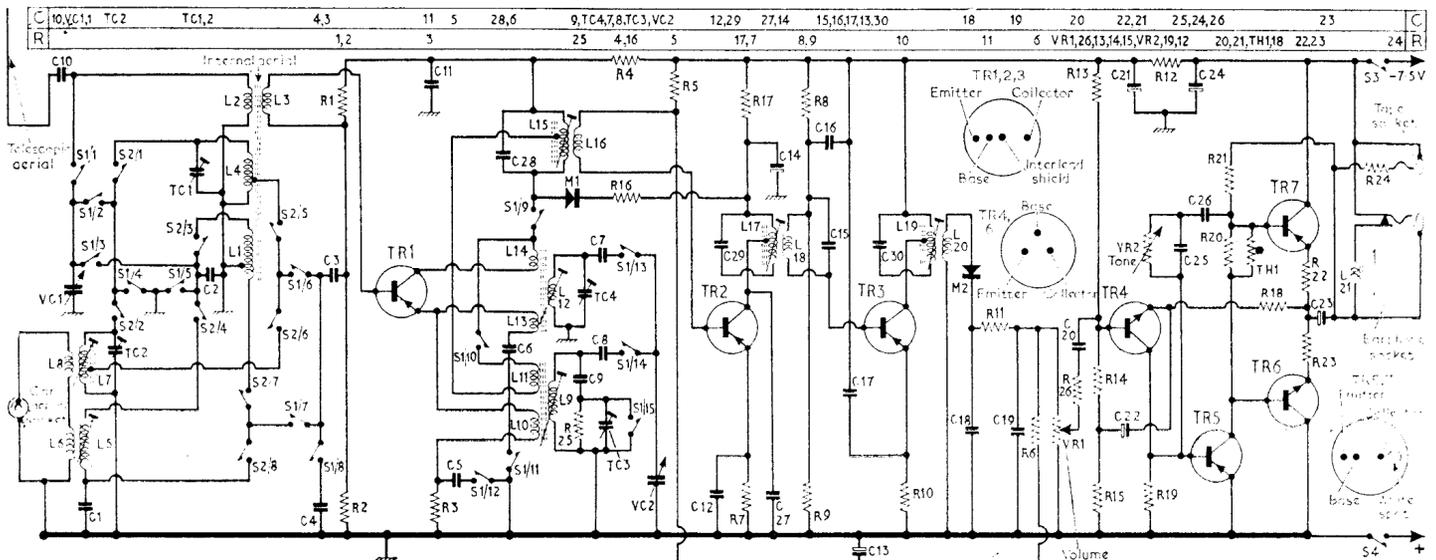
L4	—	E1
L5	—	B1
L6	—	B1
L7	—	A1
L8	—	A1
L9	—	C2
L10	—	B2
L11	—	C2
L12	—	B2
L13	—	B2
L14	—	B2
L15	—	C2
L16	—	C2
L17	—	D2
L18	—	D2
L19	—	D2
L20	—	D2
L21	10Ω	E2

**Miscellaneous**

M1	OA79	C2
M2	OA90	D2
S1	—	A2
S2	—	A2
S3, S4	—	E1
TH1	VA1040	E2

\*R5 is 47kΩ in later receivers.

†R26, C27 and C30 are omitted from some early receivers.



**CIRCUIT ALIGNMENT**

The alignment points referred to in the following directions are marked on the edge of the scale back moulding and the numbers (1-7) read from left to right when looking at the receiver from the rear (see main chassis illustration). All cores should be adjusted to the outer peak. During alignment the output should not be allowed to exceed 50mW.

**Equipment Required.**—A 0-100mW audio output meter with an impedance of 10Ω; an a.m. signal generator 30 per cent modulated; a dummy aerial unit comprising two capacitors, one 10pF and the other 56pF (connections described later); a 0.01μF isolating capacitor and an r.f. coupling coil. A suitable coupling coil can be made by winding approximately 14 turns of 18 s.w.g. enamelled copper wire on a one-inch diameter former to a length of 1 to 1½in.

- 1.—Connect the signal generator via the 0.01μF capacitor to TR1 base. Connect the audio output meter in place of the loudspeaker. (A convenient method is via the external loudspeaker socket using the correct type of plug.)
- 2.—Set the tuning gang to its mid-position, switch receiver to m.w. and feed in a 470kc/s modulated signal. Adjust L19, L17 and L15 for maximum output.
- 3.—Repeat operation 2.
- 4.—Connect the signal generator to the r.f. coupling coil and place the coil about 6in from the ferrite rod aerial. Fully open the tuning gang and check that the cursor coincides with calibration mark 1.
- 5.—Switch receiver to l.w. and set the cursor to calibration mark 7. Feed in a 170kc/s signal and adjust L9 and L1 (ferrite rod aerial coil) for maximum output.
- 6.—Switch receiver to m.w. and set the cursor to calibration mark 2. Feed in a 1,500kc/s signal and adjust TC3 and TC1 for maximum output.
- 7.—Set the cursor to calibration mark 6. Feed in a 600kc/s signal and adjust L4 (ferrite rod aerial coil) for maximum output.
- 8.—Repeat operation 6, readjusting TC1 only.

- 9.—Switch receiver to s.w. and set the cursor to calibration mark 5. Feed in a 6.85Mc/s signal and adjust L12 and L2 (ferrite rod aerial coil) for maximum output.
- 10.—Set the cursor to calibration mark 3. Feed in 15Mc/s signal and adjust TC4 for maximum output.
- 11.—Repeat operations 9 and 10.
- 12.—Disconnect the signal generator from the r.f. coupling coil and connect it to the car aerial socket via a dummy aerial comprising the 10pF capacitor connected in series with the "live" output lead to the inner of a coaxial plug, followed by the 56pF capacitor connected across the inner and outer connections of the plug.

**SOBELL - S319**

