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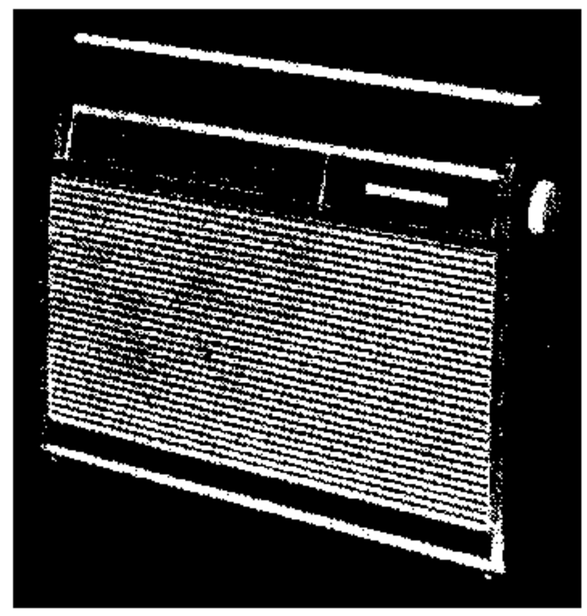
BUSH TR.102

Portable Radio Receiver



THE incorporation of cabinet fitments which also serve as operating controls is a feature of the Bush TR.102 transistor portable radio receiver.

The two spindles on which the carrying handle is pivoted form the volume control in one case and the tuning control in the other. Depressing the tuning control knob illuminates the cursor by means of a miniature pilot lamp fitted in the cursor itself. The tuning scale, wavechange and tone press-buttons are concealed by a hinged cover when the receiver is in the "off" condition. The receiver is switched on automatically by the action of opening the cover.

Waveband ranges are 187-570m (M.W.) and 1,070-1,900m (L.W.) with a ferrite rod aerial input on both ranges supplemented by an external socket to which a car-type aerial can be connected. A second socket allows the connection of an earphone; when the earphone plug is inserted the internal loudspeaker is muted. A total of seven transistors and two crystal diodes is employed. One 9v battery is required for operating power.

Released date and original price: January 1962, £16 13s 3d. Purchase tax extra.

TRANSISTOR ANALYSIS

Transistor voltages given in the table below are derived from information supplied by the manufacturers. They were measured on a model 8 Avometer under no signal conditions with the volume control set at zero output. All voltages are negative with respect to chassis.

Transistor		Emitter (V)	Base (V)	Collector (V)
VT1	AF117	1·1	1·1	7·0
VT2	AF117	0·8	1·0	4·4
VT3	AF117	1·0	1·25	6·8
VT4	OC71	0·85	0·95	2·7
VT5	OC81D	0·9	1·0	8·7
VT6	OC81	—	0·18	*
VT7	OC81	—	0·18	*

**No readings quoted.*

CIRCUIT ALIGNMENT

Equipment Required.—An A.M. signal generator modulated 30% at 400c/s; a 0-200mW output meter to match 3ohms impedance; a length of insulated wire formed into an R.F. coupling loop; a 2.2pF capacitor and a 0.1μF capacitor; a de-sensitizing resistor of 8,200 ohms fitted with crocodile clips and a non-metallic bladed type trimming tool for adujstment of the I.F. and oscillator coil cores.

1.—Switch on the signal generator and allow a 15-minute warm-up period. Remove the chassis from its case.

(*Continued overleaf, col.* 1)

Capacitors

C1	150pF	B1
C2	0·01μF	A1
C3	0·02μF	F3
C4	300pF	A2
C5	300pF	A2
C6	556pF	F3
C7	4μF	F4
C8	490pF	B1
C9	300pF	A2
C10	0·1μF	F4
C11	0·1μF	E4
C12	300pF	A2
C13	250pF	B2
C14	0·02μF	F4
C15	0·02μF	E4
C16	0·02μF	E4
C17	0·01μF	B2
C18	8μF	E3
C19	0·01μF	C1
C20	8μF	C1
C21	0·04μF	C1
C22	100μF	C1
C23	8μF	C1
C24	0·04μF	C1
C25	100μF	E4
C26	100μF	B1
C27	0·1μF	B2
C28	0·02μF	B2
C29	100μF	B2
C30	0·1μF	B2
C31	0·04μF	B2
CV1	523pF	A2
CV2	523pF	A2
CT1	40pF	B1
CT2	80pF	B1
CT3	40pF	B1
CT4	80pF	B1

Coils*

L1	1·0	C1
L2	—	B1
L3	—	B1
L4	14·5	C1
L5	2·5	C1
L6	—	A1
L7	—	A1
L8	2·5	A1
L9	6·5†	A2
L10	6·5†	A2
L11	6·5†	A2
L12	6·5†	A2
L13	6·5†	B2
L14	1·0§	B2
L15	3·0	—

Resistors

R1	33kΩ	F3
R2	6·8kΩ	F3
R3	1kΩ	F3
R4	150kΩ	A1
R5	680Ω	E4
R6	2·2kΩ	F4
R7	680Ω	F4
R8	22kΩ	E4
R9	4·7kΩ	F4
R10	390Ω	E4
R11	1kΩ	B2
R12	560Ω	E4
R13	56kΩ	E4
R14	8·2kΩ	E4
R15	82kΩ	C1
R16	22kΩ	C1
R17	15kΩ	C1
R18	5·6kΩ	C1
R19	68Ω	C1
R20	1kΩ	C1
R21	39kΩ	B1
R22	8·2kΩ	B1
R23	56Ω	B2
R24	270Ω	B1
R25	470Ω	B2
R26	6·8kΩ	B2
R27	150Ω	B1
R28	10kΩ	B2
R29	4·7Ω	E4
R30	150Ω	B2
R31	56Ω	E4
R32	68Ω	B2
RV1	5kΩ	C1

Transformers*

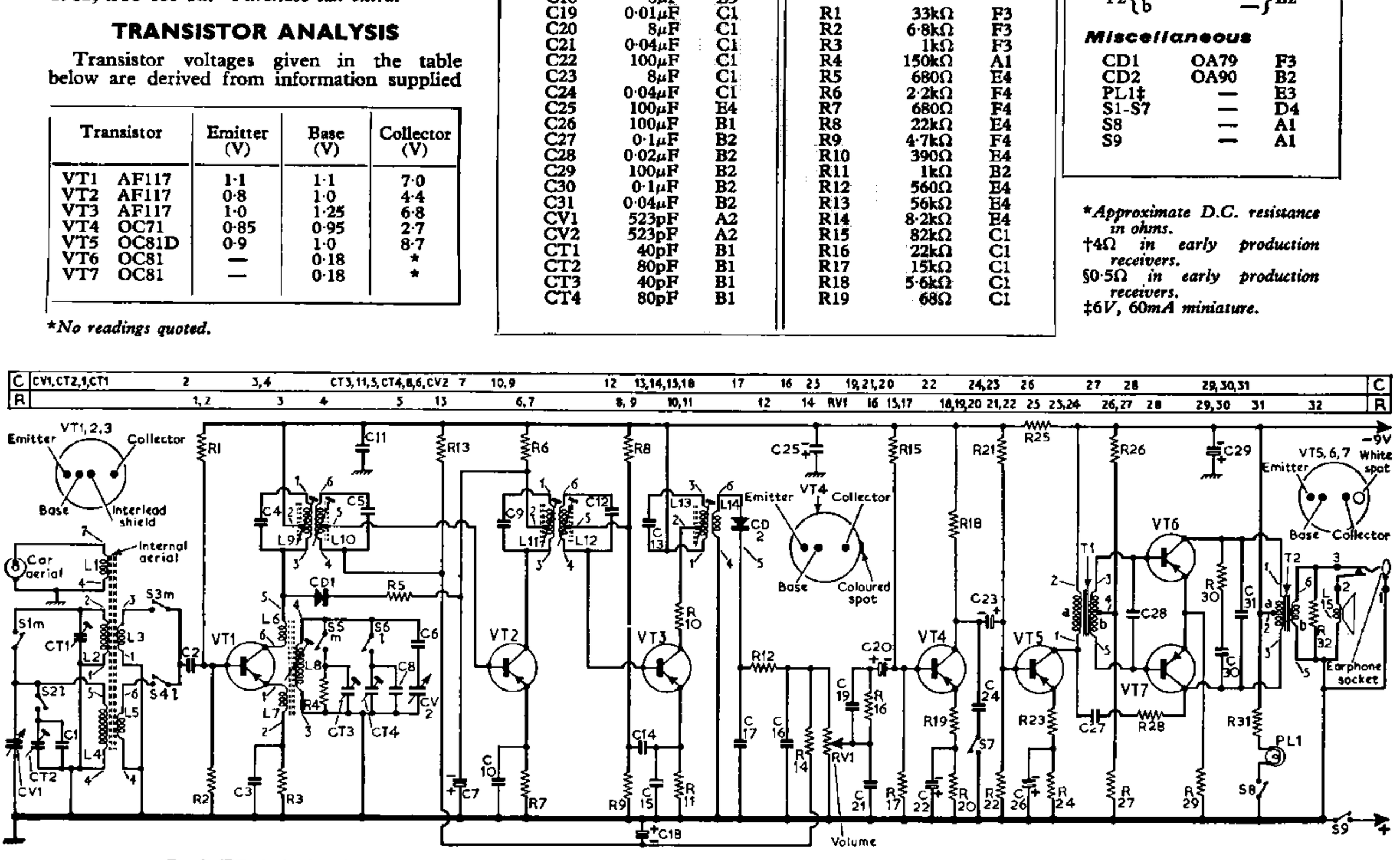
T1 a	138·0	B2
T1 b	120·0	B2
T2 a	5·2	B2
T2 b	—	B2

Miscellaneous

CD1	OA79	F3
CD2	OA90	B2
PL1‡	—	E3
S1-S7	—	D4
S8	—	A1
S9	—	A1

**Approximate D.C. resistance in ohms.*
†4Ω *in early production receivers.*
§0·5Ω *in early production receivers.*
‡6*V*, 60*mA miniature.*

C	CV1,CT2,1,CT1	2	3,4	CT3,11,5,CT4,8,6,CV2	7	10,9	12	13,14,15,18	17	16	25	19,21,20	22	24,23	26	27	28	29,30,31	C
R		1,2	3	4	5	13	6,7	8,9	10,11	12	14	RV1	16	15,17	18,19,20	21,22	25	23,24	26,27	28	29,30	31	32	R



Bush TR.102 circuit diagram. On later receivers **C24** *is connected between* **S7** *and the junction of* **C19** *and* **C20**