

# BUSH - BAC31

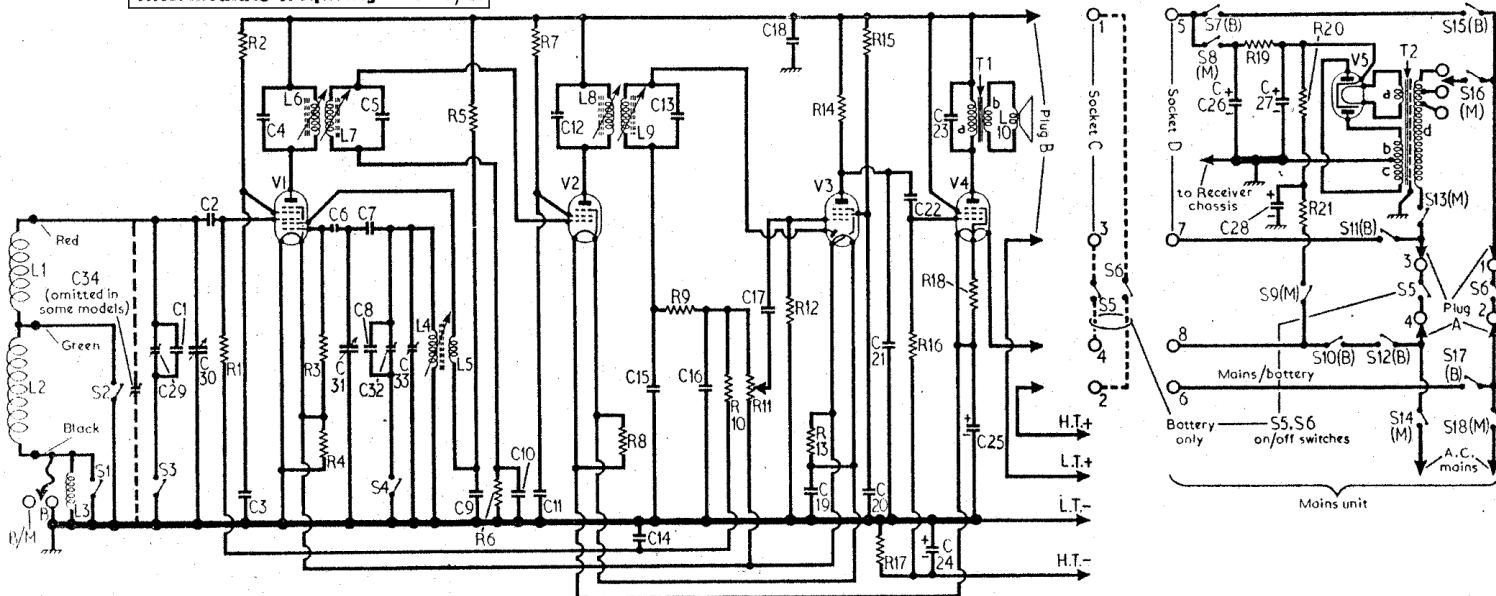
OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	M.W. frame aerial	2.0	—
L2	L.W. frame aerial...	7.5	—
L3	L.W. loading coil...	3.8	F3
L4	Osc. tuning coil ...	1.5	F3
L5	Osc. reaction coil...	2.0	F3
L6	1st I.F. trans. {	11.0	A1
L7		11.0	A1
L8	2nd I.F. trans. {	11.0	B1
L9		11.0	B1
L10	Speech coil ...	2.5	—
T1	O.P. trans. {	540.0	—
	a ...	—	—
	b ...	—	—
T2	Mains trans. {	300.0	A2
	c ...	300.0	A2
	d, total	280.0	A2
S1-S4	Waveband switches	—	F3
S5, S6	Power sw., g'd R11	—	E3
S7(B)-S18(M)	Mains/battery switches	—	B4

RESISTORS		Values	Locations
R1	V1 C.G. ...	2.2MΩ	G3
R2	V1 S.G. feed ...	180kΩ	F3
R3	V1 osc. C.G. ...	47kΩ	G4
R4	Fil. H.T. by-pass...	150Ω	G4
R5	Osc. H.T. feed ...	33kΩ	F3
R6	V2 C.G. ...	4.7MΩ	F3
R7	V2 S.G. feed ...	56kΩ	F3
R8	Fil. H.T. by-pass...	220Ω	F4
R9	I.F. stopper ...	47kΩ	E4
R10	A.G.C. decoupling	2.2MΩ	E3
R11	Volume control ...	500kΩ	E3
R12	V3 C.G. ...	4.7MΩ	E3
R13	Fil. H.T. by-pass...	180Ω	E3
R14	V3 anode load ...	470kΩ	E4
R15	V3 S.G. feed ...	2.2MΩ	D4
R16	V4 C.G. ...	1MΩ	D3
R17	V4 G.B. ...	150Ω	D3
R18	Fil. H.T. by-pass...	470Ω	D3
R19	H.T. smoothing ...	2.7kΩ	F4
R20	Fil. smoothing {	1.5kΩ	D4
R21		700Ω	D4

CAPACITORS		Values	Locations
C1	L.W. aerial trim. ...	140pF	G3
C2	V1 C.G. ...	100pF	G3
C3	V1 S.G. decoup. ...	0.05μF	F4
C4	1st I.F. trans. tun. {	110pF	A1
C5		110pF	A1
C6	V1 osc. C.G. ...	80pF	G3
C7	Osc. tracker ...	605pF	F3
C8	L.W. osc. trim. ...	515pF	F3
C9	Osc. anode decoup.	0.05μF	F3
C10	V2 C.G. ...	0.01μF	F3
C11	V2 S.G. decoup. ...	0.05μF	F3
C12	2nd I.F. trans. tun. {	110pF	B1
C13		110pF	B1
C14	A.G.C. decoupling	0.05μF	E3
C15	I.F. by-passes {	500pF	E3
C16		100pF	E4
C17	A.F. coupling ...	500pF	E3
C18	H.T. by-pass ...	0.5μF	B1
C19	Filament by-pass...	0.05μF	E3
C20	V3 S.G. decoup. ...	0.05μF	D4
C21	I.F. by-pass ...	100pF	E4
C22	A.F. coupling ...	0.005μF	E3
C23	Tone corrector ...	0.001μF	—
C24*	V4 G.B. by-pass ...	50μF	B1
C25*	Filament by-pass	200μF	D3
C26*	H.T. smoothing ... {	32μF	A2
C27*		32μF	A2
C28*	Filament smoothing	25μF	D4
C29†	L.W. aerial trim. ...	40pF	G3
C30†	Aerial tuning ...	528pF	F3
C31†	Oscillator tuning ...	528pF	F3
C32†	L.W. osc. trim. ...	40pF	G3
C33†	M.W. osc. trim. ...	40pF	G3
C34†	M.W. aerial trimmer	40pF	G3

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

Intermediate frequency 470 kc/s.



## CIRCUIT ALIGNMENT

**I.F. Stages.**—Connect output of signal generator to junction of L1, C2 (red frame aerial lead) and to chassis. Switch receiver to M.W. and turn gang to minimum capacitance. Feed in a 470 kc/s (638.3 m) signal and adjust the cores of L9 (location reference B1), L8 (B1), L7 (A1) and L6 (A1) for maximum output. Repeat these adjustments until no further improvement results.

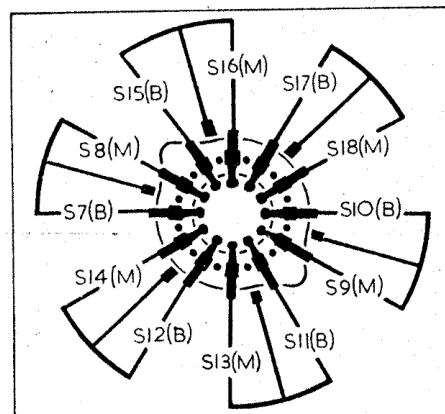
**R.F. and Oscillator Stages.**—With the chassis in position in the carrying case and the gang at maximum capacitance, check that the cursor coincides with the high wavelength ends of the tuning scales. Connect output of signal generator to a loop consisting of three turns of wire of 8in diameter and place the loop parallel to and about 3-4ft from the frame aerials.

**M.W.**—Switch receiver to M.W., tune to 500 m, feed in a 500 m (600 kc/s) signal and adjust the core of L4 (A1) for maximum output. Tune receiver to 200 m, feed in a 200 m (1,500 kc/s) signal and adjust C33 (A1) and C34 (A1), where fitted, for maximum output. Repeat these adjustments until no further improvement results.

**L.W.**—Switch receiver to L.W., tune to 1,402 m, feed in a 1,402 m (214 kc/s) signal and adjust C32 (A1) and C29 (A1) for maximum output. Repeat these adjustments.

Valve	Anode		Screen	
	V	mA	V	mA
V1 DK92 ...	{ 90 42	{ 1.3 1.9	62	0.2
V2 DF91 ...	90	1.2	62	0.4
V3 DAF91 ...	42	0.12	22	0.02
V4 DL94 ...	85	4.2	90	0.8
V5 EZ41 ...	125*	—	—	—

\* A.C., each anode. Cathode voltage, 106V.



Above : Mains/battery switches, as viewed in chassis illustration below.