

BUSH - MB60

VALVE ANALYSIS

Valve voltages given in the table below are those derived from the manufacturer's information. They were measured on the 10V and 1,000V ranges of a Model 7 Avometer, chassis being the negative connection in every case.

The receiver was switched to M.W. and was operating from A.C. mains.

H.T. voltage measured at C37 was 105V; filament voltage measured at C40 was 1.3V, V5 bias voltage measured across R20 was -4.9V.

Valve	Anode (V)	Screen (V)
V1 DK96 { mixer ..	80	70
{ osc. ..	30	—
V2 DF96 ..	85	60
V3 DF96 ..	85	60
V4 DAF96 ..	15	15
V5 DL96 ..	83	85

Resistors

R1	2.2MΩ	E4
R2	100kΩ	E4
R3	2.7kΩ	F4
R4	27kΩ	E3
R5	33kΩ	B1
R6	33kΩ	E4
R7	33kΩ	F3
R8	27kΩ	F4
R9	2.7MΩ	F4
R10	2.7MΩ	F4
R11	500kΩ	B1
R12	10MΩ	F4
R13	2.7MΩ	F4
R14	1MΩ	F4
R15	1.8MΩ	F4
R16	330kΩ	F4
R17	100kΩ	A1
R18	10kΩ	C1
R19	1kΩ	C1
R20	560Ω	F4
R21	1.8kΩ	C1
R22	100Ω	C2
R23	10Ω	B2
R24	10Ω	B2

Coils*

L1	—	E3
L2	—	E3
L3	—	D3
L4	16.0	A1
L5	16.0	A1
L6	4.0	B1
L7	2.0	B1
L8	16.0	A2

L9	16.0	A2
L10	16.0	A2
L11	16.0	A2
L12	3.0	C2

Capacitors

C1	1,800pF	F3
C2	30pF	B1
C3	523pF	A1
C4	30pF	B1
C5	160pF	B1
C6	30pF	B1
C7	560pF	E4
C8	0.01μF	E3
C9	0.04μF	F3
C10	110pF	A1
C11	110pF	A1
C12	100pF	B1
C13	523pF	A1
C14	30pF	B1
C15	30pF	B1
C16	30pF	B1
C17	450pF	B1
C18	515pF	B1
C19	0.01μF	B1
C20	110pF	A2
C21	110pF	A2
C22	0.04μF	F3
C23	0.04μF	F4
C24	110pF	A2
C25	110pF	A2
C26	68pF	F4
C27	3.3pF	F4
C28	0.1μF	B1

C29	0.003μF	F4
C30	0.01μF	F4
C31	0.003μF	F4
C32	0.003μF	F3
C33	50μF	C2
C34	0.01μF	B1
C35	0.04μF	C1
C36	0.1μF	E4
C37	50μF	B2
C38	20μF	C2
C39	0.5μF	E3
C40	3,000μF	A2
C41	3,000μF	A2
C42	1,000μF	B2

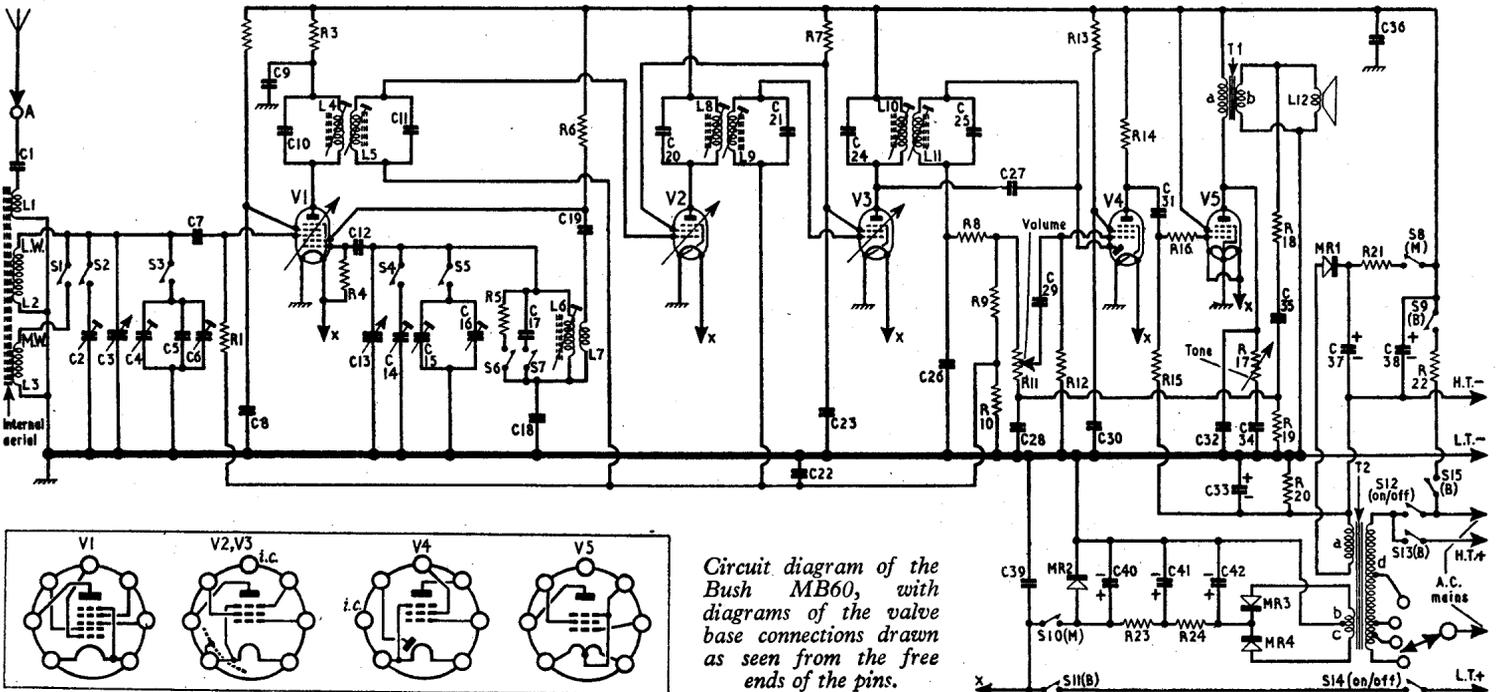
Miscellaneous*

T1	{ a. 460.0	C1
	{ b. 0.2	
T2	{ a. 420.0	B2
	{ b. 0.8	
	{ c. 0.8	
	{ d. 770.0	
	(pri. total)	
MR1	†	B2
MR2-MR4	‡	B2
S1-S7	—	B1
S8-S11	—	C1
S12, S14	—	A1
S13, S15	—	C2

*Approximate D.C. resistance in ohms.

†Westinghouse. 16RC1-1-8-1

‡S.T.C. FSX1634C



Circuit diagram of the Bush MB60, with diagrams of the valve base connections drawn as seen from the free ends of the pins.

CIRCUIT ALIGNMENT

Equipment Required.—An accurately calibrated signal generator, modulated 30 per cent at 400c/s; an output meter; a single loop of insulated wire to form a coupling loop; a 0.1μF capacitor; and a non-metallic screwdriver trimming tool.

The receiver and signal generator should be allowed to warm up for at least ten minutes before commencing the alignment procedure.

I.F. Stages

- 1.—Remove chassis from cabinet. Connect output meter across T1 secondary winding. Connect signal generator, via the 0.1μF capacitor, to V2 control grid (pin 6). Set the volume control to maximum and the tone control for maximum top response.
- 2.—Switch receiver to M.W. and tune it to 300m. Feed in a modulated 470kc/s signal and adjust the cores of L11 (A2), L10 (F4), L9 (A2) and L8 (F4) for maximum output, progressively reducing the signal generator output as the circuits are brought into line.
- 3.—Transfer the signal generator to V1 control grid (pin 6). Feed in a modulated 470kc/s signal and adjust the cores of L5 (A1) and L4 (F3) for maximum output. Disconnect signal generator.

R.F. and Oscillator Stages

- 4.—Check that with the tuning gang at maximum capacitance the cursor coincides with the datum line on the tuning scales. Couple the signal generator output to the receiver by means of the single loop of insulated wire placed about three feet from the receiver and with its plane at right angles to the ferrite rod aerial.
- 5.—With the receiver switched to M.W., tune it to 500m. Feed in a 600kc/s signal and adjust the core of L6 (B1) for maximum output.
- 6.—Tune receiver to 200m. Feed in a 1,500kc/s signal and adjust C14 (B1) and C2 (B1) for maximum output.
- 7.—Repeat operations 5 and 6.
- 8.—Switch receiver to L.W. and tune it to 1,400m. Feed in a 214kc/s signal and adjust C15 (B1), and C16 if necessary; and C4 (B1), and C6 if necessary, for maximum output.
- 9.—The ferrite rod L.W. aerial coil L2 (E3) has been aligned at the factory and should not be moved. Alignment of the M.W. ferrite rod aerial coil L3 (D3) will normally not be necessary. If alignment of L3 is essential, switch the receiver to M.W. and tune it to 500m. Feed in a 600kc/s signal and slide the former of L3 along the ferrite rod for maximum output, then seal the former of L3 to the ferrite rod to prevent it from moving.