

Circuit diagram of the Bush SW41 3-band superhet. The RG41 (A.C.) has a similar circuit, except for the inclusion of pick-up switching and one or two other modifications which are explained under "General Notes."

### COMPONENTS AND VALUES

CONDENSERS	Values (μF)
C1	V1 hexode C.G. decoupling .. 0.06
C2	V1 cathode by-pass .. 0.1
C3	V1 osc. C.G. condenser .. 0.00005
C4	Osc. circuit M.W. fixed tracker .. 0.00004
C5	V1, V2 S.G.s and V1 oscillator anode decoupling and R.F. by-pass condensers .. 0.03
C6*	V2 C.G. decoupling .. 0.03
C7	V2 C.G. decoupling .. 0.1
C8	V1, V2 anodes R.F. by-pass .. 0.1
C9	Coupling to V3 A.V.C. diode .. 0.0001
C10	Coupling to V3 signal diode .. 0.0001
C11	A.F. coupling to V3 triode .. 0.005
C12	I.F. by-pass .. 0.0001
C13*	V3 triode anode decoupling .. 2.0
C14*	V3 cathode by-pass .. 50.0
C15*	Part H.T. smoothing .. 16.0
C16*	V3 triode to V4 A.F. coupling .. 0.03
C17	V4 cathode by-pass (S.W. only) .. 50.0
C18	Part of variable tone control .. 0.02
C19	Part H.T. smoothing .. 8.0
C20*	Aerial circuit S.W. trimmer .. 0.00004
C21*	Aerial circuit M.W. trimmer .. 0.00007
C22*	Aerial circuit L.W. trimmer .. 0.00007
C23*	Aerial circuit tuning .. 0.0003
C24*	Oscillator circuit tuning .. 0.0003
C25*	Osc. circuit M.W. tracker .. 0.0003
C26*	Osc. circuit L.W. tracker .. 0.0003
C27*	Osc. circuit M.W. trimmer .. 0.00004
C28*	Osc. circuit M.W. trimmer .. 0.00009
C29*	Osc. circuit L.W. trimmer .. 0.000275
C30*	1st I.F. trans. pri. tuning .. 0.0003
C31*	1st I.F. trans. sec. tuning .. 0.0003
C32*	2nd I.F. trans. pri. tuning .. 0.0003
C33*	2nd I.F. trans. sec. tuning .. 0.0003

RESISTANCES	Values (ohms)
R1	M.W. coupling coil damping .. 50,000
R2	V1 hexode C.G. decoupling .. 1,000,000
R3	V1 fixed G.B. resistance .. 100
R4	V1 osc. C.G. resistance .. 30,000
R5	V1, V2 S.G.s and V1 osc. anode H.T. feed .. 20,000
R6	V2 C.G. decoupling .. 5,000,000
R7	V2 C.G. stabiliser .. 250
R8	V1, V2 anodes H.T. feed .. 5,000
R9	I.F. stopper .. 250,000
R10	Manual volume control .. 500,000
R11	V3 triode C.G. I.F. stopper .. 100,000
R12	V3 signal diode load .. 1,000,000
R13	V3 G.B. and A.V.C. delay resistance .. 1,000
R14	V3 triode anode decoupling .. 10,000
R15	V3 triode anode load .. 50,000
R16	V3 A.V.C. diode load .. 1,000,000
R17	A.V.C. line decoupling .. 1,000,000
R18	V4 C.G. resistance .. 500,000
R19	V4 C.G. I.F. stopper .. 100,000
R20	V4 G.B. resistance .. 200
R21	Variable tone control .. 50,000

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial S.W. coupling ..	0.25
L2	Aerial S.W. tuning coil ..	0.05
L3	Aerial M.W. coupling ..	0.6
L4	Aerial M.W. tuning coil ..	1.5
L5	Aerial L.W. coupling ..	50.0
L6	Aerial L.W. tuning coil ..	14.0
L7	Oscillator S.W. tuning coil ..	0.05
L8	Oscillator S.W. reaction ..	0.3
L9	Oscillator M.W. tuning coil ..	1.5
L10	Oscillator M.W. reaction ..	1.3
L11	Oscillator L.W. tuning coil ..	2.5
L12	Oscillator L.W. reaction ..	2.0
L13	1st I.F. trans. Pri. ..	2.3
L14	1st I.F. trans. Sec. ..	2.3
L15	2nd I.F. trans. Pri. ..	2.3
L16	2nd I.F. trans. Sec. ..	2.3
L17	Speaker speech coil ..	1.6
L18	Hum neutralising coil ..	0.15
L19	Speaker field coil ..	2,000.0
T1	Speaker input trans. Pri. ..	650.0
	Sec. ..	0.3
T2	Mains trans. Pri., total ..	26.5
	Heater sec. ..	0.1
	Rect. heat. sec. ..	0.15
	H.T. sec., total ..	550.0
S1-S17	Waveband switches ..	—
S18-20	Scale lamp switches ..	—
S21	Mains switch, ganged R10 ..	—

### VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 223 V, using the 230 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but there was no signal input.

Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 41STH	230	1.6	70	3.4
	Oscillator	3.8		
V2 MVS/Pen/B	230	3.2	70	1.2
V3 TDD4	82	2.4	—	—
V4 PenA4	238	29.0	258	4.3
V5 DW4/350	327†	—	—	—

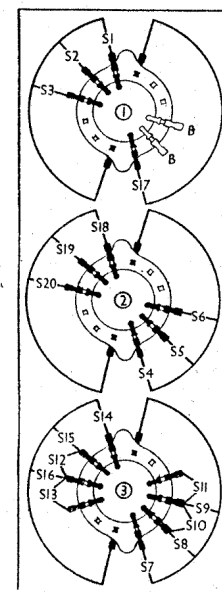
† Each anode, A.C.

### GENERAL NOTES

**Switches.**—S1-S17 are the wavelength, and S18-S20 the scale lamp, switches, ganged in three rotary units inside the coil boxes. Their positions are indicated in our under-chassis view, and shown in detail in the diagrams.

The table below gives the switch positions for the three control settings, starting from fully anti-clockwise. A dash indicates open, and C closed.

Switch	S.W.	M.W.	L.W.
S1	C	—	—
S2	—	C	—
S3	—	—	C
S4	C	—	—
S5	—	C	—
S6	—	—	C
S7	C	—	—
S8	—	C	—
S9	—	—	C
S10	C	—	—
S11	—	C	—
S12	C	—	—
S13	—	C	—
S14	C	—	—
S15	—	C	—
S16	—	—	C
S17	C	—	—
S18	C	—	—
S19	—	C	—
S20	—	—	C



Diagrams of the switch units as seen looking from the rear of the underside of the chassis. The radiogram model has an extra unit, as explained under "General Notes."

S21 is the Q.M.B. mains switch, ganged with the volume control, R10.

**Coils.**—The signal frequency and oscillator coils are in a partitioned screened unit, with the wavechange switches, and several other components.

**CIRCUIT ALIGNMENT**  
I.F. stages:—The primary winding of the first I.F. transformer is connected in series resistance and a 0.1 μF capacitor in series with the grid end of the secondary to earth, and when adjusting a secondary connect them from the anode end of the primary to earth set to M.W. and tune to about 300 m. Connect signal generator to control grid (top cap) of V2 and chassis. Feed in a 495 KC/S signal and adjust C94 and C93 for maximum output. Transfer generator to top cap of V1 and chassis, and adjust C92, C91 for maximum output. Re-check all adjustments.  
**R.F. and Oscillator Stages.**—S.W. switch set to S.W., tune to 18 m., on scale, and feed in an 18 m. (1,607 KC/S) signal, the gain for maximum output. Adjust C28 for maximum output. Check calibration at 50 m. M.W.—Switch set to M.W., tune to 200 m. on scale, feed in a 200 m. (1,500 KC/S) signal, and adjust C29 for maximum output on the peak capacity. Tune to 300 m. on scale, feed in a 300 m. (1,000 KC/S) signal, and adjust C32 for maximum output.  
L.W.—Switch set to L.W., tune to 1,300 m. on scale, feed in a 1,300 m. (230.7 KC/S) signal, and adjust C30 for maximum output. Tune to 1,500 m. on scale, feed in a 1,500 m. (200 KC/S) signal, and adjust C33 for maximum output. Tune to 1,800 m. (166.7 KC/S) signal, tune it in, and adjust C37 for maximum output, rocking the gang for optimum results. Re-check at 1,300 m.