BUSH Models AC.31, DAC.31

General Description : Four-valve (including rectifier), three-waveband superheterodyne receiver. For gramophone record reproduction the triode section of V1 is used as an audio amplifier. Released January 1952. Price £23 0s. 0d. (including tax).

Power Supplies : *Model AC.31* : A.C. mains, 100–127, 200–250 volts, 40–100 c/s. Consumption 45 watts.

Model DAC.31 : A.C./D.C. mains, 200–250 volts. Consumption 45 watts.

Wavebands : L.W. 1000–2000 m. (300–150 kc/s.); M.W. 176–575 m. (1700–520 kc/s.); S.W. 14·3–35·5 m. (21–8·5 Mc/s.).

Intermediate Frequency : 470 kc/s.

Valves : Mullard rimlock series.

Model AC.31 : (V1) ECH42; (V2) EBF80; (V3) EL41; (V4) EZ41.

Model DAC.31 : (V1) UCH42; (V2) UBF80; (V3) UL41; (V4) UY41.

Scale Lamps : A.C.31, 6·2 volts, 0·3-amp.; DAC.31, 3·5 volts 0·15-amp.

Alignment Procedure : *Warning*—Chassis of DAC.31 is " Live ".

A dummy aerial should be used in series with the output lead of the signal generator, and may consist of a 400-ohm non-inductive resistor for the short waveband and a fixed capacitor of 200 pF. for the long and medium wavebands. A period of at least 10 minutes should elapse after switching on before alignment is commenced. Turn the volume control to maximum and use the lowest possible signal from the generator. When the plates of the tuning capacitor are fully meshed the pointer should coincide with the datum line on the main and auxiliary scales.

I.F.: An isolating capacitor of 0·01 μF. in series with the output of the signal generator will be required to ensure the A.V.C. line is not short-circuited.

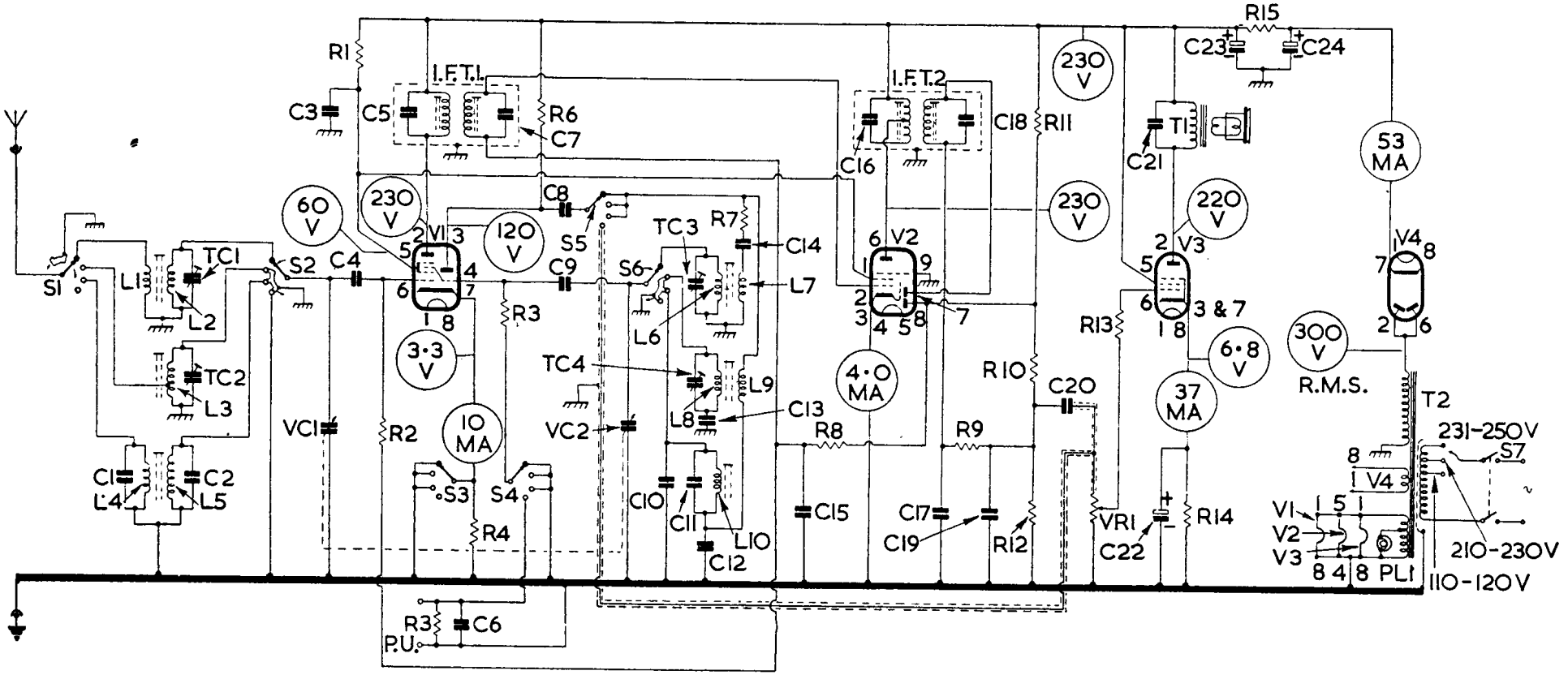
Set the tuning capacitor to maximum capacitance on medium waveband. Connect signal generator of V2 anode (pin 6), and tune the secondary and primary of second I.F. transformer in that order for maximum output. Transfer the signal to V1 control grid (pin 6) and tune the secondary and primary of first I.F. transformer for maximum output. Tune each circuit once only at 470 kc/s. and reduce the output of the signal generator as each circuit comes into line. The secondary winding is nearest the top of the can.

R.F.: When aligning the R.F. section the signal generator should be connected to the aerial socket. This is particularly important for the DAC.31, as an isolating capacitor is wired in.

L.W.: Adjust cores of L10 and L4/5 for maximum output at 1400 m. (214 kc/s.). Check calibration over whole range.

M.W.: Adjust cores of L8/9 and L3 for maximum output at 500 m. (600 kc/s.). Adjust TC4 and TC2 for maximum output at 200 m. (1500 kc/s.). Check calibration and repeat alignment if necessary.

S.W.: Adjust cores of L6/7 and L1/2 for maximum output at 30 m. (10 Mc/s.). Adjust TC3, TC1 for maximum output at 15 m. (20 Mc/s.). Check calibration and repeat alignment if necessary. The auxiliary calibration scale is attached to the drive drum, and should be used when aligning the chassis out of the cabinet.



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Circuit Diagram—Bush Model AC.31

(For switch details and D.C. resistance of inductors see following page)

Capacitors.

C1	600 pF.	C11	240 pF.	C21	0·01
C2	85 pF.	C12	365 pF.	C22	50
C3	0·05	C13	515 pF.	C23	50 DAC.31 32 AC.31
C4	100 pF.	C14	56 pF.	C24	50 DAC.31 32 AC.31
C5	110 pF.	C15	0·05	C25	0·001
C6	0·002	C16	110 pF.	C26	0·01
C7	110 pF.	C17	100 pF.	C27	0·005 } DAC.31
C8	0·001	C18	110 pF.	C28	0·01
C9	56 pF.	C19	100 pF.	C29	0·01
C10	33 pF.	C20	0·002		

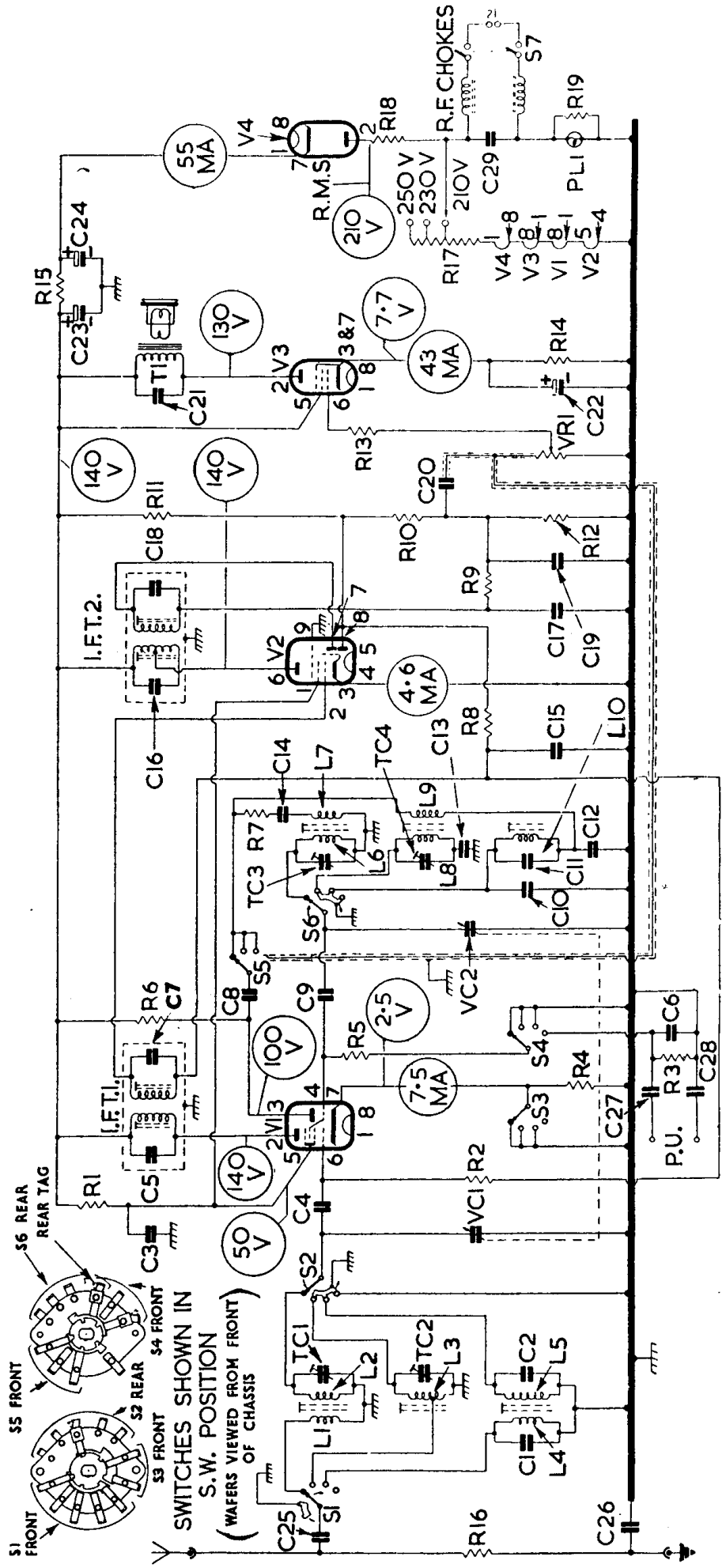
Resistors.

R1	39k	AC.31
	27k	DAC.31
R2	680k	
R3	680k	
R4	330	
R5	47k	
R6	10k *	
R7	100	
R8	1·5M	
R9	47k	
R10	680k	
R11	20M	
R12	330k	
R13	47k	
R14	180	
R15	1·0k	DAC.31
	1·5k	AC31
R16	1M	
R17	200 + 200 + 1030	DAC.31
R18	250	
R19	75	

VR1 500k

TC1, TC3 60–120 pF.
TC2, TC4. 4–40 pF.
VC1, VC2 2 × 528 pF. Ganged

* AC.31 only. On later receivers R6 is 22k (1 W. 10%)



Circuit Diagram—Bush Model DAC.31

(Component values are given on the preceding page)

D.C. Resistances.

L1	0·5 ohm	L2	Under ½ ohm
L4	50 ohms	L5	20 ohms
L7	0·5 ohm	L8	1 ohm
L10	5 ohms	L11	3 ohms (DAC.31)
		L3	7 ohms
		L6	Under ½ ohm
		L9	5 ohms
		L12	3 ohms (DAC.31)

I.F. Transformers : 12·5 ohms, each winding

Mains transformer AC.31 only :

Primary	45 ohms total
Secondary	140 ohms total
Rectifier heater	0·9 ohms
Valve heaters	0·4 ohms

Output transformer:

Primary	410 ohms
Secondary	Under ½ ohm