

# BUSH SAC25

Four-valve, plus rectifier, two waveband superhet with provision for pickup and high impedance extra loudspeaker. Suitable for operation from AC mains 200/250 volts. Marketed by Bush Radio, Ltd., Power Road, Chiswick, London, W4.

THE aerial is connected to L1 (MW) and L2 (LW), which are coupling coils for the inductively coupled band-pass circuit in which L3, L7 are the MW coils and L4, L8 the LW coils. L5 and L6 are the band-pass coupling coils. On MW L9 effects image suppression.

The signal is fed to the grid of the mixer valve V1, which is permanently biased by R2 decoupled by C5, but the grid circuit is returned to the AVC line for signal biasing. The oscillator circuit employs tuned grid coils L10 (MW), L11 (LW) tuned by VC3 section of the triple-ganged condenser with reaction coils L12, L13 in the oscillator anode circuit. This is fed from

the HT line via R4, which also feeds the screening grids of V1 and V2. C7 is the decoupling condenser for R4.

An IF transformer L14, L15 transfers the signal to the grid of the IF amplifier V2, which is also AVC controlled but has a permanent biasing resistance R9 decoupled by C10 in the cathode circuit. A second IF transformer L16, L17 passes on the signal to the signal diode of the double-diode-triode V3.

The cathode circuit of V3 incorporates two resistances R15 and R16 decoupled by C17 and the signal diode is returned to the junction of these two resistances for biasing via R11, R13 and R14.

R11 and C15 are filter components, while the LF signal developed across R13 and R14 is coupled via C12 and the pickup jack socket to the volume control

### VALVE READINGS

V	Type	Electrode	Volts	Mas.
1	FC4	Anode	250	1.5
		Osc anode	85	1.5
		Screen	85	5
		Cathode	2.5	
2	VP4	Anode	230	5
		Screen	85	2.5
		Cathode	2	
3	TDD4	Anode	115	2.8
		Cathode	8	
4	ACO44	Anode	275	48
		Cathode	290	

Readings taken with no signal input on a 1,000 o-p-v meter.

### CONDENSERS

C	Mfds	C	Mfds
1	.01	13	.01
2	.0005	14	.0001
3	.0021	15	.0002
4	.0018	16	.0001
5	.1	17	.25
6	.1	18	.03
7	.1	19	.5
8	.1	20	.001
9	.1	21	.16
10	.1	22	.8
11	.1	23	
12	.005		

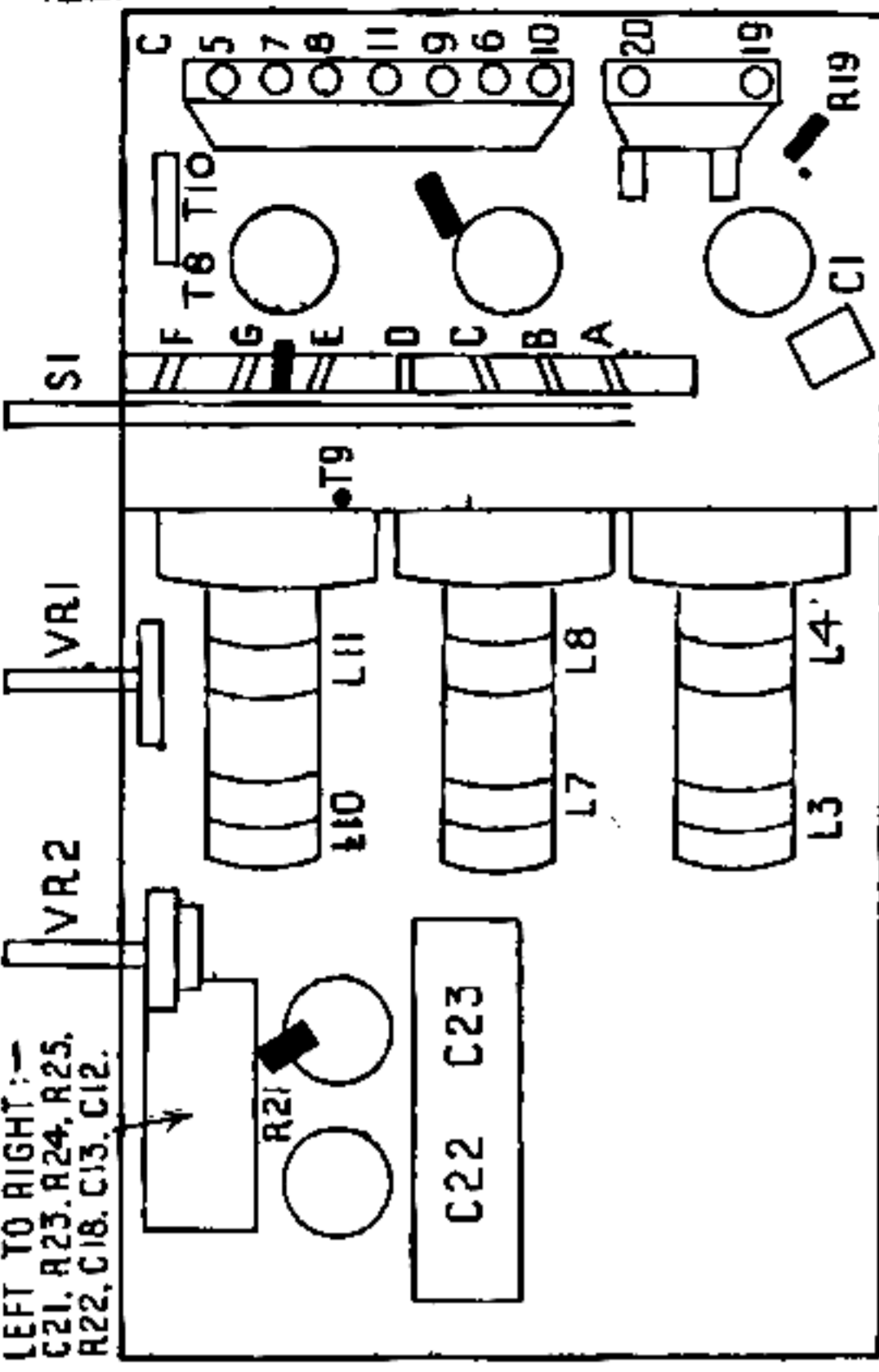
VR2 and thence to the grid of V3. When the pickup jack is inserted into its socket C12 is disconnected from VR2 and the output from the pickup is fed direct to the outers of VR2.

A tone control circuit is incorporated between the anode of V3 and the cathode circuit and comprises C13 and VR1. The AVC diode of V3 is fed from the anode of V2 via C16, the load resistance being R19. The AVC line incorporates decoupling components R20, R8, R6 and C6.

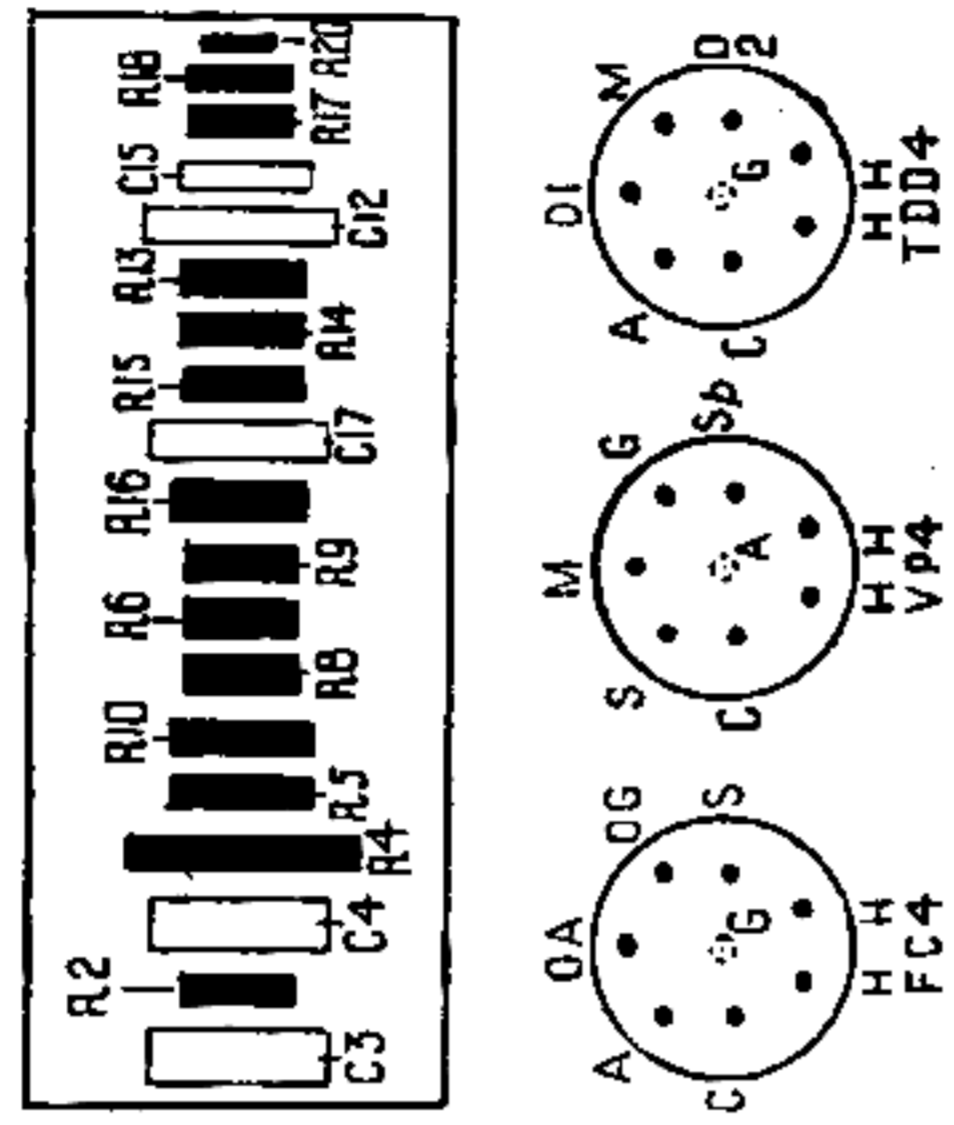
The LF signal from V3 is resistance capacity coupled by R18, C18 and R22 to the grid of the triode output valve V4. R21 is a grid stopper.

V4 is biased by R22 being returned to the potential divider network R23, R24 connected across the field winding, L21. A permanent degree of tone correction is effected by C21 and the output is coupled

These diagrams show both the underside and top of the chassis; small parts are mostly on two sub-assemblies.



Below is a detail diagram of the under-chassis sub-assembly; C3 is at the front end.



to the low impedance loudspeaker by a matching transformer L18, L19.  
Extra loudspeaker sockets are provided across the primary, L18, of the output transformer; extra loudspeakers must, therefore, be of the high impedance type or have suitable matching transformers. A plug and socket is provided for silencing the internal speaker when not required.  
The HT supply is derived from the fullwave rectifier V5, with smoothing effected by the loudspeaker field winding L21 and condensers C22, C23.

### GANGING

IF CIRCUITS—Inject a 123 kc signal into the control grid of V1 and adjust T1, T2, T3 and T4 for maximum output, keeping the input low.  
MW BAND—Switch receiver to MW and tune it to 200m. Inject a 200m signal into the A and E sockets and adjust T5, T6 and T7 for maximum output.  
Inject and tune in a 500m signal and adjust T8 for maximum output whilst rocking gang.  
LW BAND—Switch receiver to LW and tune to 1,000m. Inject a 1,000m signal into A and E sockets and adjust T9 for maximum output.  
Inject and tune in a 1,900m signal and adjust T10 for maximum output whilst rocking gang.

### WINDINGS

L	Ohms	L	Ohms
1	1.5	14	110
2	7	15	110
3	3	16	60
4	12	17	60
5	3.5	18*	330
6	.5	19	Very low
7	3	20	2.5
8	.12	21	1,500
9	4	22	.15
10	8.5	23	.1
11	3.5	24	.5
12	3.5	25	.5
13	3.5	26	.5

\* 120 ohms on R.Gs.

Pin connections of the less common valves, as seen from below.

### RESISTANCES

R	Ohms
1	250
2	250
3	30,000
4	20,000
5	10,000
6	1 meg
7	10,000
8	1 meg
9	250
10	10,000
11	50,000
12	250,000
13	500,000
14	50,000
15	1,000
16*	2,000
17	10,000
18	50,000
19	1 meg
20	1 meg
21	100,000
22	500,000
23	200,000
24	500,000
25	500,000
VR1	100,000
VR2	500,000

\* 5,000 ohms in R.Gs.

