

Ferranti

OUTPUT PENTODE

An indirectly heated pentode rated for an anode dissipation of 6 watts. Designed for use as an RF Amplifier up to 120 Mc/s or as an AF output valve.

PHYSICAL DETAILS.

Base	...	...	...	B9A Glass
Max. Overall Length	...	...	...	67.5 mm. (2 $\frac{3}{8}$ ")
Max. Seated Height	...	...	...	60.5 mm. (2 $\frac{3}{8}$ ")
Max. Diameter	...	...	...	22.2 mm. ($\frac{7}{8}$ ")

BASE CONNECTIONS.

Pin 1—Control Grid (g ₁)	Pin 5—Heater
Pin 2—Control Grid (g ₁)	Pin 6—Suppressor Grid (g ₃)
Pin 3—Cathode	Pin 7—Anode
Pin 4—Heater	Pin 8—Suppressor Grid (g ₃)
	Pin 9—Screen Grid (g ₂)

HEATER.

Heater Voltage	...	...	...	6.3 volts
Heater Current	...	...	...	0.2 amp

RATINGS.

Max. HT. Supply Voltage	...	...	550 volts
Max. Anode Voltage	...	...	300 volts
Max. Screen Voltage	...	...	300 volts
Max. Anode Dissipation	...	...	6 watts
Max. Screen Dissipation (Zero Sig.)	...	...	1 watt
*Max. Screen Dissipation (Max. Sig.)	...	...	2 watts
Max. Cathode Current (AF Operation)	...	...	35 mA
Max. Cathode Current (RF Operation)	...	...	25 mA
Max. Negative V _{g1}	...	...	100 volts
Max. Negative V _{g1} (pk)	...	...	250 volts
Max. V _{h-k}	...	...	100 volts
Max. R _{h-k}	...	...	20 kΩ

CHARACTERISTICS.

Anode Voltage	...	...	...	200	225	250	volts
Screen Voltage	...	...	...	200	225	250	volts
Control Grid Voltage	...	...	...	-9.4	-10.8	-13.5	volts
Anode Current	...	...	...	22.5	26	24	mA
Screen Current	...	...	...	3.6	4.1	4.1	mA
Mutual Conductance	...	...	...	3.2	3.2	3.1	mA/V
Inner μ (μ_{g1-g2})	...	...	...	11	11	11	
Anode Impedance	...	...	...	90	90	100	kΩ

TYPICAL OPERATION.

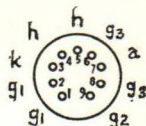
Single Valve as Class "A" Amplifier.

V _a	...	...	...	200	225	250	volts
V _{g2}	...	...	...	200	225	250	volts
R _k	...	...	...	360	360	470	ohms
I _a	...	...	...	22.5	26	24	mA
I _{g2}	...	...	...	3.6	4.1	4.1	mA
R _a	...	...	...	9.0	9.0	11	kΩ
V _{in} (r.m.s.)	...	...	...	6.4	7.2	7.5	volts
P _{out}	...	...	...	2.0	2.6	2.6	watts
†D _{tot}	...	...	...	10	10	10	%
V _{in} (r.m.s.)	...	...	...	0.8	0.8	0.7	volts
(for P _{out} = 50 mW)							

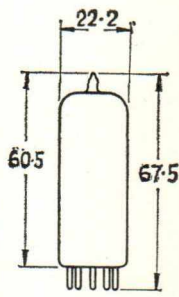
*For speech and music.

†Measured at fixed bias and represents power output for speech and music. A sustained sine wave input results in altered bias voltage and anode and screen grid currents causing approximately 10% reduction in power output.

EL85



Base
Connections
Underside View
of Base



All dimensions
shown are in
millimetres
(max.)

TYPICAL OPERATION (Contd.)
2-Valves in Class "AB" Push Pull Amplifier.
Pentode Connection

V_a ...	...	...	...	...	...	200	250	volts
V_{g2} ...	...	...	...	...	...	200	250	volts
* R_k ...	...	...	...	...	...	310	310	Ω
$I_a(o)$...	...	...	...	...	...	2×16	2×20	mA
$I_{g2(o)}$...	...	...	...	...	...	2×2.9	2×3.3	mA
I_a (Max. Sig.)	...	...	...	...	...	2×17.5	2×22.1	mA
I_{g2} (Max. Sig.)	...	...	...	...	...	2×4.4	2×7.1	mA
R_{a-a} ...	...	...	...	...	...	12	12	k Ω
V_{g1-g1} ...	...	...	...	...	...	19	24.4	volts
† P_{out} ...	...	...	...	...	...	4.0	6.8	watts
D_{tot} ...	...	...	...	...	...	4.5	5.4	%

2-Valves in Class "B" Push Pull Amplifier.
Pentode Connection

V_a ...	...	...	...	...	...	250	250	volts
V_{g2} ...	...	...	...	...	...	250	250	volts
V_{g1} ...	...	...	...	...	...	-17.5	-23	volts
$I_a(o)$...	...	...	...	...	...	2×5.0	2×5.0	mA
$I_{g2(o)}$...	...	...	...	...	...	2×0.8	2×0.9	mA
I_a (Max. Sig.)	...	...	...	...	...	2×15	2×19	mA
I_{g2} (Max. Sig.)	...	...	...	...	...	2×5	2×7.3	mA
R_{a-a} ...	...	...	...	...	...	16	16	k Ω
V_{g1-g1} (r.m.s.)	...	...	...	...	...	24.4	32	volts
P_{out} ...	...	...	...	...	...	3.9	6.8	watts
D_{tot} ...	...	...	...	...	...	3.5	4.3	%

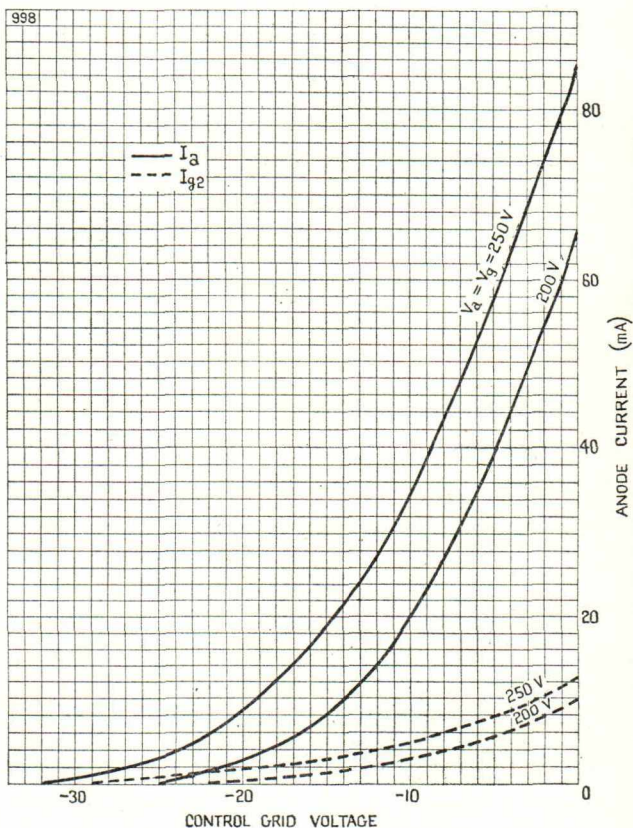
CAPACITANCES.

C_{in} ...	...	...	...	...	...	...	4.3	pF
C_{out} ...	...	...	...	...	...	...	5.1	pF
C_{a-g1} ...	...	...	...	...	...	...	<0.2	pF

*Common bias resistor.

†Measured at fixed bias and represents power output for speech and music. A sustained sine wave input results in altered bias voltage and anode and screen grid currents causing approximately 10% reduction in power output.

TYPICAL ANODE CURRENT v GRID VOLTAGE CHARACTERISTICS



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