

Ferranti

OUTPUT PENTODE

An indirectly heated pentode rated for an anode dissipation of 12 watts. Designed for use in the output stage of A.C. mains operated equipments.

PHYSICAL DETAILS.

Base	...	...	B9A—All Glass.
Max. Overall Length	...	...	78.5 mm. (3 $\frac{1}{2}$ in.).
Max. Seated Height	...	...	71.5 mm. (3 in.).
Max. Diameter	...	...	22.2 mm. ($\frac{7}{8}$ in.).
Mounting Position	...	...	Any.

BASE CONNECTIONS.

Pin 1—Internal Connection.	Pin 5—Heater.
Pin 2—Control Grid.	Pin 6—Internal Connection.
Pin 3—Cathode.	Pin 7—Anode.
Suppressor Grid.	Pin 8—Internal Connection.
Pin 4—Heater.	Pin 9—Screen Grid.

HEATER.

Heater Voltage	...	...	6.3 volts.
Heater Current	...	...	0.76 amp.

RATINGS.

Max. H.T. Supply Voltage	...	550 volts.
Max. Anode Voltage	...	300 volts.
Max. Screen Voltage	...	300 volts.
Max. Anode Dissipation	...	12 watts.
Max. Screen Dissipation (zero sig.)	...	2 watts.
Max. Screen Dissipation (max. sig.)	...	4 watts.
Max. Cathode Current	...	65 mA.
Max. Negative V_{g1}	...	-100 volts.
Max. V_{h-k}	...	100 volts.
Max. R_{g1-k}	...	0.3 M Ω
Max. R_{h-k}	...	20 k Ω

CHARACTERISTICS.

Pentode Connection.

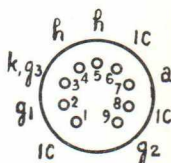
Anode Voltage	...	250 volts.
Screen Voltage	...	250 volts.
Control Grid Voltage	...	-7.3 volts.
Anode Current	...	48 mA.
Screen Current	...	5.5 mA.
Mutual Conductance	...	11.3 mA/V.
Inner μ (μ_{g1-g2})	...	19
Anode Impedance	...	40 k Ω

Triode Connection (g_2 connected to a.)

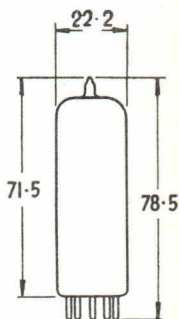
Anode Voltage	...	250 volts.
Grid Voltage	...	-9.0 volts.
Anode Current	...	34 mA.
Anode Impedance	...	2.0 k Ω
Amplification Factor	...	19
Mutual Conductance	...	10 mA/V.

EL84

6BQ5



Base
Connections
Underside View
of Base



All Dimensions
shown are in
millimetres
(max.).

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TYPICAL OPERATION.
As Audio Output Valve (Class A).
Pentode Connection.

V_a	...	...	...	...	250 volts.
V_{g2}	...	...	...	...	250 volts.
V_{g1}	...	...	...	...	-7.3 volts.
I_a	...	...	...	...	48 mA.
I_{g2}	...	...	...	...	5.5 mA.
R_a	...	...	...	...	5.2 k Ω
V_{in} (r.m.s.)	...	...	...	...	4.3 volts.
P_{out}	...	...	...	...	5.7 watts.
D_{tot}	...	...	...	...	10 %

Triode Connection
(g_2 connected to a.)

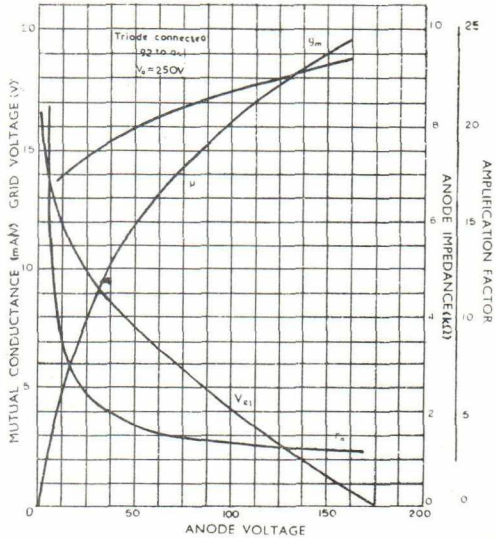
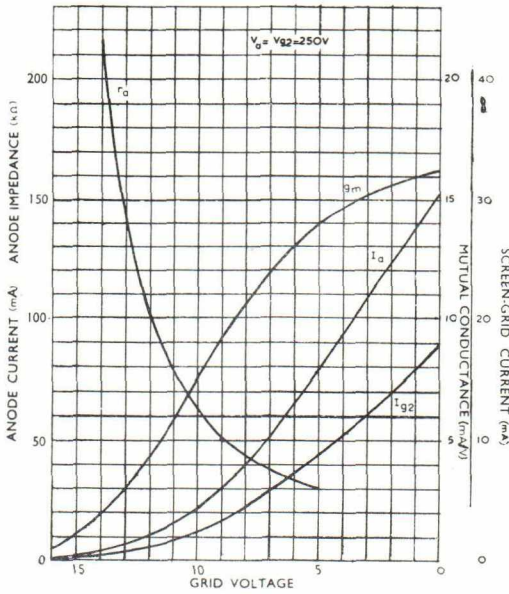
V_a	...	...	...	...	250 volts.
R_a	...	...	...	...	3.5 k Ω
V_{g1}	...	...	...	...	-9 volts.
$I_a(o)$	...	...	...	...	34 mA.
I_a (max. sig.)	...	...	...	...	39 mA.
V_{in} (r.m.s.)	...	...	...	...	6.0 volts.
P_{out}	...	...	...	...	1.5 watts.
D_{tot}	...	...	...	...	9.0 %

As Audio Amplifier (2 valves in Class AB push pull).
Pentode Connection.

V_a	...	...	...	250	300	volts.
V_{g2}	...	...	...	250	300	volts.
R_k	...	...	...	130	130	ohms.
$I_a(o)$	...	...	...	2 x 31	2 x 36	mA.
$I_{g1}(o)$	...	...	...	2 x 3.5	2 x 4	mA.
I_a (max. sig.)	...	...	...	2 x 37.5	2 x 46	mA.
I_{g2} (max. sig.)	...	...	...	2 x 7.5	2 x 11	mA.
R_{a-a}	...	...	...	8	8	k Ω
V_{g1-g1} (r.m.s.)	...	...	...	16	20	volts.
P_{out}	...	...	...	11	17	mW.
D_{tot}	...	...	...	3	4	%

CAPACITANCES.

C_{in}	...	...	...	...	11.0 pF.
C_{out}	...	...	...	...	6.5 pF.
C_{a-g1}	...	...	...	...	<0.5 pF.
C_{g1-h}	...	...	...	...	<0.25 pF.



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