

FERRANTI

DIODE PENTODE

A directly heated miniature Pentode combined with a single diode, designed for use as Detector and A.F. Amplifier in battery operated Receivers. The low drain filament is suitable only for d.c. operation either from a series or parallel supply.

PHYSICAL DETAILS.

Base	...	...	B7G—All Glass.
Max. Overall Length	...	...	54.5 mm. (2 $\frac{1}{8}$ in.).
Max. Seated Height	...	...	47.5 mm. (1 $\frac{7}{8}$ in.).
Max. Diameter	...	...	19.0 mm. ($\frac{3}{4}$ in.).

BASE CONNECTIONS.

Pin 1—Filament (–), and Suppressor Grid (g_3).	Pin 4—Screen Grid (g_2).
Pin 2—Int. Connection.	Pin 5—Anode.
Pin 3—Diode (a_d).	Pin 6—Control Grid (g_1).
	Pin 7—Filament (+).

FILAMENT.

	Series.	Parallel.
Filament Voltage	1.3	1.4 volts.
Filament Current	24	25 mA.

RATINGS.

Pentode Section.†

Max. H.T. Supply Voltage	...	120 volts.
Max. Anode Voltage	...	90 volts.
Max. Screen Voltage	...	90 volts.
Max. Anode Dissipation	...	30 mW.
Max. Screen Dissipation	...	10 mW.
Max. Cathode Current	...	0.25 mA.
* R_{g_1-f} ($I_k < 0.25$ mA)	...	3 M Ω
V_{g_1} max. ($I_{g_1} = +0.3$ μ A)	...	0 volt.

Diode Section.

Max. P.I.V.	...	100 volts.
Max. Mean Diode Current	...	0.2 mA.
Max. Peak Diode Current	...	1.2 mA.

CHARACTERISTICS.

Pentode Section.

Anode Voltage	...	67.5 volts.
Screen Voltage	...	67.5 volts.
Anode Current	...	170 μ A.
Screen Current	...	55 μ A.
Grid Voltage	...	–1.5 volts.
Mutual Conductance	...	170 μ A/V.
Inner μ ($\mu_{g_1-g_2}$)	...	16

Diode Section.

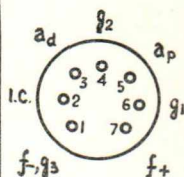
The diode section is situated at the negative end of the filament.

* R_{g_1-f} may be increased up to 22 M Ω if grid current biasing is employed and the cathode current is limited to 0.1 mA.

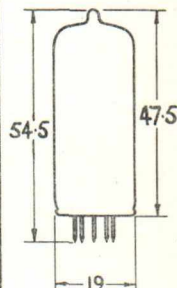
†This valve can be used without taking special precautions against microphony in circuits in which the input voltage is not less than 20 mV. for an output of 50 mW. from the output stage.

DAF96

IAH5



Base
Connections
Underside View
of Base



All dimensions
shown are in
millimetres (max.).



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TYPICAL OPERATION as Resistance coupled A.F. Amplifier.

Pentode Connection.

*Supply Voltage	64	64	64	85	85	85	volts.
Anode Load Resistor	1.0	1.0	1.0	1.0	1.0	1.0	M Ω
‡Screen Grid Feed Resistor	2.7	2.7	2.7	2.7	2.7	2.7	M Ω
Grid Resistor (R_{g1-k})	10	10	10	10	10	10	M Ω
Anode Current	42	42	42	64	64	64	μ A.
Screen Current	13	13	13	21	21	21	μ A.
Grid Resistor of following valve	1.0	2.0	2.2	1.0	2.0	2.2	M Ω
Stage Gain	50	57	63	55	65	70	
Output Voltage (r.m.s.)	5	5	5	5	5	5	volts.
Total Distortion	3.5	3.5	2.0	1.4	2.0	2.4	%

Triode Connection (g_2 connected to a)

*Supply Voltage	64	64	64	85	85	85	volts.
Anode Load Resistor	0.22	0.47	1.0	0.22	0.47	1.0	M Ω
Grid Resistor (R_{g1-k})	10	10	10	10	10	10	M Ω
Cathode Current	135	70	40	210	110	56	μ A.
Grid Resistor of following valve	1	1	2.2	1	1	2.2	M Ω
Stage Gain	11	12	13	11	12.5	13.5	
Output Voltage (r.m.s.)	5	5	5	5	5	5	volts.
Distortion	3	2.5	2.5	2	1.5	2	%

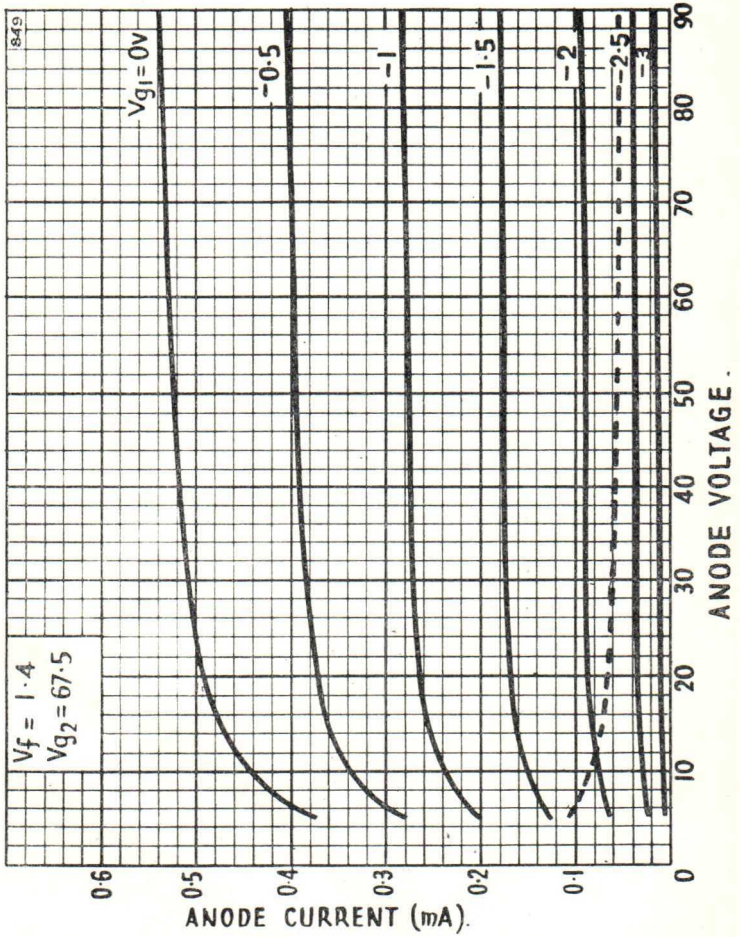
CAPACITANCES.†

C_{in}	...	...	...	...	1.8	pF.
C_{out}	...	...	...	...	2.7	pF.
C_{a-g1}	...	...	...	...	<0.3	pF.
C_{a-d-g1}	...	...	...	...	0.03	pF.
C_{a-d-ap}	...	...	...	...	<0.9	pF.
$C_{a-d-all}$	...	...	...	...	1.1	pF.

*These figures are based on Battery voltages of 67.5 volts and 90 volts decreased by the negative bias of the output valve.

‡By-passed to earth by 0.47 μ F capacitor.

†Measured without external shield.





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