

# Mullard

## OUTPUT PENTODE

# PENA4

The PenA4 and Pen4VB are high sensitivity output pentodes for use in A.C. mains receivers having identical characteristics with the exception of heating time. The PenA4 is equipped with a quick-heating cathode, and should only be used with the IW4/350 rectifier

### HEATER CHARACTERISTICS

Heater Voltage	... ..	$V_f = 4.0$ volts.	Overall Length	... ..	$= 132$ mm.
Heater Current	... ..	$I_f = 1.95$ amps.	Overall Diameter...	... ..	$= 50$ mm.
Bulb Finish—Clear					

### DIMENSIONS

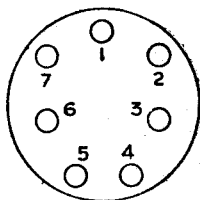
### OPERATING CHARACTERISTICS

Maximum Anode Voltage	... ..	$V_{a_{max}}$	$= 250$ volts
Maximum Auxiliary Grid Voltage	... ..	$V_{g2_{max}}$	$= 250$ volts
Normal Anode Voltage	... ..	$V_a$	$= 250$ volts
Normal Auxiliary Grid Voltage	... ..	$V_{g2_w}$	$= 250$ volts
Anode Current ( $V_{g1_w} = -5.8$ )	... ..	$I_{a_w}$	$= 36$ mA
Auxiliary Grid Current	... ..	$I_{g2_w}$	$= 5.0$ mA
Control Grid Voltage ( $I_{a_w} = 36$ mA)	... ..	$-V_{g1_w}$	$= 5.8$ volts
Mutual Conductance ( $I_{a_w} = 36$ mA)	... ..	$S_w$	$= 9.5$ mA/V
Anode Impedance	... ..	$R_{i_w}$	$= 50,000$ ohms
Optimum Load	... ..	$R_a$	$= 8,000$ ohms
Output ( $D = 10\%$ 3rd H.)	... ..	$W_o$	$= 3.8$ watts
( $D = 5\%$ 3rd H.)	... ..	$W_o$	$= 3.0$ watts
Maximum Anode Dissipation	... ..	$W_{a_{max}}$	$= 9.0$ watts
Maximum Resistance in Grid Circuit	... ..	$R_{g1_{max}}$	$= 1.0$ megohm
Cathode Bias Resistor	... ..	$R_k$	$= 145$ ohms
Range of Grid Voltage for $1 \mu A$ grid current	... ..	$V_{g1}$	$= -0.3$ to $-0.8$ v.

### CAPACITIES

Anode Control Grid	... ..	$C_{g1}$	$= 1.0 \mu F$
Output	... ..	$C_a$	$= 9.7 \mu F$
Input	... ..	$C_{g1}$	$= 11.5 \mu F$

### CONNECTIONS



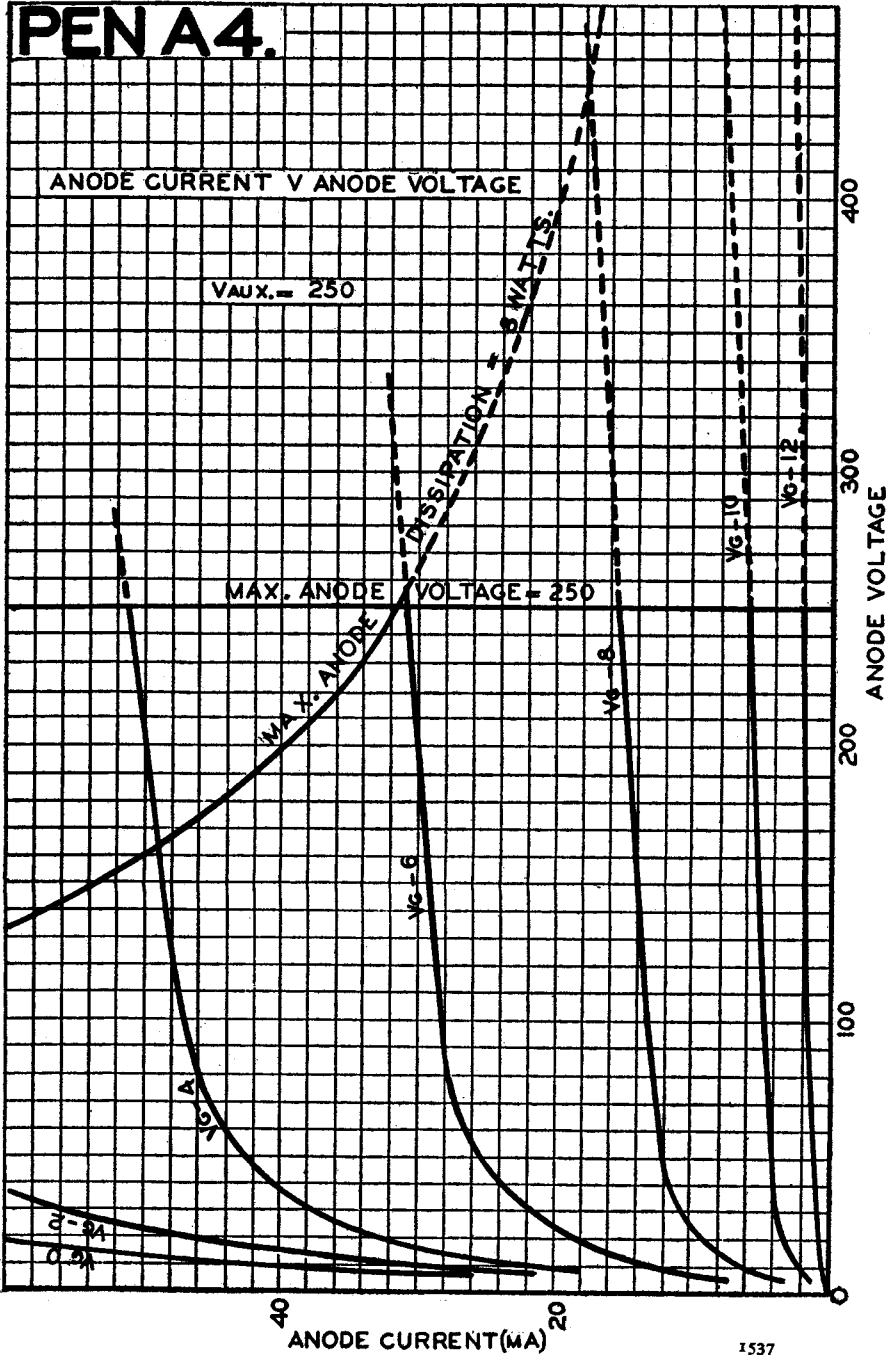
Viewed from free end of pins.

Pin No. 1	—
» 2	Control Grid ( $G_1$ )
» 3	Auxiliary Grid ( $G_2$ )
» 4	Heater
» 5	Heater
» 6	Cathode
» 7	Anode

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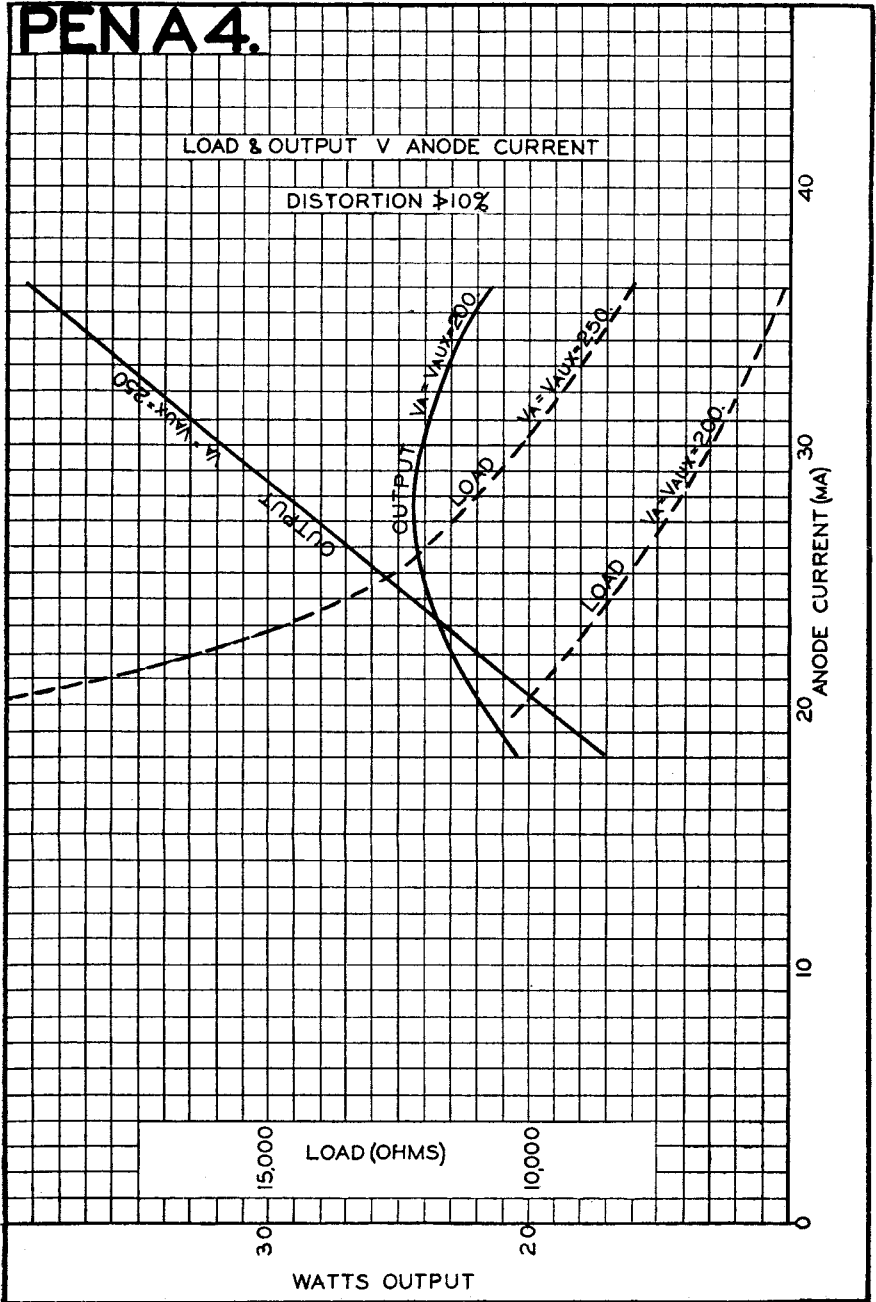
## PEN A4.



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