

Output pentode primarily intended for use in the line timebase of television receivers.

HEATER

Suitable for series operation, a.c. or d.c.

I_h	300	mA
V_h	25	V

CAPACITANCES

C_{in}	17.5	pF
C_{out}	8.0	pF
C_{a-g1}	< 1.1	pF

CHARACTERISTICS

V_a	100	V
V_{g2}	100	V
V_{g1}	-8.2	V
I_a	100	mA
I_{g2}	7.0	mA
g_m	14	mA/V
r_a	5.0	k Ω
μ_{g1-g2}	5.6	

OPERATION AS LINE OUTPUT PENTODE

Circuit design

In calculating the peak anode current for circuit design purposes the knee is taken as the reference point. Operation so that the anode potential of the output valve at the end of scan is above the knee of the anode characteristic is only recommended when an effective feedback stabilising circuit is employed. A nomogram is given on page C1.

For operation below the knee of the characteristic the nomogram on page C2 should be used.

LIMITING VALUES

$V_{a(b)}$ max.	550	V
V_a max.	250	V
* $+v_{a(pk)}$ max.	7.0	kV
* $-v_{a(pk)}$ max.	1.5	kV
p_a max.	12	W
$V_{g2(b)}$ max.	550	V
V_{g2} max.	250	V
* $-v_{g1(pk)}$ max.	1.0	kV
† p_{g2} max.	5.0	W
$p_a + p_{g2}$ max.	13	W
I_k max.	200	mA
V_{h-k} max. (cathode negative)	200	V
V_{h-k} max. (cathode positive)	250	V
R_{g1-k} max. (fixed bias)	500	k Ω
R_{g1-k} max. (line timebase applications)	3.3	M Ω
Min. drive at $v_{a(pk)} = 5kV$	100	V
Min. drive at $v_{a(pk)} = 7kV$	120	V
T_{bulb} max.	250	°C ←

*Max. duration 22% of one cycle with a maximum of 18 μ s.

†Max. average p_{g2} is 7W during the period between the commencement of I_{g2} and the instant when I_a attains one half of its normal operating value.

PEAK ANODE CURRENT NOMOGRAMS

Stabilised timebases

The nomogram shown on page C1 gives directly the values of peak anode current and end-of-scan anode voltage which should be used in designing a stabilised line timebase. The nomogram is based on an h.t. line voltage of 200V, and a correction factor is included for other h.t. voltages.

Non-stabilised timebases

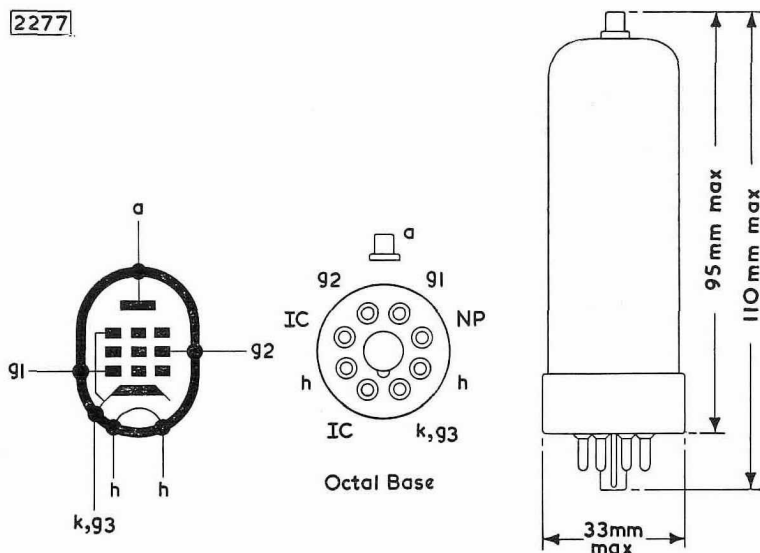
The nomogram shown on page C2 gives directly the values of peak anode current and end-of-scan anode voltage which should be used in designing a non-stabilised line timebase. It assumes 'below-the-knee' operation, undecoupled screen-grid resistor (excluding capacitors of a few hundred microfarad), and control-grid potential of +1V.

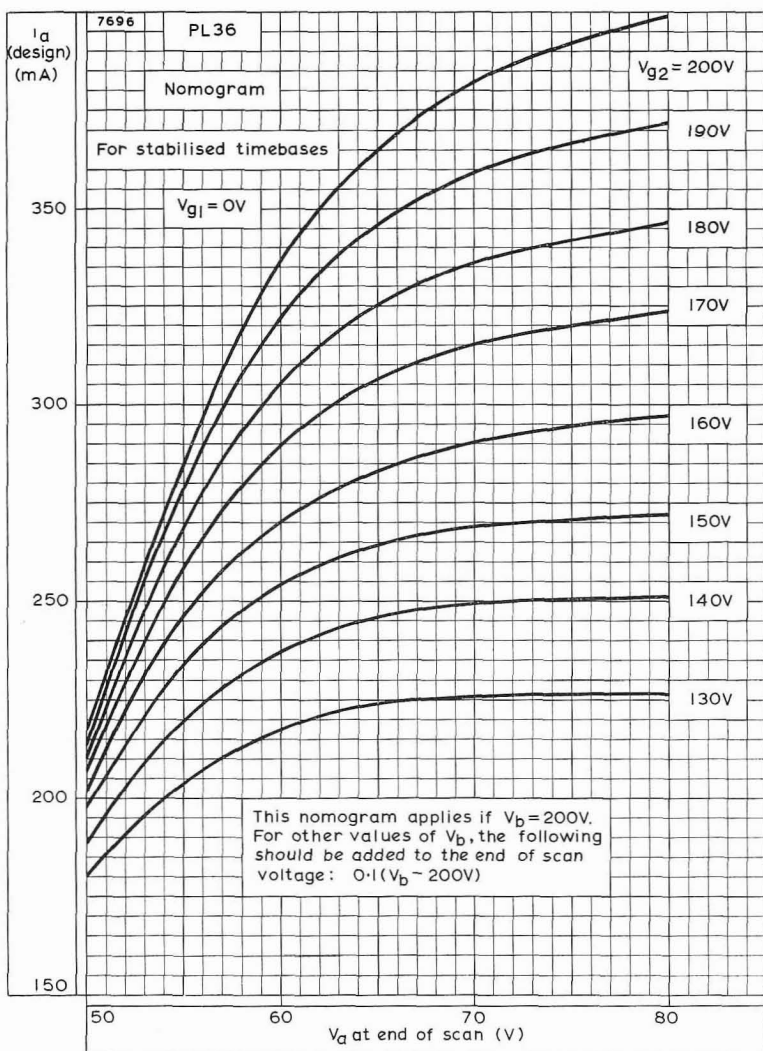
Measurements

When measurements are made specifically for the purpose of comparison with the nomogram, all the components comprising the timebase, including the valves, should be nominal. The h.t. line should also be nominal. In receivers designed for a range of declared values of mains voltage, measurements should be made at the nominal declared value of mains voltage producing the lowest nominal h.t. voltage. The timebase should be synchronised and the raster adjusted to nominal scan. The beam current drawn from the e.h.t. supply should be 300 μ A.

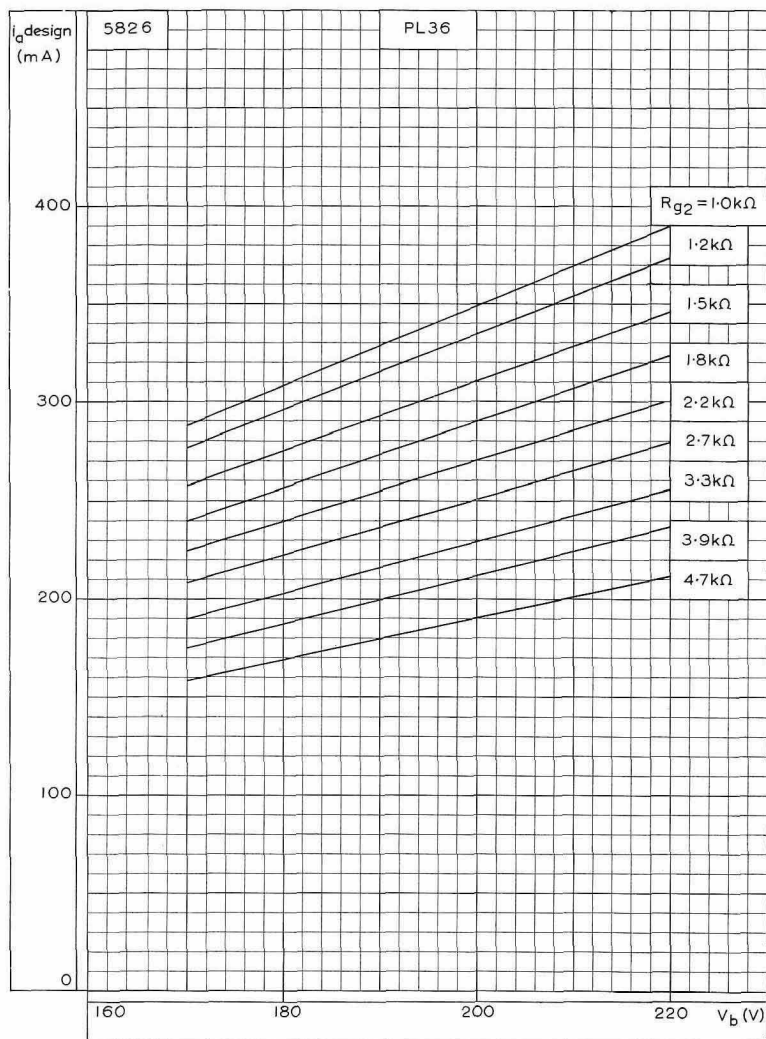
The use of the nomogram does not exempt the designer from checking that the valve is operating within its limiting values.

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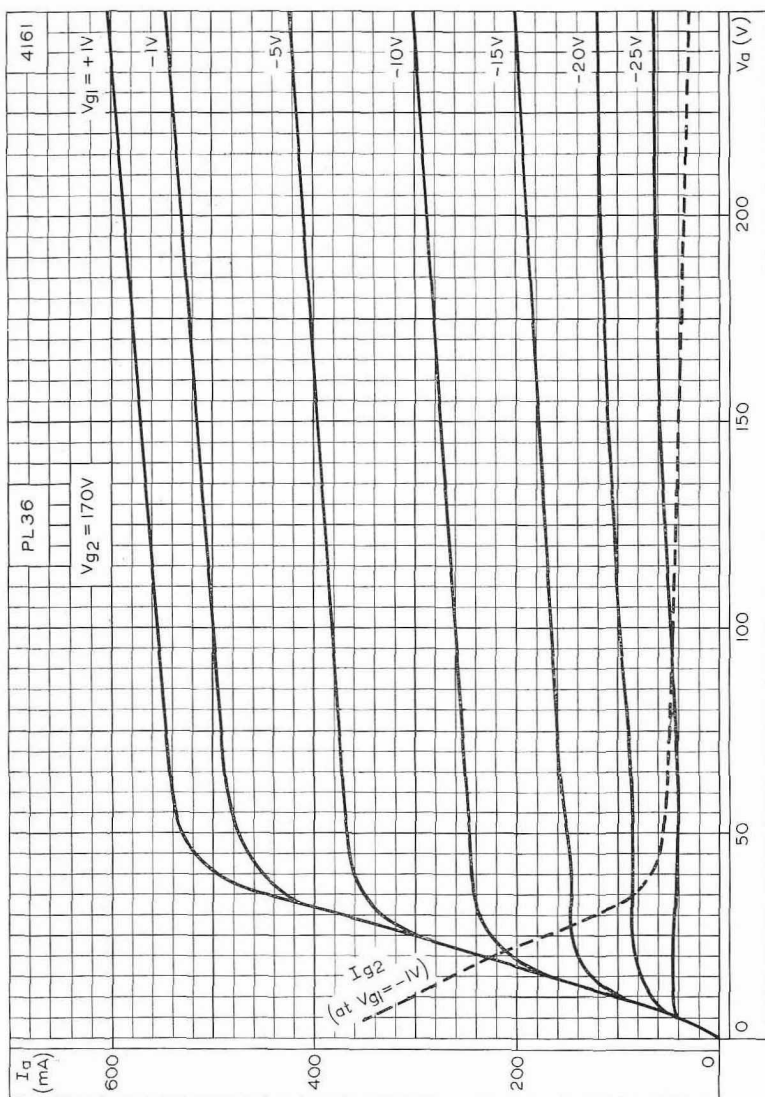




NOMOGRAM FOR STABILISED TIMEBASES



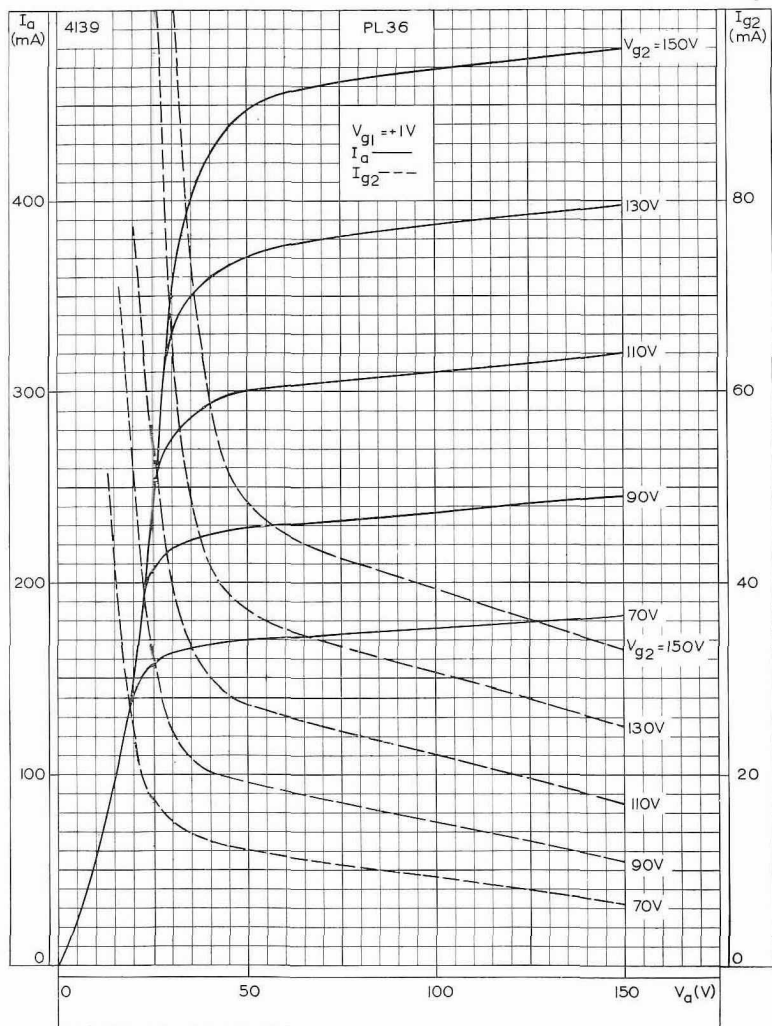
NOMOGRAM FOR NON-STABILISED TIMEBASES



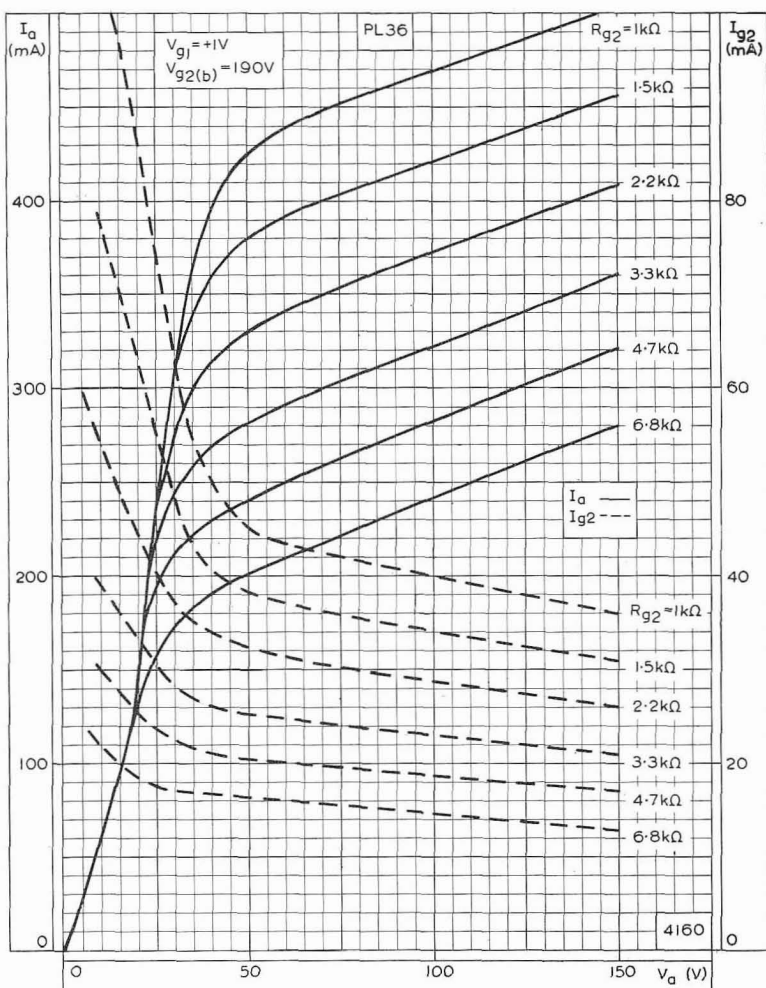
ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH
CONTROL-GRID VOLTAGE AS PARAMETER

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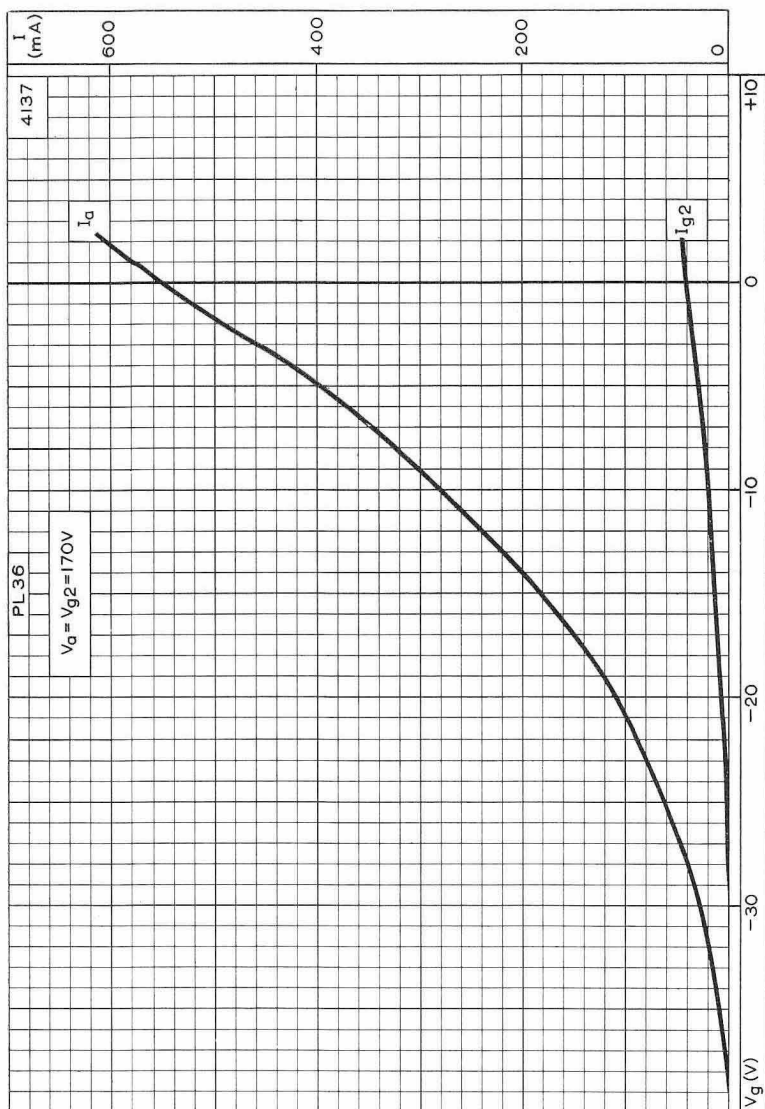
LINE OUTPUT PENTODE



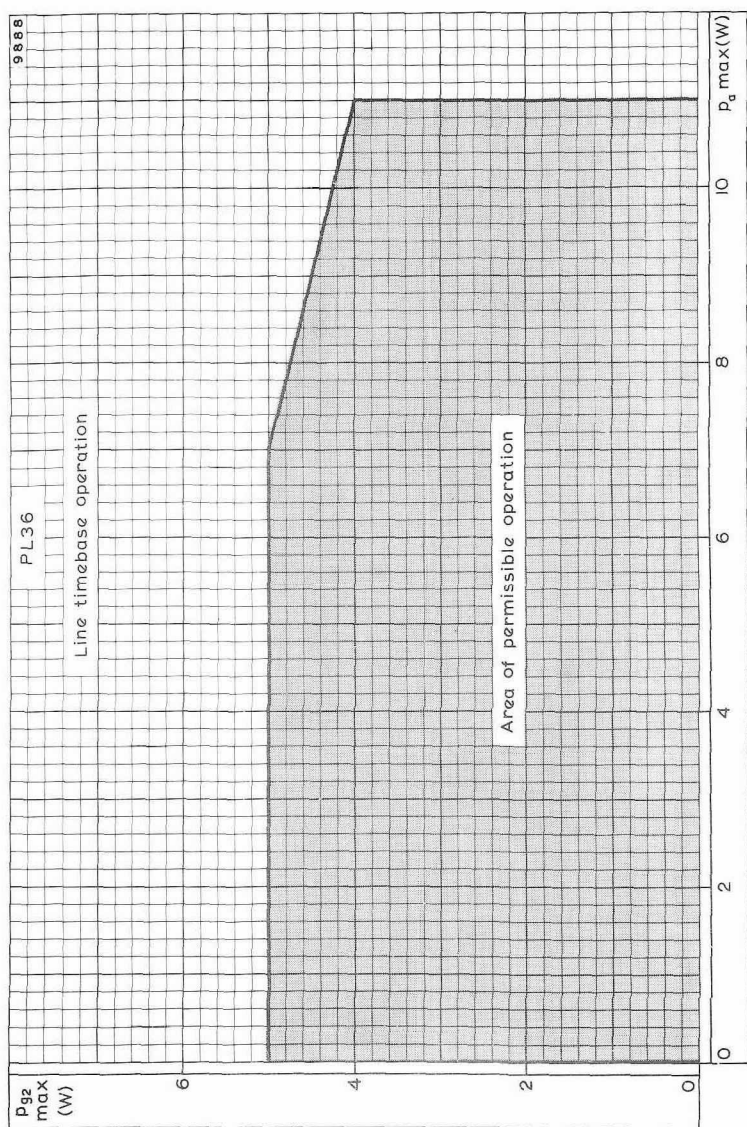
ANODE AND SCREEN-GRID CURRENTS PLOTTED AGAINST ANODE VOLTAGE WITH SCREEN-GRID VOLTAGE AS PARAMETER



ANODE AND SCREEN-GRID CURRENTS PLOTTED AGAINST ANODE VOLTAGE WITH SCREEN-GRID RESISTANCE AS PARAMETER



ANODE AND SCREEN-GRID CURRENTS PLOTTED AGAINST
CONTROL-GRID VOLTAGE



BOUNDARY OF OPERATION FOR LINE TIMEBASE APPLICATIONS

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