VALVE ELECTRONIC CV4082

Specification MCA/CV4082

Issue 1B dated 27th April, 1965

To be read in conjunction with K1001
B.S.448 and B.S.1409

SECURITY	
Specification	Valve
Unclassified	Unclassified

→ indicates change

TYPE OF VALVE - Pulse modulator tetrode

CATHODE - Indirectly heated

ENVELOPE - Glass

PROTOTYPE - CV2231, VX3517

MARKING

See K1001/4

BASE

B.S.448/B8-0/1.1

RATINGS AND CHARACTERISTICS

(Absolute, non-simultaneous and not for Inspection purposes)

			Note
Heater Voltage	(V)	6.3	
Heater Current	(A)	1.32	
Max.Anode Voltage (DC)	(KV)	6.0	
Max.Anode Voltage (Pulse)	(KV)	8.0	
Max.Screen Voltage (DC)	(V)	800	
Max.Anode Dissipation	(W)	15	
Max.Screen Dissipation	(W)	3.5	
Max.Cathode Current Pulse)	(A)	10.0	
Max.Cathode Current (DC)	(mA)	120	
Max. Anode current (Pulse)	(A)	7.5	
Max.peak heater cathode voltage	(V)	± 150	
Max.Grid 1/Cathode voltage	(V)	± 200	
Max.Grid 1 dissipation	(W)	0.5	
Max.Bulb Temperature	(C)	240	A
Inner Amplification Factor	u(g1-g2)	7.5	
Max.Shock (short duration)	(g)	500	
Max.Accn. (continuous)	(g)	2.5	

CAPACITANCES (pF) (note B)

Ca, g1	(nom)	pF	0.75
C in	(nom)	pF	14.0
C out	(Nom)	pF	8.5

CONNECTIONS

Pin	Electrode	
1	Int.Conn.	IC
2	Heater	h
3	Int.Conn.	IC
4	Screen Grid	g2
5	Control Grid	g1
6	Int.Conn.	IC
7	Heater	h
8	Cathode and base shell	kS
T.C.	Anode	a

DIMENSIONS

See K1001/A1/D1

Dimension (mm)	Min.	Max.
B Diameter	-	34
A Overall Length	-	100
L Seated Length	-	85

TOP CAP

B.S.448/CT1

MOUNTING POSITION

Any

NOTES

A. The temperature over the top 15 mm of the bulb to be not greater than 150°C.

B. Measured on 1Mc/s bridge in fully screened holder. No shield. All I.C. connections left floating.

CV4082

TESTS

To be performed in addition to those applicable in K1001 and in the specified order unless otherwise agreed with the Inspecting Authority.

TEST CONDITIONS - unless otherwise stated

Vh(V)	Va(V)	Vg2(V)	Ia(mA)
6.3	150	150	50

K1001	TEST	TEST CONDITIONS	AQL %	Insp. Level	Symbol	LIMITS Min.	LIMITS Bogey	LIMITS Max.	UNITS
7.1	Glass Strain	No Voltages	6.5	I					
	GROUP A								
5.2	Insulation	Vg1-all = -100V		100%	R	100	-	-	M
		Vg2-111 = -300V			R	100	-	-	M
	Negative Grid Current	Rg1 = 500k max.		100%	Ig1	-	-	2.5	µA
	Peak Anode Current	Va = 7kV Vg2 = 600V Vg1 = -160V Note 1		100%	Ia. pk	2.0	-	-	A
	GROUP B	Overall AQL	2.5						
	Heater Current		0.65	II	Ih	1.17	-	1.47	A
	Heater-Cathode Leakage Current	Vhk = ± 100V	0.65	II	Ihk	-	-	40	µA
	Negative Grid Voltage		0.65	II	Vg1	10.5	-	16.5	V
	Screen Current		0.65	II	Ig2	-	-	9.0	mA
	Mutual Conductance		0.65	II	gm	6.0	-	10.0	mA/V
	GROUP C	Overall AQL	6.5						
	Amplification Factor		2.5	I	µg1-g2	6.0	-	10.0	
	Anode Current	Vg1 = -30V	2.5	I	Ia	-	-	600	µA
	High Voltage Tail Test	Va = 7kV Vg2 = 150V Vg1 = -80V	2.5	I	Ia	-	-	300	µA
	Vibration Noise	Note 4	2.5	I	VaAC	-	-	75	mV
	Emission	A + g2 + g1 strapped Va pk = 250V. Note 2	2.5	I	Iapk	7.5	-	-	A

K1001	TEST	TEST CONDITIONS	AQL %	Insp. Level	Sym-bol	Limits Min	Limits Bogey	Limits Max	Units	
	GROUP D									
	Capacitance	Measured on 1 Mc/s bridge with valve in fully screened holder No shield. Note 6.	6.5	IC	Cag 1	0.55	0.75	0.95	pF	←
					C in	12.5	14.0	15.5	pF	←
					C out	7.0	8.5	10.0	pF	←
	GROUP E									
11.3	Fatigue	Vh = 6.9V Note 3		IA						
	Post Fatigue Tests	Combined AQL ------	6.5							←
	Heater-Cathode Leakage Current	Vhk = ± 100V	2.5		Ihk	-	-	100	µA	
	Negative Grid Current Mutual Conductance	Rg1 = 500k max.	2.5		Ig1	-	-	3	µA	
	Vibration Noise	Note 4	2.5		gm	6.0	-	10	mA/V	
	Peak Anode Current	As in Group 4	2.5		Va AC	-	-	120	mVrms	
					Ia pk	1.5	-	-	A	
11.4	Shock	No Voltages Hammer Angle = 30°		IA						
	Post Shock Tests	Combined AQL ------	6.5							←
	Heater-Cathode Leakage Current	Vhk = ± 100V			Ihk	-	-	100	µA	
	Negative Grid Current Mutual Conductance	Rg1 = 500k max.	2.5		Ig1	-	-	3	µA	
			2.5		gm	6.0	-	10	mA/V	
	Vibration Noise	Note 4	2.5		Va AC	-	-	120	mVrms	
	Peak Anode Current	As in Group A	2.5		Ia pk	1.5	-	-	A	
	GROUP F									
AV1/5	Life	Va = 6kV Vg2 = 600V Vg1 = -160V Vhk = 240V AC IK pk = 3A approx Pulse length = 2 µS. Prf = 1000 c/s Positive g1 excursion = 50V Note 5								
AV1/ 5.1	Stability Life Test Change in mutual conductance		1.0	I	gm	-	-	15	%	
AV1/ 5.3	Intermittent Life Test			IA						

K1001	TEST	TEST CONDITION	AQL %	Insp. Level	Symbol	LIMITS Min	LIMITS Bogey	LIMITS Max.	UNITS
	GROUP F								
	Life Test end point (500 hrs)								
	Inoperatives		2.5						
	Heater current		6.5		Ih	1.17	-	1.47	A
	Heater-Cathode Leakage Current	Vhk = ± 100V	6.5		Ihk	-	-	60	- μA
	Reverse Grid Current	Rg1 = 500k max	6.5		Ig1	-	-	3	- μA
	Mutual Conductance		6.5		gm	5.5	-	10	mA/V
	Peak Anode Current	Va = 7Kv Vg2 = 600V Vg1 = -160V NOTE 1	6.5		Ia_{pk}	1.5			
	Electrode Insulation	See Group A	6.5		R	50	-	-	M
	GROUP G								
A IX /2.5	Electrical re-test after 28-day holding period								
A VI /5.6	Inoperatives		0.5	100%					
	Reverse grid current	Rg1 = 500K max.	0.5	100%	Ig1	-	-	2.5	μA

NOTES

1. Valve to be driven with 2μ second pulse at p.r.f. 1000 c.p.s. so that the grid voltage rises to 50V positive, (max) during pulse R.L. to be 2,200 ohms ± 5%.

The load circuit should include some ~~source~~ series inductance which together with the circuit damping should be chosen so that the peak pulse E.H.T. overshoot is equal to half the load pulse voltage. The E.H.T. storage capacity, fed from a high impedance supply should be 0.05 μF. Duration of test, 2 minutes. During the second minute the valve shall be ~~sensibly~~ free from flashing as shown by disturbance of the current waveform displayed on an oscilloscope.

2. Tp 2 μsecs p.r.f. 50 c/s.

3. Valves to be vibrated in each of the three required planes for not less than 30 hrs. and not less than 100 hrs. total. Heater switched 1 min. on 3 mins. off. No other voltages applied. Min peak acceleration = 5g. Frequency = 170 c/s.

4. Va (b) = 250V Rk = 270 ohms.
Vg2(b) = 250V Ck = 1000 μF.
RL = 2 Kohms. Cc = 0.1 μF.
Rg2 = 15 Kohms. g = 2.5

giving a short circuit current not greater than 40mA

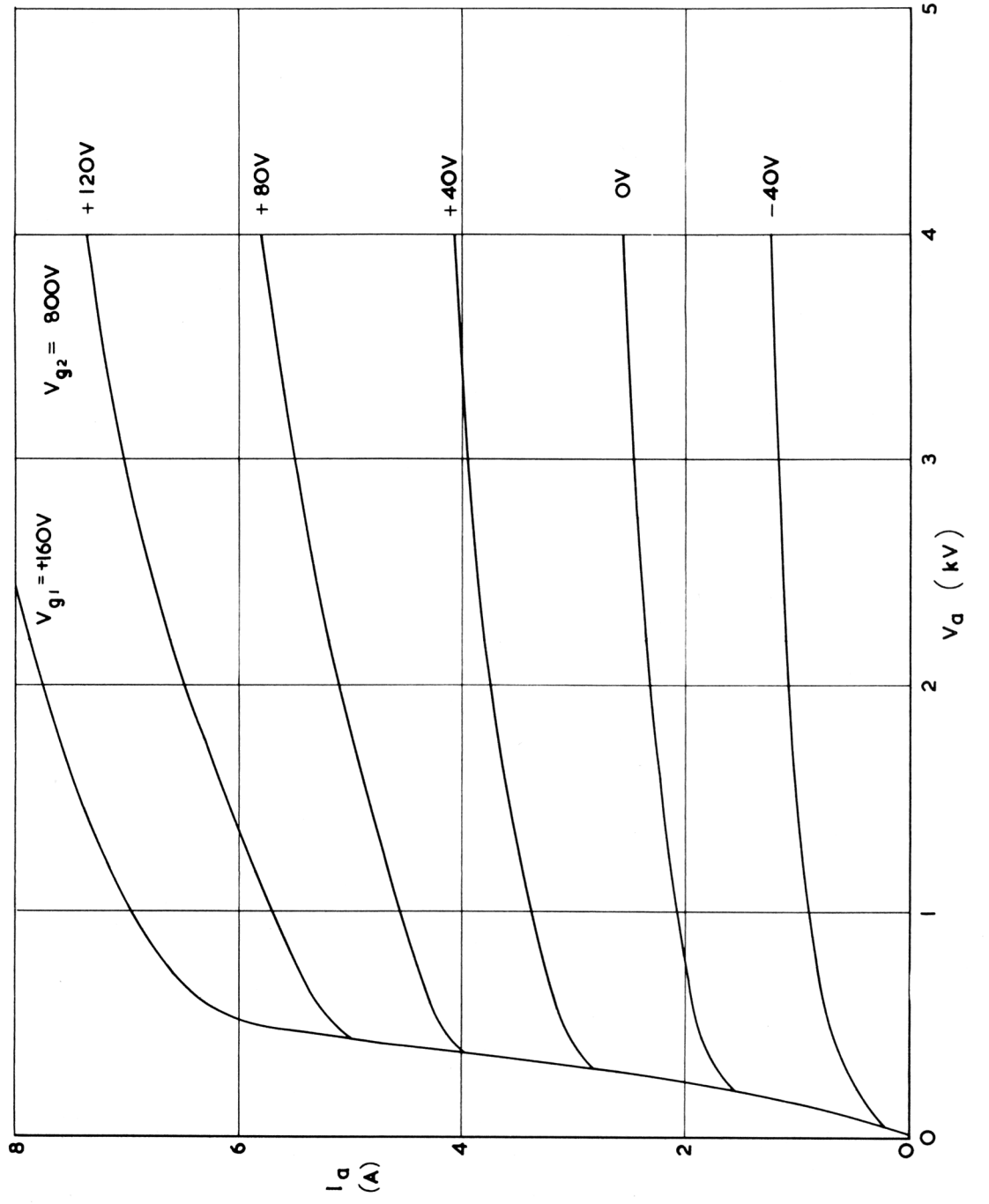
NOTES cont'd

5. Pa approx 12 W
Pg2 " 3.5 W
RL = 1600 ohms ± 5%

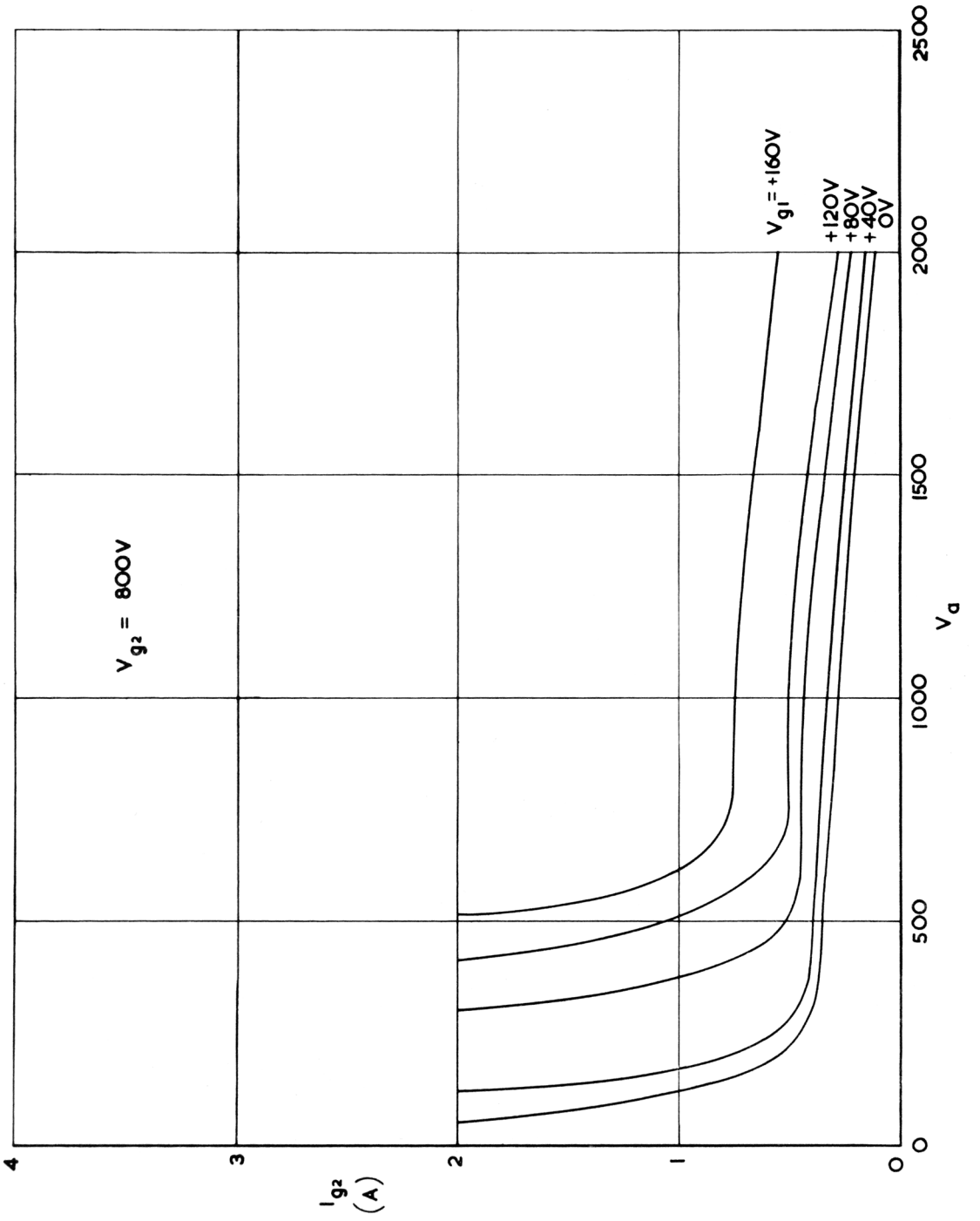
6. Capacity connections.

	HP	LP	E
C ag 1	TC	5	2. 4. 7. 8. C.
C in	5	2. 4. 7. 8.	TC. C.
C out	TC	2. 4. 7. 8.	5. C.

DATA SHEET CV 4082



CV 4082 DATA SHEET



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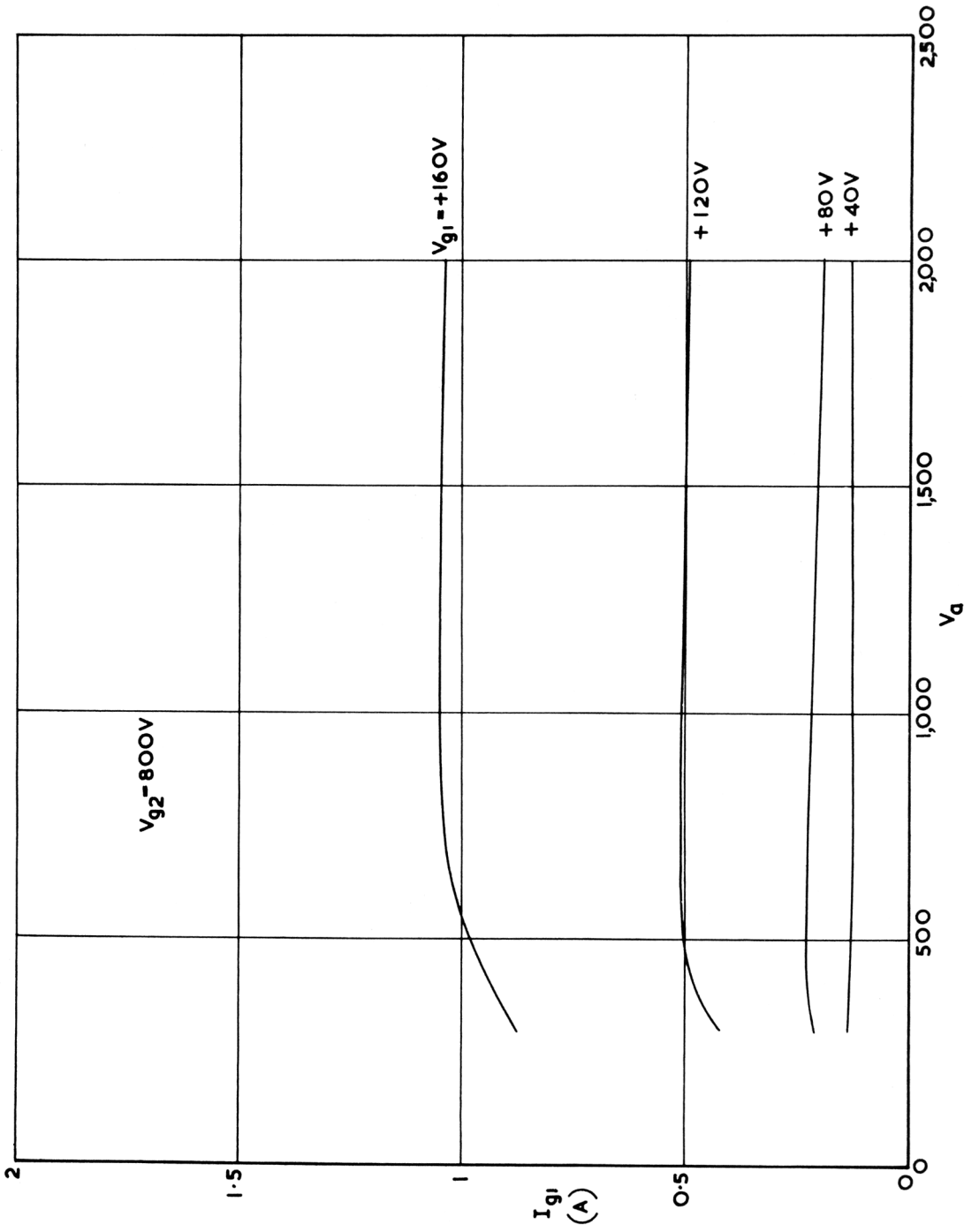

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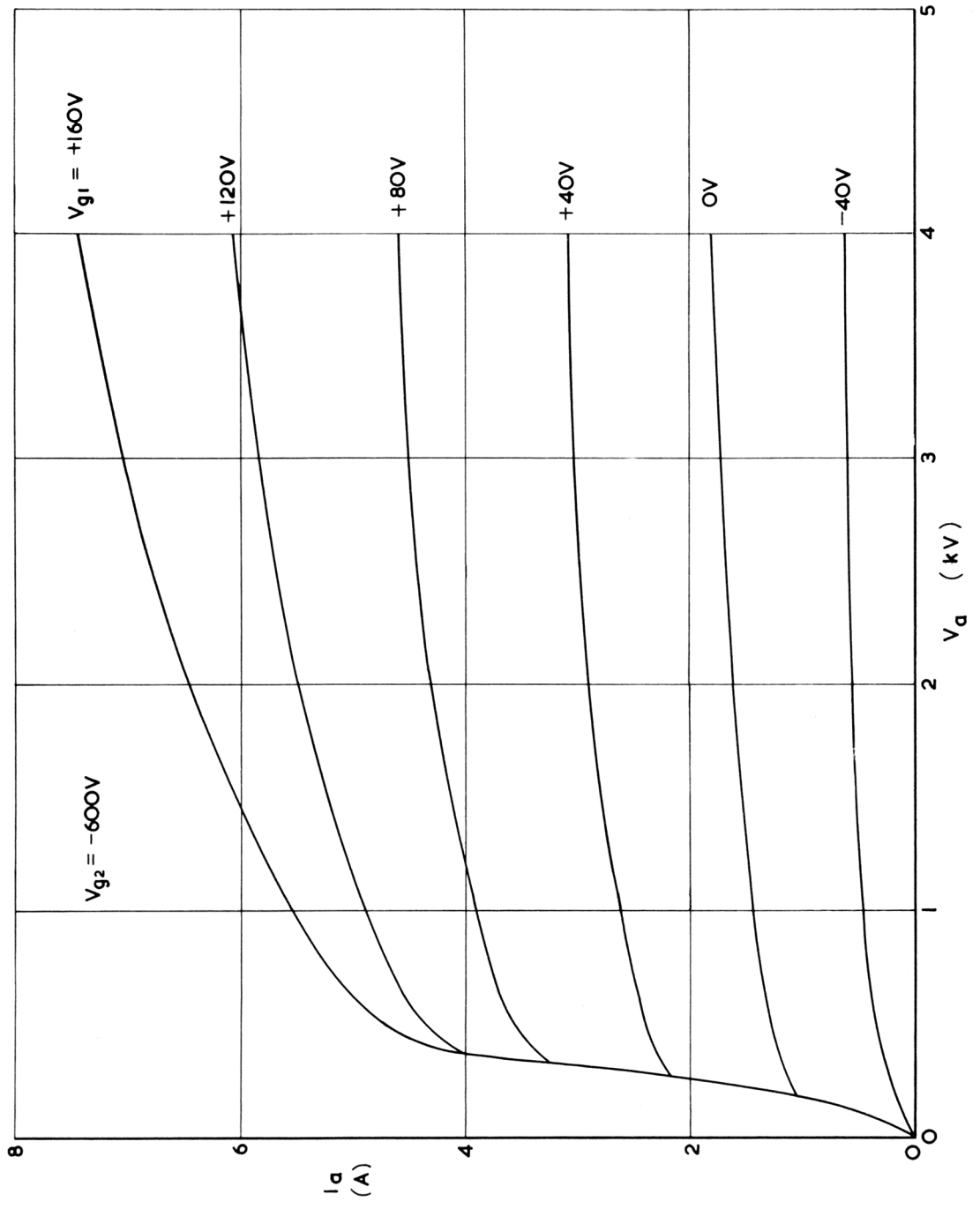

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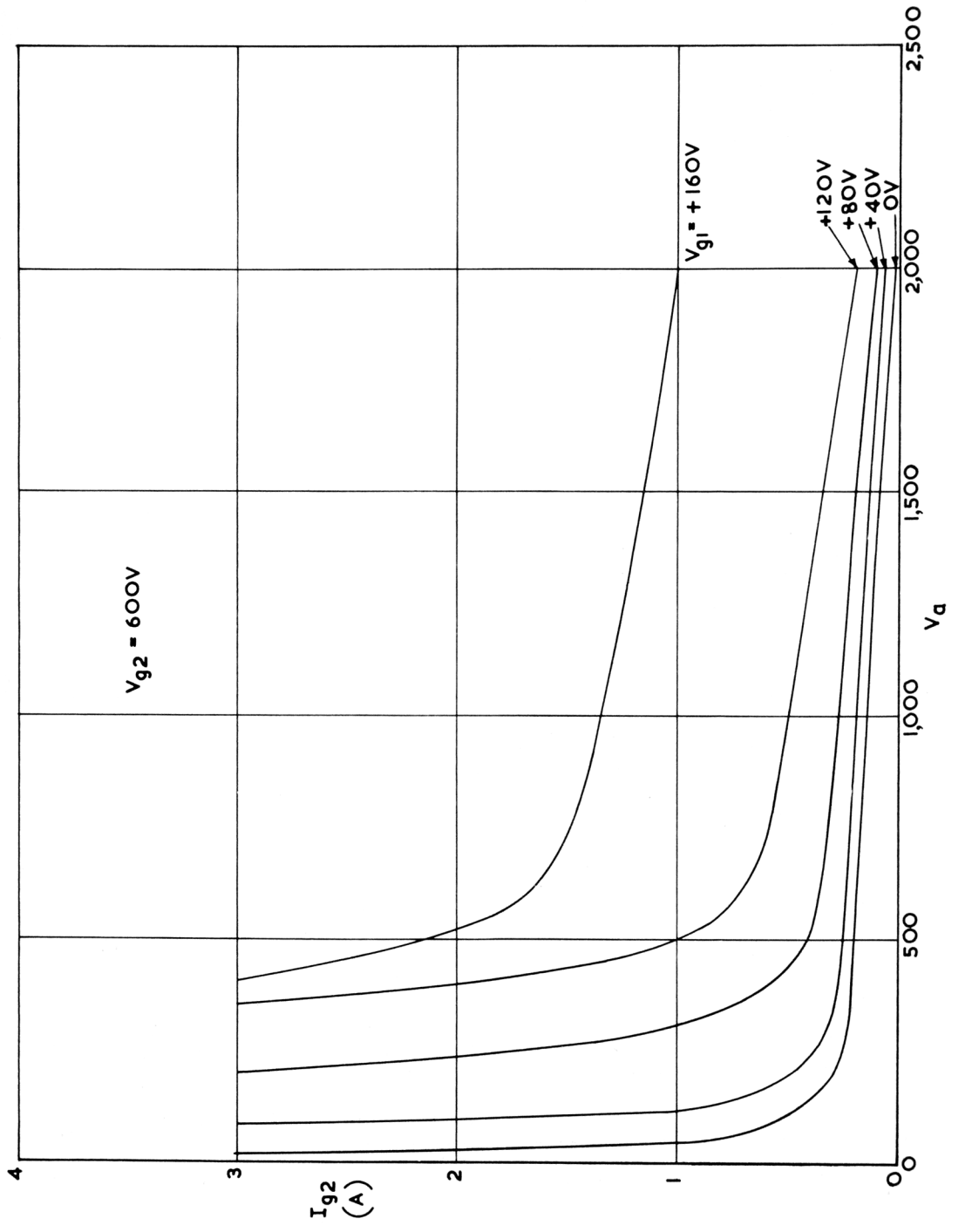

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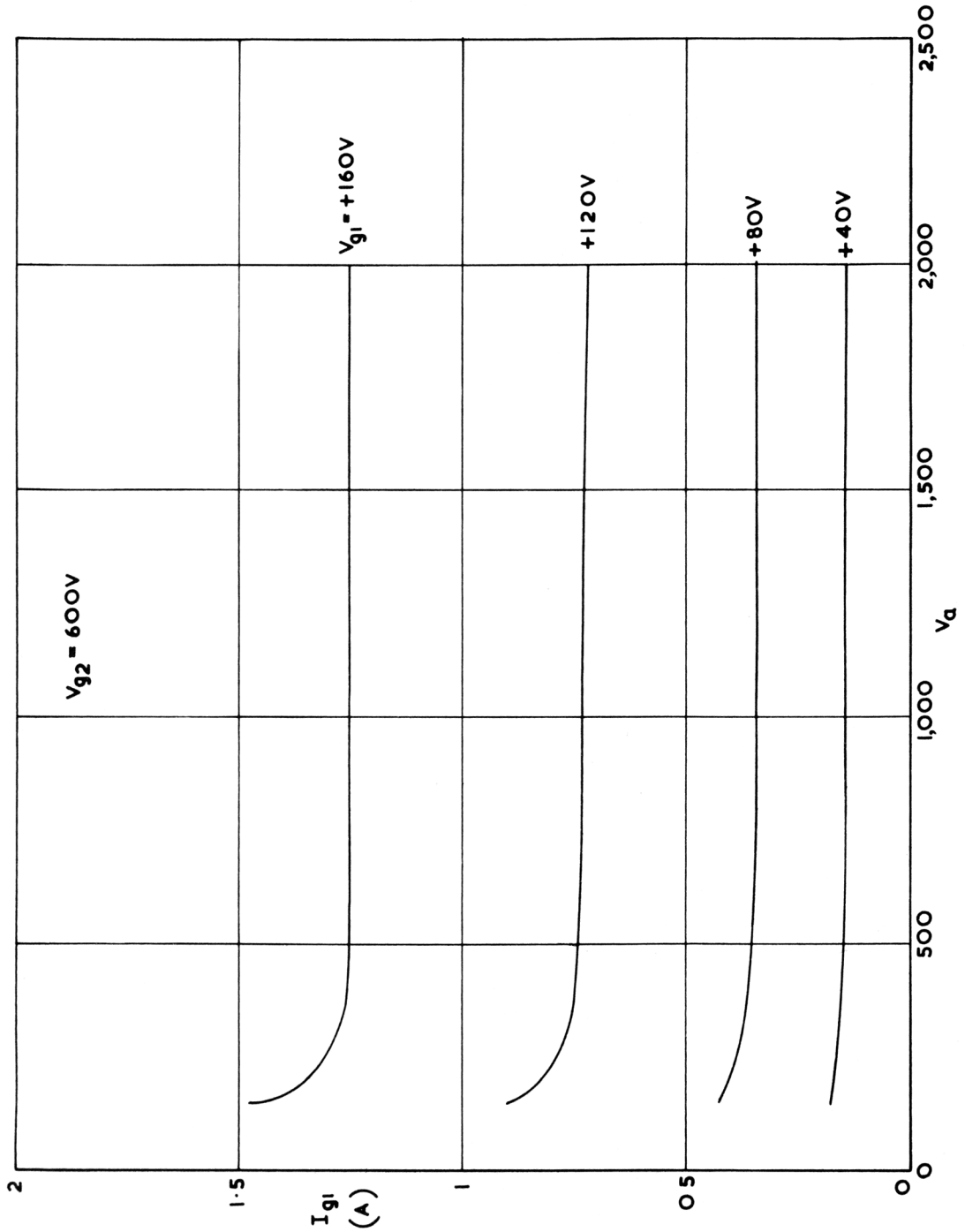

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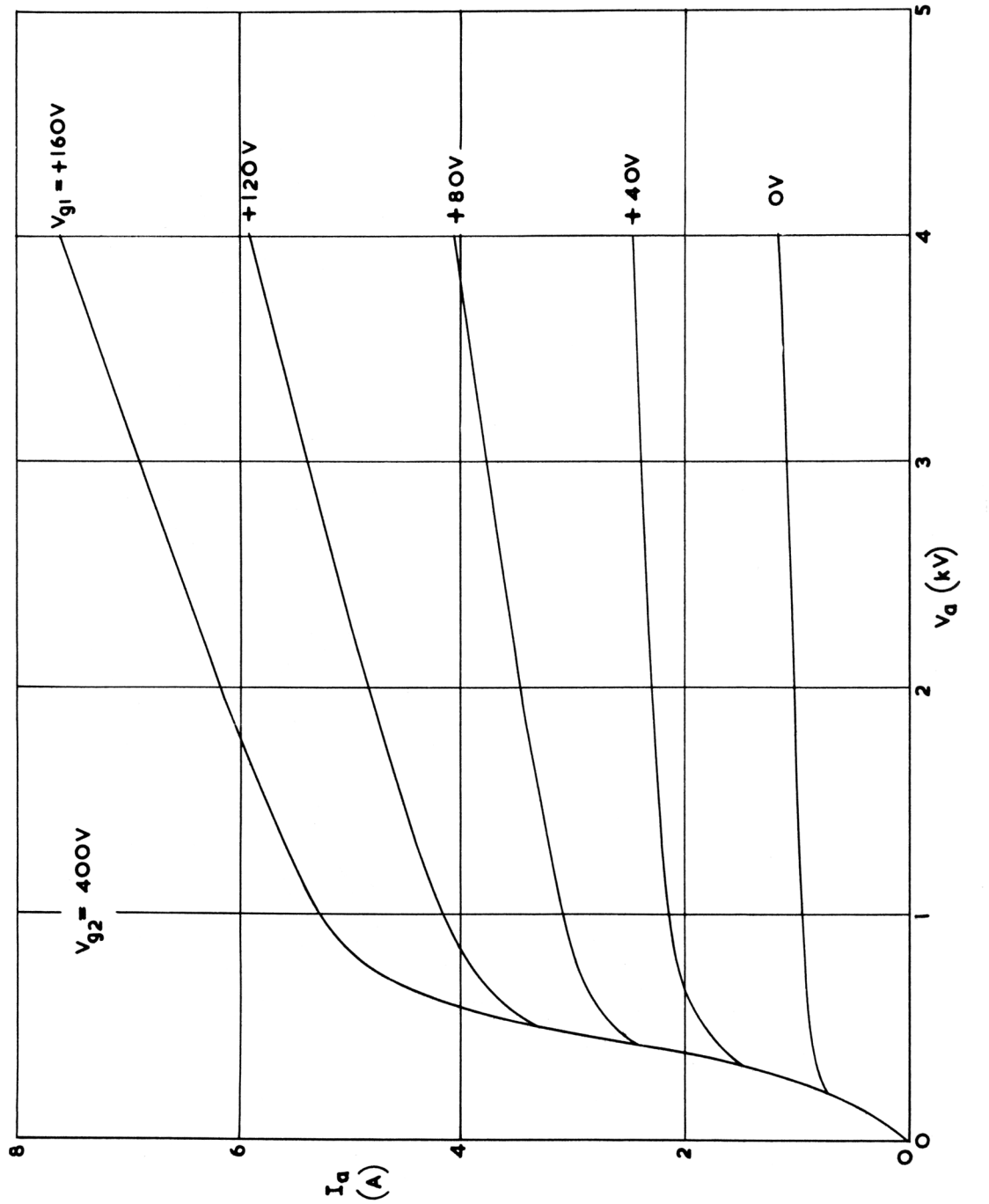

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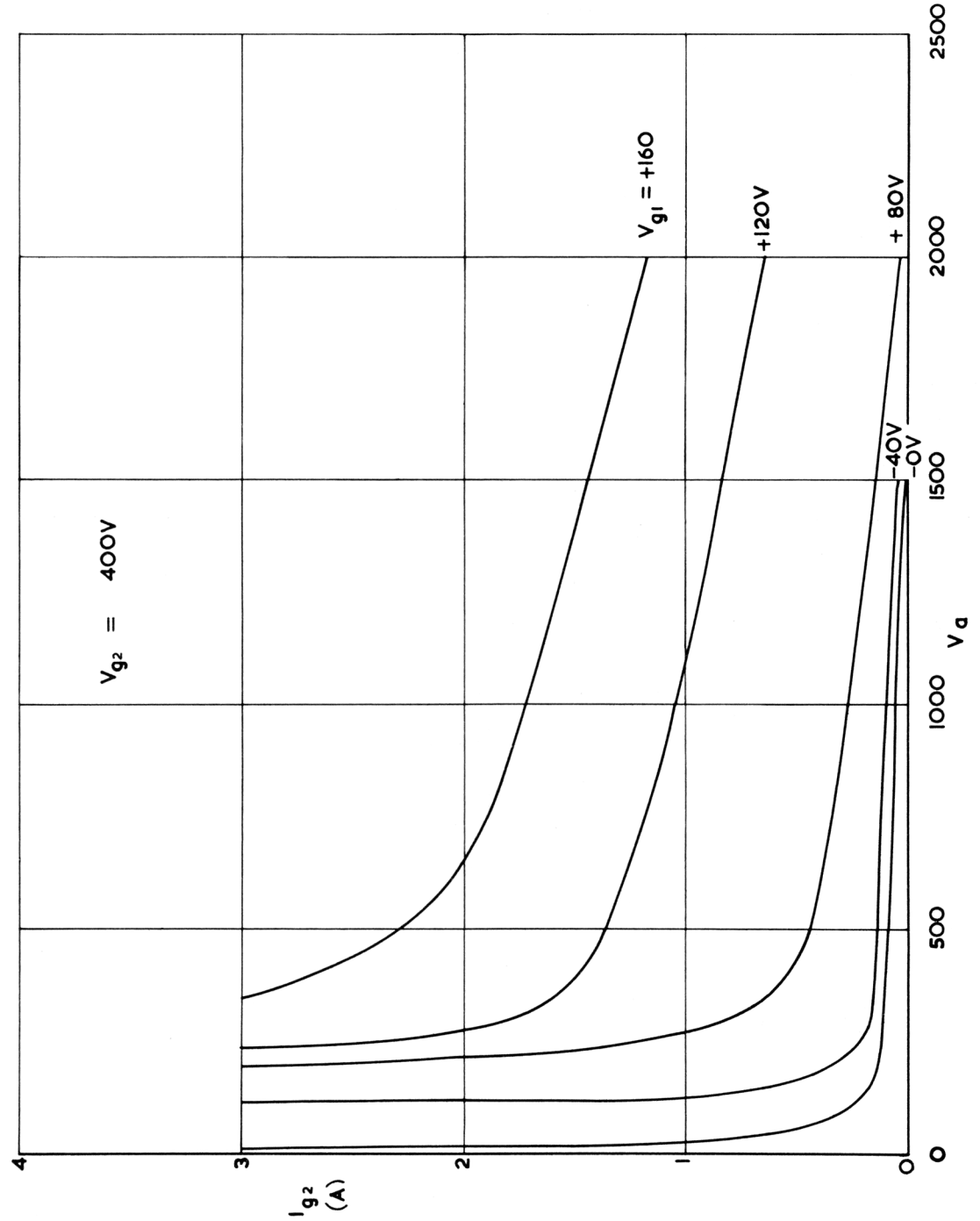

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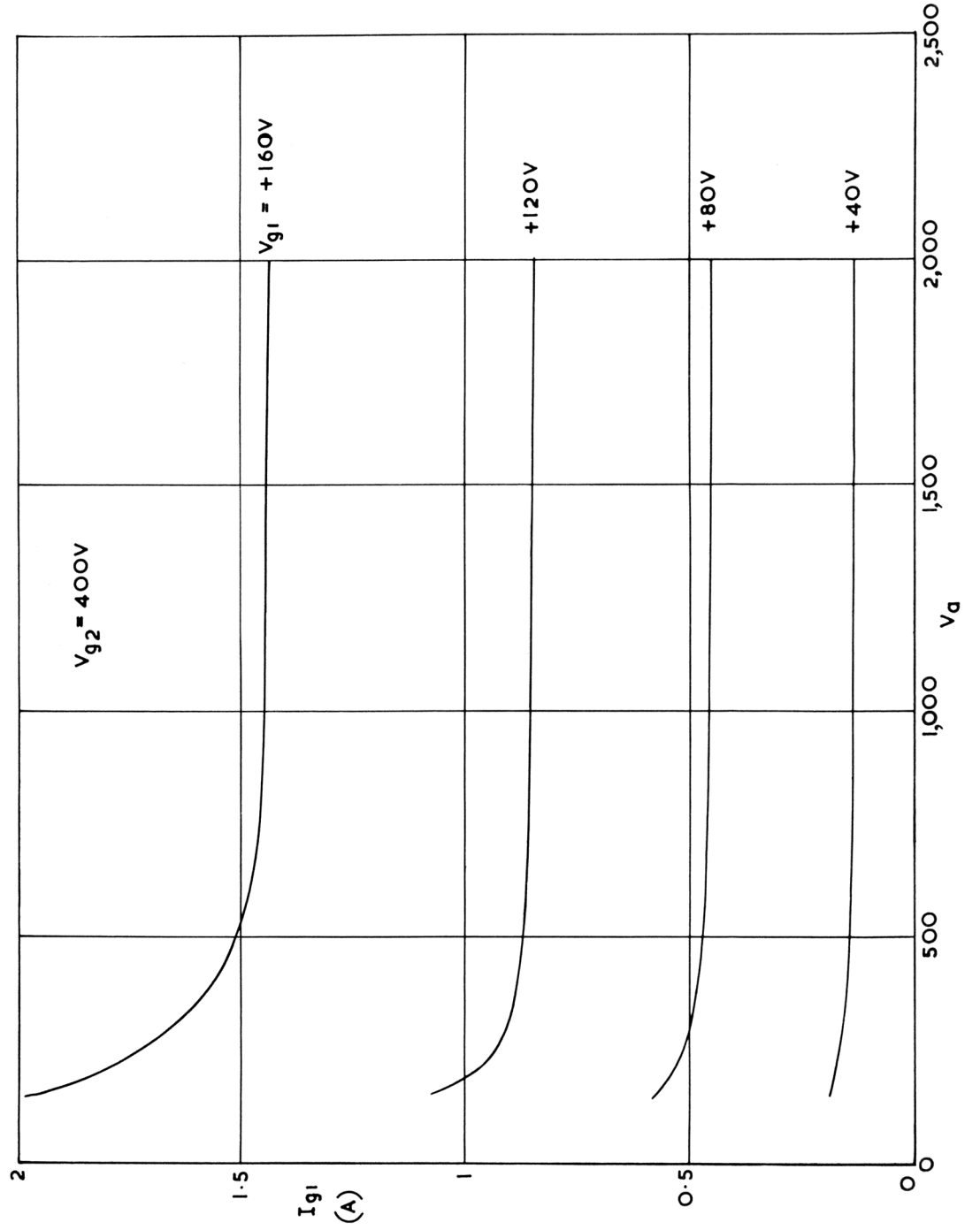
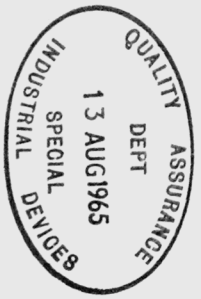


Addendum to EVS A&B C&D and Service Manual of
Preferred Valves change sheets dated 30th July, 1965.

Specification CV.4082 Issue 1B enclosed, amend No. of Pages (top of page 1) from "6" to read "5".



N.229292

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION M0A/CV4082, ISSUE 1B, DATED 27th April, 1965

AMENDMENT No. 1

Page 4 Note 1 Second Paragraph

First Line: Delete "source", Insert "series".

Fourth line: Between "supply" and "should" insert the following:-

"giving a short circuit current not greater than 40mA."

Sixth line: Delete: "Sensibly".

February, 1966. T.V.C. for R.R.E. 3/3/66

(319558)