BRIMAR

RECEIVING VALVE

6BW6, 9BW6

APPLICATION REPORT VAD/507.8

Standard Telephones and Cables Limited

FOOTSCRAY, KENT, ENGLAND

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INTRODUCTION: The Brimar type 6BW6 is an indirectly heated beam tetrode. The heater is intended for operation in parallel with other valves in AC operated equipment. The 9BW6 is identical except that the heater is designed for use in series connected heater chains. The valve is designed for use as an output stage in receivers or in small public address amplifiers, either singly or in push-pull, and has the same characteristics and ratings as the 6V6GT.

DESCRIPTION: The valve consists of a beam tetrode unit capable of an output of the order of 5 watts. The unit is mounted in a standard T6½ bulb and is based with a B9A (Noval) base.

This report contains characteristics of the valve and details of its use as a triode or a tetrode in push-pull and in single ended amplifiers.

CHARACTERISTICS:

Cathode:	Indirectly heated	6BW6	9BW6
	Voltage	6·3 volts*	9·0 volts (nominal)
	Current	0·45 ampere (nominal)	0·3 ampere †
	Max. Heater-Cathode potential (DC)	250 volts	250 volts

* The voltage should not vary by more than 5% of the rated value if the valve is used under Class AB2 conditions, or more than 7% if used under Class A or AB1 conditions.

† The current should not vary by more than ±5% of the rated value.

Dimensions:	Max. Overall Length	2-5/8 ins.
	Max. Diameter	7/8 in.
	Max. Seated Height	2-3/8 ins.
Base:	B9A (Noval) Nine Pin	
Basing Connections:	Pin 1 Internal Connection	
	Pin 2 Control Grid g_1	
	Pin 3 Cathode	
	Pin 4 Heater	
	Pin 5 Heater	
	Pin 6 No Connection	
	Pin 7 Anode	
	Pin 8 Screen g_2	
	Pin 9 Beam Plates	

Ratings:

TETRODE CONNECTIONS:

Max. Anode Voltage	350 volts*
Max. Screen Voltage	310 volts*
Max. Anode Dissipation	13·2 watts*
Max. Screen Dissipation	2·2 watts*
Max. Bulb Temperature °C	250*
Max. DC Anode Current	70 mA

TRIODE CONNECTIONS (Pins 7 and 8 strapped)†:

Max. (anode and screen strapped) Voltages	310*
Max. (anode and screen strapped) Dissipation	12·5 watts*
Max. DC Anode Current	75 mA

† In order to avoid parasitic oscillation pins 7 and 8 should be connected together through a 100 ohms resistor or an RF choke of about 20 microhenries.

* These ratings are absolute and must not be exceeded under any circumstances.

Capacities (approx.):*

$c_{g,a}$	0·6 pF
c_{in}	8·5 pF
c_{out}	7·5 pF
$c_{h,k}$	7·0 pF

* Measured without shield.

Mounting: The valve may be mounted in any position.

Ventilation: As this valve runs appreciably hot in operation the layout and design of equipment should be such that adequate ventilation is afforded to ensure a safe bulb temperature under all conditions. The bulb temperature of the hottest point on the surface should never exceed 250° C.

CHARACTERISTIC CURVES: Curves are attached to this report which show:

Anode current plotted against anode voltage for various values of grid voltage for the valve tetrode connected with a screen voltage of 250 volts (I_a/V_a) (Curve No. 307·271).

Anode current plotted against anode voltage for various values of grid voltage for the valve tetrode connected with a screen voltage of 285 volts (I_a/V_a) (Curve No. 307·272).

Anode current plotted against anode voltage for various values of grid voltage for the valve tetrode connected with a screen voltage of 225 volts (I_a/V_a) (Curve No. 307·281).

Anode current plotted against anode voltage for various values of grid voltage for the valve connected as a triode (I_a/V_a) (Curve No. 307·273).

TYPICAL OPERATION

Class A Amplifier (Single Ended):

TRIODE CONNECTION (Pins 7 and 8 strapped):

Heater Voltage	6·3	6·3	volts
Anode Voltage	250	285	volts
Grid Voltage	—13·5	—19	volts
Autobias Resistor (R_k)	300	470	ohms
Anode Impedance (r_a)	2090	2250	ohms
Anode Current (no signal)	45	40	mA
Amplification Factor (μ)	9·2	9·0	
Mutual Conductance	4·4	4·0	mA/V
Anode Load Resistor (R_a)	4000	4500	ohms
Peak AF Grid Voltage	13·5	19	volts
Total Harmonic Distortion	3·5	6·0	%
Power Output	0·75	1·35	watts

Curves are attached to this report which show the relation between power output, harmonic distortion and input signal voltage for autobias conditions at 250 volts HT (Curve No. 307·274) and at 285 volts HT (Curve No. 307·275).

Class A Amplifier (Push-Pull):

TRIODE CONNECTION (Pins 7 and 8 strapped):

Heater Voltage	6·3	6·3	volts
Anode Voltage	250	285	volts
Grid Voltage	—13·5	—19	volts
Autobias Resistor (R_k)	150	240	ohms
Anode Current (no signal)	90	78	mA
Output Load (anode-anode) ($R_{a,a}$)	4000	4500	ohms
Peak AF Grid Voltage (grid-grid)	27	38	volts
Total Harmonic Distortion	0·4	0·5	%
Power Output	1·7	3·1	watts

Note.—Values given are for two valves.

Curves are attached to this report which show the relation between power output, harmonic distortion and input signal voltage with autobias. Curve No. 307·276 at 250 volts HT and Curve No. 307·277 at 285 volts HT.

Class A Amplifier (Single Ended):

TETRODE CONNECTION:

Heater Voltage	6·3	6·3	6·3	6·3	6·3	6·3	volts
Anode Voltage	180	180	250	250	315	315	volts
Screen Voltage	180	180	250	250	225	225*	volts
Grid Voltage	—8·5	—	—12·5	—	—13	—	volts
Autobias Resistor	—	250	—	240	—	330	ohms
Anode Current	29	29	45	47	34	34	mA
Screen Current	3·0	3·0	4·5	5·0	2·2	2·2	mA
Anode Impedance (r_a)	58000	—	52000	—	77000	—	ohms
Mutual Conductance	3·7	—	4·1	—	3·75	—	mA/V
Anode Load Resistor	5500	5500	5000	5000	8500	8500	ohms
Peak AF Grid Voltage	8·5	9·0	12·5	13·5	13	13·5	volts
Total Harmonic Distortion	7·0	7·5	7·5	8	10	11·5	%
Power Output	2·0	1·7	4·5	4·5	5·2	5·0	watts

* The screen voltage, where lower than the anode voltage, should be obtained from a potentiometer across the HT line to chassis adequately by-passed to AF signals rather than by means of a series resistor to avoid fluctuation of the screen voltage as the current drives up near maximum output.

Curves are attached to this report which show the relation between power output, harmonic distortion and input signal voltage for autobias conditions at 180 volts (Curve No. 307·278), at 250 volts (Curve No. 307·279) and at 315 volts (Curve No. 307·280). Curves Nos. 307·290 and 307·291 are corresponding curves for fixed bias conditions.

Class A Amplifier (Push-Pull):

TETRODE CONNECTION:

Heater Voltage	6·3	6·3	6·3	volts
Anode Voltage	250	250	315	volts
Screen Voltage	250	250	250	volts
Grid Voltage	—12·5	—	—	volts
Autobias Resistor	—	120	125	ohms
Peak AF Grid-Grid Voltage	25	26	28	volts
No Signal Anode Current	90	94	98	mA
Max. Signal Anode Current	96	98	102	mA
No Signal Screen Current	9	9·5	8·5	mA
Max. Signal Screen Current	13·5	13·5	11·5	mA
Anode Impedance (r_a)	52000	—	—	ohms
Mutual Conductance	4·1	—	—	mA/V
Output Load (anode to anode)	10000	10000	10000	ohms
Total Harmonic Distortion	2	2·5	2·5	%
Power Output	9	9	12·5	watts

Note.—Values given are for two valves.

Curves are attached to this report which show the relation between power output, distortion and input signal for the 250 volt autobias conditions (Curve No. 307·282), for fixed bias (Curve No. 207·283) and for the 315 volt condition with autobias (Curve No. 307·284).

Class AB1 Amplifier (Push-Pull):

TETRODE CONNECTION:

Heater Voltage	6·3	6·3	6·3	6·3	volts
Anode Voltage	250	250	285	285	volts
Screen Voltage	250	250	285	285	volts
Grid Voltage	—15	—	—19	—	volts
Autobias Resistor	—	200	—	260	ohms
Peak AF Grid-Grid Voltage	30	34	38	45	volts
No Signal Anode Current	70	70	70	70	mA
Max. Signal Anode Current	80	74	94	78·5	mA
No Signal Screen Current	5	5	4	4	mA
Max. Signal Screen Current	11·5	11·5	11·5	10	mA
Load Resistance (anode-anode)	10000	10000	8000	8000	ohms
Total Harmonic Distortion	3	3·5	1·8	1	%
Power Output	10	10	13	12	watts

Note.—Values given are for two valves.

Curves are attached to this report which show the relation between power output, distortion and input signal voltage for the 250 volt conditions, Curve No. 307·285 for fixed bias and Curve No. 307·286 for automatic bias. For the 285 volt condition there are Curves No. 307·287 for fixed bias and No. 307·288 for automatic bias.

Class AB2 Amplifier (Push-Pull):

TETRODE CONNECTION:

Heater Voltage	6·3	volts
Anode Voltage	315	volts
Screen Voltage	285	volts
Grid Voltage	—19	volts
Peak AF Grid-Grid Voltage	80	volts
No Signal Anode Current	70	mA
Max. Signal Anode Current	155	mA
No Signal Screen Current	4	mA
Max. Signal Screen Current	16	mA
Peak Grid Input Power	400	Milliwatts
Load Resistor (anode-anode)	5000	ohms
Total Harmonic Distortion	7	%
Power Output	30	watts

Note.—Values given are for two valves.

It is essential for Class AB2 operation that the regulation of the anode, screen and grid bias supplies is such that the voltages remain constant within 5% between no signal and maximum signal conditions. The driver stage should be capable of supplying the grids of the two valves with the specified peak voltages with low distortion. The effective resistance per grid circuit represented by the driver valve and/or transformer should not exceed 500 ohms and the effective impedance represented by leakage inductance or equivalent at the highest desired response frequency should not exceed 700 ohms.

A curve (No. 307·289) is attached to this report which shows the relation between power output, distortion and input signal voltage for the above conditions.

GENERAL RECOMMENDATIONS:

Audio Frequencies: Due to the relatively high slope of this valve, trouble may be experienced due to parasitic oscillation, and it is advised that a resistor of 100 ohms is wired in series with the anode, directly connected to the valve holder contact.

This resistor should be reduced to 47 ohms in the case of Class AB2 operation.

A series grid resistor may also be employed, if necessary, wired directly to the valve holder grid contact, but the value must be carefully chosen bearing the frequency response in mind. Such a resistor should never exceed 100,000 ohms for Class A operation, and should not be employed for Class AB2 operation.

The type of input coupling used should not introduce too much resistance into the grid circuit. It is preferable that such resistance does not exceed 100,000 ohms except in the case of Class A operation under automatic bias conditions where the value may be as high as 500,000 ohms.

Radio Frequencies: Whilst these valves are not primarily intended for operation as an oscillator or as a frequency multiplier they may be used for such purpose up to a maximum frequency of 160 Mc/s.

The ratings given on page 2 must under no circumstances be exceeded nor may the DC grid current at any time exceed 3 mA.

It is preferable that the screen supply voltage should not be obtained via a series dropping resistor, and the DC bias should be obtained from a fixed bias or from a combination of grid leak bias and a cathode automatic bias resistor.

The bias required as a Class C frequency multiplier is of the order of —80 volts and the output with normal circuit practice is adequate at second or third harmonic to drive an RF amplifier employing valves such as the 807 (5B/250A) or 5763.

When these valves are used as crystal oscillators in a Tri-tet circuit care should be exercised to ensure a safe crystal current if the screen voltage is 180 volts or higher.

If this valve is used as a Class "B" or Class "C" RF amplifier neutralisation will normally be necessary at the higher frequencies. Power amplifier operation is not recommended above 100 Mc/s due to the relatively high input drive required. At this and higher frequencies it is more economical to use the valve as a frequency multiplier.

Keying should not be achieved by disconnection of the cathode unless a resistor of not more than 100,000 ohms is permanently connected between cathode and chassis earth.

Under no circumstances should the anode tank circuit of a Class "B" or "C" amplifier be tuned through resonance with the aerial or succeeding valve load disconnected. Such procedure causes a violent drop in the anode current and a corresponding increase in screen current which may damage the screen, together with a very high voltage between anode and other electrodes which is liable to break down the insulation of the button base.

TYPICAL OPERATION

RF Doubler. Continuous ratings as a doubler without modulation:

DC Anode Voltage	250	300	volts
DC Screen Voltage	250	250	volts
DC Screen Series Resistor	—	9100	ohms
DC Grid Voltage	—60	—70	volts
DC Grid Resistor	18000	21000	ohms
DC Cathode Resistor	100	100	ohms
Peak RF Grid Voltage	100	100	volts
DC Anode Current	52	46	mA
DC Screen Current	5·0	5·5	mA
DC Grid Current (approximately)	3·0	3·0	mA
Driving Power (approximately)	0·3	0·3	watt
Power Output	5·0	5·5	watts*

* Measured with typical tank coil doubling from 7—14 Mc/s.

RF Trebler. Continuous ratings as a trebler without modulation:

DC Anode Voltage	300	volts
DC Screen Voltage	250	volts
DC Screen Series Resistor	12500	ohms
DC Grid Voltage	—94	volts
DC Cathode Resistor	500	ohms
DC Grid Resistor	23000	ohms
Peak RF Grid Voltage	150	volts
DC Anode Current	46	mA
DC Screen Current	4	mA
DC Grid Current (approximately)	3	mA
Driving Power (approximately)	0·45	watt
Power Output	2·5	watts*

* Measured with typical tank coil trebling from 7—21 Mc/s.

Frame Time Base: A circuit showing the valve used for television frame time base output is given on VAD/307·55. The valve is triode connected, as this enables adequate linearity to be obtained without great difficulty. Tetrode connection has the advantage of greater sensitivity and power output, but much of this has to be sacrificed in the negative feed back necessary to linearise the trace.

The HT current consumption is between 25 and 30 mA when the time base is operated from a 250 volt HT rail. The output is adequate for cathode ray tubes with scanning angles up to 55°. For wide angle deflections of 65° or more the circuit may be operated from an HT rail of 300 volts; the bias resistor R11 should then be increased to 1000 ohms. Suitable wide angle scanning components and output transformer must be used.

In the circuit shown certain of the component values may require modification to suit individual applications.

R3, the charging resistor to the blocking oscillator, affects the output, a lower value giving greater output but poorer linearity.

R7 affects mainly the bottom of the picture, a lower value stretching out this region.

R11 should deliver the correct bias so that the 6BW6 operates in the centre of the linear part of its characteristic. Too high a bias causes compression of the end of the scan, too low a bias compression of the commencement as the valve draws grid current on the positive peaks.

R9, the linearity control closes the top of the picture as it is reduced in value.

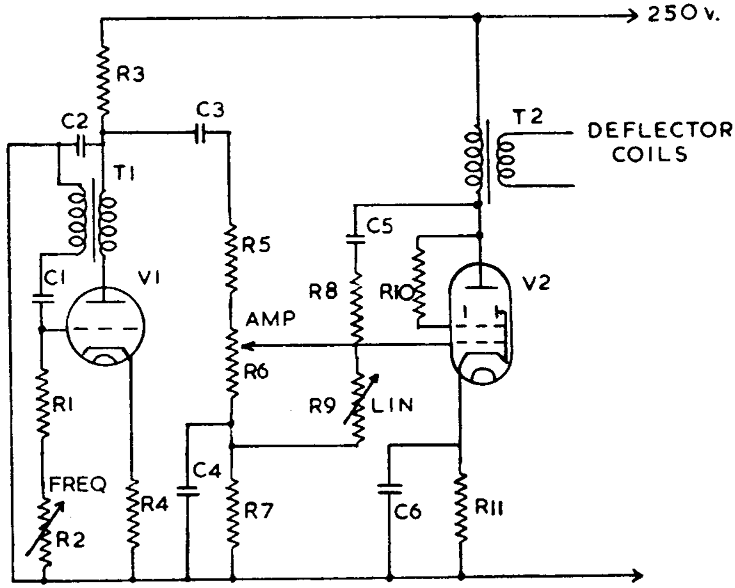
C4 influences the feedback circuit, stretching the top of the picture as it is increased.

C5 affects both top and bottom of the picture, too high a value causing stretching of the top and cramping of the bottom.

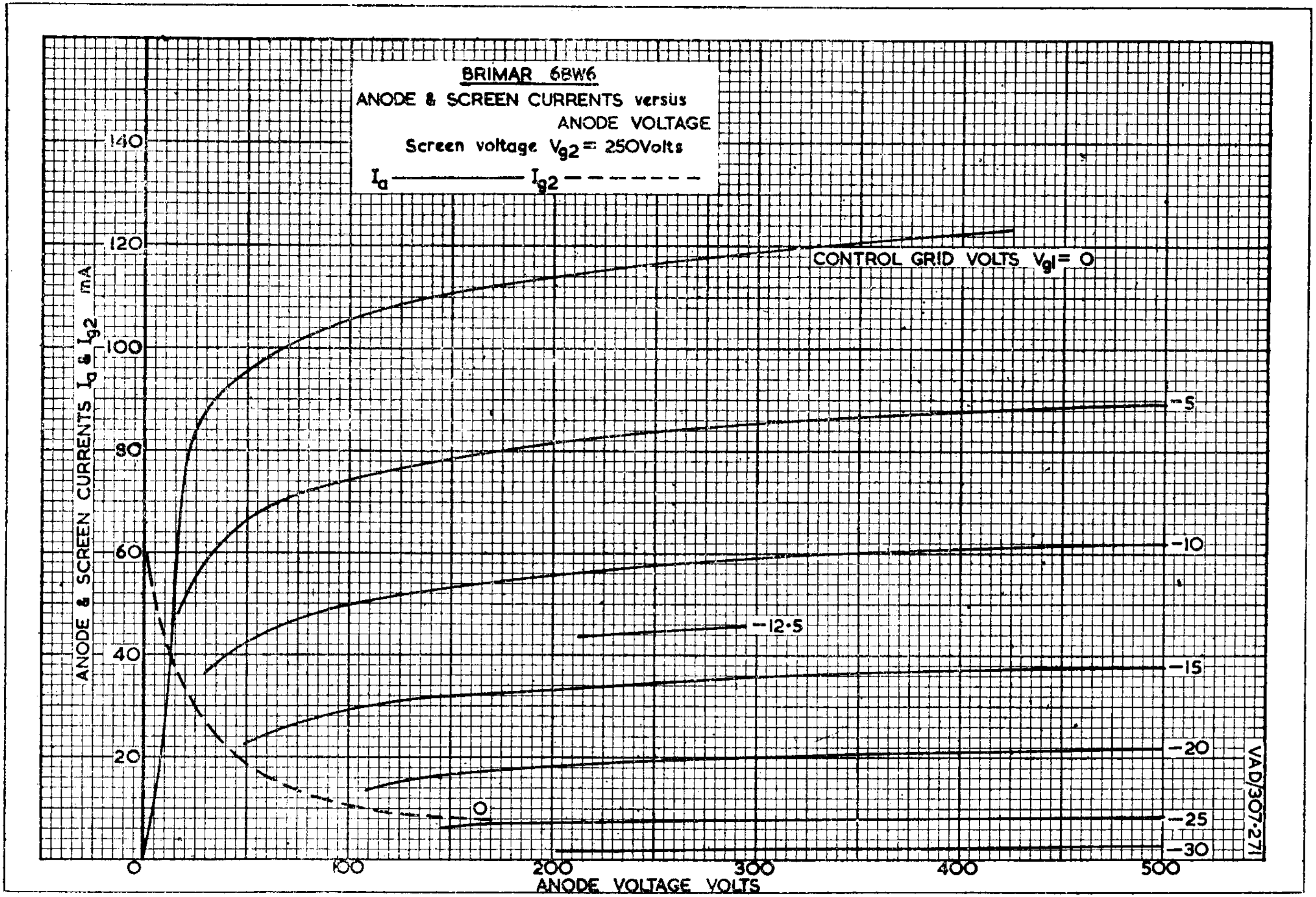
Synchronising pulses may be fed either to the grid or to the anode of the blocking oscillator, depending whether their polarity is positive or negative.

BRIMAR 6BW6

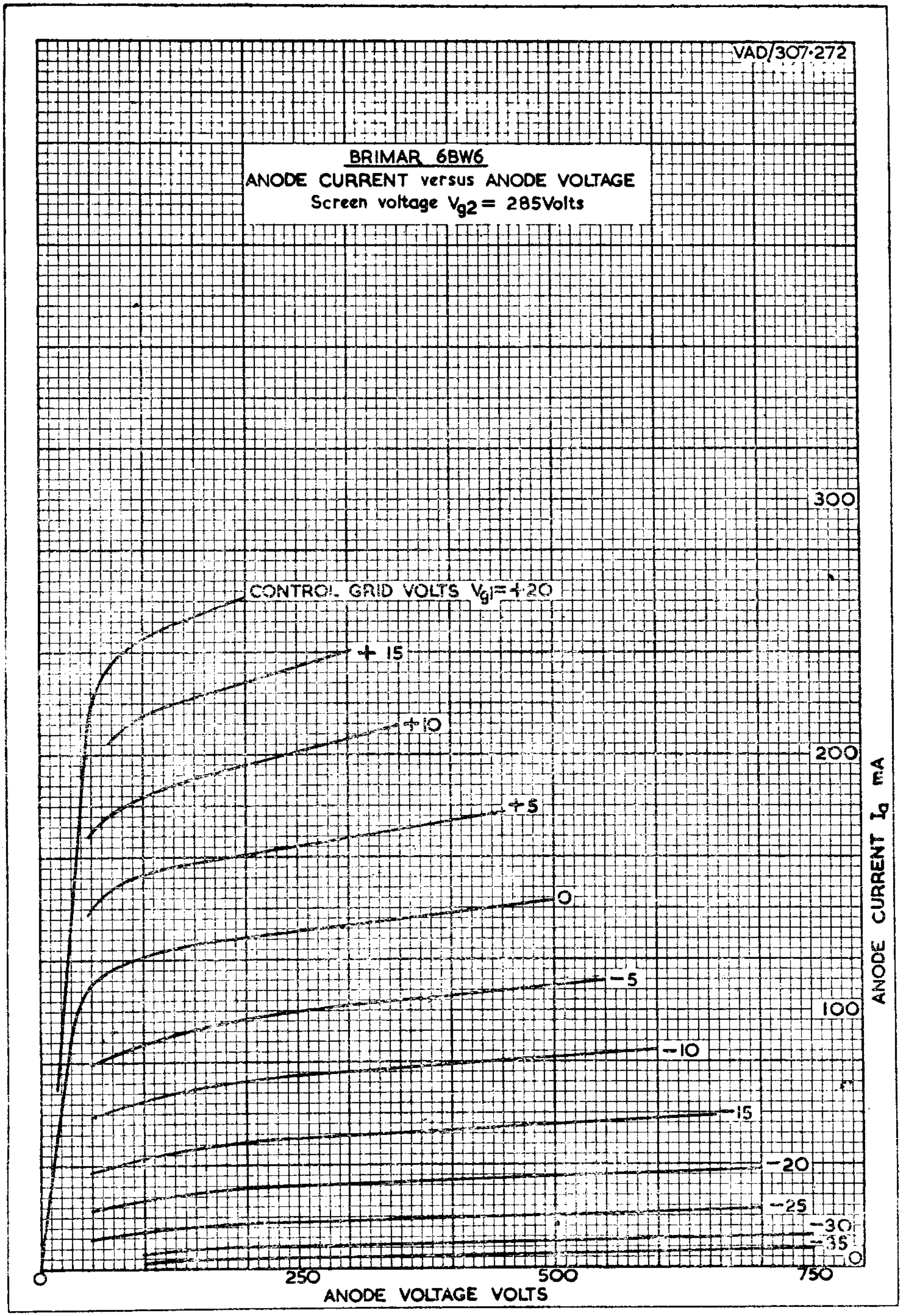
FRAME TIME BASE



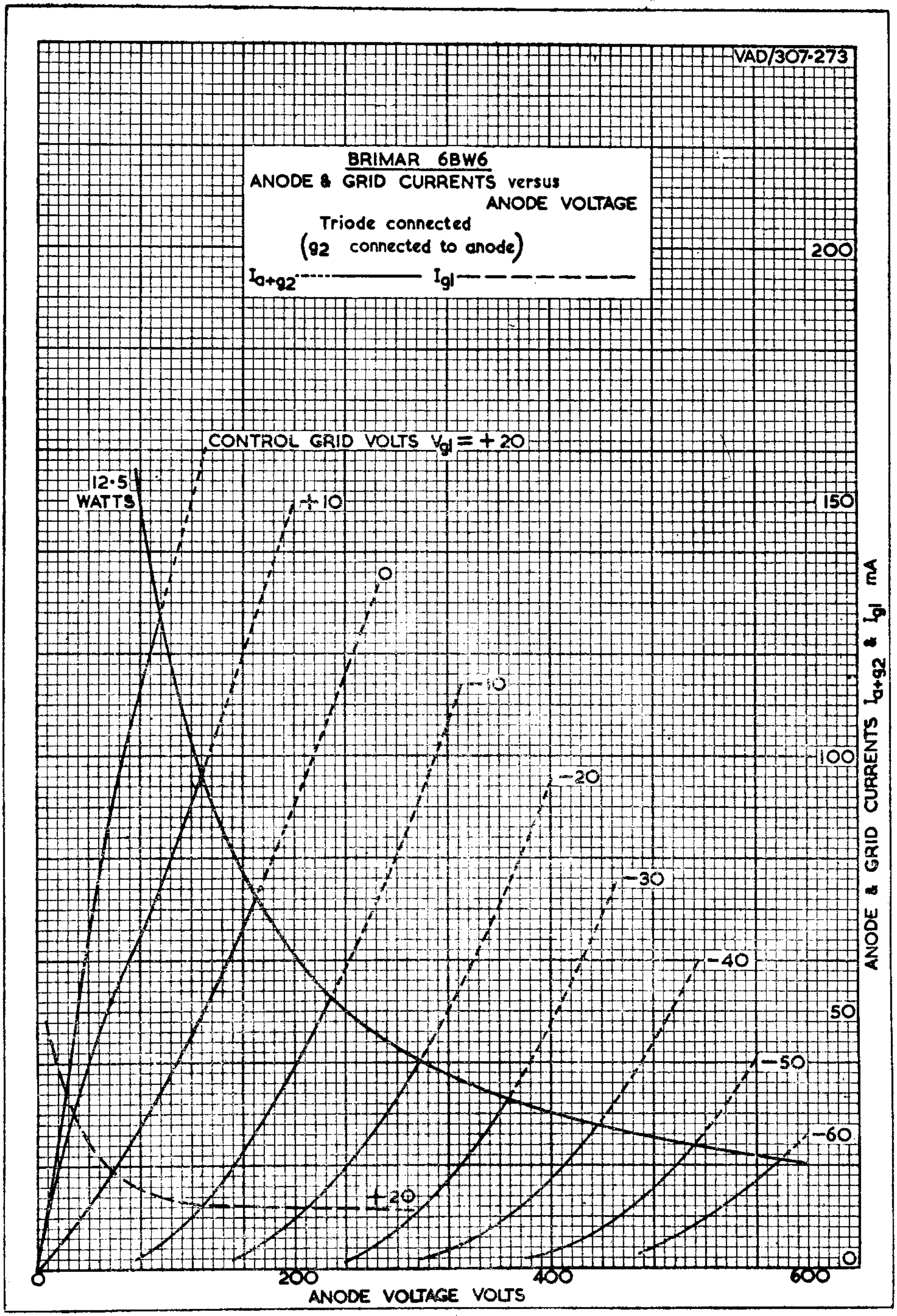
R_1	47 k	C_1	0·5
R_2	100 k var.	C_2	0·1
R_3	470 k	C_3	0·1
R_4	220	C_4	0·005
R_5	330 k	C_5	0·01
R_6	1 M pot.	C_6	30 Electrolytic
R_7	470 k	T_1	Frame Blocking Oscillator Transformer. Plessey CP92553
R_9	250 k var.	T_2	Frame Output Transformer. Plessey CP71956/1
R_{10}	100		Deflector Coils, Plessey CP72419
R_{11}	680		
V_1	6C4 or 1/2 12AU7	V_2	6BW6

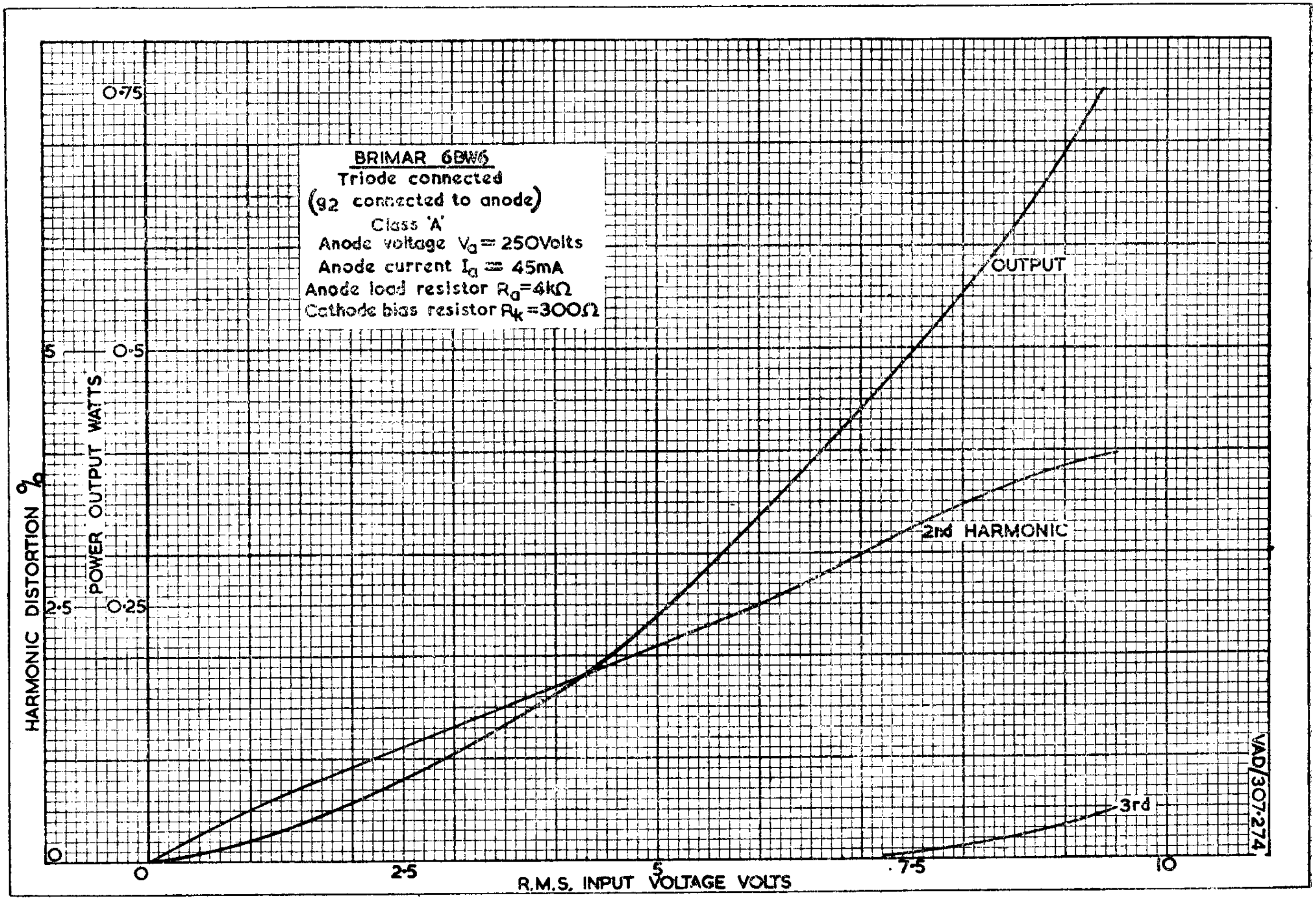


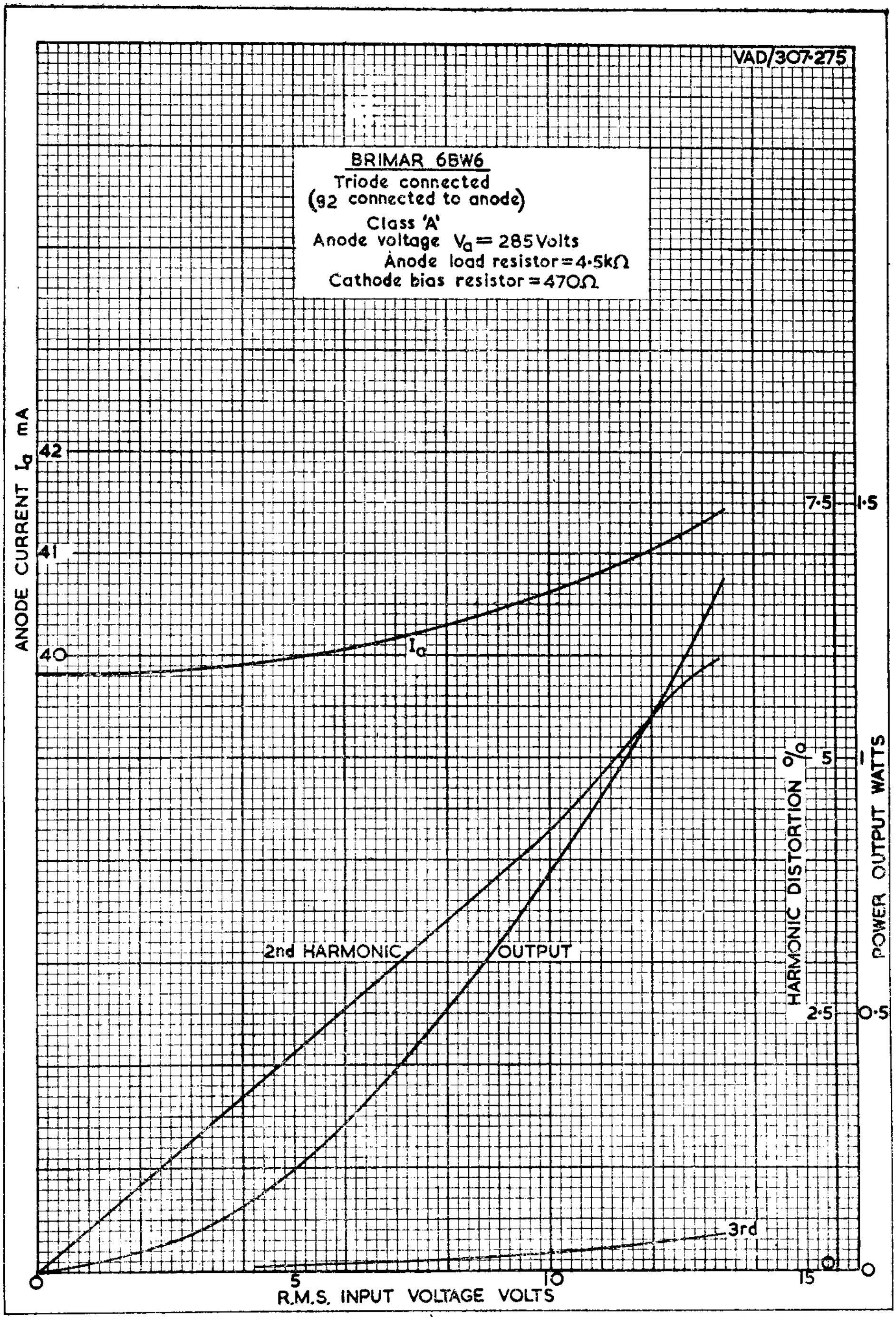
BRIMAR 6BW6
ANODE & SCREEN CURRENTS versus
ANODE VOLTAGE
Screen voltage V_{g2} = 250Volts
I_a ———— I_{g2} - - - - - -
CONTROL GRID VOLTS V_{g1} = 0
−5
−10
−12·5
−15
−20
−25
−30
0
140
120
100
80
60
40
20
0
100
200
300
400
500
ANODE VOLTAGE VOLTS
ANODE & SCREEN CURRENTS I_a & I_{g2} mA
VAD/307·271

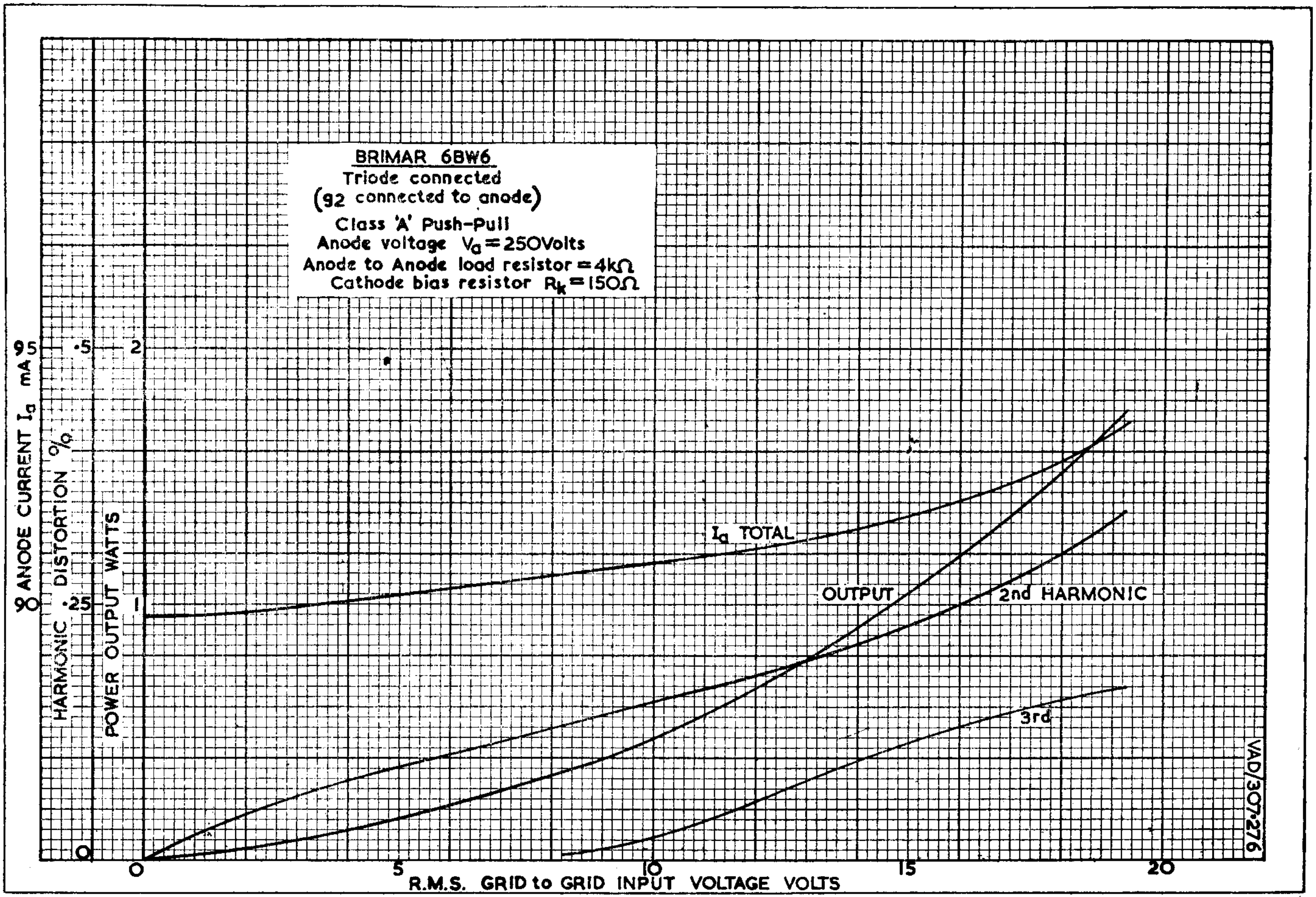


VAD/307·272
BRIMAR 6BW6
ANODE CURRENT versus ANODE VOLTAGE
Screen voltage V_{g2} = 285Volts
CONTROL GRID VOLTS V_{g1} = +20
+15
+10
+5
0
−5
−10
−15
−20
−25
−30
−35
300
200
100
0
250
500
750
ANODE VOLTAGE VOLTS
ANODE CURRENT I_a mA

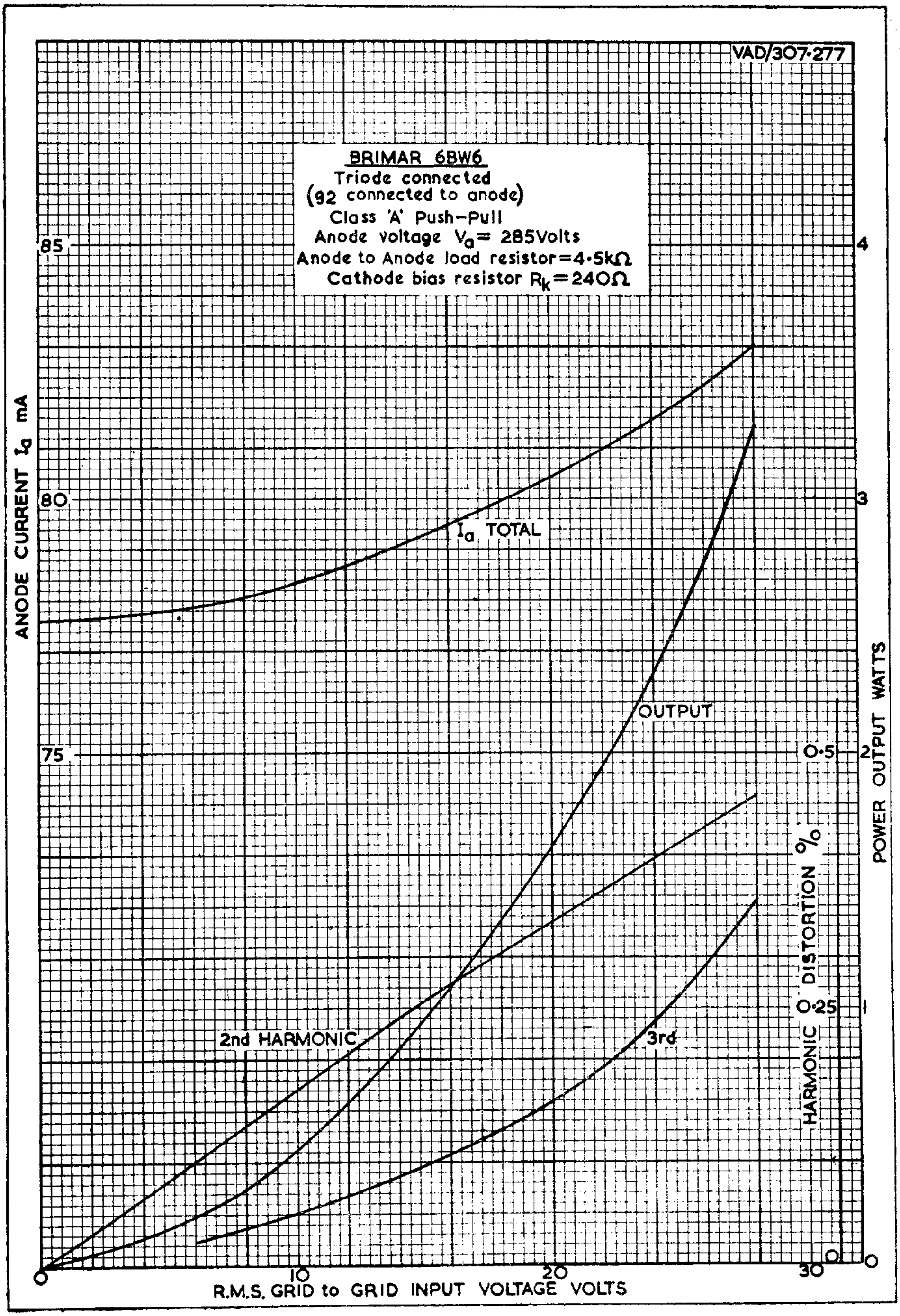

VAD/307-273
BRIMAR 6BW6
ANODE & GRID CURRENTS versus ANODE VOLTAGE
Triode connected
(g2 connected to anode)
Ia+g2 ———— Ig1 — — — —
CONTROL GRID VOLTS Vg1 = +20
12·5 WATTS
+10
0
−10
−20
−30
−40
−50
−60
+20
200
150
100
50
0
ANODE & GRID CURRENTS Ia+g2 & Ig1 mA
0
200
400
600
ANODE VOLTAGE VOLTS

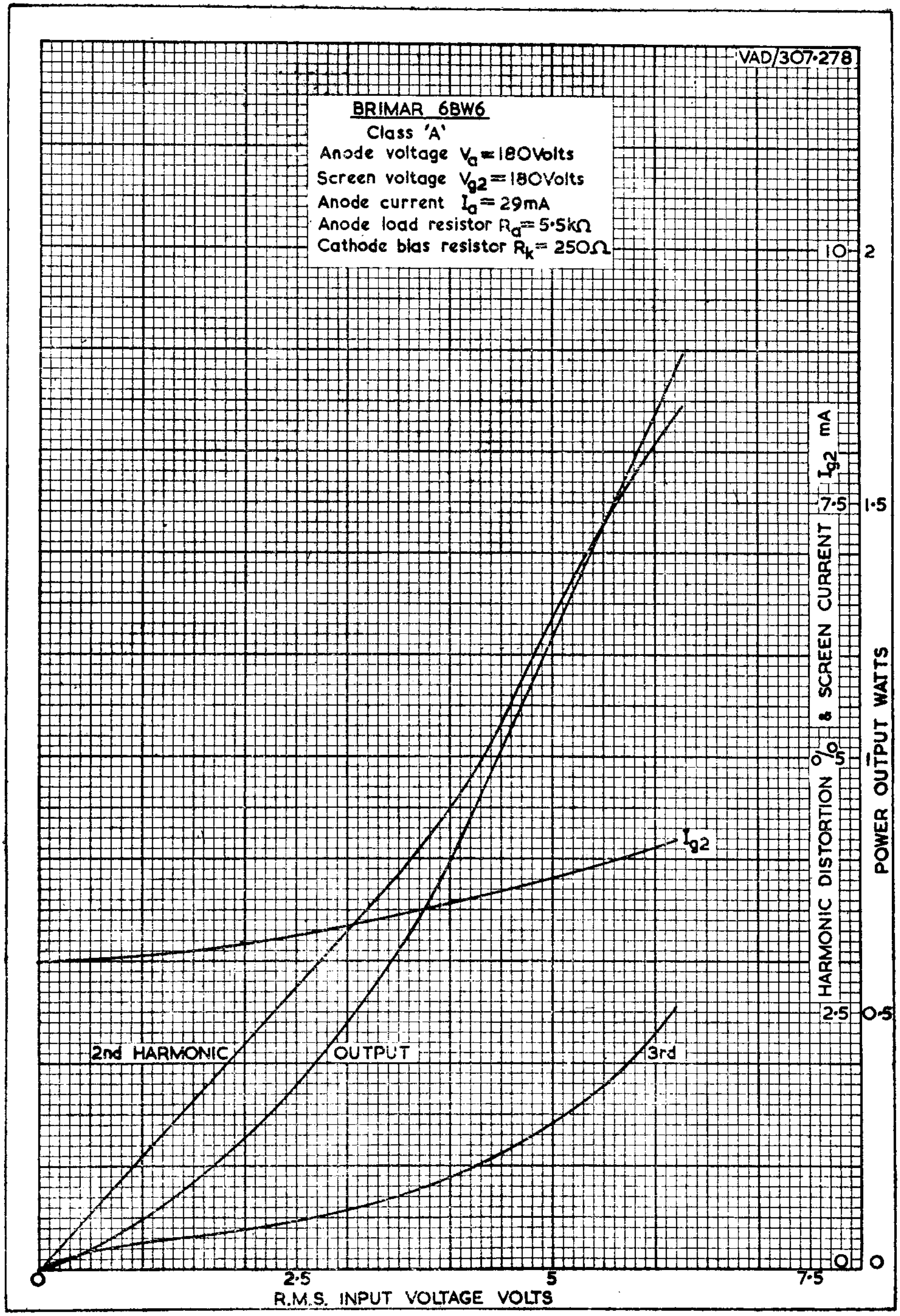

BRIMAR 6BW6
Triode connected
(g2 connected to anode)
Class 'A'
Anode voltage Va = 250Volts
Anode current Ia = 45mA
Anode load resistor Ra=4kΩ
Cathode bias resistor Rk=300Ω
OUTPUT
2nd HARMONIC
3rd
HARMONIC DISTORTION %
POWER OUTPUT WATTS
R.M.S. INPUT VOLTAGE VOLTS
0·75
0·5
0·25
5
2·5
0
2·5
5
7·5
10
VAD/307·274

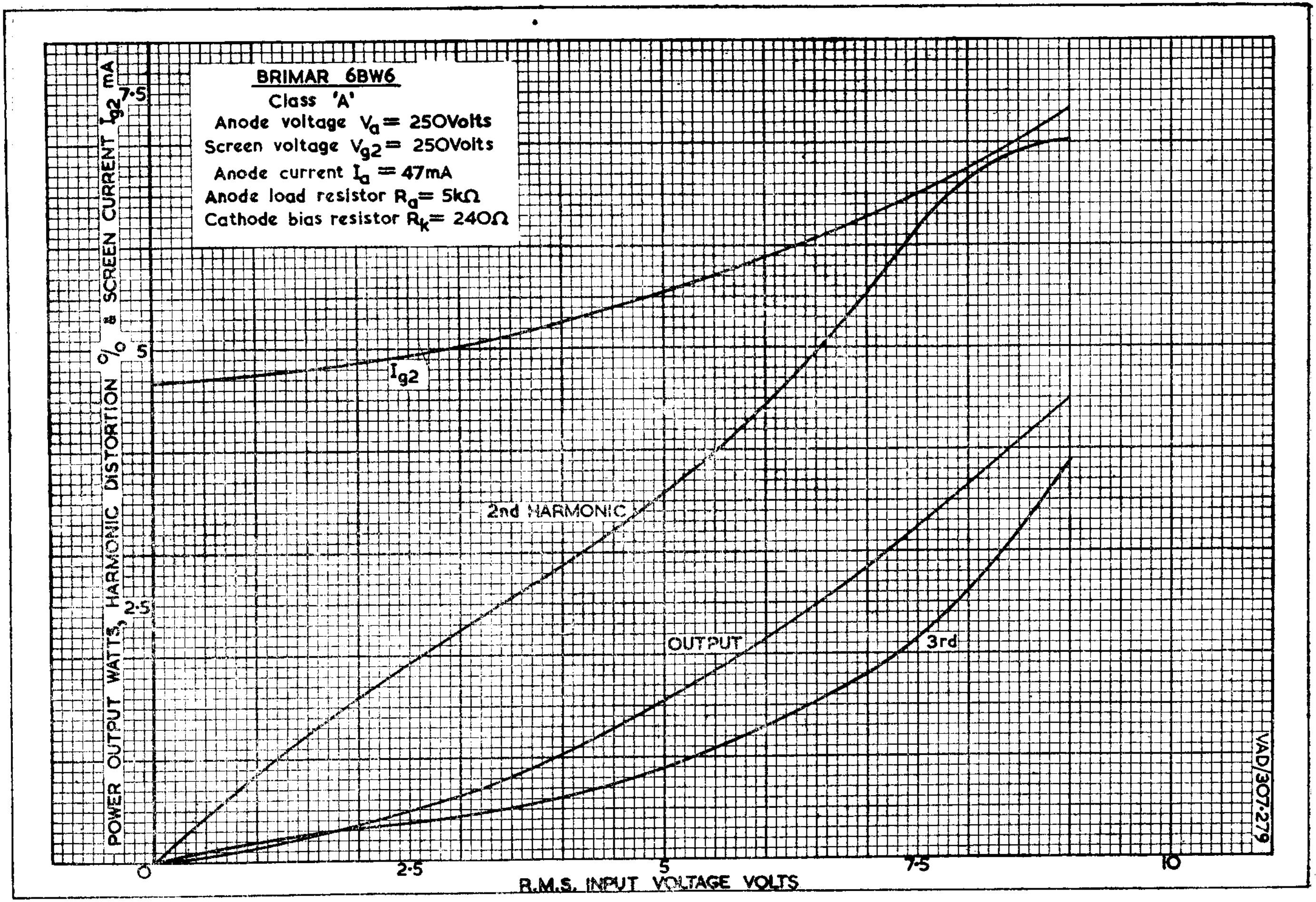

VAD/307-275
BRIMAR 6BW6
Triode connected
(g2 connected to anode)
Class 'A'
Anode voltage Va = 285 Volts
Anode load resistor = 4·5kΩ
Cathode bias resistor = 470Ω
ANODE CURRENT Ia mA
42
41
40
Ia
2nd HARMONIC
OUTPUT
3rd
HARMONIC DISTORTION %
POWER OUTPUT WATTS
7·5
5
2·5
1·5
1
0·5
0
5
10
15
R.M.S. INPUT VOLTAGE VOLTS

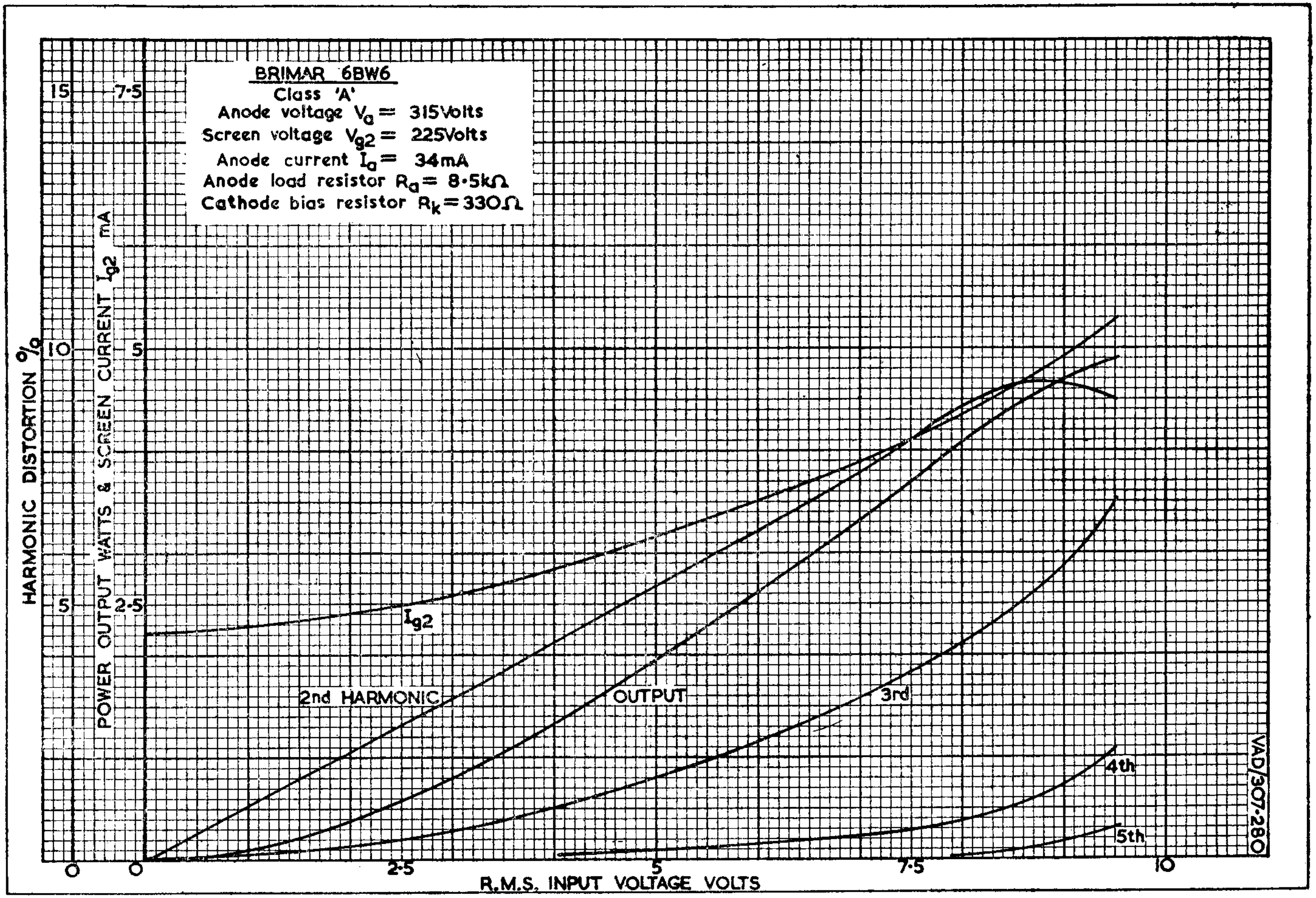


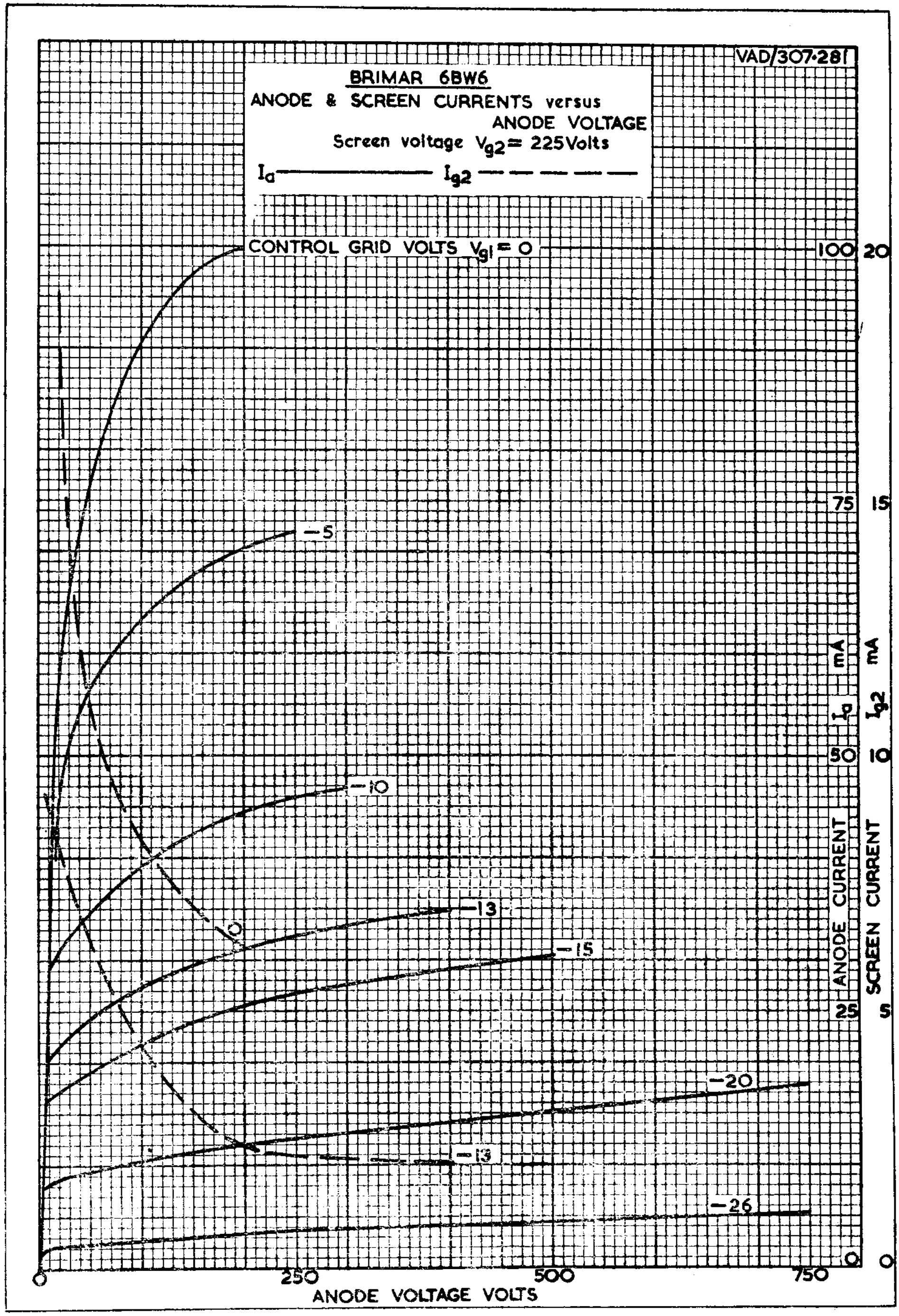
BRIMAR 6BW6
Triode connected
(g2 connected to anode)
Class 'A' Push-Pull
Anode voltage V_a = 250Volts
Anode to Anode load resistor = 4kΩ
Cathode bias resistor R_k = 150Ω
I_a TOTAL
OUTPUT
2nd HARMONIC
3rd
ANODE CURRENT I_a mA
HARMONIC DISTORTION %
POWER OUTPUT WATTS
R.M.S. GRID to GRID INPUT VOLTAGE VOLTS
90
95
·25
·5
1
2
0
5
10
15
20
VAD/307·276


VAD/307·277
BRIMAR 6BW6
Triode connected
(g2 connected to anode)
Class 'A' Push-Pull
Anode voltage Va= 285Volts
Anode to Anode load resistor=4·5kΩ
Cathode bias resistor Rk=240Ω
ANODE CURRENT Ia mA
POWER OUTPUT WATTS
HARMONIC DISTORTION %
Ia TOTAL
OUTPUT
2nd HARMONIC
3rd
85
80
75
4
3
2
1
0
0·5
0·25
10
20
30
R.M.S. GRID to GRID INPUT VOLTAGE VOLTS

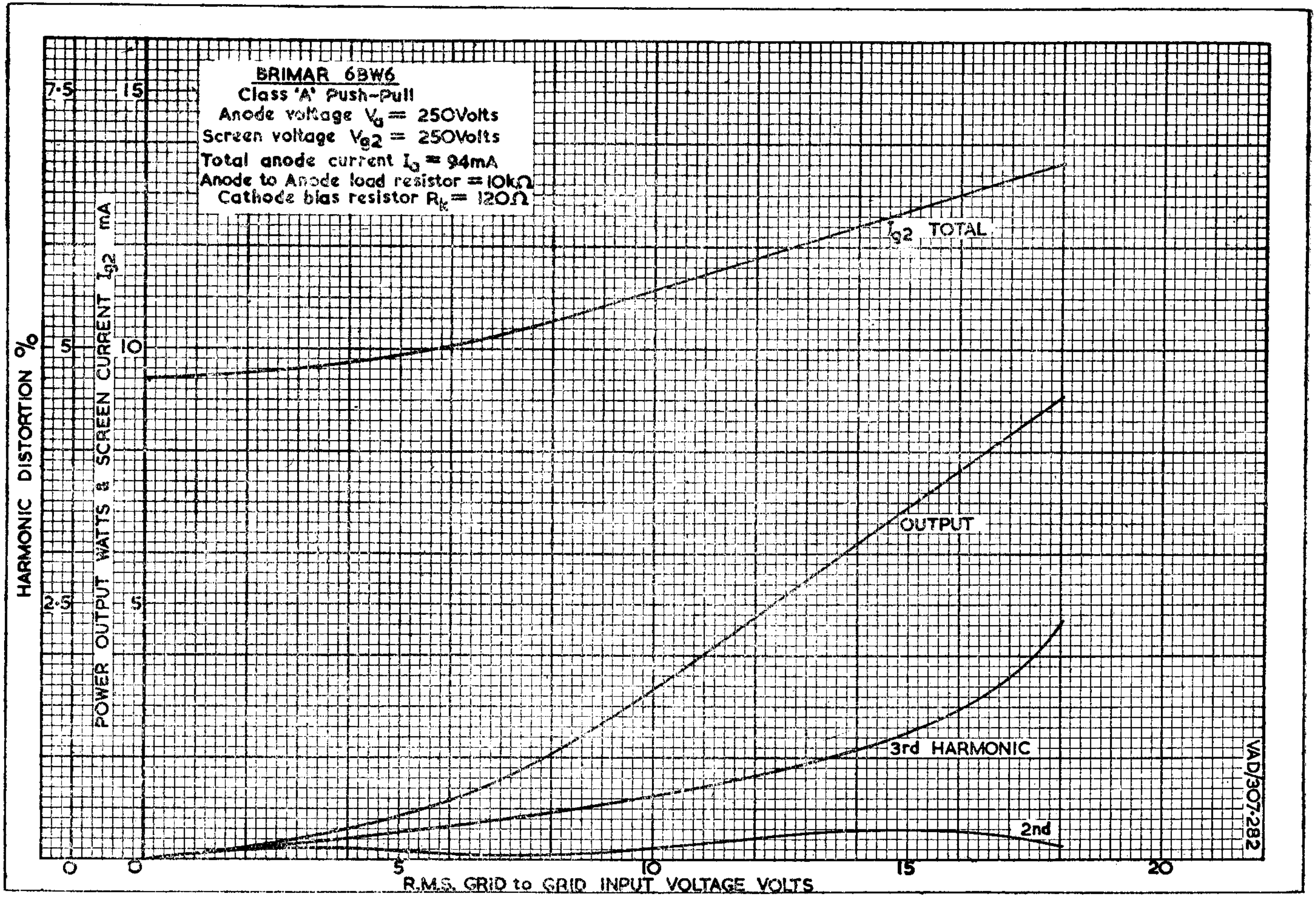

VAD/307·278
BRIMAR 6BW6
Class 'A'
Anode voltage Va = 180Volts
Screen voltage Vg2 = 180Volts
Anode current Ia = 29mA
Anode load resistor Ra = 5·5kΩ
Cathode bias resistor Rk = 250Ω
2nd HARMONIC
OUTPUT
3rd
Ig2
HARMONIC DISTORTION % & SCREEN CURRENT Ig2 mA
POWER OUTPUT WATTS
10
2
7·5
1·5
5
2·5
0·5
0
0
2·5
5
7·5
R.M.S. INPUT VOLTAGE VOLTS

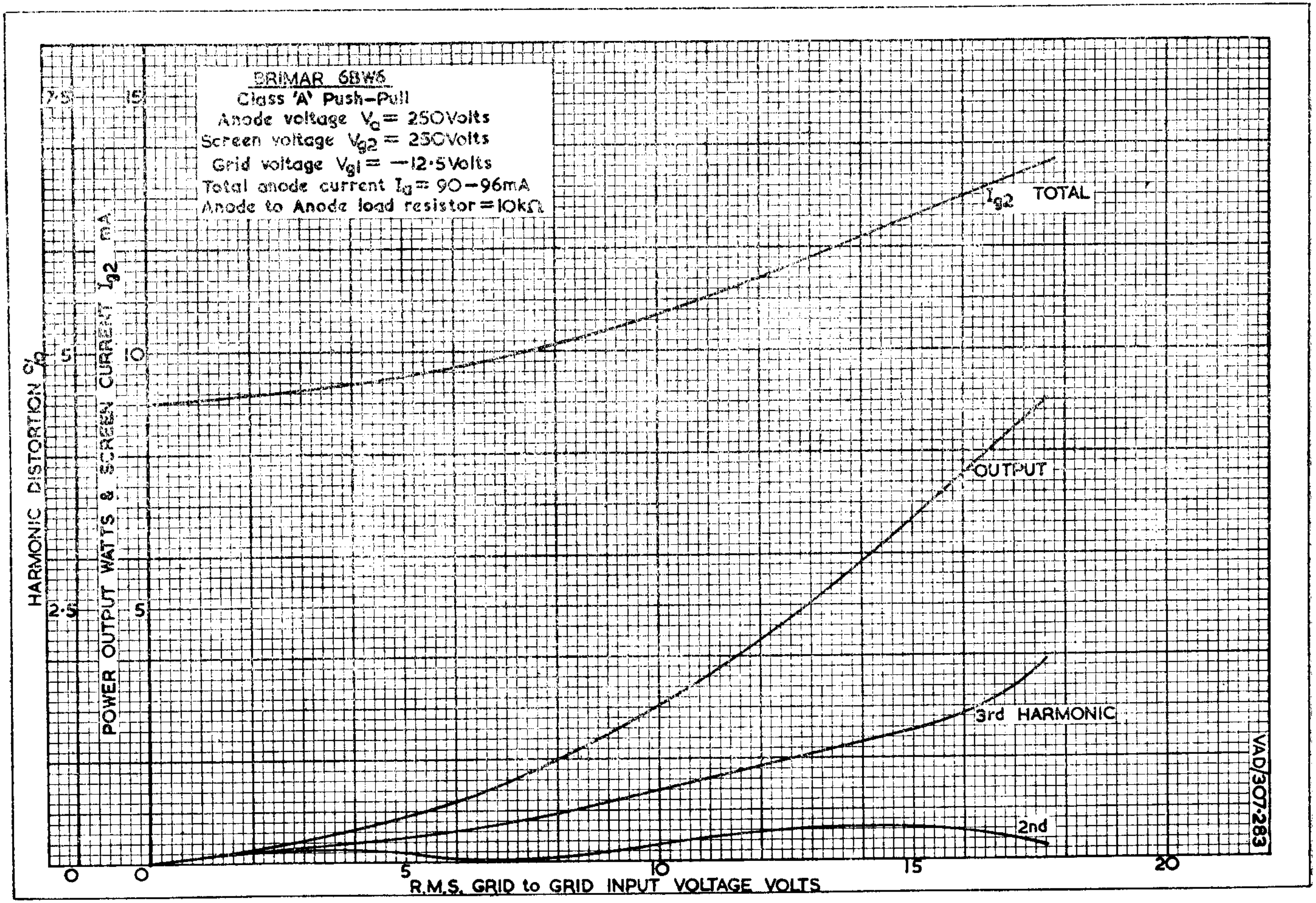

BRIMAR 6BW6
Class 'A'
Anode voltage V_a = 250Volts
Screen voltage V_{g2} = 250Volts
Anode current I_a = 47mA
Anode load resistor R_a = 5kΩ
Cathode bias resistor R_k = 240Ω
POWER OUTPUT WATTS, HARMONIC DISTORTION % & SCREEN CURRENT I_{g2} mA
R.M.S. INPUT VOLTAGE VOLTS
I_{g2}
2nd HARMONIC
OUTPUT
3rd
0
2·5
5
7·5
10
VAD/307·279

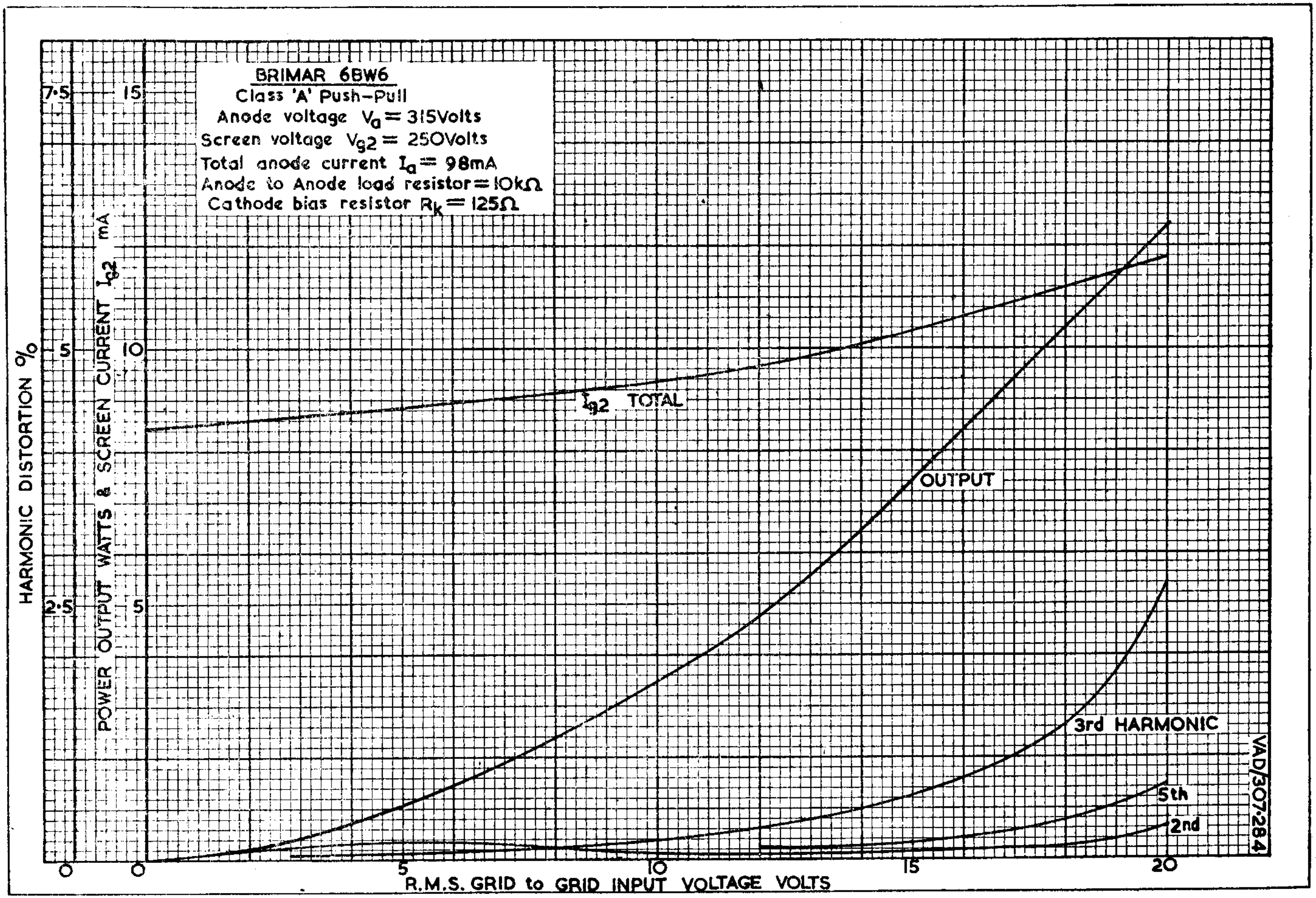

BRIMAR 6BW6
Class 'A'
Anode voltage V_a = 315Volts
Screen voltage V_{g2} = 225Volts
Anode current I_a = 34mA
Anode load resistor R_a = 8·5kΩ
Cathode bias resistor R_k = 330Ω
HARMONIC DISTORTION %
POWER OUTPUT WATTS & SCREEN CURRENT I_{g2} mA
R.M.S. INPUT VOLTAGE VOLTS
I_{g2}
2nd HARMONIC
OUTPUT
3rd
4th
5th
VAD/307-280
15
10
5
0
7·5
5
2·5
0
2·5
5
7·5
10



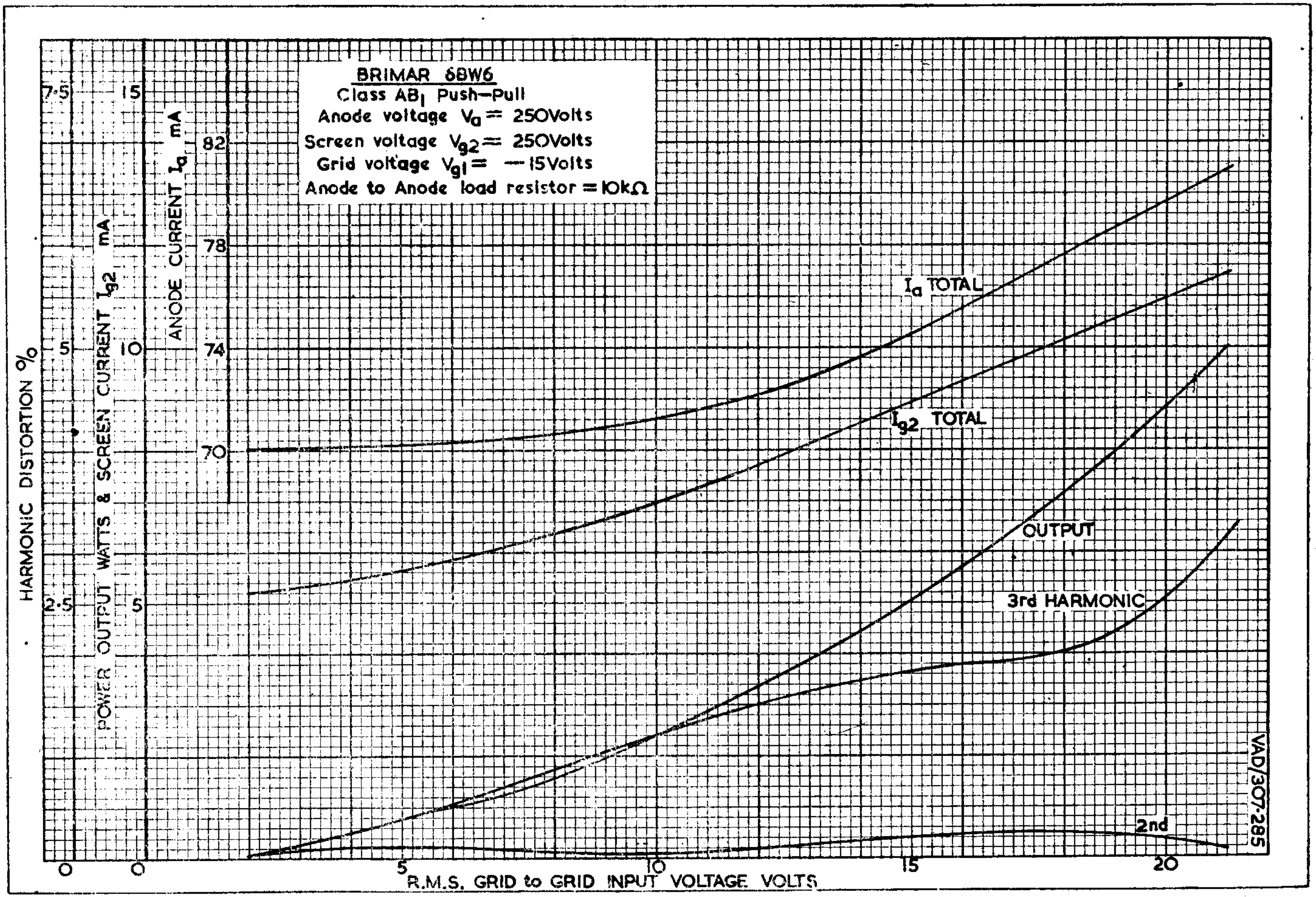
VAD/307·281
BRIMAR 6BW6
ANODE & SCREEN CURRENTS versus ANODE VOLTAGE
Screen voltage Vg2 = 225 Volts
Ia ———— Ig2 — — — —
CONTROL GRID VOLTS Vg1 = 0
−5
−10
−13
−15
−20
−26
0
−13
ANODE CURRENT Ia mA
SCREEN CURRENT Ig2 mA
100 20
75 15
50 10
25 5
0 0
0
250
500
750
ANODE VOLTAGE VOLTS

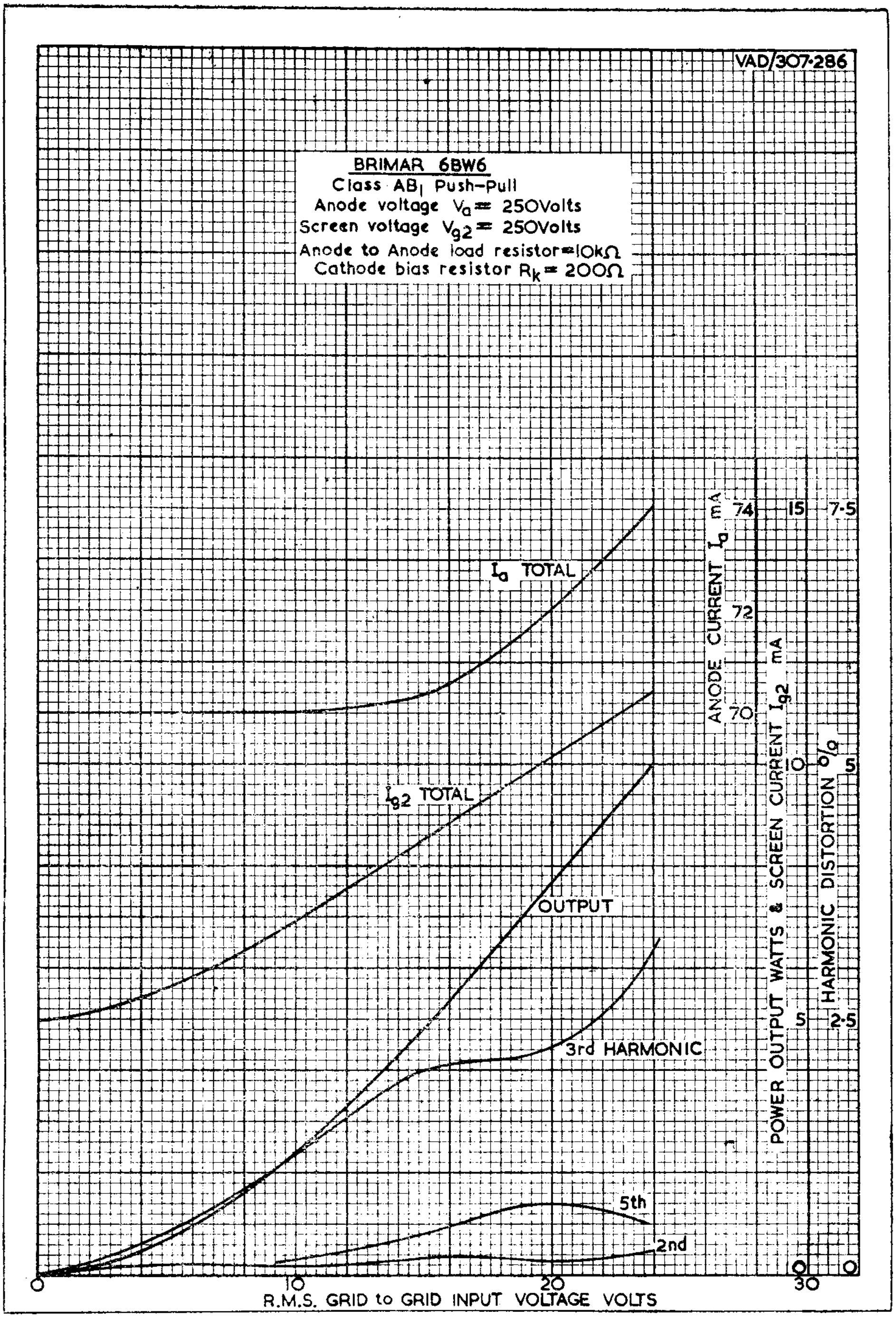

BRIMAR 6BW6
Class 'A' Push-Pull
Anode voltage V_a = 250Volts
Screen voltage V_{g2} = 250Volts
Total anode current I_a = 94mA
Anode to Anode load resistor = 10kΩ
Cathode bias resistor R_k = 120Ω
I_{g2} TOTAL
OUTPUT
3rd HARMONIC
2nd
HARMONIC DISTORTION %
POWER OUTPUT WATTS & SCREEN CURRENT I_{g2} mA
R.M.S. GRID to GRID INPUT VOLTAGE VOLTS
VAD/307·282
7·5
5
2·5
0
15
10
5
0
5
10
15
20


BRIMAR 6BW6
Class 'A' Push-Pull
Anode voltage V_a = 250Volts
Screen voltage V_{g2} = 250Volts
Grid voltage V_{g1} = −12·5Volts
Total anode current I_a = 90−96mA
Anode to Anode load resistor = 10kΩ
I_{g2} TOTAL
OUTPUT
3rd HARMONIC
2nd
HARMONIC DISTORTION %
POWER OUTPUT WATTS & SCREEN CURRENT I_{g2} mA
R.M.S. GRID to GRID INPUT VOLTAGE VOLTS
7·5
15
5
10
2·5
5
0
0
5
10
15
20
VAD/307·283

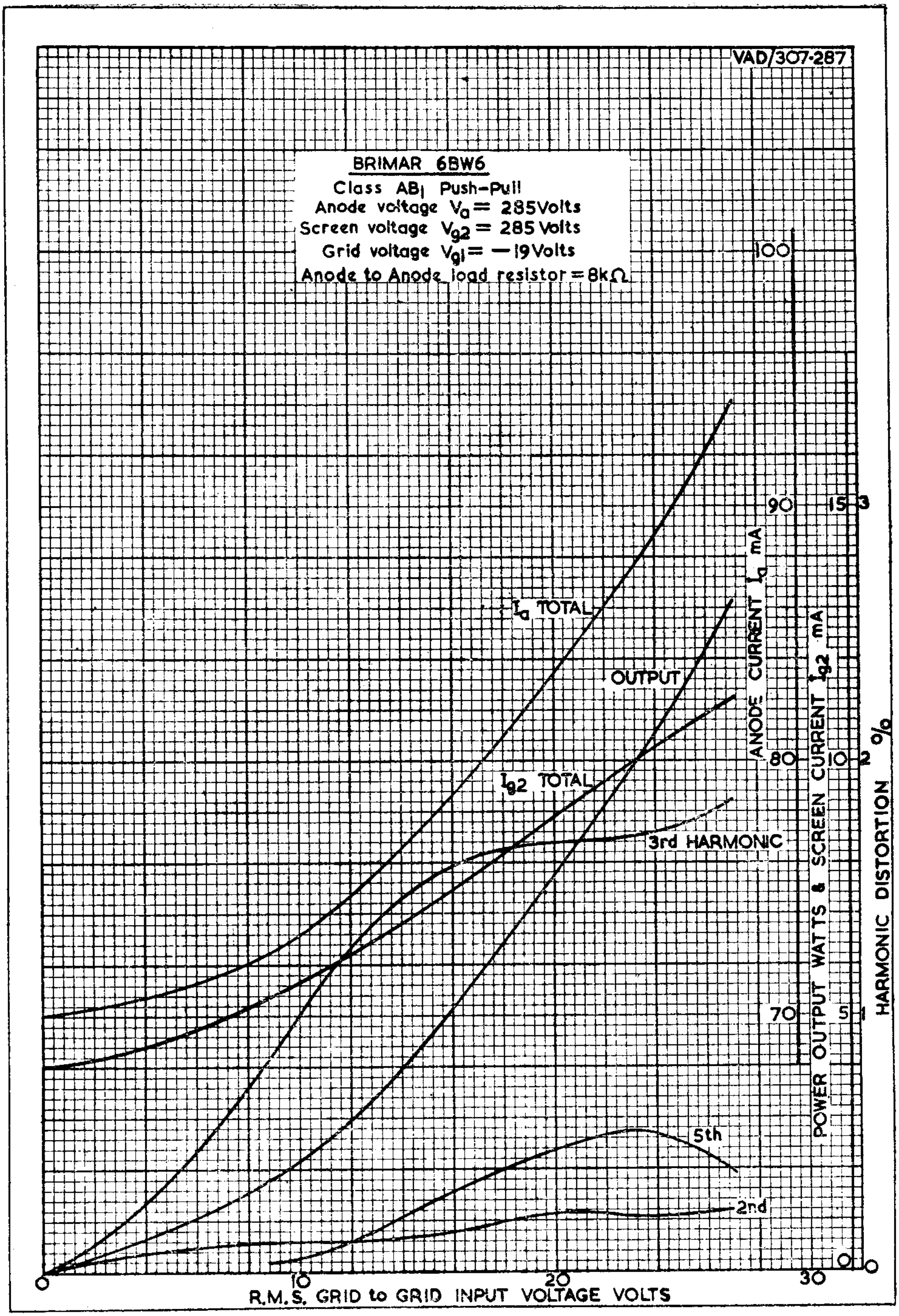


BRIMAR 6BW6
Class 'A' Push-Pull
Anode voltage V_a = 315Volts
Screen voltage V_{g2} = 250Volts
Total anode current I_a = 98mA
Anode to Anode load resistor = 10kΩ
Cathode bias resistor R_k = 125Ω
I_{g2} TOTAL
OUTPUT
3rd HARMONIC
5th
2nd
HARMONIC DISTORTION %
POWER OUTPUT WATTS & SCREEN CURRENT I_{g2} mA
R.M.S. GRID to GRID INPUT VOLTAGE VOLTS
VAD/307-284
7·5
5
2·5
0
15
10
5
0
5
10
15
20

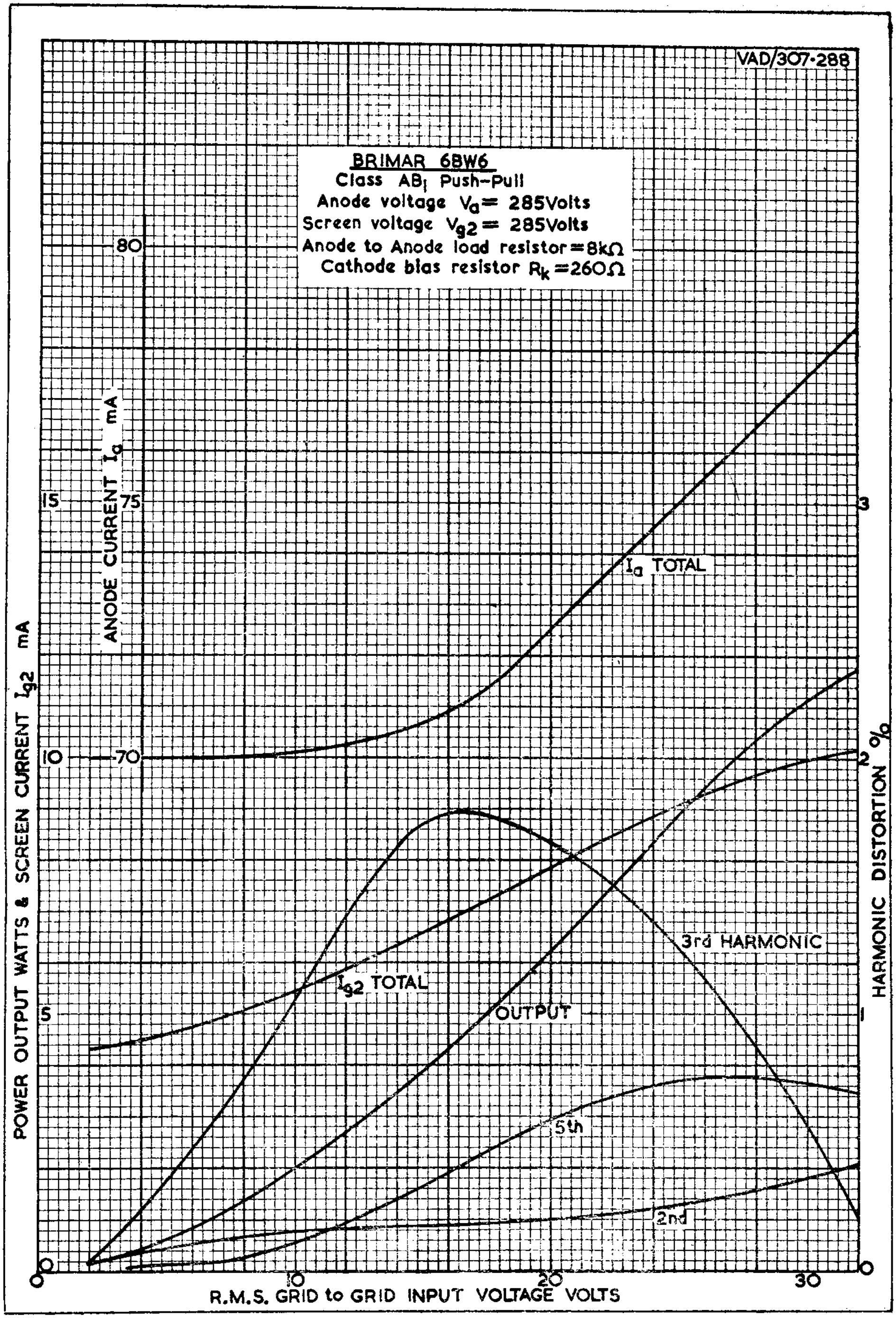

BRIMAR 6BW6
Class AB1 Push–Pull
Anode voltage Va = 250Volts
Screen voltage Vg2 = 250Volts
Grid voltage Vg1 = —15Volts
Anode to Anode load resistor = 10kΩ
HARMONIC DISTORTION %
POWER OUTPUT WATTS & SCREEN CURRENT Ig2 mA
ANODE CURRENT Ia mA
Ia TOTAL
Ig2 TOTAL
OUTPUT
3rd HARMONIC
2nd
R.M.S. GRID to GRID INPUT VOLTAGE VOLTS
VAD/307-285



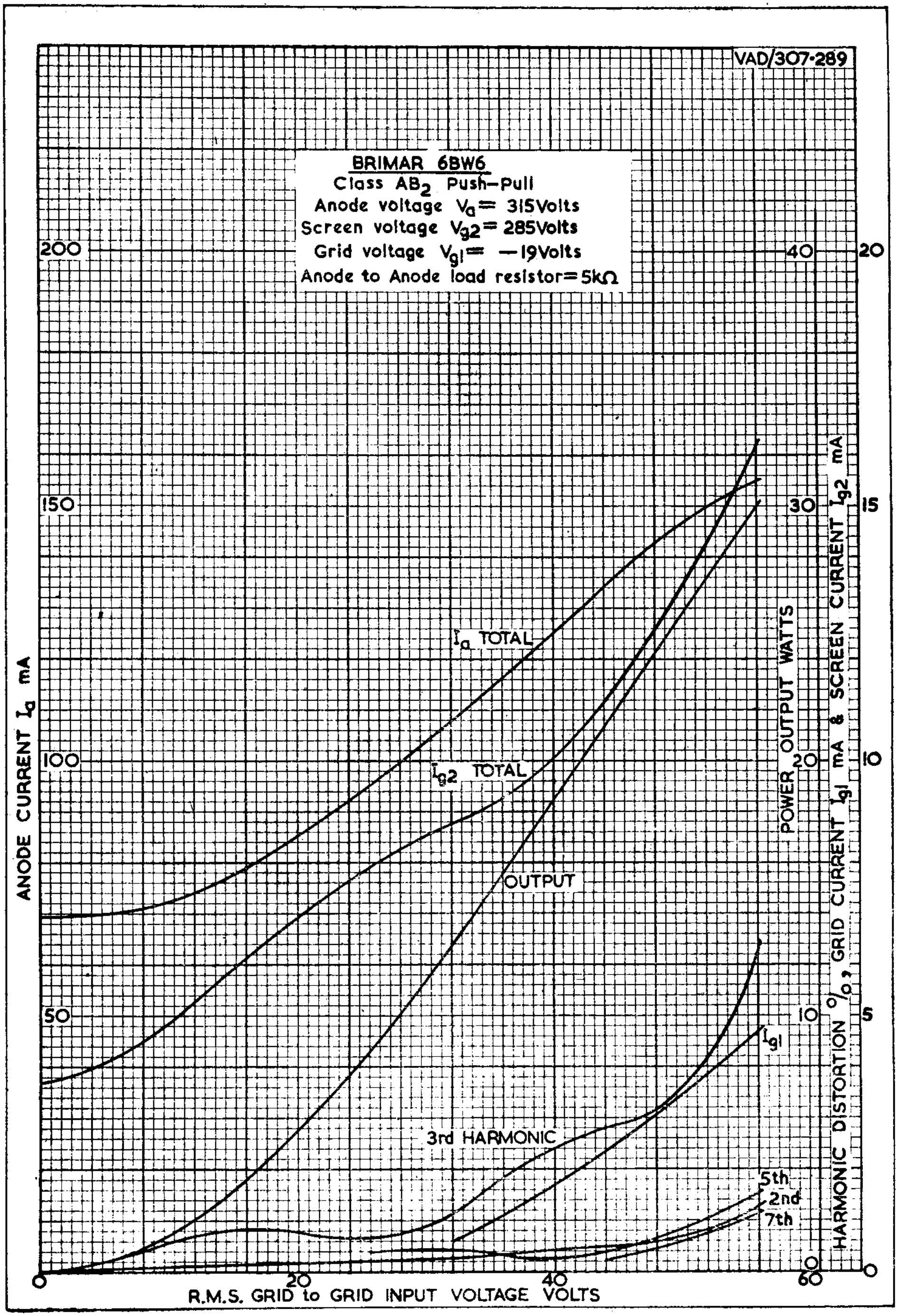
VAD/307-286
BRIMAR 6BW6
Class AB1 Push-Pull
Anode voltage Va = 250Volts
Screen voltage Vg2 = 250Volts
Anode to Anode load resistor = 10kΩ
Cathode bias resistor Rk = 200Ω
Ia TOTAL
Ig2 TOTAL
OUTPUT
3rd HARMONIC
5th
2nd
ANODE CURRENT Ia mA
74
72
70
POWER OUTPUT WATTS & SCREEN CURRENT Ig2 mA
15
10
5
0
HARMONIC DISTORTION %
7·5
5
2·5
0
0
10
20
30
R.M.S. GRID to GRID INPUT VOLTAGE VOLTS

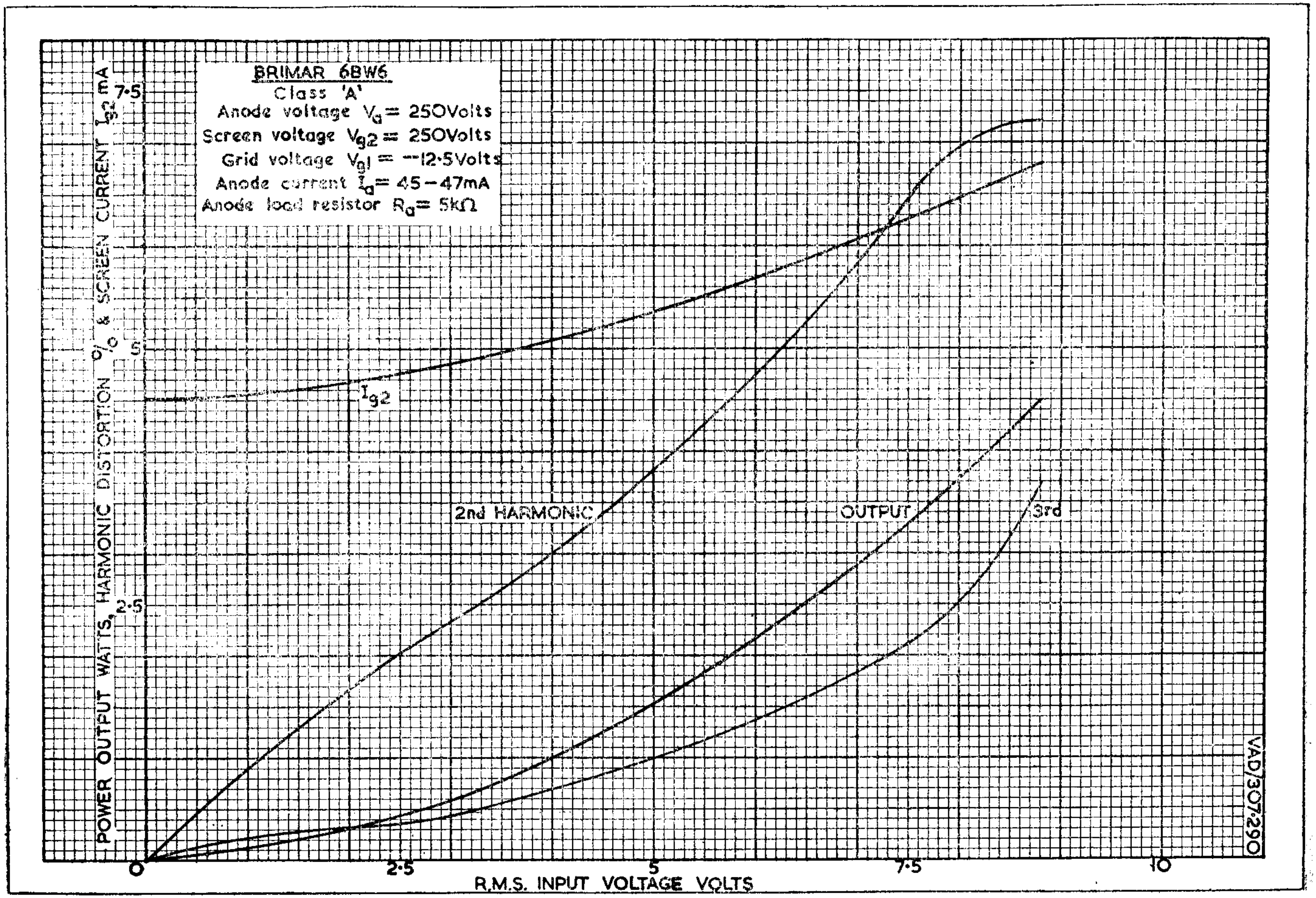


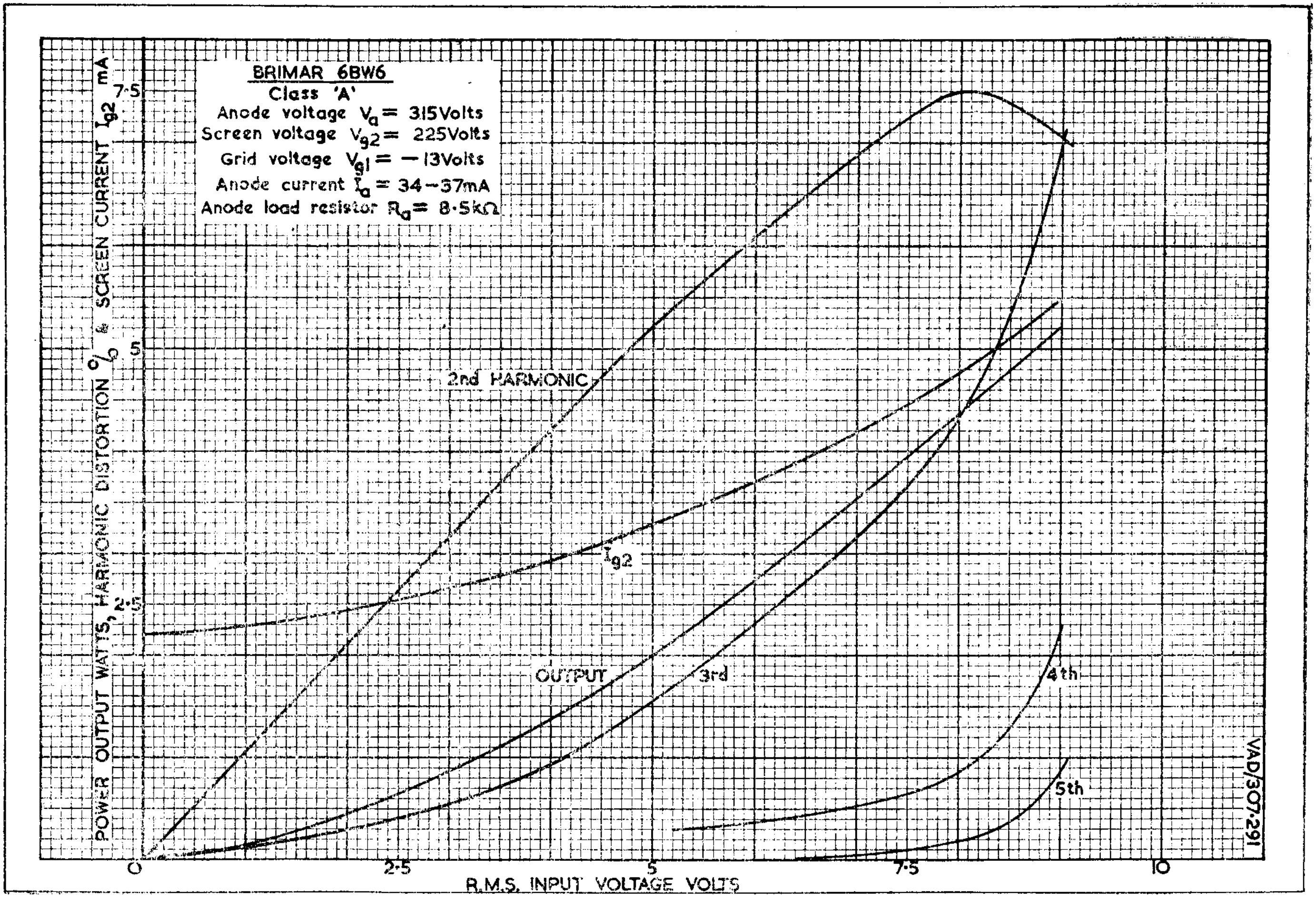
VAD/307-287
BRIMAR 6BW6
Class AB1 Push-Pull
Anode voltage Va = 285 Volts
Screen voltage Vg2 = 285 Volts
Grid voltage Vg1 = −19 Volts
Anode to Anode load resistor = 8kΩ
Ia TOTAL
OUTPUT
Ig2 TOTAL
3rd HARMONIC
5th
2nd
ANODE CURRENT Ia mA
POWER OUTPUT WATTS & SCREEN CURRENT Ig2 mA
HARMONIC DISTORTION %
100
90
80
70
15
10
5
0
3
2
1
0
10
20
30
R.M.S. GRID to GRID INPUT VOLTAGE VOLTS



VAD/307·288
BRIMAR 6BW6
Class AB1 Push-Pull
Anode voltage Va = 285Volts
Screen voltage Vg2 = 285Volts
Anode to Anode load resistor = 8kΩ
Cathode bias resistor Rk = 260Ω
ANODE CURRENT Ia mA
POWER OUTPUT WATTS & SCREEN CURRENT Ig2 mA
HARMONIC DISTORTION %
R.M.S. GRID to GRID INPUT VOLTAGE VOLTS
Ia TOTAL
Ig2 TOTAL
OUTPUT
3rd HARMONIC
5th
2nd
80
75
70
15
10
5
0
3
2
1
0
10
20
30


VAD/307-289
BRIMAR 6BW6
Class AB_2 Push-Pull
Anode voltage V_a = 315Volts
Screen voltage V_{g2} = 285Volts
Grid voltage V_{g1} = −19Volts
Anode to Anode load resistor = 5kΩ
I_a TOTAL
I_{g2} TOTAL
OUTPUT
3rd HARMONIC
I_{g1}
5th
2nd
7th
ANODE CURRENT I_a mA
POWER OUTPUT WATTS
HARMONIC DISTORTION %, GRID CURRENT I_{g1} mA & SCREEN CURRENT I_{g2} mA
R.M.S. GRID to GRID INPUT VOLTAGE VOLTS
200
150
100
50
0
20
40
60
30
10
15
5


BRIMAR 6BW6
Class 'A'
Anode voltage Va = 250Volts
Screen voltage Vg2 = 250Volts
Grid voltage Vg1 = −12·5Volts
Anode current Ia = 45−47mA
Anode load resistor Ra = 5kΩ
Ig2
2nd HARMONIC
OUTPUT
3rd
POWER OUTPUT WATTS, HARMONIC DISTORTION % & SCREEN CURRENT Ig2 mA
R.M.S. INPUT VOLTAGE VOLTS
0
2·5
5
7·5
10
VAD/307·290


BRIMAR 6BW6
Class 'A'
Anode voltage Va = 315Volts
Screen voltage Vg2 = 225Volts
Grid voltage Vg1 = −13Volts
Anode current Ia = 34−37mA
Anode load resistor Ra = 8·5kΩ
2nd HARMONIC
Ig2
OUTPUT
3rd
4th
5th
POWER OUTPUT WATTS, HARMONIC DISTORTION % & SCREEN CURRENT Ig2 mA
R.M.S. INPUT VOLTAGE VOLTS
0
2·5
5
7·5
10
VAD/307·291