

AMPEREX TUBE TYPE 7378

7378

The Amperex 7378 is an all-glass, beam power tetrode having a maximum plate dissipation of 100 watts at frequencies up to 30 Mc/s. It is designed for AF or RF amplifier, oscillator, and frequency multiplier service and for single side-band applications.

GENERAL CHARACTERISTICSMECHANICAL

Dimensions	see outline drawing
Base	giant 5 pin
<u>Maximum Operating Temperature</u>	
Plate seal	220°C
Bottom pins	180°C
Glass Bulb	300°C
Cooling	radiation and convection
Mounting position	vertical or horizontal with plane of plate vertical
<u>Accessories</u>	
Socket	S-25722
Plate clip	S-25723
Net weight	7.8 ounces

ELECTRICAL

Cathode	coated, unipotential
Heater voltage	6.3 volts
Heater current	3.9 amps
Amplification factor, G1 to G2 ($E_b = 750$ V, $E_{c2} = 250$ V, $I_b = 100$ mA)	5.7
Transconductance ($E_b = 750$ V, $E_{c2} = 250$ V, $I_b = 100$ mA)	9000 micromhos
<u>Direct Interelectrode Capacitances</u>	
Input	30 μ f
Output	12.7 μ f
Plate to grid	0.9 μ f

RF POWER AMPLIFIER OR OSCILLATOR - CLASS C
TELEGRAPHY OR FM TELEPHONY
(Key Down Conditions)

Maximum Ratings, Absolute Values

Frequency
D-C plate voltage
D-C screen voltage
Negative D-C grid voltage
Heater-cathode voltage
D-C plate current
D-C grid current
Plate input power
Screen dissipation
Plate dissipation
Grid resistor

CCS
30 Mc/s
825 volts max
300 volts max
150 volts max
125 volts max
400 mA max
30 mA max
300 watts max
12 watts max
100 watts max
25,000 ohms max

Typical Operation

Frequency
D-C plate voltage
D-C screen voltage
Negative D-C grid voltage
Peak Drive voltage
D-C plate current
D-C screen current
D-C grid current
Driving power
Plate input Power
Screen Dissipation
Plate Dissipation
Plate Output Power
Efficiency

CCS
30 Mc/s
750 volts
250 volts
90 volts
120 volts
385 mA
20 mA
7 mA
1 watt
285 watts
5 watts
85 watts
200 watts
70 %

RF AMPLIFIER - CLASS C - TELEPHONY
PLATE AND SCREEN GRID MODULATED
(Carrier Conditions)

Maximum Ratings, Absolute Values

Frequency
D-C Plate Voltage
D-C Grid Voltage
D-C Screen Voltage
Heater-Cathode Voltage
D-C Plate Current
D-C Grid Current
Plate Input Power
Screen Dissipation
Plate Dissipation
Grid resistor

CCS
30 Mc/s
650 volts max
150 volts max
300 volts max
125 volts max
350 mA max
30 mA max
200 watts max
10 watts max
67 watts max
25,000 ohms max

Typical Operation

Frequency
D-C Plate Voltage
D-C Screen Voltage
D-C Grid Voltage
Peak Drive Voltage
D-C Plate Current
D-C Screen Current
D-C Grid Current
Driving Power
Plate Input Power
Screen dissipation
Plate dissipation
Power Output
Efficiency
Modulation depth
Peak Screen Voltage (AF)
Modulation power

CCS
30 Mc/s
600 volts
250 volts
100 volts
210 volts
300 mA
20 mA
4 mA
0.4 watts
180 watts
5 watts
50 watts
130 watts
72 %
100 %
220 volts
90 watts

7378

7378

AF POWER AMPLIFIER AND MODULATOR - CLASS AB₂

Maximum Ratings, Absolute Values

D-C Plate Voltage
D-C Screen Voltage
D-C Grid Voltage
Heater-Cathode Voltage
D-C Plate Current
D-C Grid Current
Screen Dissipation
Plate Dissipation
Bias Resistance

CCS
825 volts max
300 volts max
-150 volts max
125 volts max
400 mA max
30 mA max
12 watts max
100 watts max
25,000 ohms max

Typical Operation
(Two Tubes)

D-C Plate Voltage
D-C Screen Voltage
D-C Grid Voltage
Load Resistance (Plate to Plate)

CCS
750
250
-45
3600

Peak Driving Voltage (Grid to Grid)

0 110
2 x 45 2 x 280

D-C Plate Current

0 2 x 40
2 x 0.5 2 x 235 mA

D-C Screen Current

0 2 x 1
2 x 0 2 x 0.5 mA

D-C Grid Current

2 x 34 2 x 210
0 2 x 10

Plate Input Power

2 x 34 2 x 60
0 300

Screen Dissipation

2 x 34 2 x 60
0 300

Plate Dissipation

2 x 34 2 x 60
0 300

Plate Output Power

2 x 34 2 x 60
0 300

Total Distortion

-- 6.5
-- 71.5

Efficiency

-- 6.5
-- 71.5

CCS
600
250
-45
3500

0 105 volts
2 x 25 2 x 235 mA

2 x 0.5 2 x 24 mA
0 2 x 0.5 mA

2 x 15 2 x 140 watts
0 2 x 6 watts

2 x 15 2 x 40 watts
0 200 watts

2 x 15 2 x 40 watts
0 200 watts

2 x 15 2 x 40 watts
0 200 watts

2 x 15 2 x 40 watts
0 200 watts

2 x 15 2 x 40 watts
0 200 watts

2 x 15 2 x 40 watts
0 200 watts

2 x 15 2 x 40 watts
0 200 watts

LINEAR RF AMPLIFIER - CLASS AB₁
SINGLE SIDEBAND SUPPRESSED CARRIER OPERATION

Maximum Ratings, Absolute Values

Frequency
D-C Plate Voltage
D-C Grid No. 2 Voltage
D-C Grid No. 1 Voltage
D-C Plate Current
Plate Input
Plate Dissipation
Grid No. 2 Dissipation

CCS
30 Mc/s max
825 volts max
350 volts max
-100 volts max
400 mA max
300 watts max
100 watts max
12 watts max

Typical Operation
Single Tone and/or Two Tone Modulation

D-C Plate Voltage
D-C Grid No. 2 Voltage
D-C Grid No. 1 Voltage
Zero-Signal D-C Plate Current
Zero-Signal D-C Grid No. 2 Current
Effective RF Load Resistance

CCS
750
310
46
95
2
1300

ICAS
750 volts
310 volts
48 volts
73 mA
2 mA
1000 ohms

Single-Tone Modulation

Max Signal D-C Plate Current
Max Signal D-C Grid No. 2 Current
Max Signal D-C Grid No. 1 Current
Max Signal D-C Peak RF Grid Voltage
Max Signal Driving Power
Max Signal Plate Power Output

CCS
338
38
0
46
0
167

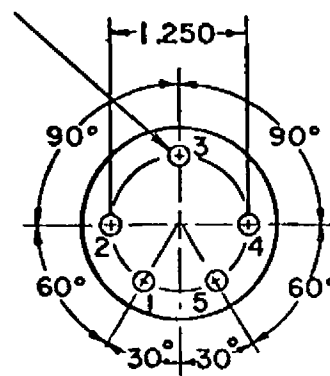
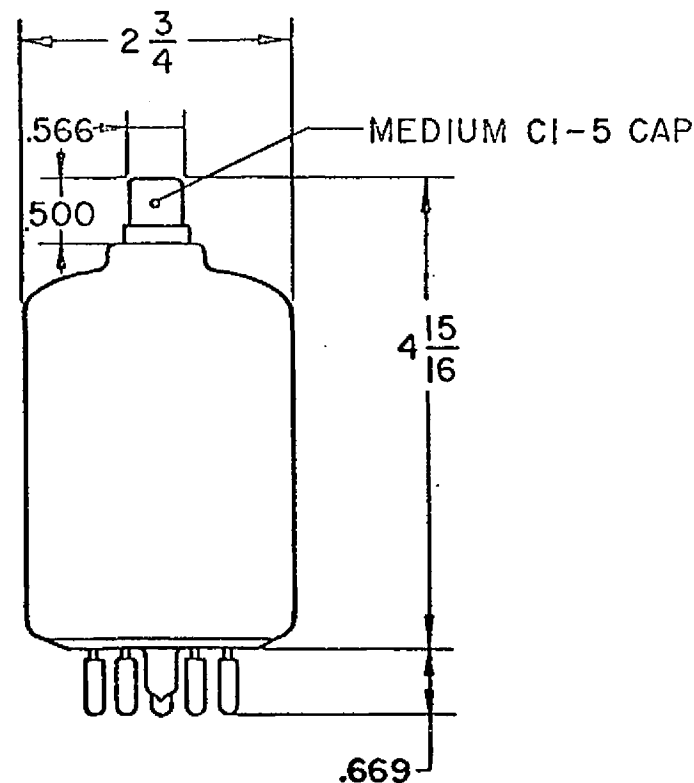
ICAS
435 mA
38 mA
1.6 mA
58 volts
0.09 watts
228 watts

Two-Tone Modulation

Average D-C Plate Current
Average D-C Grid No. 2 Current
Average D-C Grid No. 1 Current
Max Resultant Peak RF Grid Voltage
Average Plate Power Output
Peak Envelope Plate Power Output
3rd Order Intermodulation Distortion

CCS
230
22
0
46
83.5
167
35

ICAS
272 mA
21 mA
0.32 mA
58 volts
114 watts
228 watts
27 db

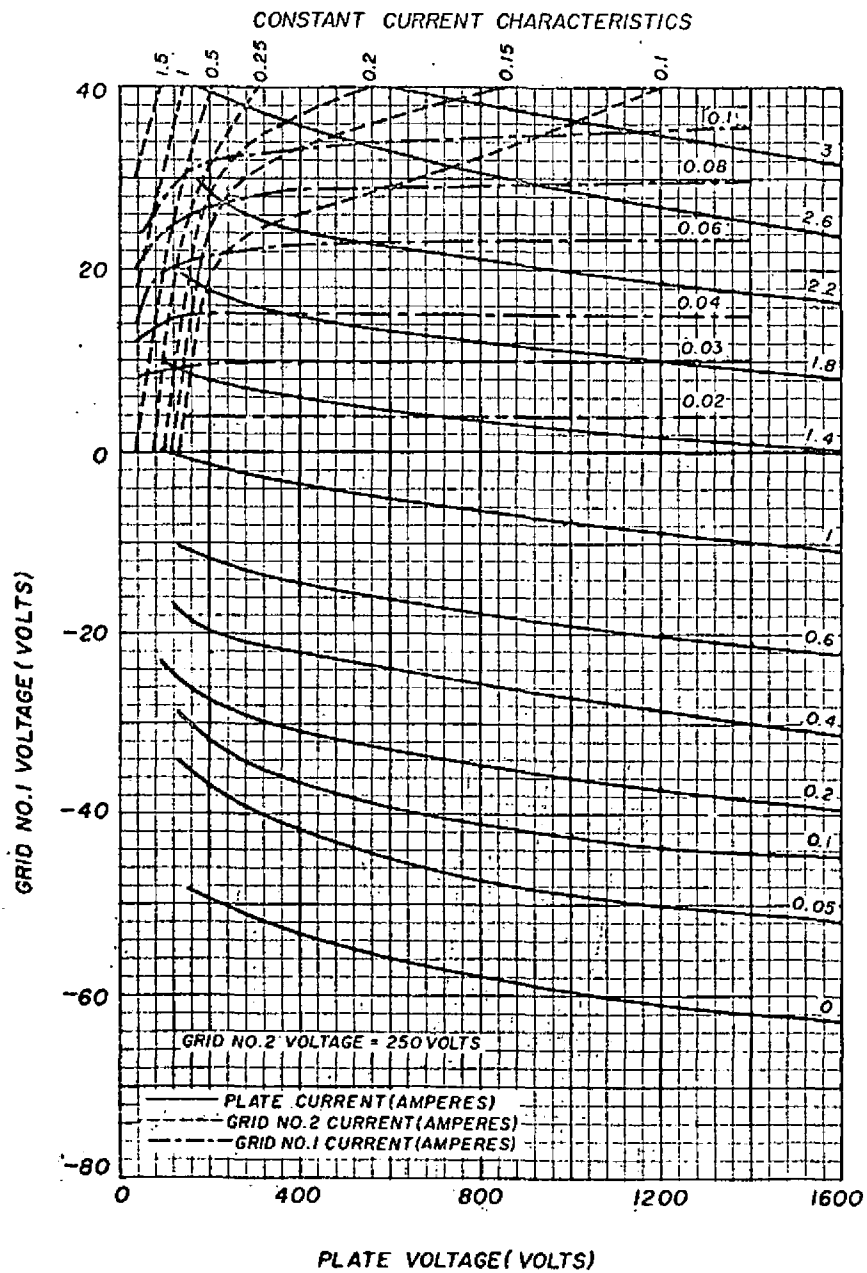


PIN CONNECTIONS

1-HEATER
2-CATHODE
3-GRID NO. 1
4-GRID NO. 2
5-HEATER

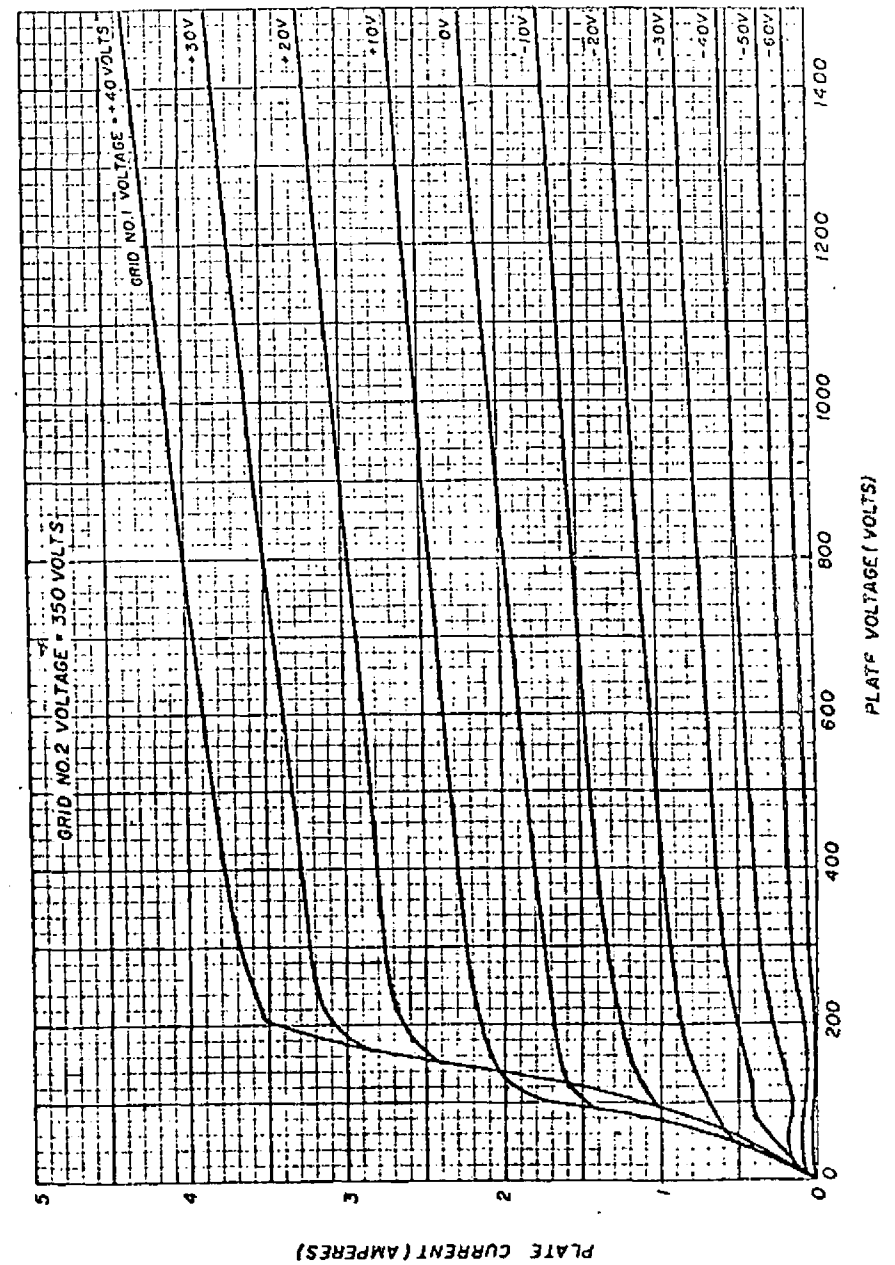
GIANT 5 PIN BASE
5 PINS .187 ±.003 DIA.

7378



7378

PLATE CHARACTERISTICS



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PLATE CHARACTERISTICS

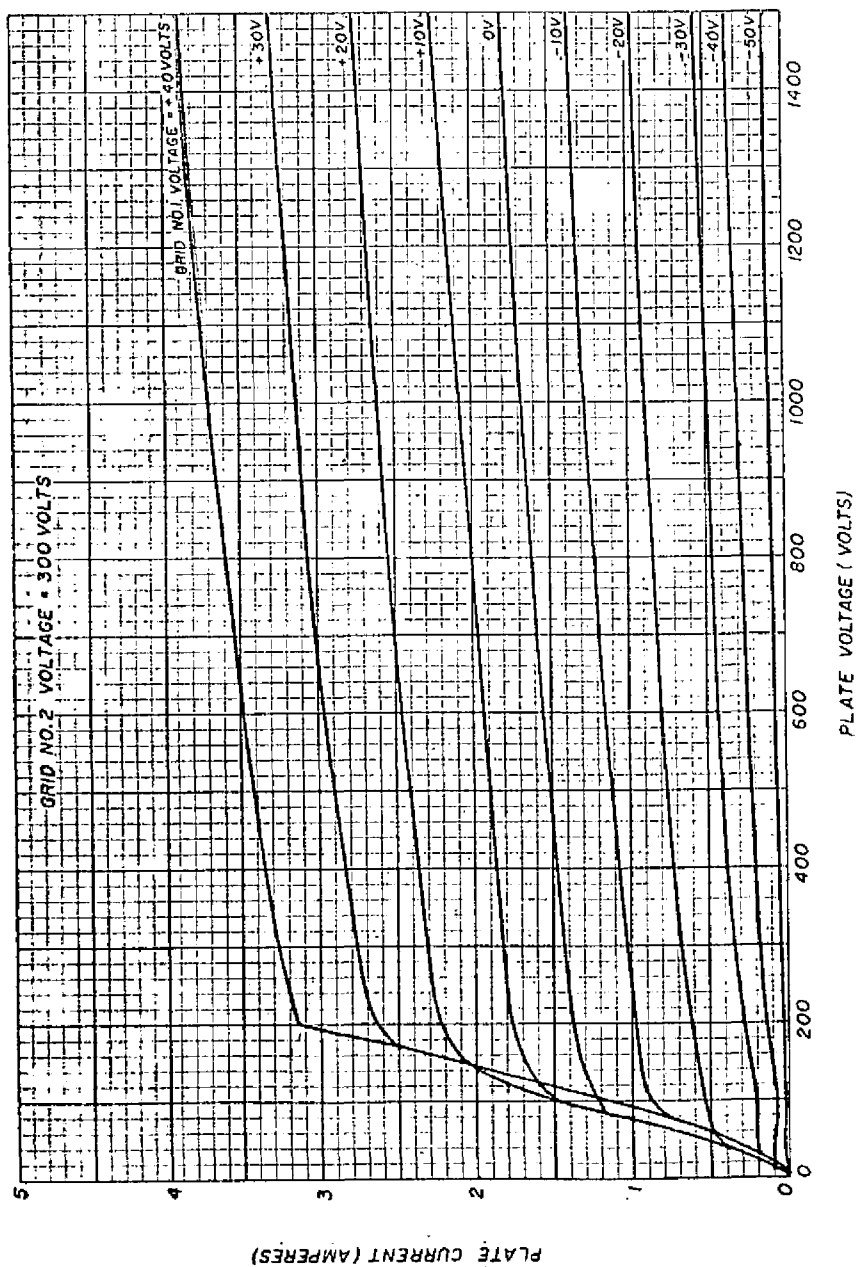


PLATE CHARACTERISTICS

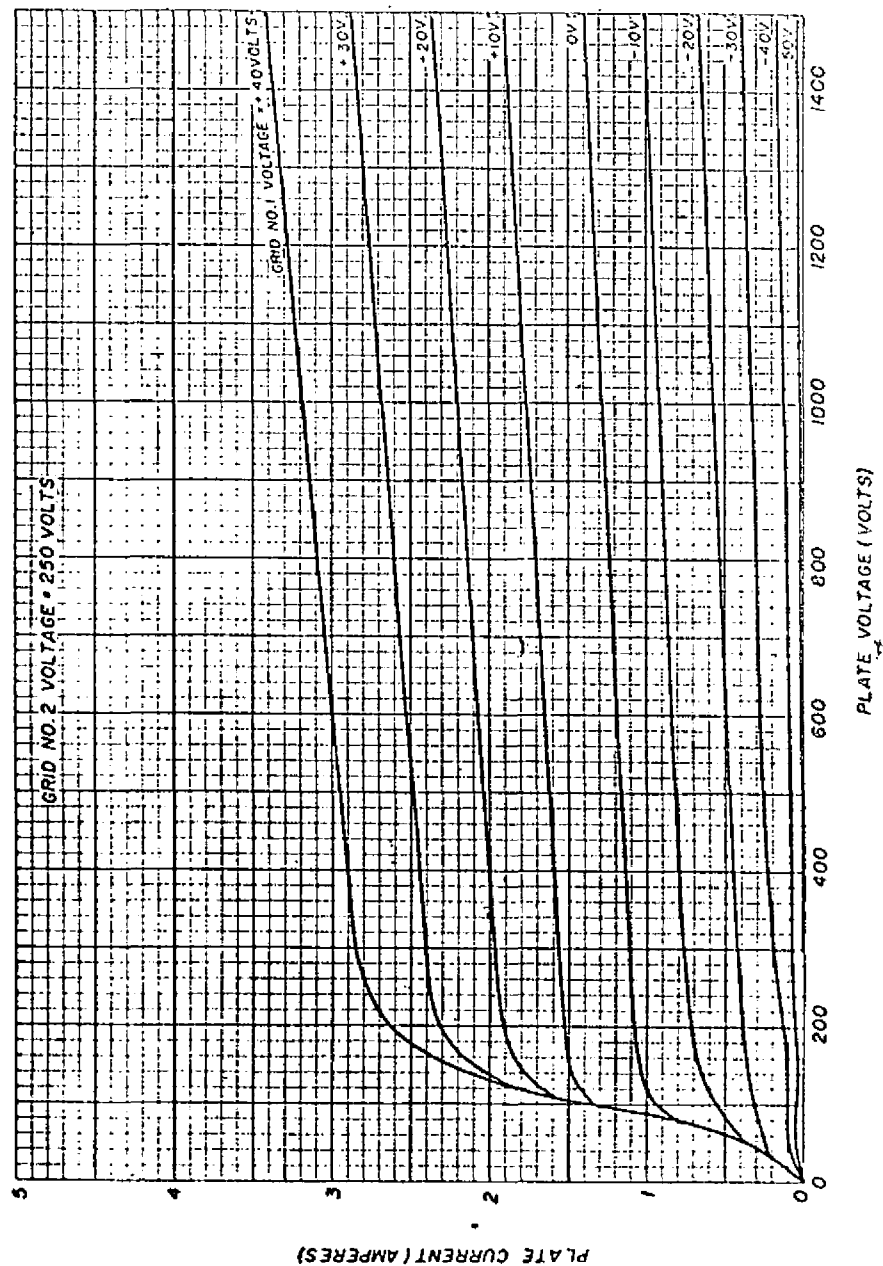
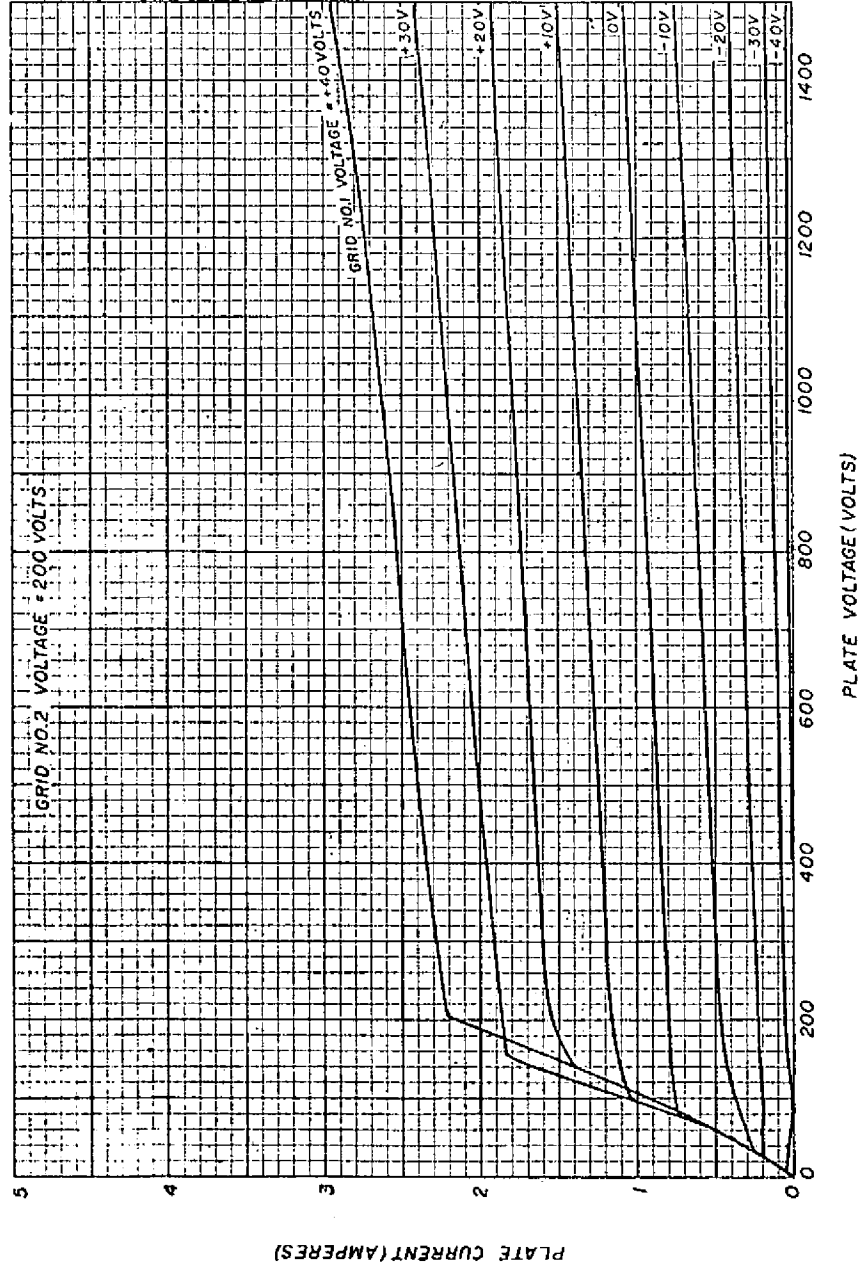
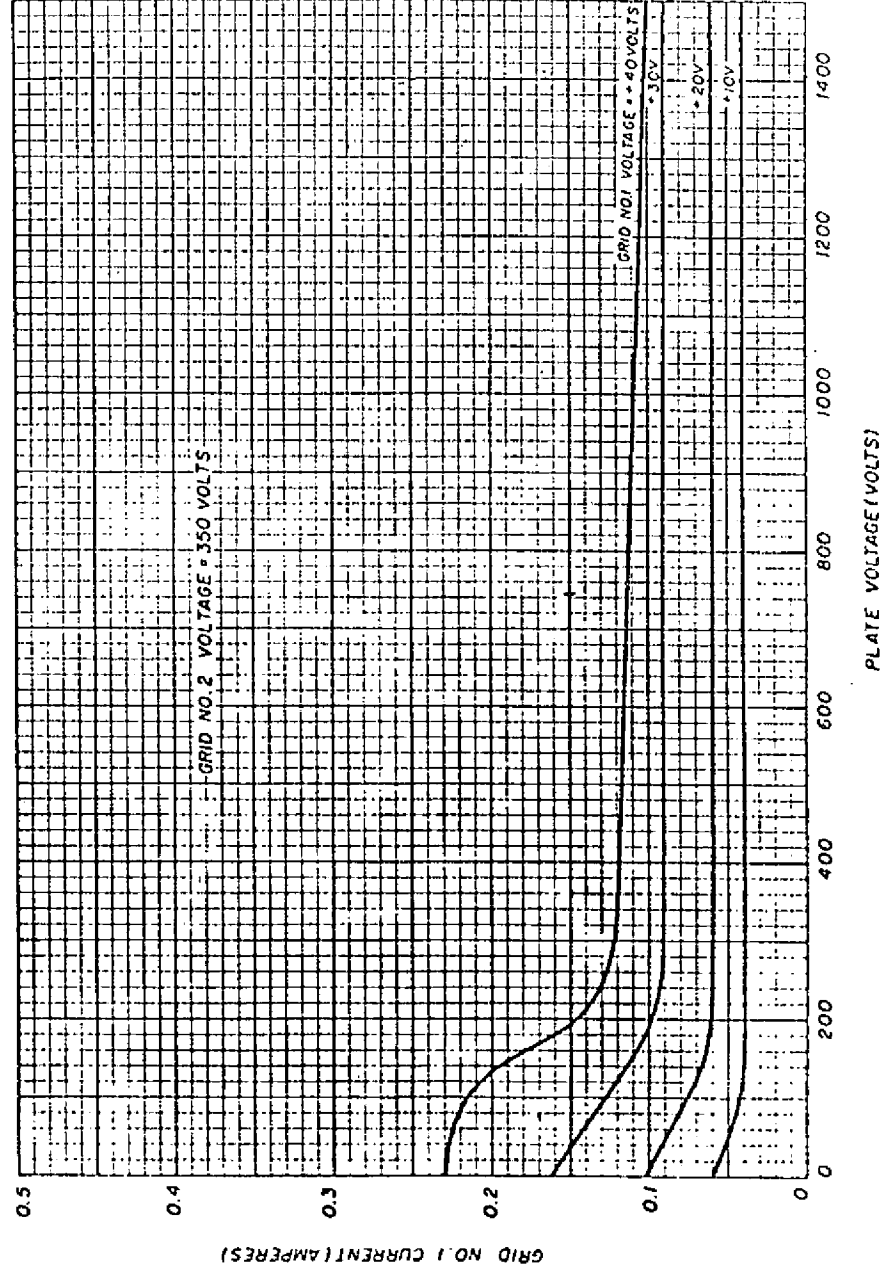


PLATE CHARACTERISTICS



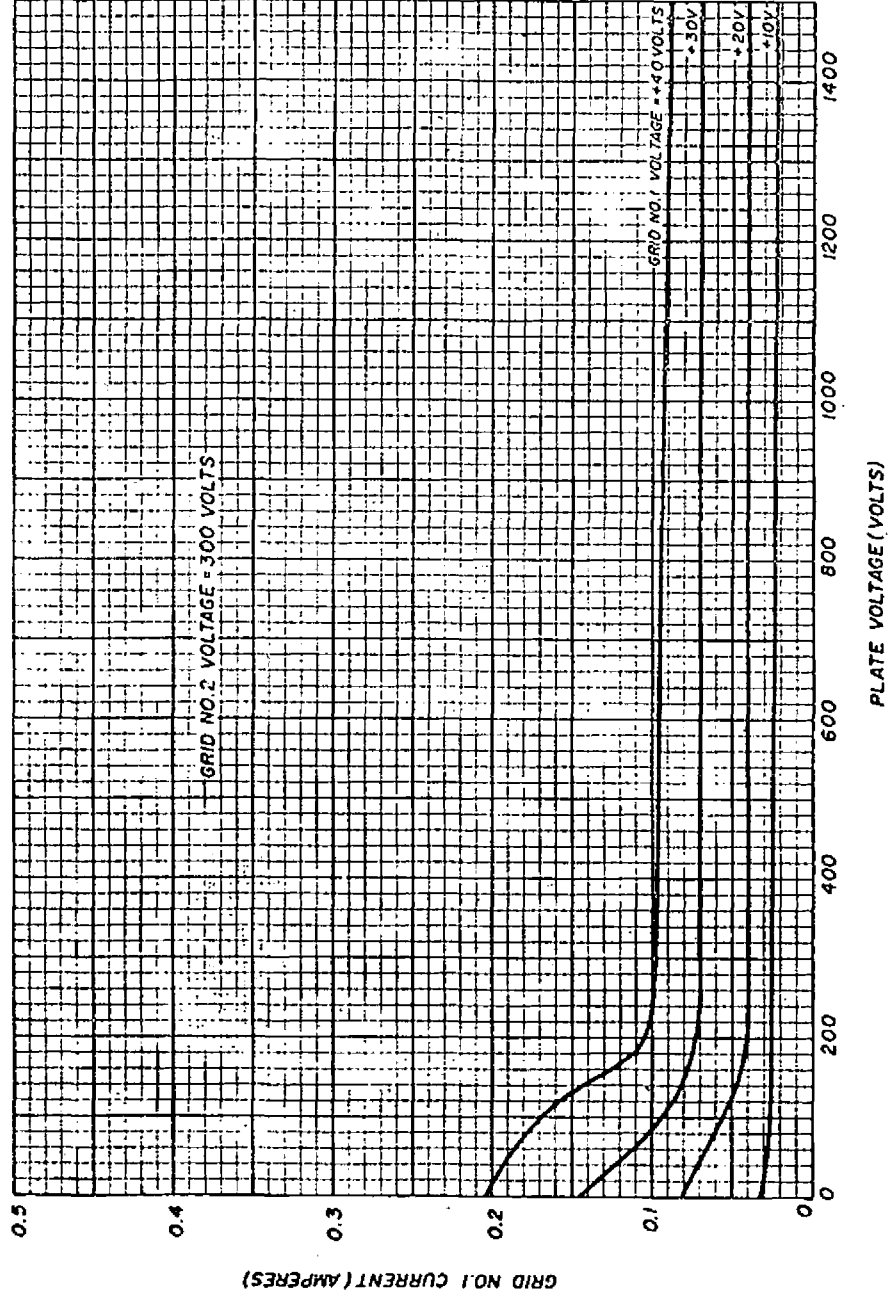
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GRID NO. 1 CHARACTERISTICS



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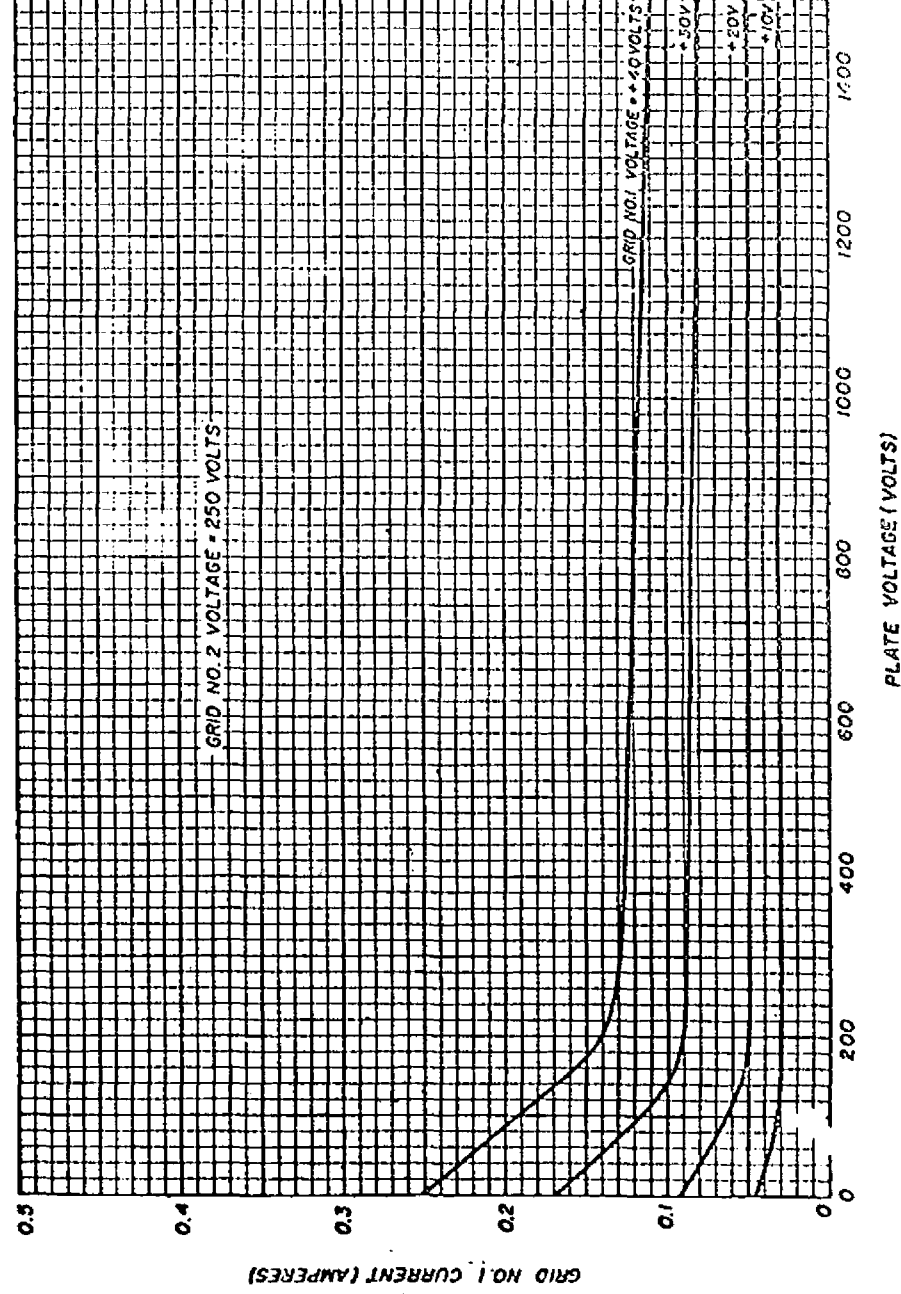
GRID NO. 1 CHARACTERISTICS



11

7378

GRID NO. 1 CHARACTERISTICS

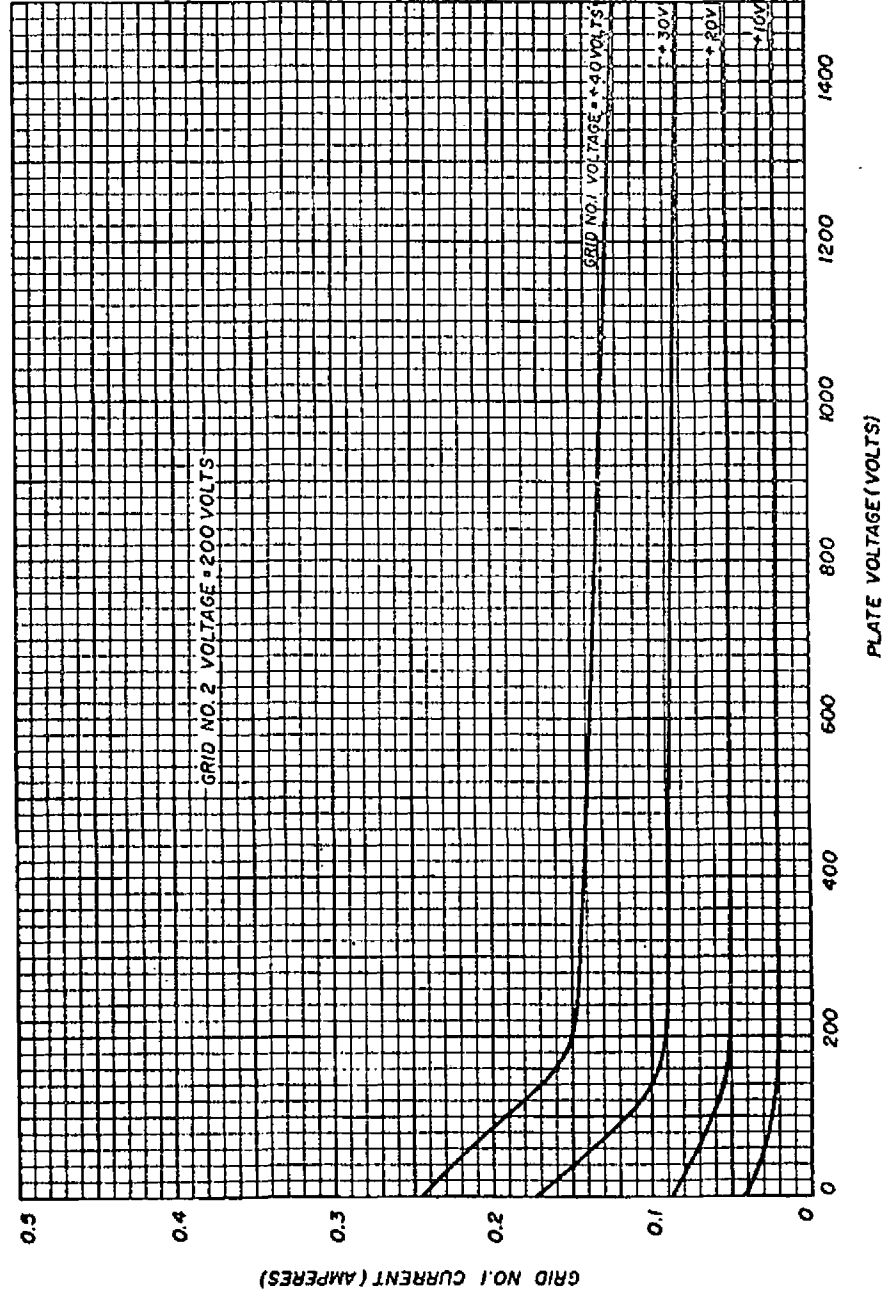


12

7378

6/6

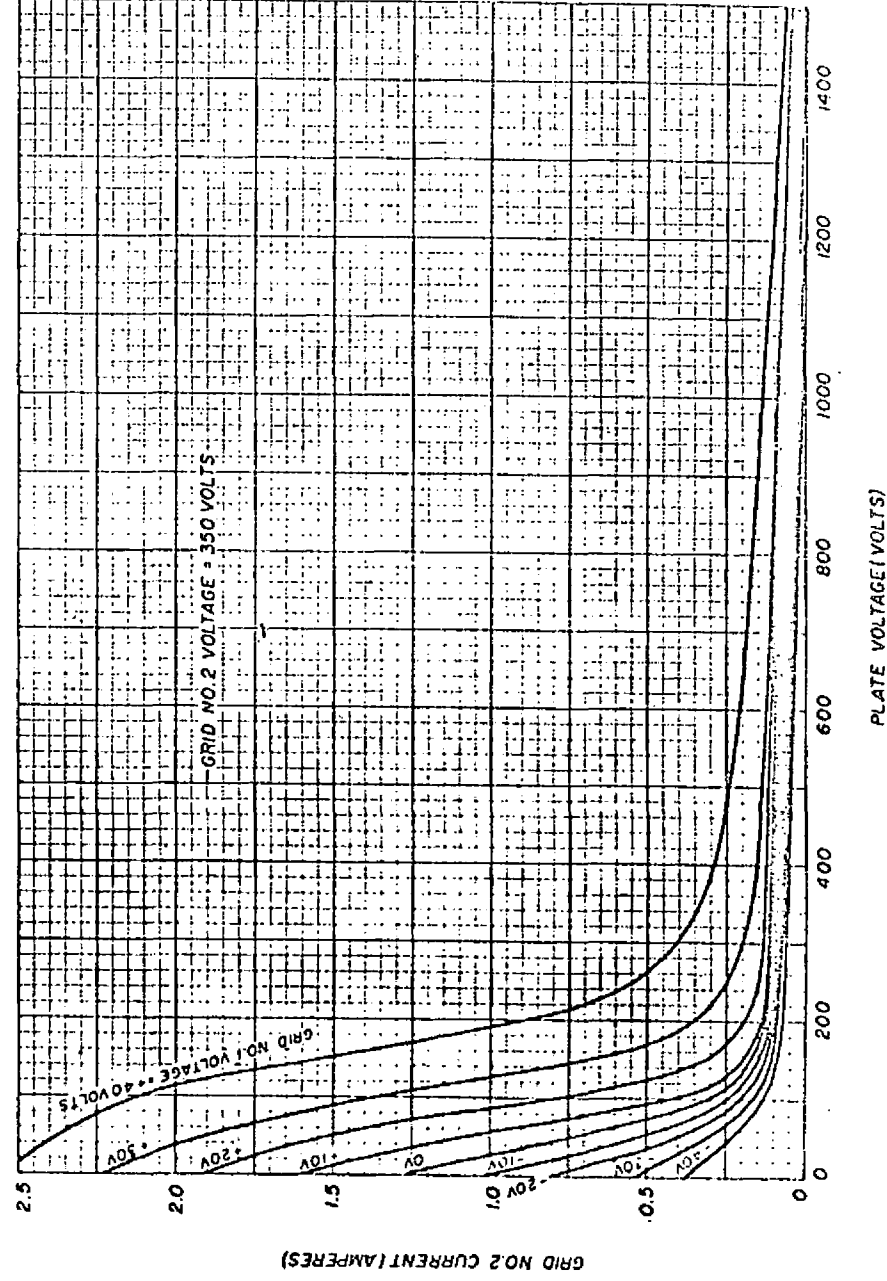
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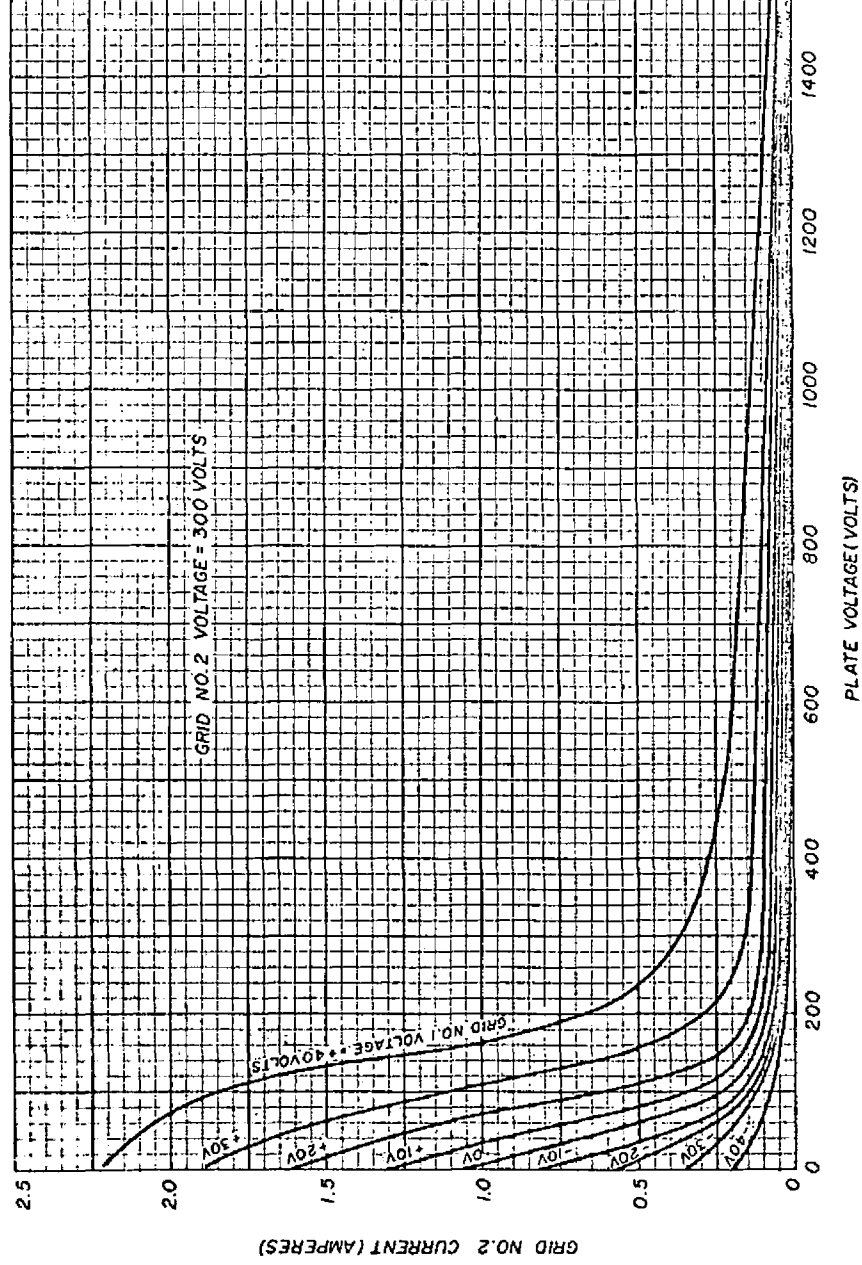
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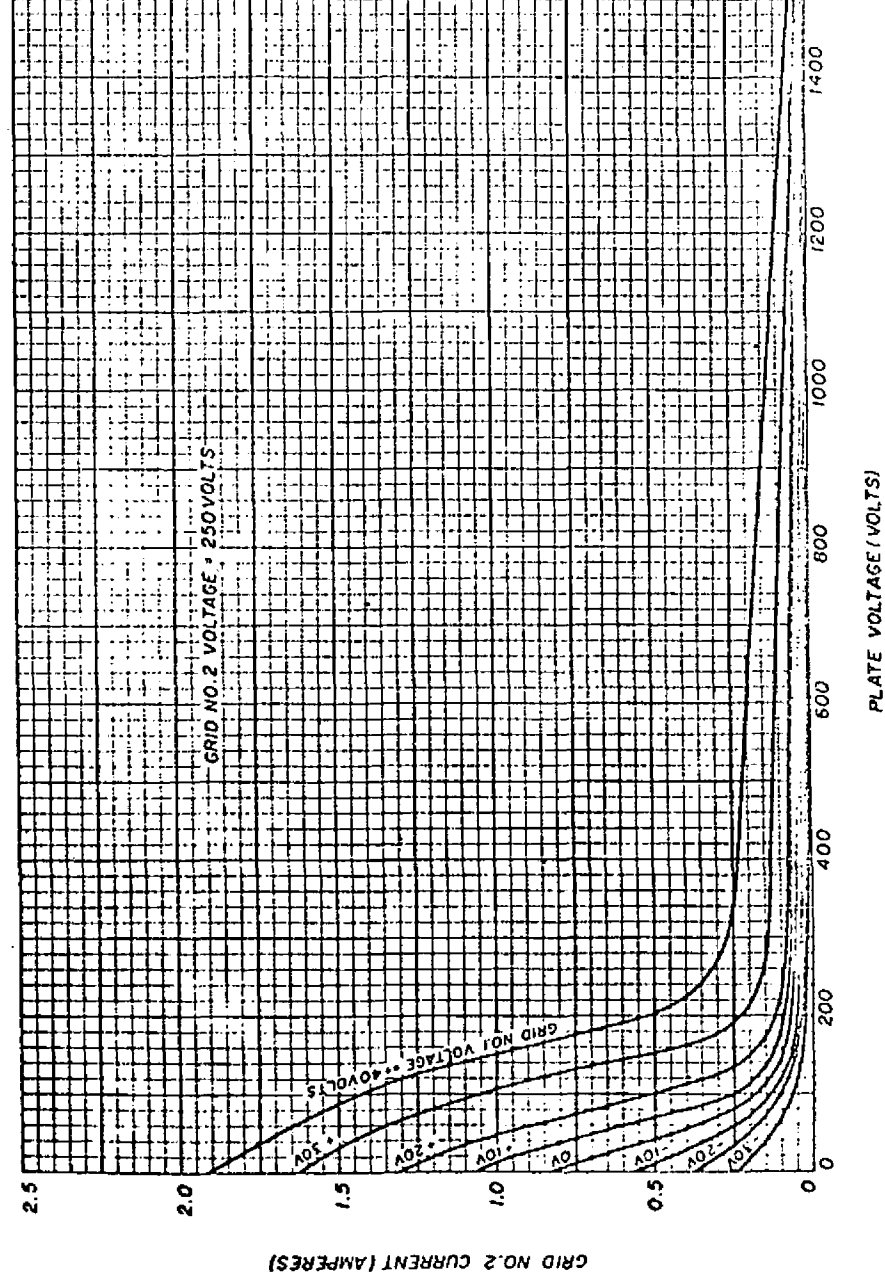
GRID NO. 2 CHARACTERISTICS



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GRID NO. 2 CHARACTERISTICS



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GRID NO. 1 CHARACTERISTICS

