TECHNICAL DATA

3D24

Sylvania

TYPE 3D24

VHF TRANSMITTING TETRODE

TENTATIVE RATINGS AND CHARACTERISTICS

Filament Voltage	6.3	Volts
Filament Current	3.0	Amperes
Maximum Plate Voltage DC	2000	Volts
Maximum Screen Voltage	400	Volts
Max. Control Grid Voltage	350	Volts
Max. Plate Current DC	100	Ma.
Max. Screen Current	25	Ma.
Max. Control Grid Current DC	20	Ma.
Max. Plate Dissipation	45	Watts
Max. Screen Dissipation	10	Watts
Max. Plate Input	180	Watts

Direct Interelectrode Capacitances:*

Grid to Plate	0.20	μμf. Max.
Input	6.5	μμf.
Output	2.4	μμf.

** Unshielded, but with base shell and unconnected pin grounded.*

PHYSICAL SPECIFICATIONS

Style	Lock-In
Base	Lock-In 8-Pin
Dimensions	See Next Page
Mounting Position	Vertical

BASE PIN CONNECTIONS

Pin 1 - Control Grid
Pin 2 - Filament
Pin 3 - No Connection
Pin 4 - Screen Grid & Shield
Pin 5 - Control Grid
Pin 6 - Screen Grid & Shield
Pin 7 - Filament
Pin 8 - Screen Grid & Shield
Cap - Plate

RMA Basing

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

RF Power Amplifier and Oscillator - Class C Telegraphy

	CCS	CCS	
Filament Voltage	6.3	6.3	Volts
Filament Current	3.0	3.0	Amperes
Plate Voltage DC	1500	2000	Volts
Screen Grid Voltage	375	375	Volts
Control Grid Voltage	-300	-300	Volts
Plate Current DC	90	90	Ma.
Screen Grid Current DC	22	20	Ma.
Control Grid Current DC	10	10	Ma.
Peak RF Input Signal (approx.)	400	400	Volts
Total Grid Driving Power⊙	4.0	4.0	Watts
Power Output	105	140	Watts
Amplification Factor	50	50	

⊙ With a grid resistor of 30,000 ohms, the grid requires 1 watt driving power and there is a loss of 3.0 watts in the grid resistor.

CIRCUIT APPLICATION

Sylvania Type 3D24 is a high-efficiency, air cooled tetrode designed for use in small compact transmitters where space and weight saving are important. The use of a short T12 bulb on a Lock-In header gives short leads and improved high-frequency performance.

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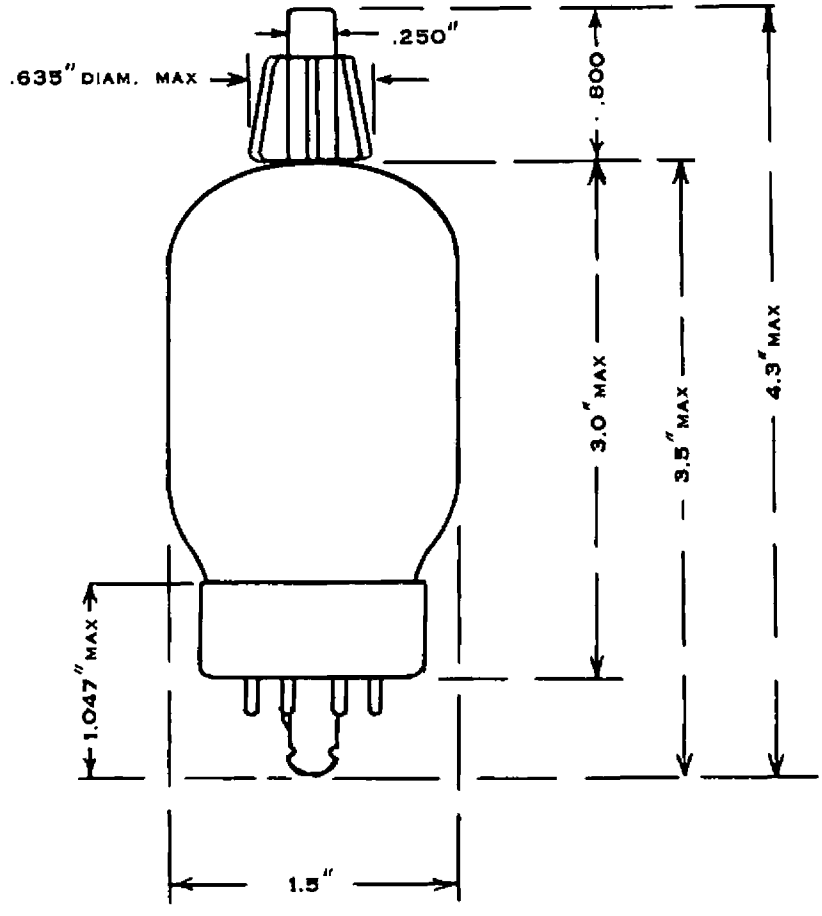
CIRCUIT APPLICATION *(continued)*

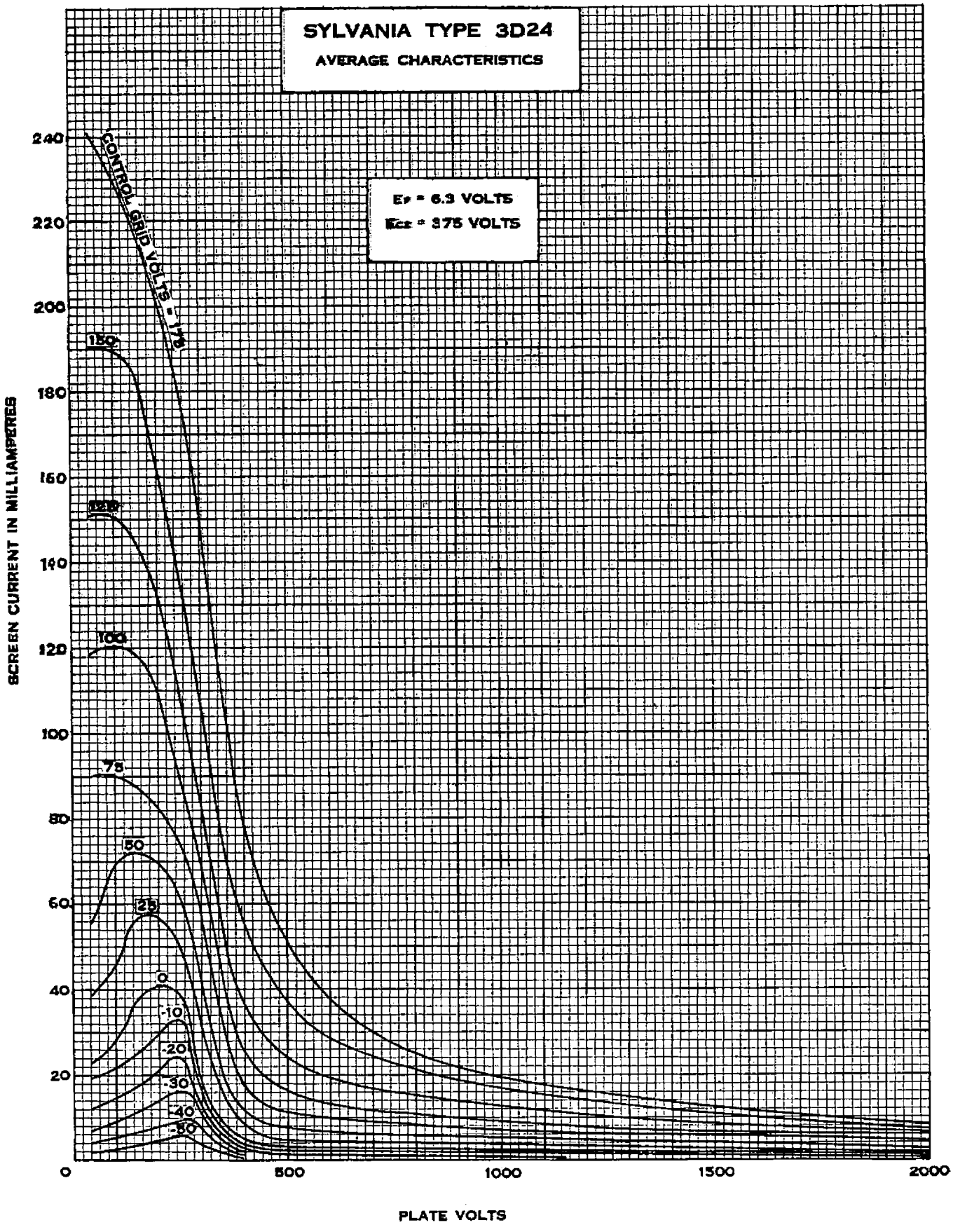
In order to get such a high rating in this small size, great care has been used in the choice of materials. The plate is graphite with a coating of zirconium to make a getter deposit on the bulb unnecessary. A special top cap which includes an external radiator connected directly to the plate is used. The emitter is thoriated tungsten requiring good regulation of the supply voltage. High frequency performance is obtained by the use of vertical bar type grids, the Lock-In construction and high-conductivity Kovar leads. Full ratings may be used up to 125 mc.

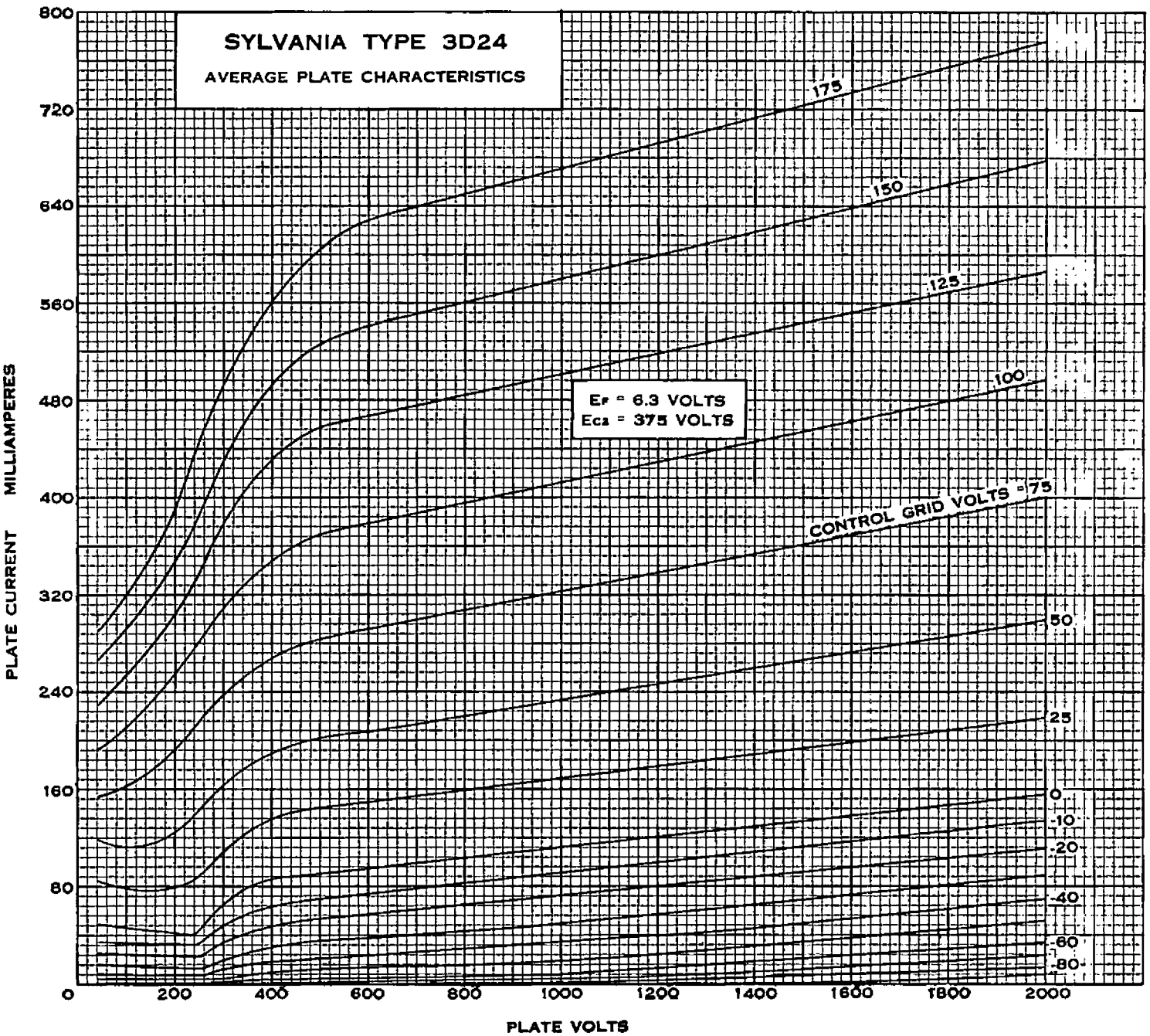
There are a few precautions to be observed in designing equipment to use the Sylvania Type 3D24; a ceramic socket is essential as the high operating temperature will soften the usual socket materials. Do not try to solder to the tube pins or remove the top cap.

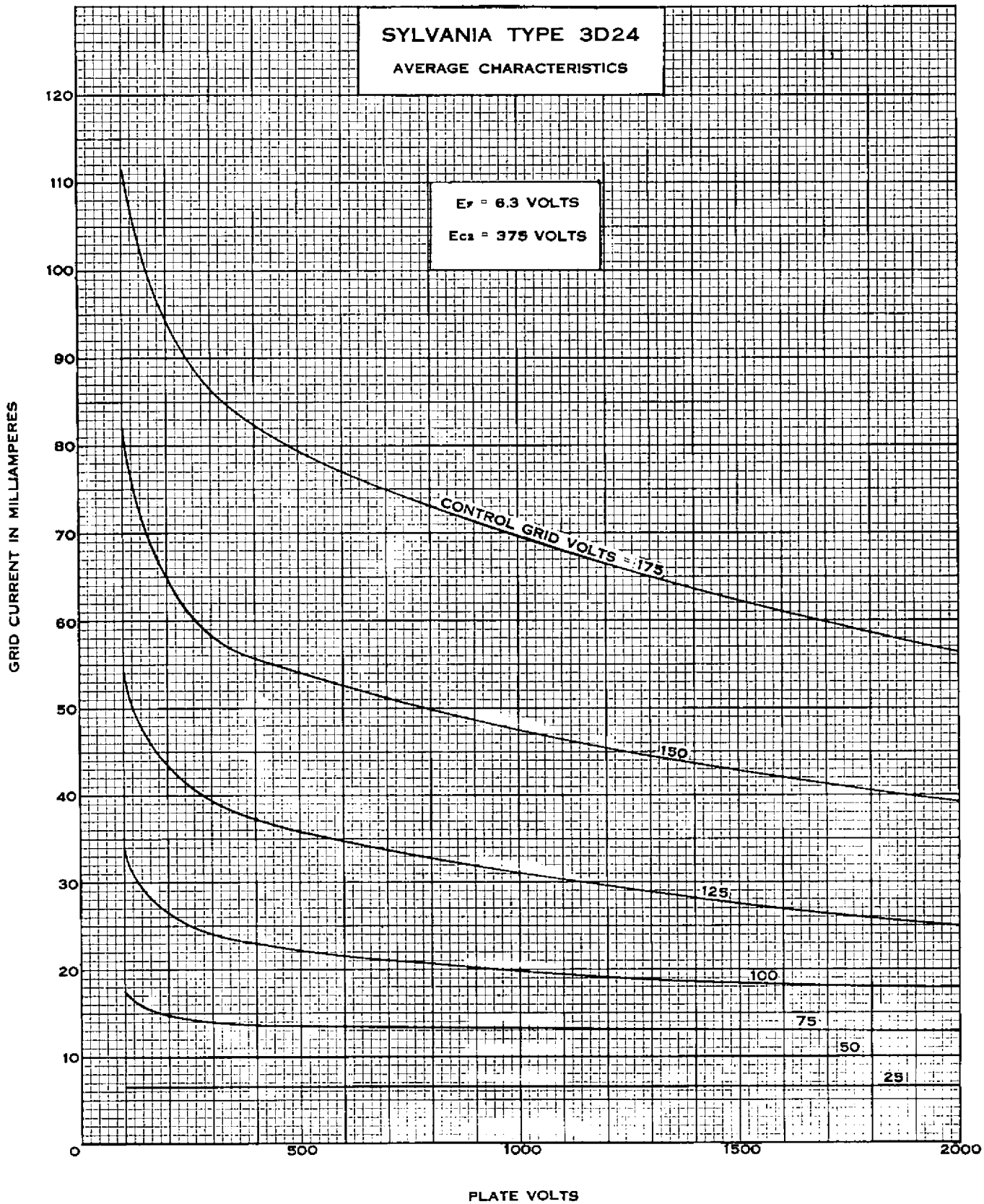
When adjusting equipment, it is suggested that the plate voltage be reduced as the high output is based on use in carefully adjusted circuits. An improperly adjusted circuit would increase the plate dissipation greatly and soon cause damage to the tube.

OUTLINE DRAWING




SYLVANIA TYPE 3D24
AVERAGE CHARACTERISTICS
Ef = 6.3 VOLTS
Ec2 = 375 VOLTS
CONTROL GRID VOLTS = +75
150
125
100
75
50
25
0
-10
-20
-30
-40
-50
SCREEN CURRENT IN MILLIAMPERES
240
220
200
180
160
140
120
100
80
60
40
20
0
500
1000
1500
2000
PLATE VOLTS


SYLVANIA TYPE 3D24
AVERAGE PLATE CHARACTERISTICS
Ef = 6.3 VOLTS
Ec2 = 375 VOLTS
CONTROL GRID VOLTS
175
150
125
100
75
50
25
0
-10
-20
-40
-60
-80
800
720
640
560
480
400
320
240
160
80
0
200
400
600
800
1000
1200
1400
1600
1800
2000
PLATE CURRENT MILLIAMPERES
PLATE VOLTS


SYLVANIA TYPE 3D24
AVERAGE CHARACTERISTICS
Ef = 6.3 VOLTS
Ec2 = 375 VOLTS
CONTROL GRID VOLTS = 175
150
125
100
75
50
25
GRID CURRENT IN MILLIAMPERES
120
110
100
90
80
70
60
50
40
30
20
10
0
500
1000
1500
2000
PLATE VOLTS