

THYRATRON

DESCRIPTION

The GL-5727 is a miniature, four-electrode, inert-gas-filled thyatron with negative control characteristics which is suitable for use in relay and grid-controlled-rectifier applications. Operating characteristics of the tube include a high-control ratio essentially independent of temperature over a wide range, low grid-anode capacitance, and very low

grid current. The GL-5727 is specially designed to assure dependable life and reliable service under the exacting conditions encountered in mobile and aircraft applications. Features include a high degree of mechanical strength and a heater-cathode construction designed to withstand many-thousand cycles of intermittent operation.

TECHNICAL INFORMATION

GENERAL

Electrical Data

	Minimum	Bogey	Maximum
Heater Voltage	5.7	6.3	6.9 Volts
Heater Current, $E_f = 6.3$ volts		0.60	0.66 Ampere
Cathode Heating Time	10		Seconds
Anode-to-Control-Grid Capacitance		0.026	uuf
Control-Grid to Cathode and Shield-Grid Capacitance		2.4	uuf
Deionization Time, approximate			
$E_{bb} = 125$ volts d-c, $I_b = 0.1$ ampere d-c			Microseconds
$E_{c1} = -100$ volts d-c		35	Microseconds
$E_{c1} = -11$ volts d-c		75	Microseconds
Ionization Time, approximate		0.5	Microseconds
Anode Voltage Drop		8	Volts
Critical Grid Current, $E_{bb} = 460$ volts rms		0.5	Microampere



TECHNICAL INFORMATION (CONT'D)

Mechanical Data

Type of Cooling—Air
 Mounting Position—Any
 Net Weight, maximum.....0.3 Ounce

MAXIMUM RATINGS, Absolute Values

GRID-CONTROLLED RECTIFIER SERVICE

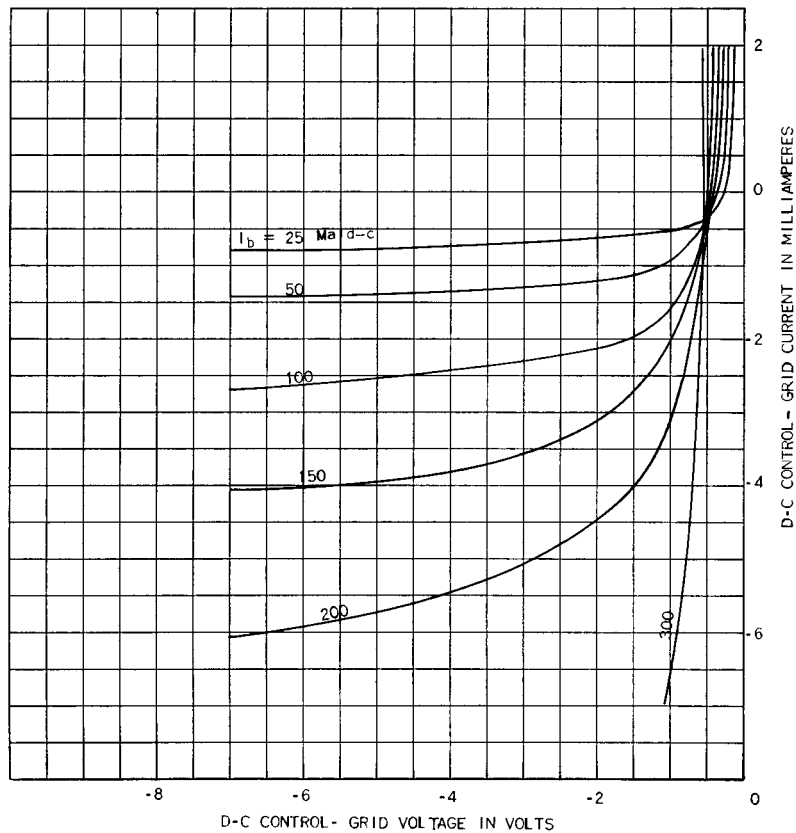
Maximum Peak Anode Voltage	
Inverse.....	1300 Volts
Forward.....	650 Volts
Maximum Cathode Current	
Peak.....	0.5 Ampere
Average.....	0.1 Ampere
Maximum Averaging Time.....	30 Seconds
Fault, Maximum Duration 0.1 Second.....	10 Amperes
Maximum Negative Control-Grid Voltage	
Before Conduction.....	-100 Volts
During Conduction.....	-10 Volts
Maximum Positive Control-Grid Current	
Average, Averaging Time, One Cycle.....	10 Milliamperes
Maximum Negative Shield-Grid Voltage	
Before Conduction.....	-100 Volts
During Conduction.....	-10 Volts
Maximum Positive Shield-Grid Current	
Average, Averaging Time, One Cycle.....	10 Milliamperes
Maximum Heater-Cathode Voltage	
Heater Negative.....	-100 Volts
Heater Positive.....	+25 Volts
Maximum Control-Grid Circuit Resistance.....	0.1 Megohm
Ambient Temperature Limits.....	-75 to +90 C

PULSE-MODULATOR SERVICE

Maximum Peak Anode Voltage	
Inverse.....	100 Volts
Forward†.....	500 Volts
Maximum Cathode Current	
Peak.....	10 Amperes
Average.....	0.01 Ampere
Maximum Negative Control-Grid Voltage	
Before Conduction.....	-100 Volts
During Conduction.....	-10 Volts
Maximum Positive Control-Grid Current	
Peak.....	20 Milliamperes
Maximum Negative Shield-Grid Voltage	
Before Conduction.....	-50 Volts
During Conduction.....	-10 Volts
Maximum Positive Shield-Grid Current	
Peak.....	20 Milliamperes
Maximum Pulse Duration.....	5 Microseconds
Maximum Pulse Recurrence Rate.....	500 Pulses per Second
Maximum Duty Cycle.....	0.001
Maximum Rate of Change of Cathode Current.....	100 Amperes per Microsecond
Maximum Heater-Cathode Voltage.....	0 Volt
Maximum Shield-Grid Circuit Resistance.....	25000 Ohms
Minimum Shield-Grid Circuit Resistance.....	2000 Ohms
Maximum Control-Grid Circuit Resistance.....	0.5 Megohm
Ambient Temperature Limits.....	-75 to +90 C
Maximum Impact Acceleration in Any Direction.....	750 G

† After the completion of a pulse, a 20-microsecond delay is required before a positive voltage of more than 10 volts is applied to the tube.

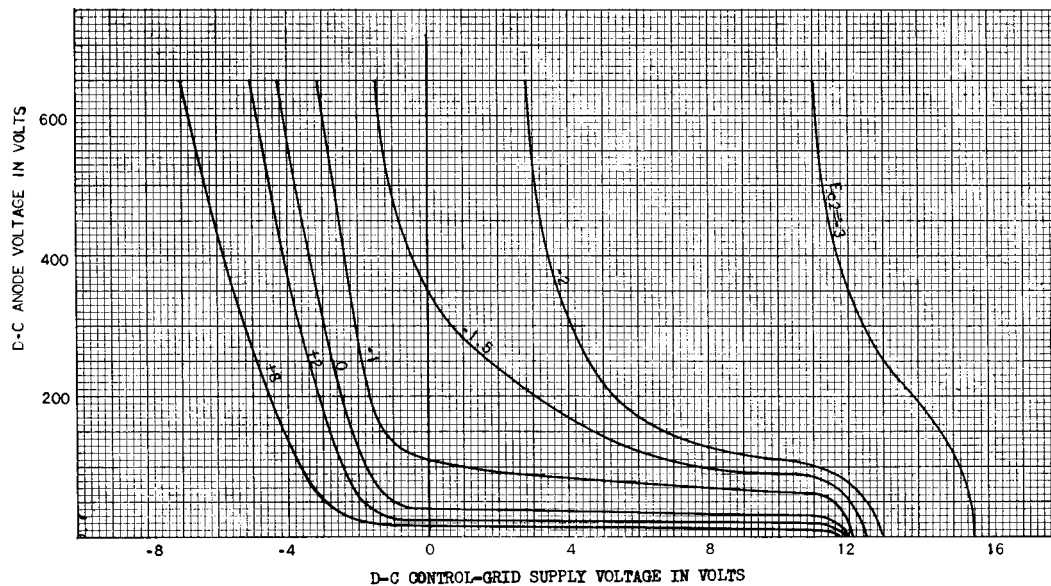
AVERAGE GRID CHARACTERISTICS DURING ANODE CONDUCTION
 $E_f = 6.3$ VOLTS
 SHIELD-GRID VOLTS = 0



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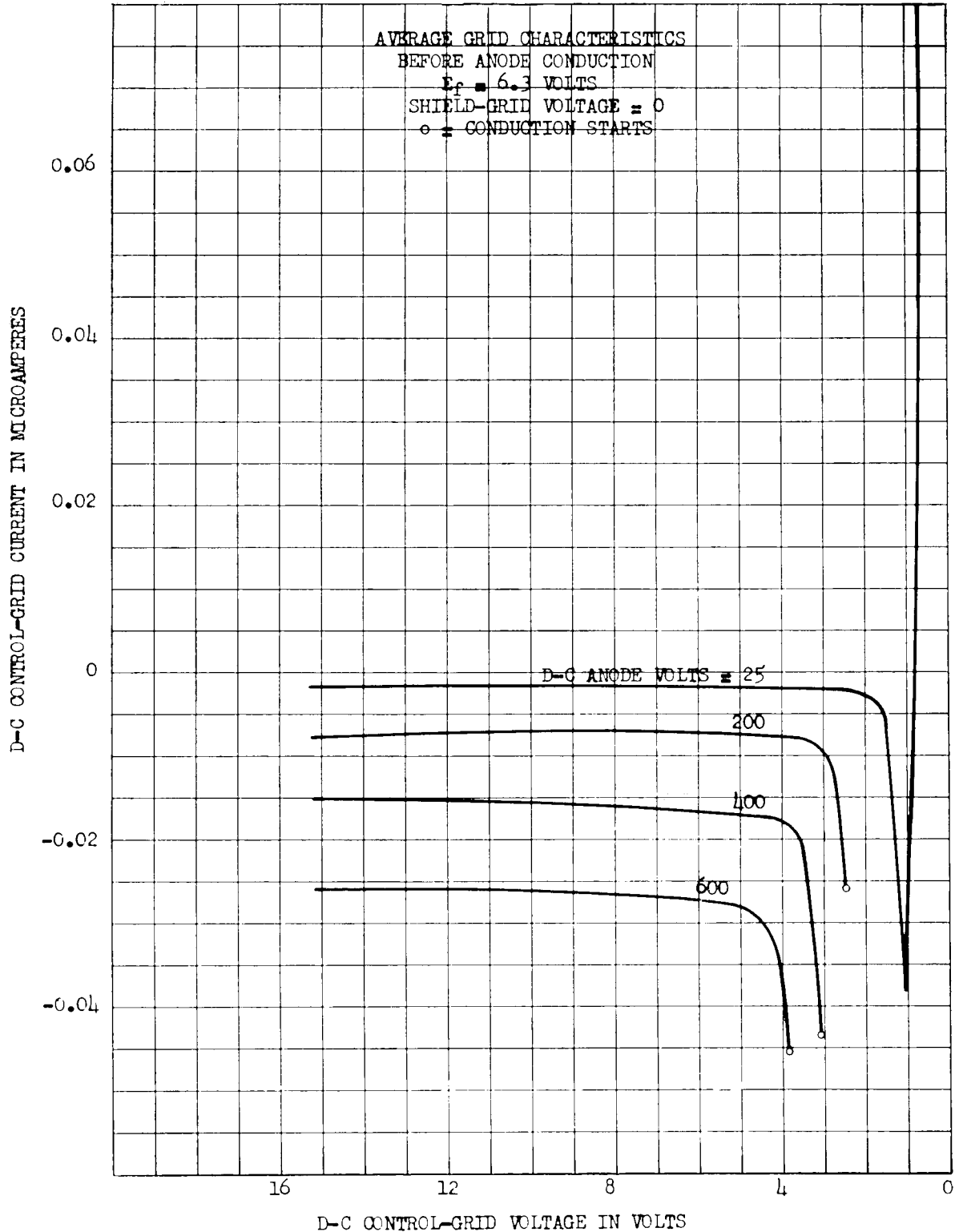
AVERAGE CONTROL CHARACTERISTICS
 $E_f = 6.3$ VOLTS
 GRID RESISTOR = 0.1 MEGOHM



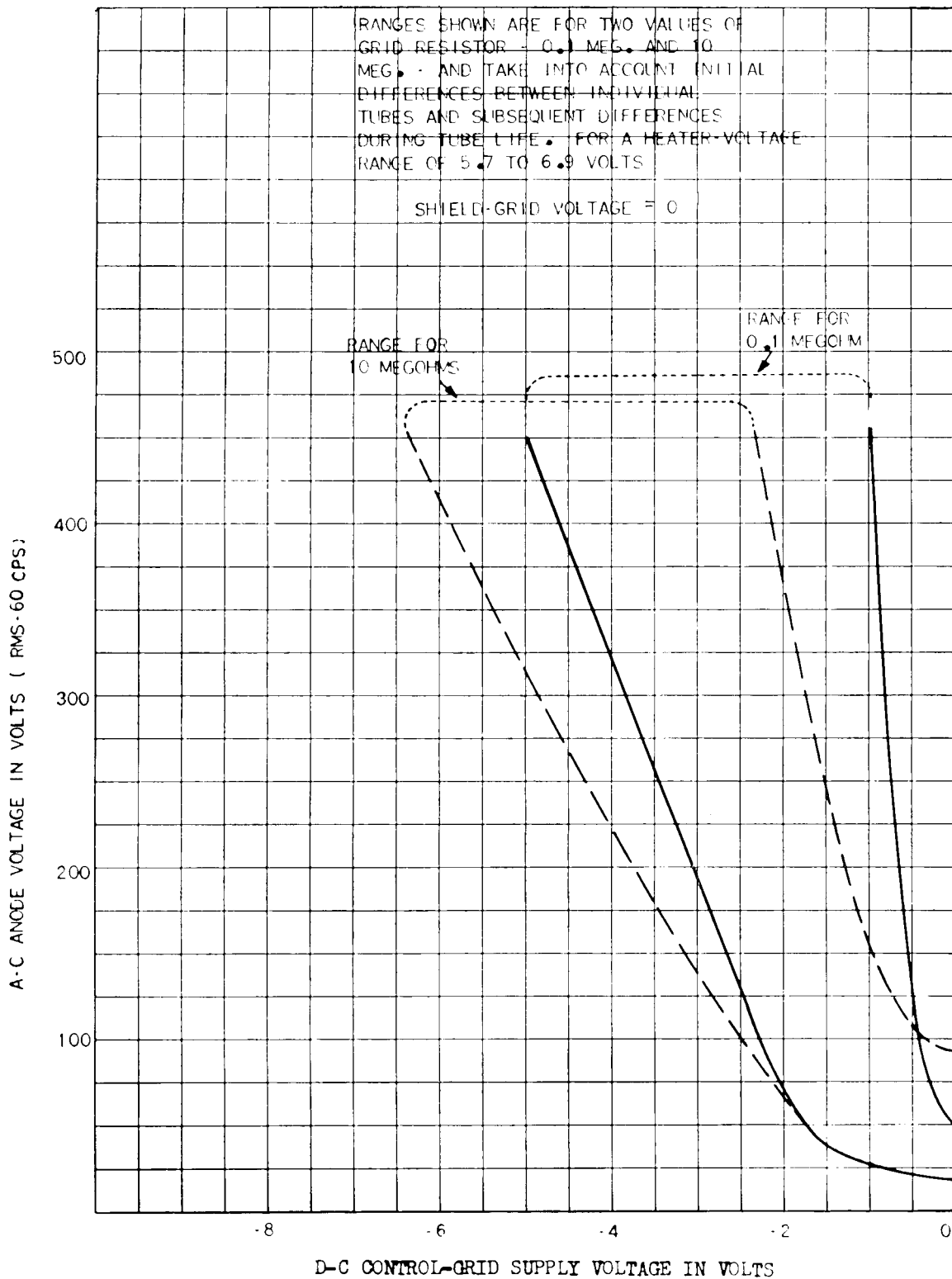
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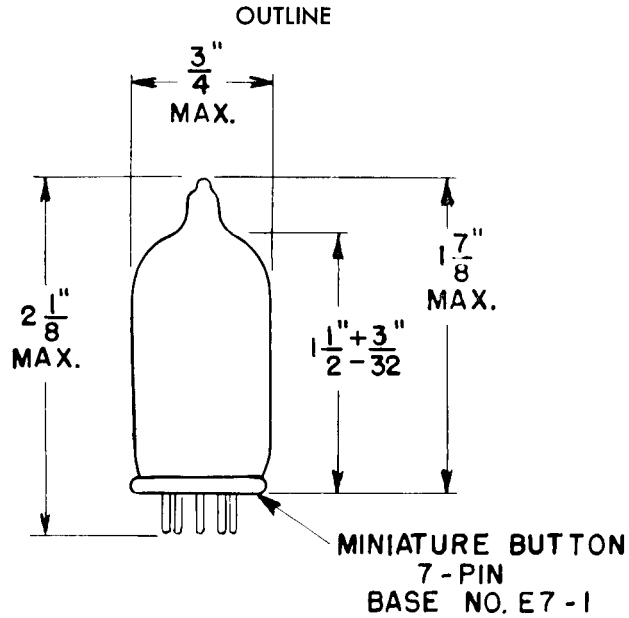
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AVERAGE GRID CHARACTERISTICS
BEFORE ANODE CONDUCTION

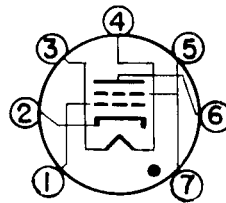


OPERATIONAL RANGE OF CRITICAL GRID VOLTAGE





BASING DIAGRAM



7BN

- PIN 1: GRID NO.1
- PIN 2: CATHODE
- PIN 3: HEATER
- PIN 4: HEATER
- PIN 5: GRID NO.2
- PIN 6: ANODE
- PIN 7: GRID NO.2

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Tube Department

GENERAL  ELECTRIC

Schenectady, N. Y.