

THYRATRON TYPE WL-5877

February 20, 1957

The WL-5877 is a three-electrode, inert-gas-filled, grid-controlled thyatron with negative control characteristics. Cooling is by unrestricted air convection and characteristics remain essentially unchanged on a wide range of ambient temperatures. The WL-5877 is designed for operation in industrial control and ignitor firing service.

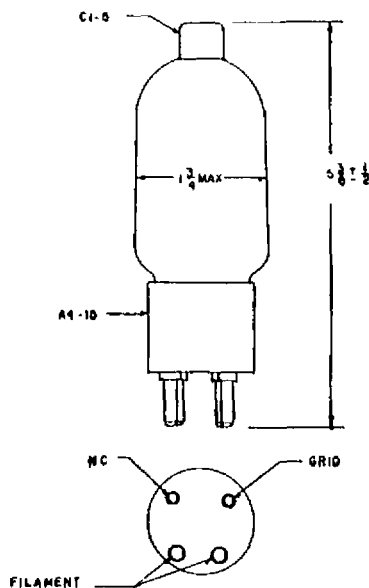
GENERAL DATA

ELECTRICAL:

Cathode	Directly Heated Coated Filament			
Filament:	Min.	Bogey	Max.	
Voltage	2.37	2.50	2.63	Volts
Current at Filament Volts = 2.5.	9.8	10.8	11.8	Amperes
Heating Time	30	--	--	Seconds
Deionization Time	See Figure 2			
Ionization Time	10			μ sec
Critical Anode Voltage at Grid				
Voltage of +6 Volts	--	--	100	Volts
Critical Grid Voltage at Anode				
Voltage of 1500 Volts-See Fig. 1	-4.0	-9.5	-15.0	Volts
Interelectrode Capacitances (Approx.)				
Anode to Grid	0.51			μ pf
Grid to Filament	15.6			μ pf
Anode to Filament	3.4			μ pf
Typical Arc Drop	16			Volts
Control Characteristic				Negative

MECHANICAL:

Mounting Position	Any
Overall Height (Approx.)	5 3/8"
Overall Diameter (Maximum)	1 3/4"
Type of Cooling	Air, Unrestricted Convection
Temperature Range	-55 to + 70 C
Bulb	T-13
Anode Cap	JETEC C1-5
Base	JETEC A4-15
Net Weight (Approx.)	5 oz.
Shipping Weight (Approx.)	2 lb.



MAXIMUM RATINGS

ABSOLUTE MAXIMUM VALUES:

Peak Anode Voltage		
Forward	1500 max.	Volts
Inverse	1500 max.	Volts
Anode Current		
Peak	40 max.	Amperes
Average	3.2 max.	Amperes
Surge (Duration 0.10 second or less)	560 max.	Amperes
Commutation Factor $\dagger$	200 max.	v/ μ sec
Current Rate of Change	0.25 max.	a/ μ sec
Voltage Rate of Change	800 max.	v/ μ sec
Negative Control Grid Voltage		
Before Conduction	250 max.	Volts
During Conduction $\S$	10 max.	Volts
Average Positive Control Grid Current		
Averaging Time = 1 cycle $\dagger$	0.20 max.	Ampere
Operating Frequency $\oplus$	60 max.	cps

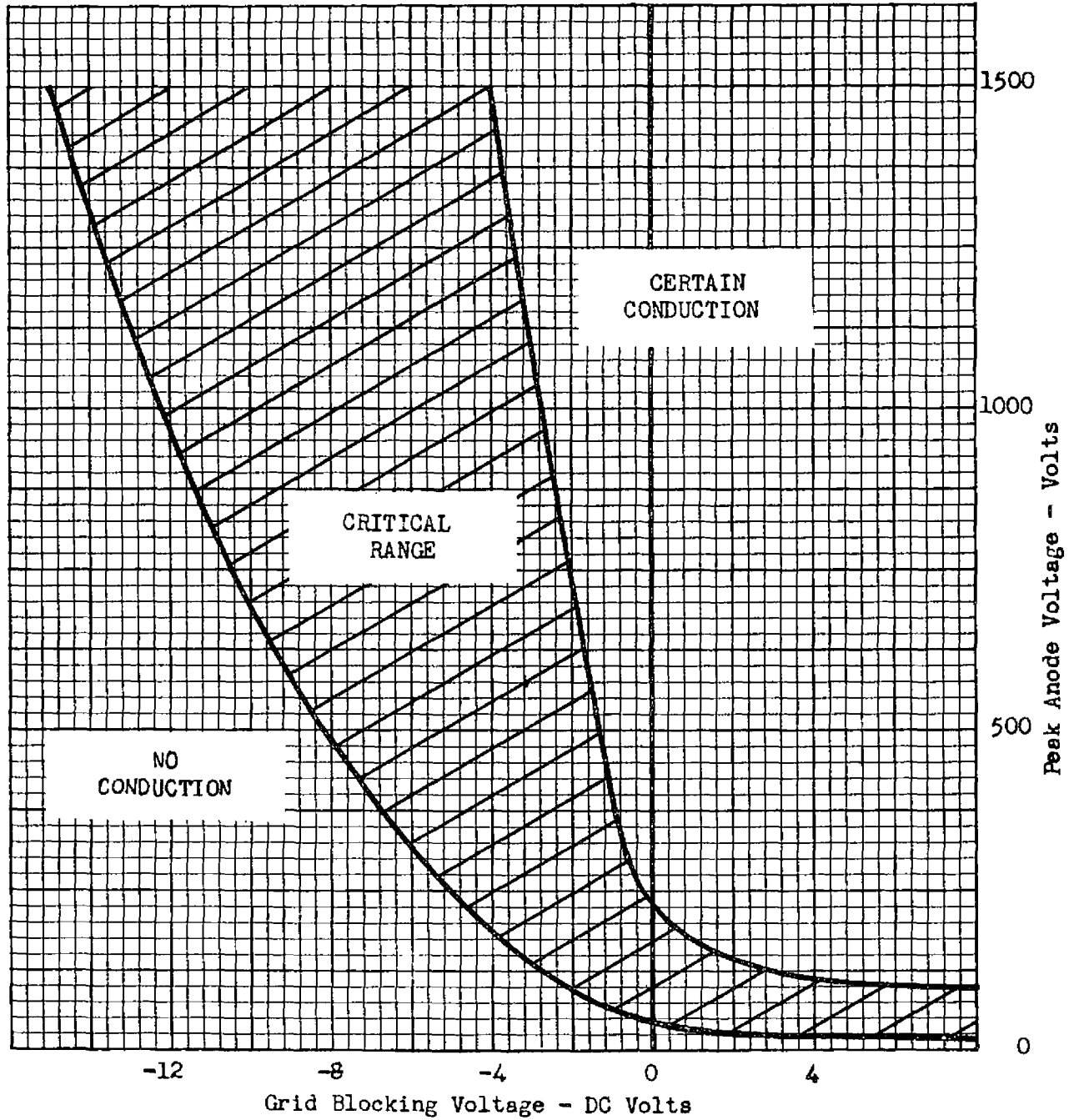
NOTES

- General These ratings are important in the prevention of "clean-up" or loss of the inert gas filling. Their observance will reduce the bombardment of anode or grid by positive ions of the gas filling, which may cause the gas ions to be absorbed in the tube element concerned.
- Commutation factor is the product of the rate of current decay in amperes per microsecond just prior to the end of commutation and the rate of inverse voltage rise in volts per microsecond just after the end of commutation. Its value should not exceed the value given in order to reduce ion bombardment of the anode during the deionization period. Limits are given on both components of this factor to correspond to factory test data limits. The limit on current rate of change is about at the highest value which is allowable under the fault current limit.
- § When the tube conducts, positive ions are attracted to a grid at negative potential. This positive ion current flowing through the grid resistor will reduce the negative voltage at the grid from the higher negative grid supply voltage. To reduce ion grid bombardment, sufficient resistance must be provided to drop the negative grid supply voltage to a value not more negative than -10 volts as shown in the ratings.
- ♦ This rating indicates the heat emission properties of the grid. This value of current may be safely drawn to the grid if conduction occurs only while the anode is positive. However, during the period of negative anode potential, the grid potential must also be negative to prevent electrons being drawn to the grid and generating positive ions which would bombard the anode.
- ⊙ For higher frequency ratings, consult the tube manufacturer.

RELIATRON[®] TUBES

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CRITICAL GRID VOLTAGE



WL-5877 RECOVERY TIME (TYPICAL)

