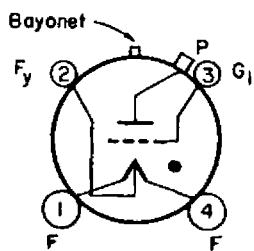
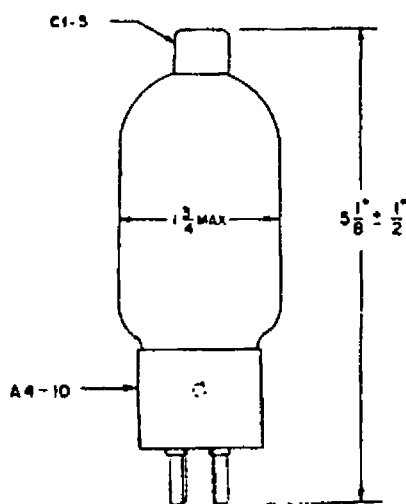


Westinghouse®**RELIATRON® TUBES****WL-7031**

June 3, 1957

THYRATRON TYPE WL-7031

The WL-7031 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 over a wide range of ambient temperatures. The WL-7031 is designed for operation in industrial control and ignitor firing service. This tube is electrically similar to the WL-5877.



BASE CONNECTIONS
 F - Filament
 G₁ - Control Grid
 P - Plate & Anode
 F_y - Filament Center Tap & Anode Return

ELECTRICAL:

Cathode	
Filament:	
Voltage	
Current at Filament Volts = 2.5	
Heating Time	
Deionization Time	
Ionization Time	
Critical Anode Voltage at Grid Voltage at +6 Volts	
Critical Grid Voltage at Anode	
Voltage of 1500 Volts-See Figure 1	
Interelectrode Capacitances (Approx.)	
Anode to Grid	
Grid to Filament	
Anode to Filament	
Typical Arc Drop	
Control Characteristic	

GENERAL DATA

Directly Heated Coated Filament			
Min.	Bogey	Max.	
2.37	2.50	2.63	Volts
9.8	10.8	11.8	Amperes
30	--	--	Seconds
See Figure 2			
	10		usec
--	--	100	Volts
-4.0	-9.5	-15.0	Volts
	0.51		uuf
	15.6		uuf
	3.4		uuf
	16		Volts
			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 A410
Net Weight (Approx.)	5 oz.
Shipping Weight (Approx.)	2 lb.

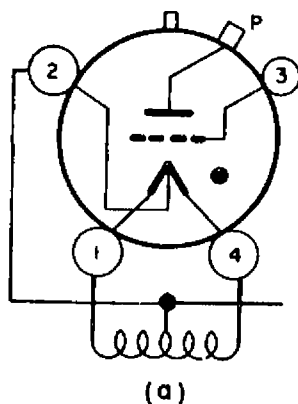
MAXIMUM RATINGS**ABSOLUTE MAXIMUM VALUES:**

Peak Anode Voltage		
Forward	1500 max.	Volts
Inverse	1500 max.	Volts
Anode		
Peak	40 max.	Amperes
Average	3.2 max.	Amperes
Surge, max. Duration 0.1 sec. ■		
Connection (a)	560 max.	Amperes
Connection (b)	280 max.	Amperes
Connection (c)	280 max.	Amperes
Commutation Factor ♦	200 max.	va/usec
Current Rate of Change	0.25 max.	a/usec
Voltage Rate of Change	800 max.	v/usec
Negative Control Grid Voltage		
Before Conduction	250 max.	Volts
During Conduction §	10 max.	Volts
Average Positive Control Grid Current		
Averaging Time = 1 cycle ♦	0.20 max.	Ampere
Operating Frequency®	60 max.	cps

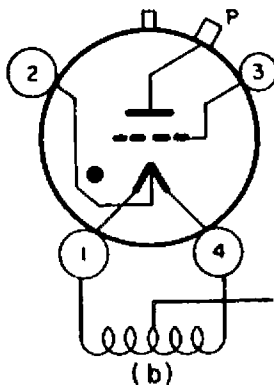
NOTES

- 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.
 - These ratings are effective only when the anode return connections are made according to the following diagrams:

Connection a



Connection b



Connection c

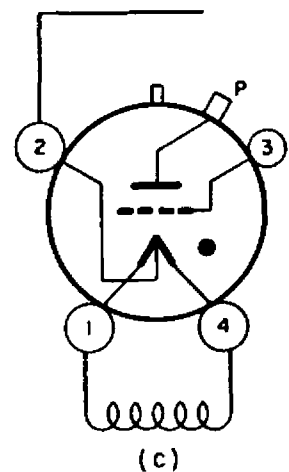


Figure 1
CRITICAL GRID VOLTAGE OF WL-7031

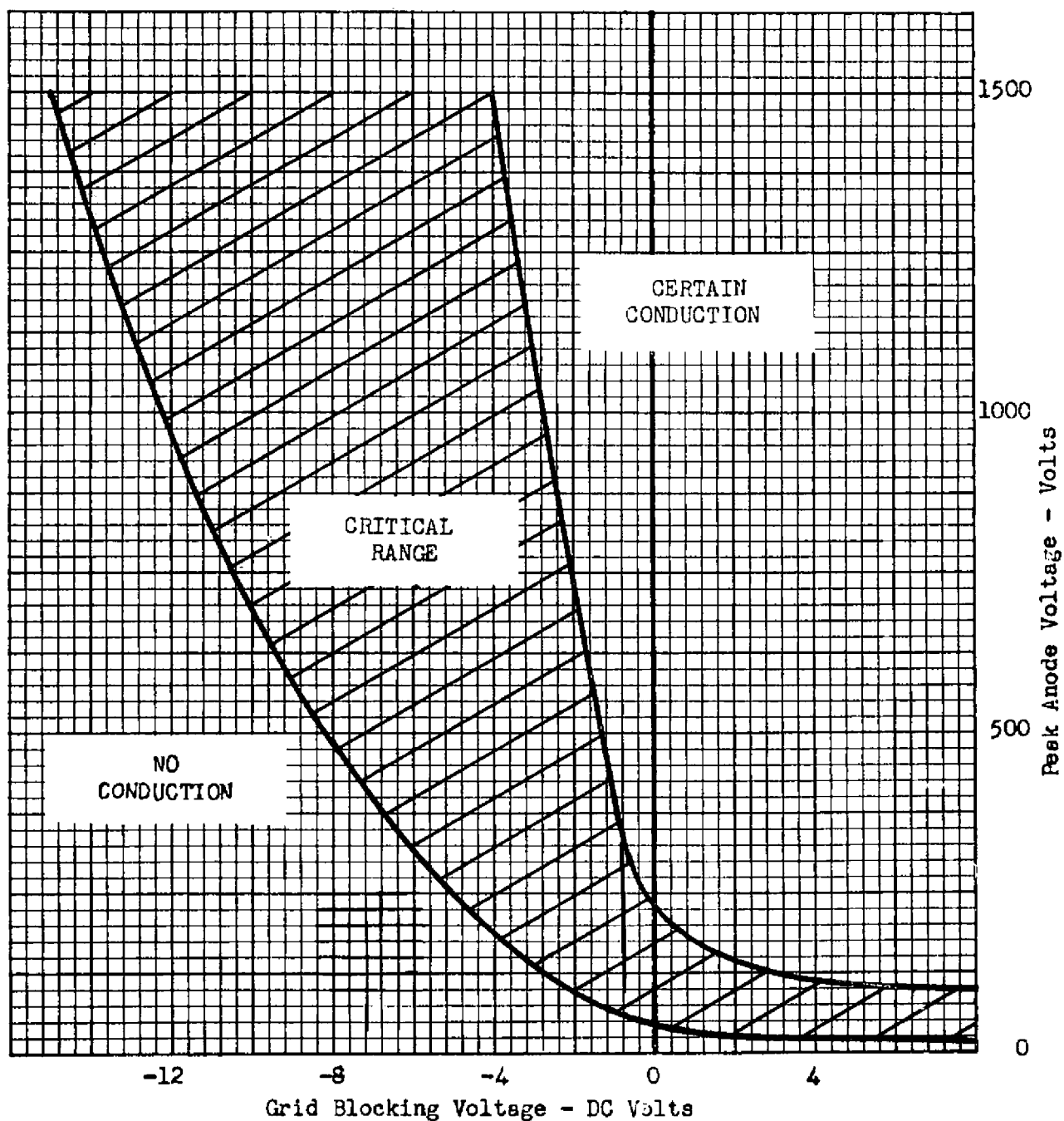


Figure 2
WL-7031 RECOVERY TIME (TYPICAL)

