



GL-7703 IGNITRON

CAPACITOR-DISCHARGE SERVICE DC SHORT-CIRCUITING-SWITCH SERVICE

20,000 VOLTS PEAK
100,000 AMPERES PEAK

The GL-7703 is a sealed, stainless-steel-jacketed ignitron for use as a switch in capacitor-discharge circuits operating up to 20,000 volts. In this service the tube

will carry peak currents up to 100,000 amperes. The anode seal is enclosed in an insulating compound to prevent external voltage flashover.

Electrical

Cathode Excitation—Cyclic	
Cathode Spot Starting—Ignitor	
Number of Electrodes	
Main Anodes	1
Main Cathodes	1
Ignitors	1

Mechanical

Envelope—Stainless Steel	
Mounting Position—Axis Vertical, Anode Terminal Up	
Net Weight	2 Pounds

Thermal

Type of Cooling—Air or Liquid, by clamp around lower portion of tube	
Clamp Temperature	10 to 30 C
Cathode Temperature, maximum	35 C
Anode Insulating-Compound Temperature*, maximum	70 C

Capacitor-Discharge Service, Intermittent Pulse Duty, Sinusoidal Current†

Peak Anode Voltage‡		Anode Current¶	
Forward	20,000 Volts	Peak, for ½ cycle of 120 microseconds	60,000 Amperes
Inverse	20,000 Volts	Peak, for ½ cycle of 20 microseconds	100,000 Amperes
Critical Anode Starting Voltage, minimum	100 Volts	Maximum Discharge Rate	2 Per Minute
		Rate of Rise of Current§, tube inductance approx.	0.04 Microhenrys
		Ionization Time	0.5 Microseconds

DC Short-Circuiting-Switch Service

Peak Anode Voltage‡		Anode Current	
Forward	20,000 Volts	Peak	35,000 Amperes
Inverse	20,000 Volts	Average	0.25 Amperes
Critical Anode Starting Voltage, minimum	100 Volts	Maximum Averaging Time	1 Cycle
		Rate of Rise of Current§, tube inductance approx.	0.04 Microhenrys
		Ionization Time	0.5 Microseconds

Ignitor Ratings

	Minimum	Maximum		Minimum	Maximum
Separate Excitation			Anode Firing		
Ignitor Voltage			Ignitor Voltage		
Forward Open Circuit	1500	3000 Volts	Forward, maximum	—	3000 Volts
Inverse, maximum	—	5 Volts	Inverse, maximum	—	5 Volts
Ignitor Short-Circuit Current	200	250 Amperes	Peak Ignitor Current	200	250 Amperes
Length of Firing Pulse, sine wave	5	10 Microseconds			

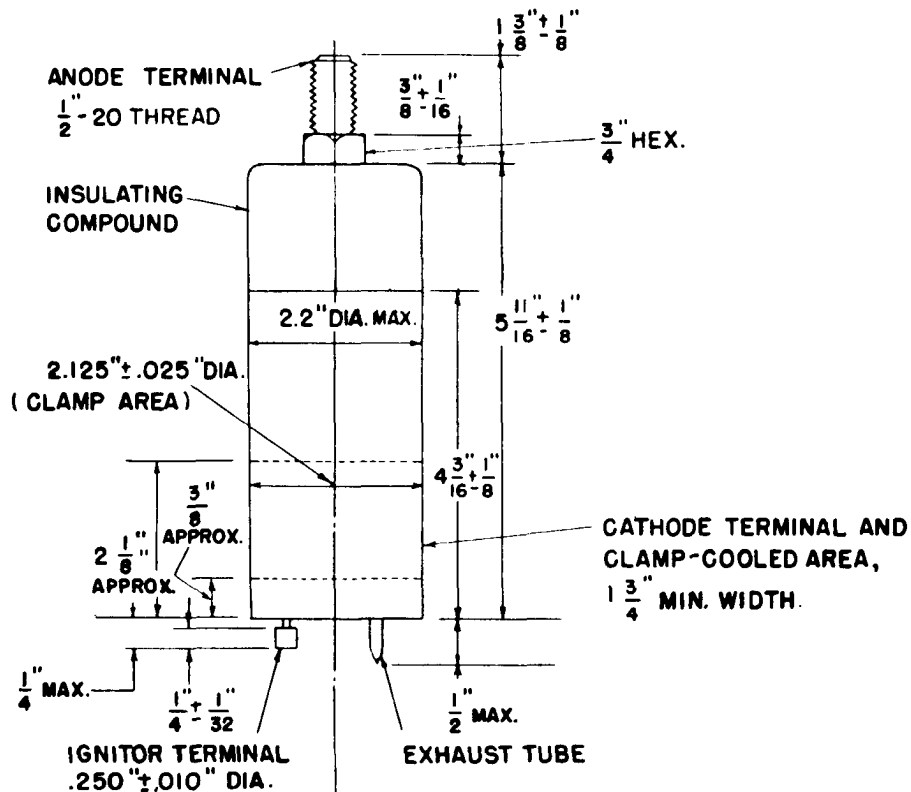
* Anode-seal, insulating-compound temperature must always be higher than the cathode temperature to prevent mercury condensation on the anode and anode seal. Before tube operation, the anode seals must be heated long enough to vaporize all mercury from the seal area.

† The tube may become a closed switch (does not open) carrying current in both directions until the current dampens out.

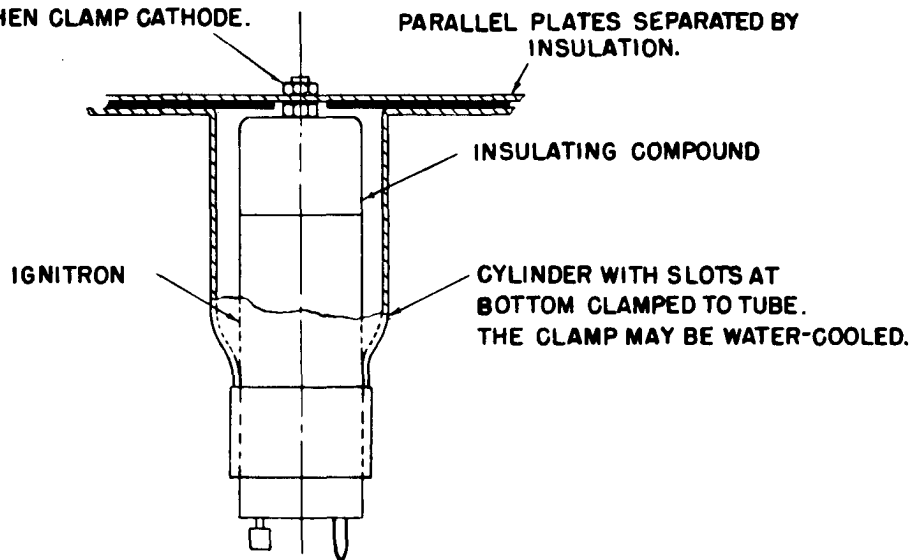
‡ The tube cannot hold off this voltage immediately after conduction. A 1-to-10-second delay may be required before reapplication of voltage.

¶ Dampened oscillations are permissible provided the oscillating cycles do not exceed 20. The peak current value for one-half cycle must not be exceeded.

§ Rate of rise depends on circuit.



TIGHTEN ANODE CONNECTION
WITHOUT STRESS ON SEAL,
THEN CLAMP CATHODE.



SUGGESTED METHOD FOR PROVIDING MOUNTING FOR COAXIAL CONNECTION

K-69087-72A948

8-60

TUBE DEPARTMENT

GENERAL  ELECTRIC

Owensboro, Kentucky