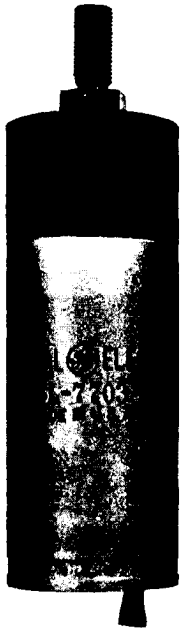


GL-7703
IGNITRON

CAPACITOR-DISCHARGE SERVICE — **20,000 VOLTS PEAK**
DC SHORT-CIRCUITING-SWITCH SERVICE — **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‡		
Forward	20,000	Volts
Inverse	20,000	Volts
Critical Anode Starting Voltage, minimum	100	Volts
Anode Current¶		
Peak, for ½ cycle of 120 microseconds	60,000	Amperes
Peak, for ½ cycle of 20 microseconds	100,000	Amperes
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‡		
Forward	20,000	Volts
Inverse	20,000	Volts
Critical Anode Starting Voltage, minimum	100	Volts
Anode Current		
Peak	35,000	Amperes
Average	0.25	Amperes
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	
Separate Excitation			
Ignitor Voltage			
Forward Open Circuit	1500	3000	Volts
Inverse, maximum	—	5	Volts
Ignitor Short-Circuit Current	200	250	Amperes
Length of Firing Pulse, sine wave	5	10	Microseconds

	Minimum	Maximum	
Anode Firing			
Ignitor Voltage			
Forward, maximum	—	3000	Volts
Inverse, maximum	—	5	Volts
Peak Ignitor Current	200	250	Amperes

* 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.

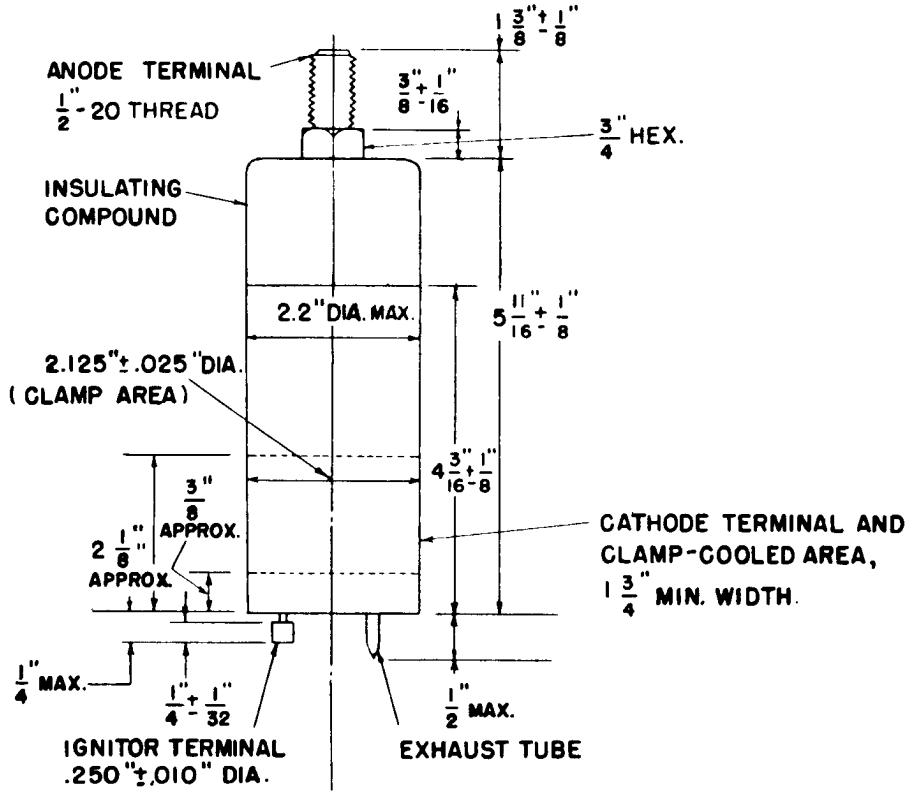
† The tube may become a closed switch (does not open) carrying current in both directions until the current dampens out.

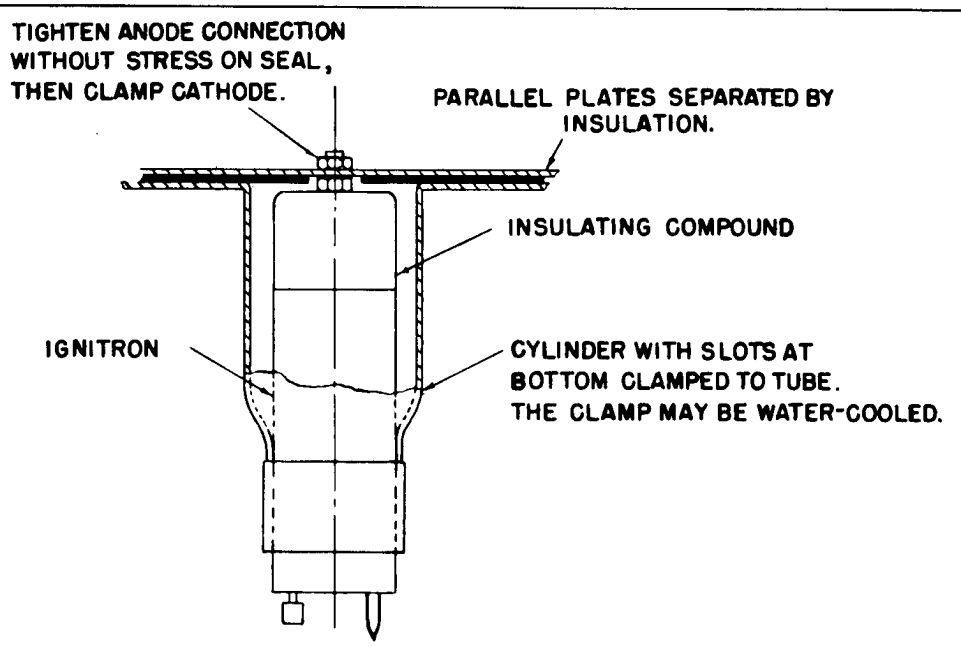
‡ The tube cannot hold off this voltage immediately after conduction. A 1-to-10-second delay may be required before reapplication of voltage.

¶ 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.

GENERAL ELECTRIC





SUGGESTED METHOD FOR PROVIDING MOUNTING FOR COAXIAL CONNECTION

TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky