

PRELIMINARY DESCRIPTION AND RATING

IGNITRON GL-6504

The GL-6504 is a double-grid ignitron designed for railroad locomotive rectifier service. In this service twelve tubes will supply d-c power for a 4000-horsepower locomotive.

A coaxial cathode-current return provides magnetic shielding. The tube also features baffles in the mercury pool to assure contact between the mercury and the ignitor points during swaying of the equipment.

A companion tube, the GL-6509 ignitron, has been designed to supply the auxiliary power requirements of applications which use the 6504 as the main power source.

TECHNICAL INFORMATION

GENERAL

Electrical

Cathode Excitation - Cyclic	
Cathode-Spot Starting - Ignitor	
Number of Electrodes	
Main Anodes	1
Main Cathodes	1
Ignitors	3
Shield Grids	1
Control Grids	1
Arc Drop	
At 1000 Amperes Peak	20 ± 2 Volts
At 2000 Amperes Peak	25 ± 2 Volts

Mechanical

Envelope Material - Metal	
Net Weight	95 Pounds
Tube Mounting - See Outline Drawing	

Thermal

Type of Cooling - Water	
Inlet Water Temperature, minimum	30 Centigrade
Outlet Water Temperature, maximum	55 Centigrade
Water Flow	
At Continuous Rated Average Current, minimum	10 Gallons per Minute
At No Load, minimum	1 Gallon per Minute
Recommended Temperature Range	40 to 45 Centigrade
Characteristics for Water Cooling	
Water Temperature Rise, maximum	6.5 Centigrade
Pressure Drop at 10 Gallons per Minute, maximum	1.5 Pounds per Square Inch

GENERAL ELECTRIC COMPANY

from JETEC release #1335, July 23, 1954

MAXIMUM RATINGS

Power-Rectifier Service *, Continuous Duty

Maximum Peak Anode Voltage		
Inverse	4000	Volts
Forward	100	Volts
Maximum Anode Current		
Peak	1250	Amperes
Average		
Continuous	350	Amperes
2 Hours	400	Amperes
15 Minutes	500	Amperes
5 Minutes	700	Amperes
1 Minute	800	Amperes
Fault		
Forward Direction	15000	Amperes
Reverse Direction	30000	Amperes
Maximum Duration of Fault Current	0.15	Seconds

* Ratings are for Zero Phase-Control Angle at Frequency of 25 Cycles

Ignitor Requirements

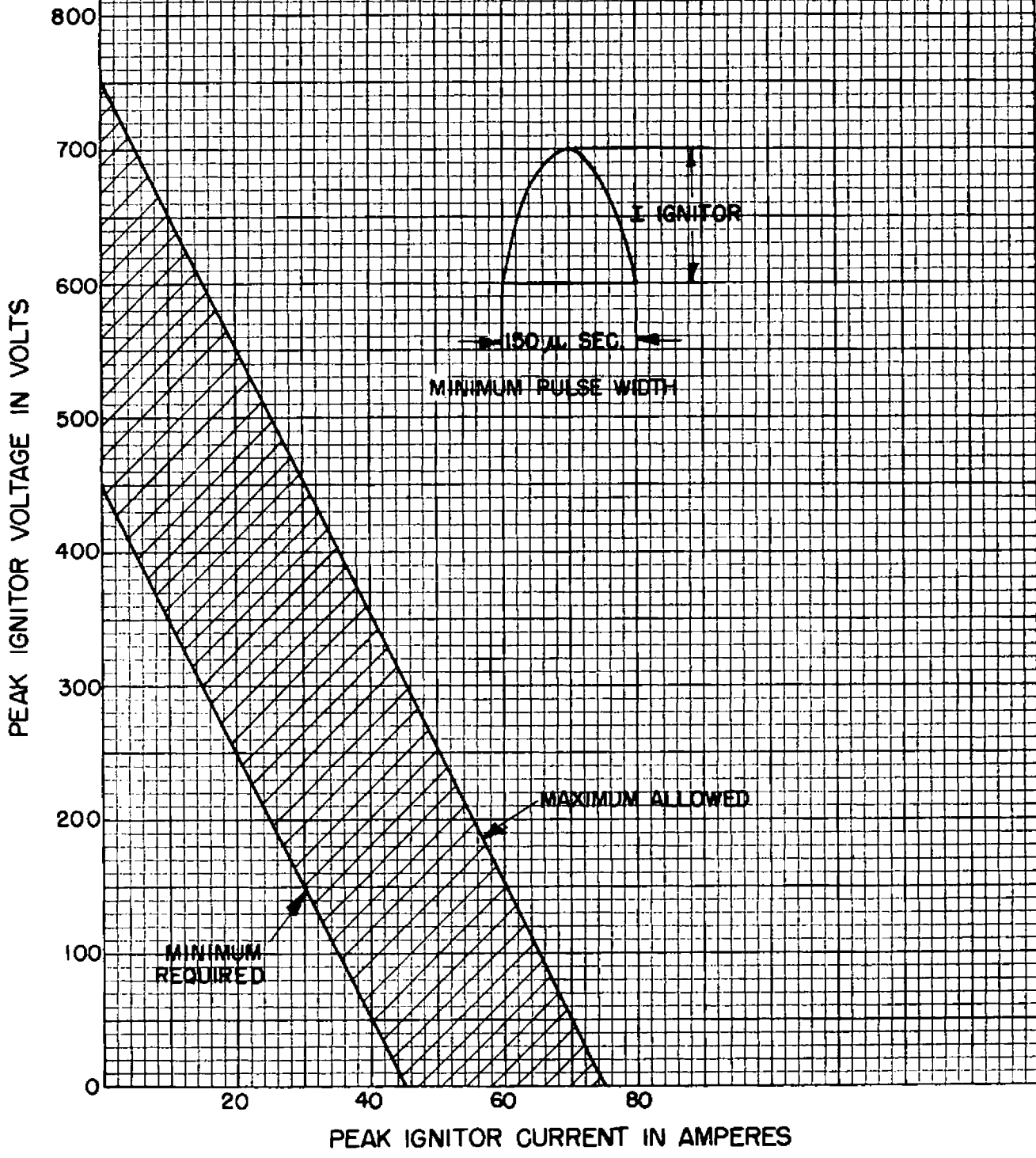
Volt-Ampere-Time Requirements - See Curve K-9033883

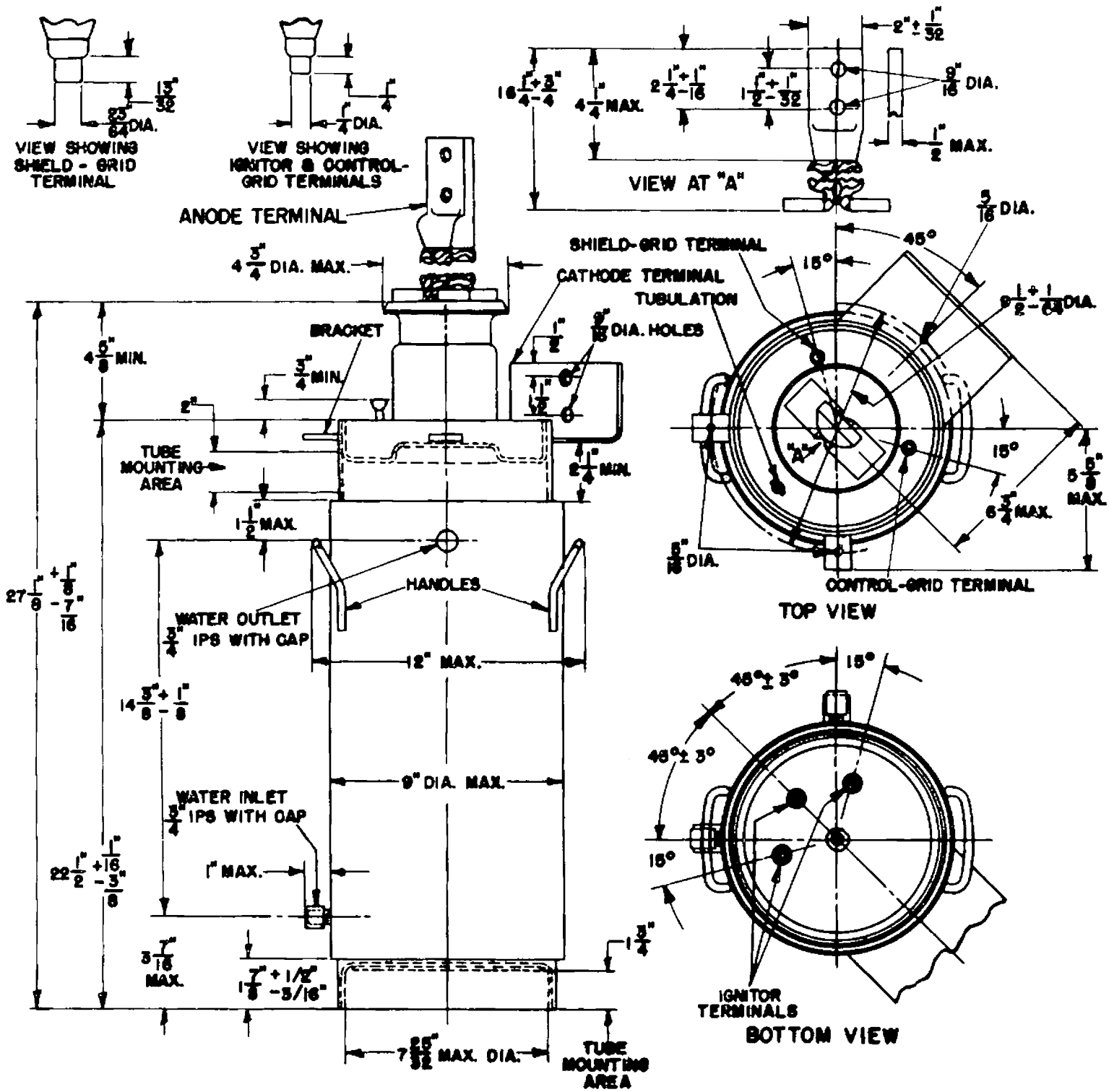
Maximum Inverse Voltage		5	Volts
Maximum Current			
Root Mean Square		15	Amperes
Average		2.0	Amperes
Maximum Averaging Time		10	Seconds
Shield-Grid Voltage			
Peak Forward	200	500	Volts
Peak Inverse	-	200	Volts
Shield-Grid Current			
Peak Forward	0.2	5	Amperes
Peak Inverse	-	0.2	Amperes
Control-Grid Voltage			
Peak Forward	200	500	Volts
Peak Inverse	100	200	Volts
Control-Grid Current			
Peak Forward	0.4	5	Amperes
Peak Inverse	0.4	1	Amperes

June 28, 1954

IGNITOR VOLT-AMPERE REQUIREMENTS SEALED-IGNITRON RECTIFIERS

THE IGNITOR FIRING CIRCUIT SHOULD BE DESIGNED TO OPERATE WITHIN THE SHADED AREA.





OUTLINE
 GL-6504