GL-6878

IGNITRON

LOCOMOTIVE RECTIFIER SERVICE - 675 AMPERES THREE IGNITORS

DESCRIPTION AND RATING

The GL-6878 is a double-grid ignitron designed for railroad locomotive rectifier service.

A coaxial cathode-current return reduces magnetic fields due to tube currents. 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 GL-6878 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

Mechanical

Envelope Material - Stainless Steel

Net Weight	190	Pounds

Thermal

Type of Cooling - Water

Inlet Water Temperature, minimum	30	C
Outlet Water Temperature, maximum	55	C
Water Flow, minimum		
At Continuous Rated Average Current	10	Gallons per Minute
At No Load	1	Gallons per Minute
Temperature Range	40 to 45	C

from JETEC release #1639, May 7, 1956

Thermal (Cont'd)

Characteristics for Water Cooling at Rated Minimum Flow		
Water Temperature Rise, maximum	10	C
Pressure Drop at 10 Gallons per Minute, maximum	2.5	Pounds per Square Inch

MAXIMUM RATINGS AND TYPICAL OPERATION

Power-Rectifier Service, Continuous Duty
Ratings are for Zero-Phase-Control Angle

Maximum Peak Anode Voltage		
Inverse	4000	Volts
Forward	100	Volts
Maximum Anode Current		
Peak	2500	Amperes
Average*		
Continuous	675	Amperes
Fifty Minutes	675	Amperes
Twelve Minutes	750	Amperes
Six Minutes	810	Amperes
Four Minutes	875	Amperes
Fault		
Peak Forward Direction, without damage	20,000	Amperes
Peak Reverse Direction	40,000	Amperes
Maximum Duration of Fault Current	0.15	Seconds
Frequency Range	25-60	Cycles per Second

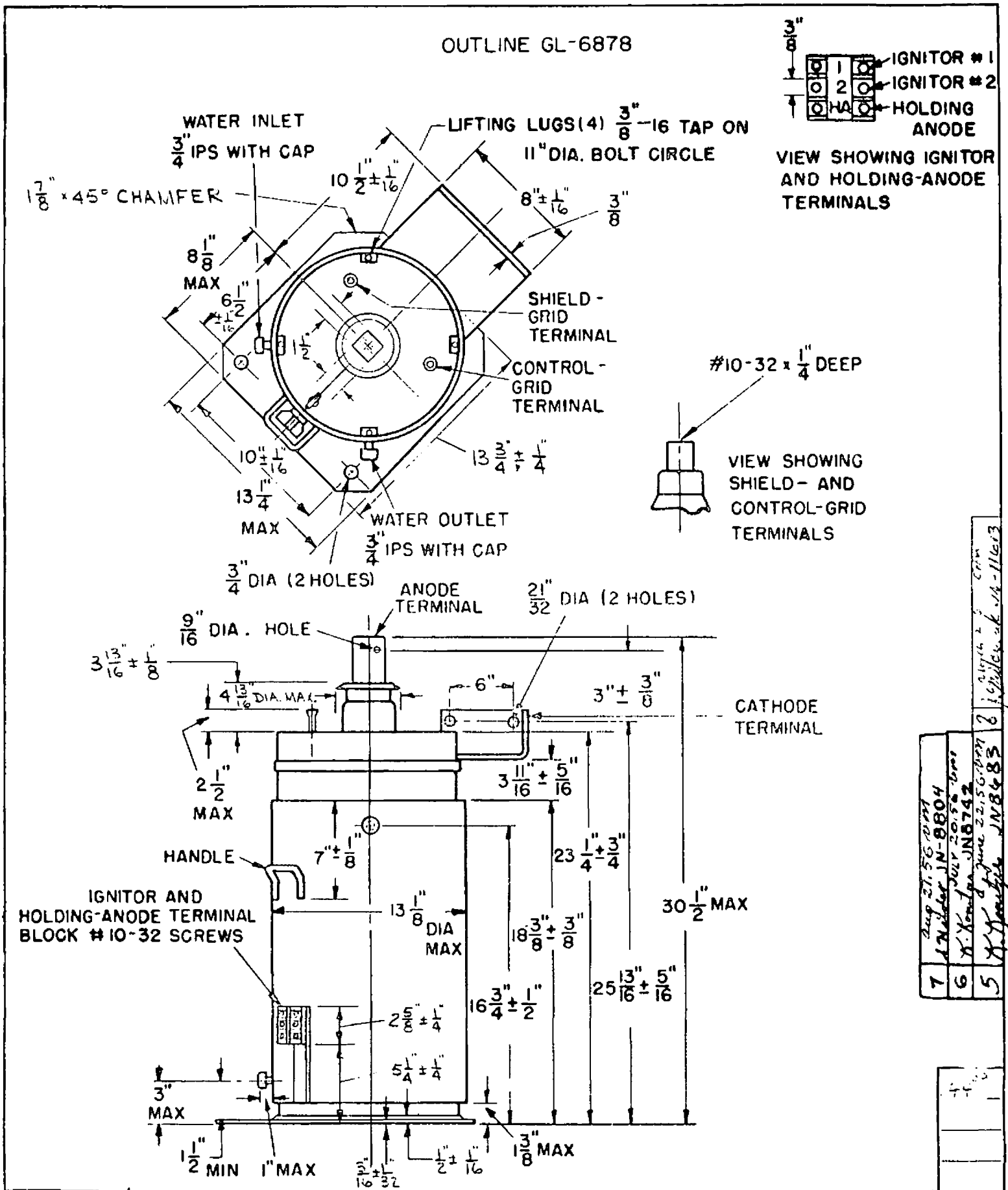
Ignitor

Maximum Inverse Voltage		5	Volts
Maximum Current			
Root Mean Square		15	Amperes
Average		2	Amperes
Maximum Averaging Time		10	Seconds
Shield-Grid Voltage	Minimum	Maximum	
Peak Forward	200	500	Volts
Peak Inverse	---	200	Volts
Shield-Grid Current			
Peak Forward	0.2	5	Amperes
Peak Inverse	---	0.2	Amperes

Ignitor (Cont'd)

	Minimum	Maximum	
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

* Short time loads applied following light load.


OUTLINE GL-6878
3/8"
IGNITOR #1
IGNITOR #2
HOLDING ANODE
VIEW SHOWING IGNITOR AND HOLDING-ANODE TERMINALS
WATER INLET
3/4" IPS WITH CAP
LIFTING LUGS(4) 3/8"-16 TAP ON 11" DIA. BOLT CIRCLE
1 7/8" x 45° CHAMFER
10 1/2" ± 1/16"
8" ± 1/16"
3/8"
8 1/8" MAX
6 1/2" ± 1/16"
SHIELD-GRID TERMINAL
1 1/2"
CONTROL-GRID TERMINAL
#10-32 x 1/4" DEEP
VIEW SHOWING SHIELD- AND CONTROL-GRID TERMINALS
10" ± 1/16"
13 3/4" ± 1/4"
13 1/4" MAX
WATER OUTLET
3/4" IPS WITH CAP
3/4" DIA (2 HOLES)
ANODE TERMINAL
21/32" DIA (2 HOLES)
9/16" DIA. HOLE
3 13/16" ± 1/8"
4 13/16" DIA. MAX.
6"
3" ± 3/8"
CATHODE TERMINAL
2 1/2" MAX
3 11/16" ± 5/16"
7" ± 1/8"
23 1/4" ± 3/4"
HANDLE
IGNITOR AND HOLDING-ANODE TERMINAL BLOCK #10-32 SCREWS
13 1/8" DIA MAX
30 1/2" MAX
18 3/8" ± 3/8"
25 13/16" ± 5/16"
16 3/4" ± 1/2"
2 5/8" ± 1/4"
5 1/4" ± 1/4"
3" MAX
1 1/2" MIN
1" MAX
3/16" ± 1/32"
1/2" ± 1/16"
1 3/8" MAX
REVISIONS
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