



LIGHTHOUSE TRIODE

DESCRIPTION

The GL-2C39 is a triode designed for use as a low-power transmitting tube. It may be used at maximum ratings at frequencies as high as 500 megacycles. This tube is similar in structure to the lighthouse tubes but is designed for use in applications which require a higher-power tube.

TECHNICAL INFORMATION

These data are for reference only. For design information refer to specifications.

GENERAL CHARACTERISTICS

Number of electrodes 3

Electrical

Cathode—indirectly heated

Heater voltage 6.3 volts

Heater current 1.1 amperes

Average Characteristics

Amplification factor 100

Grid-plate transconductance, $I_b = 80$ milliamperes 17,000 micromhos

Direct Interelectrode Capacitances

Grid-plate 1.95 micromicrofarads

Grid-cathode 6.50 micromicrofarads

Plate-cathode, maximum 0.035 micromicrofarad

Frequency for maximum ratings 500 megacycles



GENERAL  ELECTRIC

TECHNICAL INFORMATION (CONT'D)

Mechanical

Type of cooling.....	forced-air
Maximum seal temperature.....	175 centigrade
Base description.....	see outline
Mounting position.....	any
Net weight, approximate.....	3 ounces
Shipping weight, approximate.....	3 pounds

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

CW OSCILLATOR

	Typical Operation	Maximum Ratings
Grid Separation Circuit		
D-c plate voltage.....	1000	1000 volts
D-c grid voltage*.....	-48	-150 volts
D-c cathode current.....	58	100 milliamperes
D-c plate current.....	50	milliamperes
D-c grid current, approximate.....	8	milliamperes
Plate input.....	50	watts
Plate dissipation†.....	25	watts
Plate power output.....	25	watts
Frequency.....	500	500 megacycles

FREQUENCY MULTIPLIER

	Typical Operation 2 Tubes	Maximum Ratings per Tube
Grid Separation Circuit		
D-c plate voltage.....	600	1000 volts
D-c grid voltage*.....	-80	-150 volts
D-c cathode current.....		100 milliamperes
D-c plate current.....	90	milliamperes
D-c grid current, approximate.....	16	55 milliamperes
Plate input.....	54	watts
Plate dissipation†.....	36	watts
Peak r-f grid input voltage, approximate.....	100	volts
Driving power, approximate.....	20	watts
Plate power output.....	18	watts
Output frequency.....	300	500 megacycles
Driving frequency.....	100	megacycles

CLASS C RADIO-FREQUENCY POWER AMPLIFIER, PLATE MODULATED

Carrier conditions for use with a maximum modulation factor of 1.0

	Typical Operation 2 Tubes	Typical Operation per Tube	Maximum Ratings per Tube
Grid Separation Circuit			
D-c plate voltage.....	600	350	600 volts
D-c grid voltage*.....	-26	-20	-150 volts
D-c cathode current.....			100 milliamperes
D-c plate current.....	110	45	milliamperes
D-c grid current, approximate.....	45	30	55 milliamperes
Plate input.....	66	15.8	watts
Plate dissipation†.....	16	4.8	watts
Peak r-f grid input voltage, approximate.....	55	50.0	volts
Driving power.....	12	4.0	watts
Plate power output.....	40	10.0	watts
Frequency.....	390	350	500 megacycles

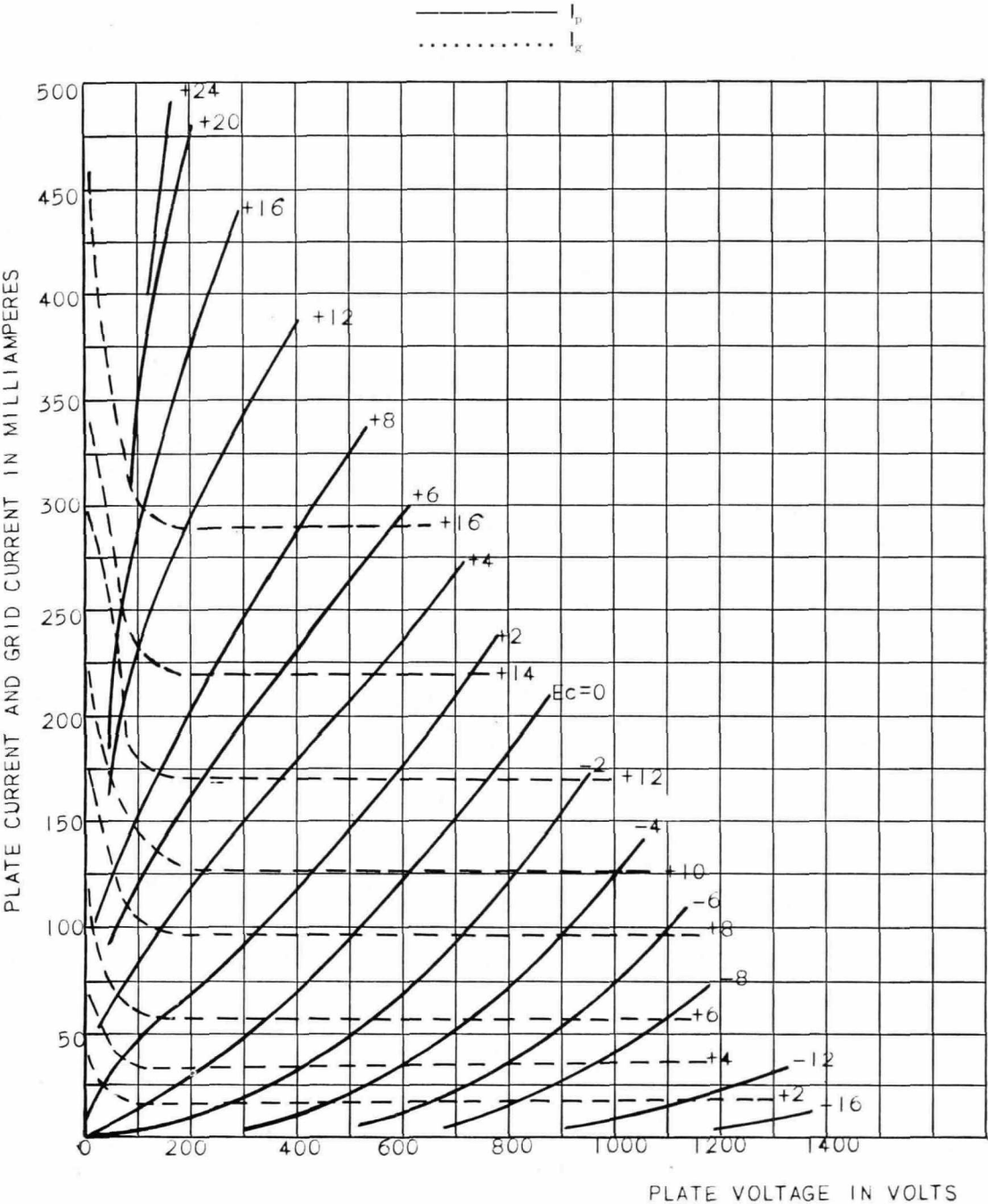
* Recommended minimum grid-leak resistance is 500 ohms.

† Up to 100 watts plate dissipation allowable with forced-air cooling sufficient to limit seal temperature to 175 C. Recommended air flow is 12.5 cubic feet per minute with cowling per drawing K-5108977.

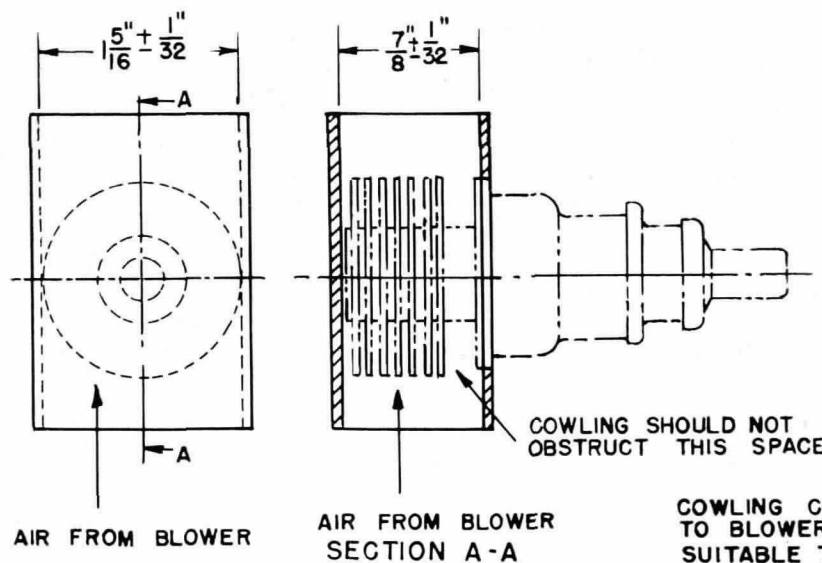
————— CONSTANT I_p
 CONSTANT I_g



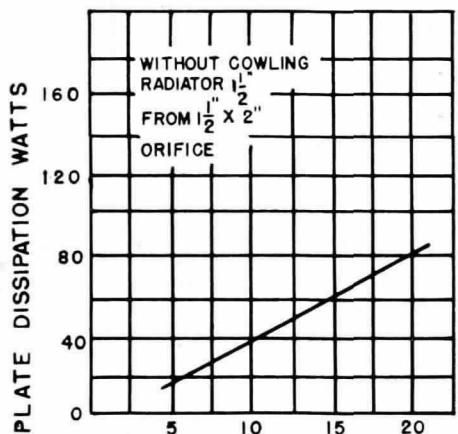
GL-2C39
AVERAGE CHARACTERISTICS
($E_i = 6.3$ VOLTS)



RECOMMENDED METHODS OF COOLING THE GL-2C39



AIR FLOW
VS.
DISSIPATION
GL-2C39

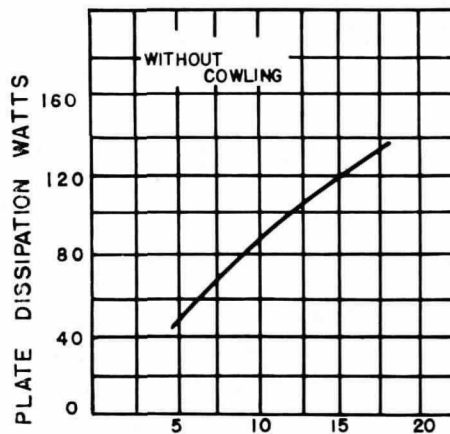


AIR FLOW - CUBIC FT. MIN.
TEMPERATURE RISE

70°C

MAXIMUM SEAL TEMPERATURE
140°C

AIR FLOW
VS.
DISSIPATION
GL-2C39

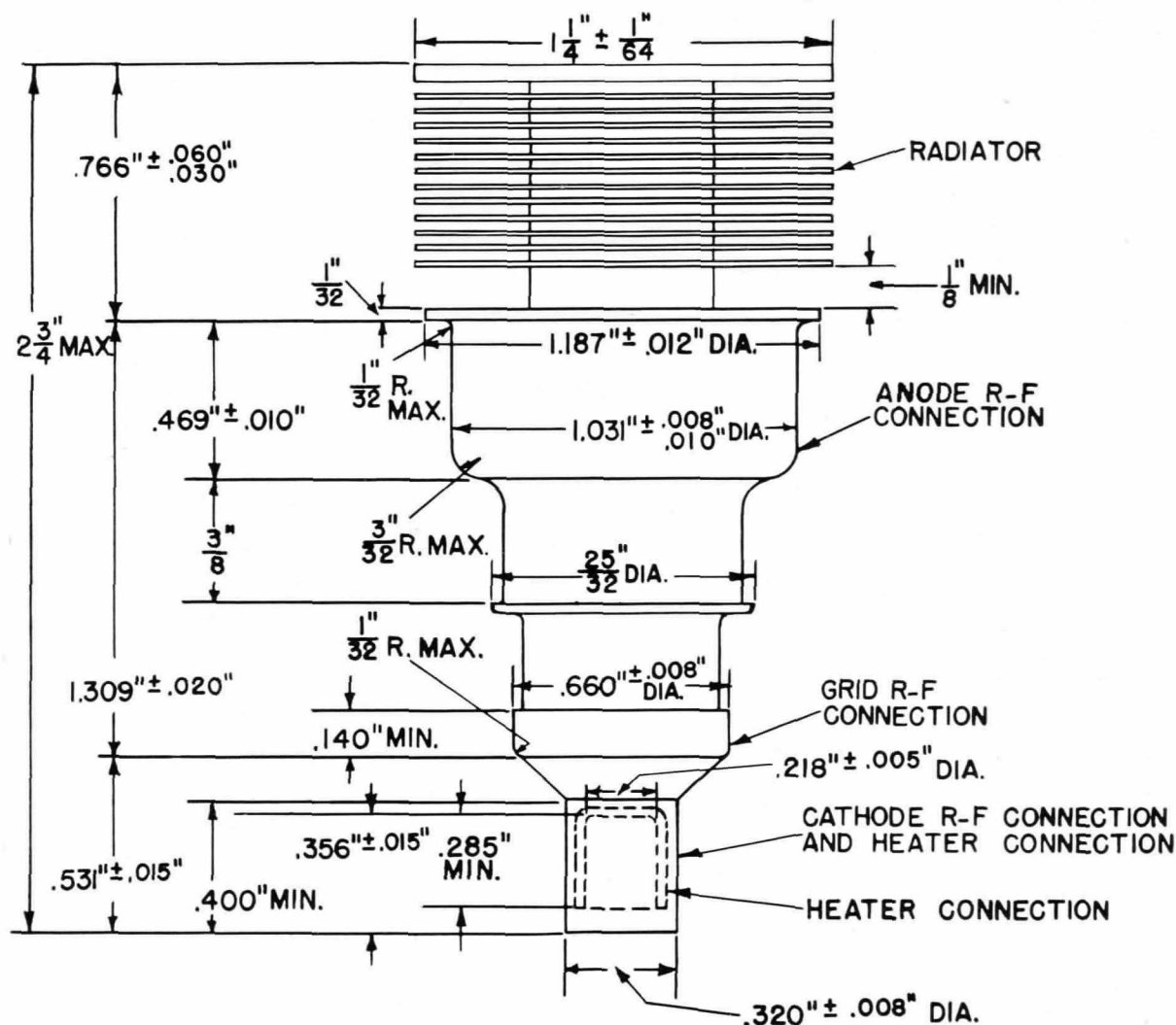


AIR FLOW - CUBIC FT. MIN.
TEMPERATURE RISE

70°C

MAXIMUM SEAL TEMPERATURE
175°C

MAXIMUM AMBIENT
TEMPERATURE 70°C



- NOTE 1. EXTERNAL METAL PARTS (EXCEPT RADIATOR) PLATED WITH 100 MSI SILVER.
 2. SOLDER NOT TO EXTEND RADially BEYOND GRID R-F CONNECTION.
 3. THE CATHODE R-F CONNECTION, GRID R-F CONNECTION & ANODE CONNECTION CONCENTRIC WITH RESPECT TO EACH OTHER WITHIN 0.020".
 4. THE HEATER CONNECTION CONCENTRIC WITH RESPECT TO THE CATHODE R-F CONNECTION WITHIN 0.012".
 5. MINIMUM CLEARANCE BETWEEN CATHODE AND HEATER CONNECTION 0.010".

K-9033513

GL-2C39 OUTLINE

7-1-46

Electronics Department
GENERAL ELECTRIC
 Schenectady, N. Y.