NATIONAL

F241
Hydrogen Thyratron

ELECTRICAL DATA, GENERAL

RATINGS

DESCRIPTION		MAX.	UNITS
Maximum peak anode voltage, forward, epy	(Note 1)	50	Kilovolts
Maximum peak anode current, ib		7,500	Amperes
Maximum average anode current, Ib		7.0	Amperes DC
Maximum RMS anode current, Ip	(Note 2)	215	Amperes RMS
Maximum rate of anode current rise, dib/dt		25,000	Amperes/μSec
Maximum anode delay time, tad	(Note 3)	0.4	Microsecond
Maximum time jitter, tj	(Note 4)	0.010	Microsecond

DESCRIPTION	NOM.	MIN.	MAX.	UNITS
Peak G2 voltage, egy	---	1500	2500	Volts
G2 voltage pulse duration, tp	---	2	---	Microsecond
G2 voltage rise time, tr	---	---	0.35	Microsecond
G2 source impedance, Zg	---	---	25	Ohms
Negative G2 bias, Ecc	---	---	Ø	Volts DC
G1 DC priming current	350	---	---	mA DC
G1 DC priming voltage	250	---	---	Volts DC
Heater voltage, Ef	6.3	6.0	6.6	Volts
Heater current, If	---	---	75	Amperes
Reservoir voltage, Eres (Note 5)	---	3.0	5.5	Volts
Reservoir current, Ires	---	---	25	Amperes
Warm-up time, tk		15	---	Minutes
Cooling (Note 6)				

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NOTE 1: During the first 25 microseconds after conduction, the peak reverse anode voltage should not exceed 10 kV for maximum life.

NOTE 2: The RMS anode current shall be computed as the square root of the product of peak current and the average current, $\sqrt{ib \times Ib}$.

NOTE 3: The limits of anode delay time and anode time jitter are based on the minimum G2 voltage. Using the highest permissible G2 voltage and lowest source impedance reduces these values below the limits specified.

The anode delay time is measured between the 25 percent point on the rising portion of the unloaded G2 voltage pulse, and the point at which anode conduction first evidences itself on the loaded G2 pulse.

NOTE 4: Time jitter is measured at the 50% point on the rising edge of the anode current pulse.

NOTE 5: The nominal reservoir voltage is the correct voltage for one typical operating condition, but is not the optimum value for all types of operation. This value may be used initially in new applications and the optimum value may then be obtained by exploring the range of voltage on either side of that marked on the tube. Excess reservoir voltage will result in a failure of the thyratron to deionize between pulses (continuous conduction). Insufficient reservoir voltage will result in excess anode dissipation indicated by destructive heating of the anode and excessive jitter on the leading edge of the anode current pulse.

NOTE 6: The thyratron should be forced air cooled from the bottom with 400 - 600 CFM at 55°C maximum. Dielectric oil immersion may also be utilized.

NOTE 7: 40MΩ should be connected between the anode and mounting flange. The center tap of this resistance should be connected to the gradient grid (G3). This will distribute the anode voltage across the 2 high voltage gaps.

OUTLINE DRAWING

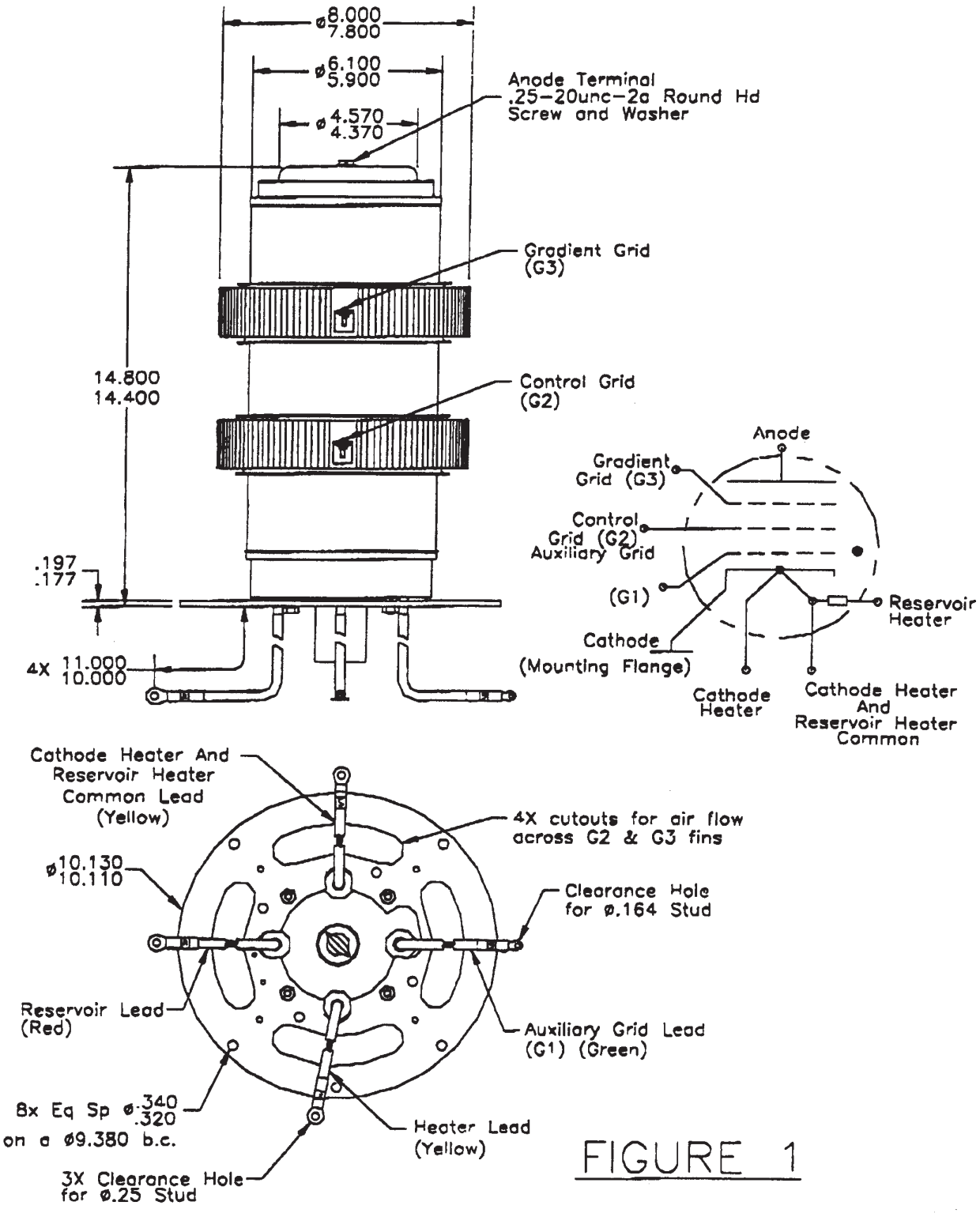

FIGURE 1