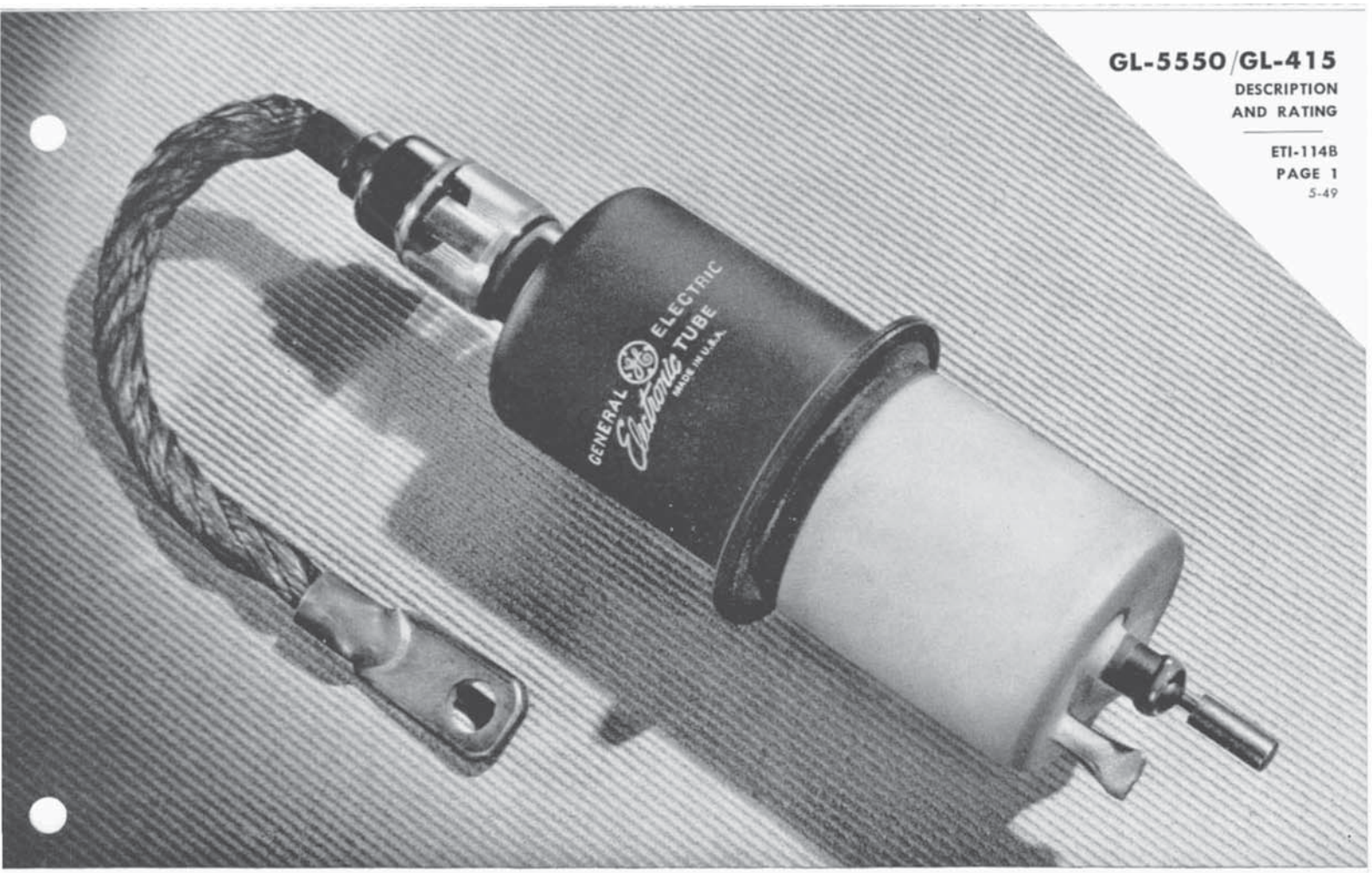


IGNITRON

SPECIAL DESIGN FEATURES

1. Steel, seam-welded construction
2. Uniform water cooling
3. Compact and strong design
4. Easy to install
5. Copper terminals
6. Flexible anode lead
7. Mercury-pool cathode allows extremely high instantaneous currents to be passed through the tube without damage.

DESCRIPTION

The GL-5550/GL-415 ignitron is a sealed, clamp-cooled, mercury-pool tube designed primarily for Resistance Welding Control. In this service, two tubes in the inverse-parallel connection will control 300 kilovolt-amperes at voltages of 250 to 600 volts and over the frequency range of 25-60 cycles. The tubes are also used in electrostatic energy storage types of resistance welding equipment to control the capacitor discharge.

GENERAL ELECTRIC

Electronic TUBE

Supersedes ETI-114 dated 4-45

♦ TECHNICAL INFORMATION

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

GENERAL

Electrical Data

Cathode excitation—Cyclic		
Cathode spot starting—Ignitor		
Number of electrodes		
Main anodes	1	
Main cathodes	1	
Ignitors	1	
Arc drop at 1697 peak amperes	30	volts
Arc drop at 70.4 peak amperes	12	volts
Cathode excitation requirements		
Ignitor voltage required to fire	200	volts
Ignitor current required to fire (See curve for details)	30	amperes
Starting time at required voltage or current	100	microseconds

Mechanical Data

Envelope material—Metal		
Over-all length	17 5/8	inches
Over-all width	2 3/4	inches
Net weight	1.5	pounds
Type of cooling—Removable clamp		
Clamp contact width	1 7/8 ± 1/8	inches
Clamp contact area	9.4	square inches

MAXIMUM RATINGS

As A-c Control Tube

Two tubes in inverse parallel

Voltage range	250 to	600	RMS volts
Maximum clamp temperature	75	50	C
Minimum clamp temperature	10	10	C
Maximum demand	150	300	kilovolt-amperes
Average current at maximum demand	4.86	12.1	amperes
Maximum average current	9.0	22.4	amperes
Demand at maximum average current	50.0	100	kilovolt-amperes
Maximum averaging time at 250 volts RMS	27.8	22	seconds
Maximum averaging time at 600 volts RMS	11.6	9.2	seconds
Maximum surge current at 250 volts RMS	1680	3360	peak amperes
Maximum surge current at 600 volts RMS	700	1400	peak amperes

Note 1—RMS demand voltage, current and kva are all on the basis of full-cycle conduction (no phase delay) regardless of whether or not phase control is used.

Note 2—For voltages below the minimum, the minimum-voltage current rating applies.

Note 3—With the use of log-log paper straight line interpolation between tabulated points may be used for other detailed ratings of:

1. Demand kva vs. average anode current.
2. Maximum averaging time vs. anode voltage and temperature.
3. Demand kva and average anode current vs. temperature.

As Capacitor Discharge Tube

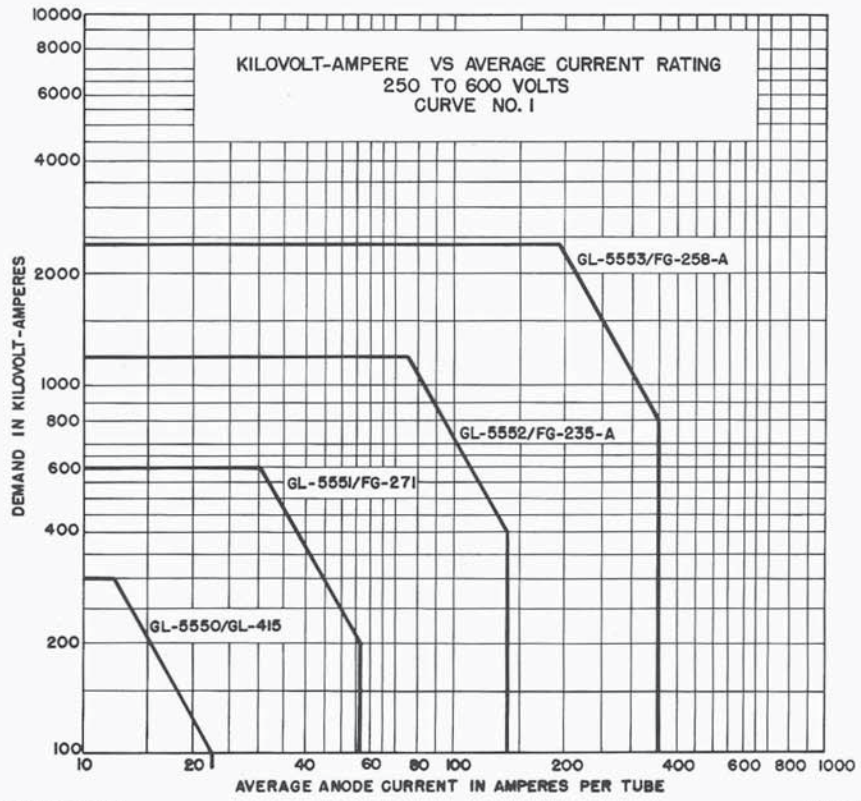
Maximum number of discharges per second	60		60		
Maximum peak forward anode voltage	3000		6000		volts
Maximum peak inverse anode voltage	3000		3000		volts
Maximum peak anode current	500		500		amperes
Maximum temperature of cooling clamp	70	40	60	40	C
Corresponding maximum average anode current	3	15	2.5	8	amperes
Maximum time of averaging anode current	3.3	0.66	4.0	1.25	seconds

Note 1—With the use of log-log paper straight line interpolation between tabulated points may be used for other detailed ratings of average anode current and maximum averaging time vs. temperature.

Ignitor

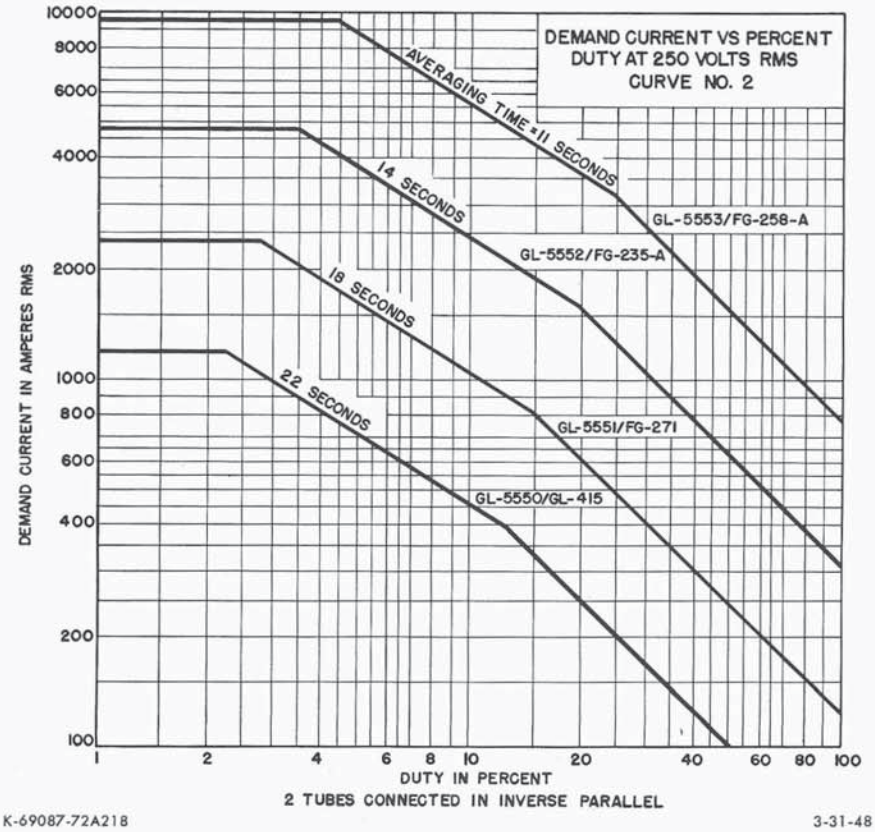
Maximum voltage		
Positive	900	volts
Negative	5	volts
Maximum current		
Peak	100	amperes
Root mean square	10	amperes
Average	1	ampere
Maximum averaging time	5	seconds

♦ Technical Information completely revised.



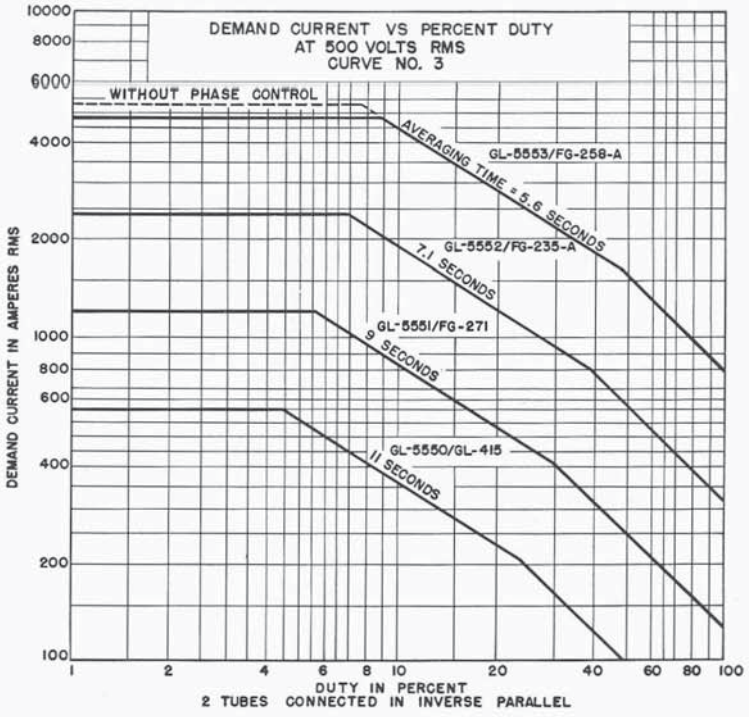
K-69087-72A217

3-31-48



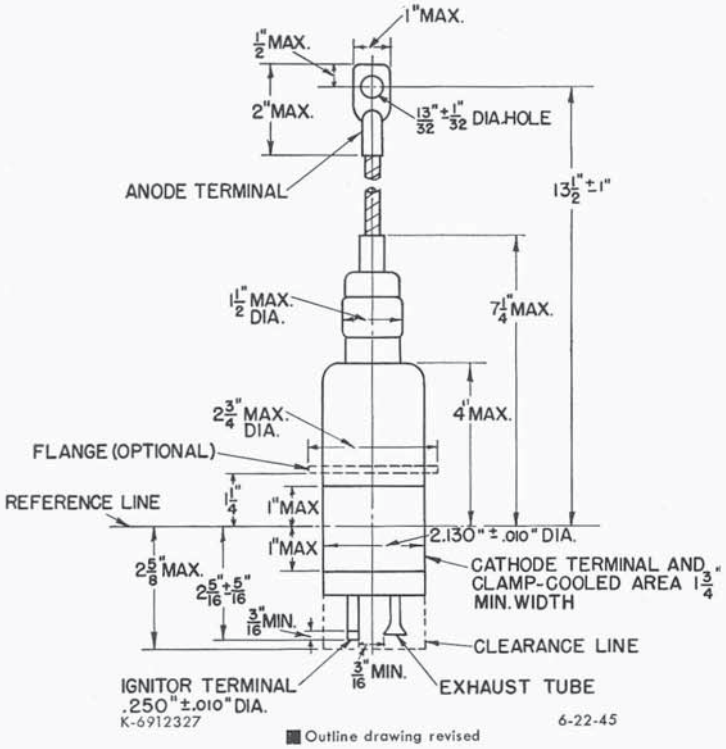
K-69087-72A218

3-31-48



K-69087-72A219 8-25-44

■ OUTLINE GL-5550/GL-415 IGNITRON



K-6912327 6-22-45

■ Outline drawing revised

Electronics Department

GENERAL ELECTRIC

Schenectady, N. Y.