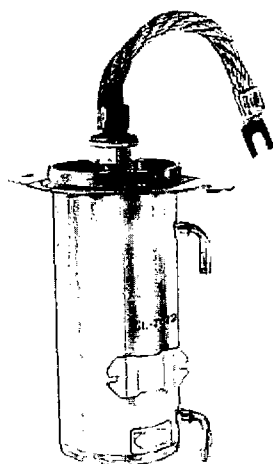


**IGNITRON  
Coaxial****FREQUENCY-CHANGER WELDER SERVICE—1500 AMPERES PEAK****ADAPTED TO WATER-FLOW  
CONTROL****ADAPTED TO TEMPERATURE  
CONTROL**

The GL-7672 is a sealed, stainless-steel-jacketed, water-cooled ignitron for use in frequency-changer welder service. In such use two tubes in inverse-parallel connection will control 1500 amperes peak at voltages up to 1200 volts peak at a frequency of 60 cycles. The tube is also useful in other high-peak-current applications such as capacitor-discharge circuits.

The 7672 features a new coaxial construction in which current flows through

the tube from anode to cathode, then up the tube wall to a coaxial cathode terminal at the top. This coaxial current flow provides a magnetic shield to eliminate the arc deflection which the high peak currents of this tube might cause in standard design ignitrons.

A slotted mounting plate permits convenient mounting of a thermostat to provide control of the water flow or over-temperature protection.

**Electrical**

|                               |          |
|-------------------------------|----------|
| Cathode Excitation—Cyclic     |          |
| Cathode Spot Starting—Ignitor |          |
| Number of Electrodes          |          |
| Main Anodes                   | 1        |
| Main Cathodes                 | 1        |
| Ignitors                      | 1        |
| Arc Drop at 1500 Amperes Peak | 25 Volts |

**Mechanical**

|                                   |             |
|-----------------------------------|-------------|
| Envelope Material—Stainless Steel |             |
| Net Weight                        | 8.25 Pounds |

**Thermal**

|                                                         |                          |
|---------------------------------------------------------|--------------------------|
| Type of Cooling—Water                                   |                          |
| Inlet Water Temperature, minimum                        | 10 C                     |
| Inlet Water Temperature, maximum                        | 30 C                     |
| Outlet Water Temperature, maximum                       | 35 C                     |
| Water Flow, minimum, solenoid water-valve open          |                          |
| At Continuous Rated Average                             |                          |
| Current                                                 | 1.5 Gallons per Minute   |
| At No Load                                              | 0.5 Gallons per Minute   |
| Characteristics for Water Cooling at Rated Minimum Flow |                          |
| Water Temperature Rise, maximum                         | 6 C                      |
| Pressure Drop at 1.5 Gallons per Minute                 | 5 Pounds per Square Inch |

**MAXIMUM RATINGS—FREQUENCY-CHANGER WELDER SERVICE**

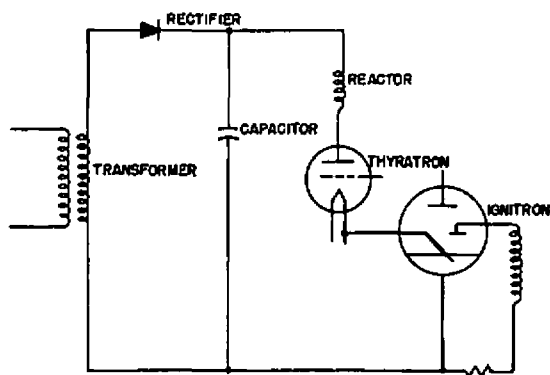
Ratings are for zero-phase-control angle (See curve K69087-72A316 on Page 3 for details).

|                        |      |              |                           |       |                         |
|------------------------|------|--------------|---------------------------|-------|-------------------------|
| Peak Anode Voltage     |      |              | Ratio of Average to Peak  |       |                         |
| Forward                | 1200 | 1500 Volts   | Current                   | 0.166 | 0.166                   |
| Inverse                | 1200 | 1500 Volts   | Maximum Averaging Time    | 0.2   | 0.2 Seconds             |
| Peak Anode Current*    | 1500 | 1200 Amperes | Ratio of Fault to Maximum |       |                         |
| Corresponding Average  | 20   | 16 Amperes   | Peak Current              | 12.5  | 12.5                    |
| Average Anode Current  | 70   | 56 Amperes   | Maximum Duration of Fault |       |                         |
| Corresponding Peak     | 420  | 336 Amperes  | Current                   | 0.15  | 0.15 Seconds            |
| Maximum Averaging Time | 6.25 | 6.25 Seconds | Frequency Range           | 50-60 | 50-60 Cycles per Second |

**Cathode Excitation Requirements**

|                                              |                  |                        |             |
|----------------------------------------------|------------------|------------------------|-------------|
| Ignitor Voltage Required to Fire             | 200 Volts        | Ignitor                |             |
| Ignitor Current Required to Fire             | 30 Amperes       | Maximum Voltage        |             |
| Starting time at Required Voltage or Current | 100 Microseconds | Positive—Anode Voltage |             |
|                                              |                  | Negative               | 5 Volts     |
|                                              |                  | Maximum Current        |             |
|                                              |                  | Peak                   | 100 Amperes |
|                                              |                  | Root Mean Square       | 10 Amperes  |
|                                              |                  | Average                | 1 Ampere    |
|                                              |                  | Maximum Averaging Time | 5 Seconds   |

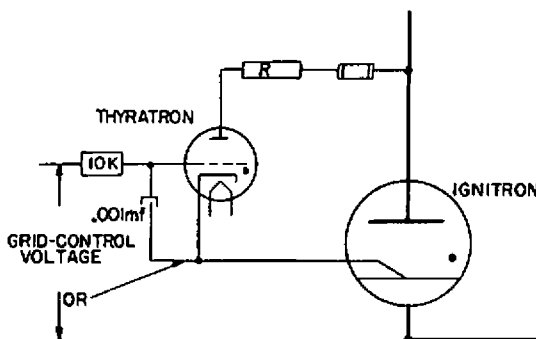
\* Straight line interpolation on log-log paper is allowed between corresponding points.



ELEMENTARY CIRCUIT FOR CAPACITOR FIRING

K-9033525

5-54

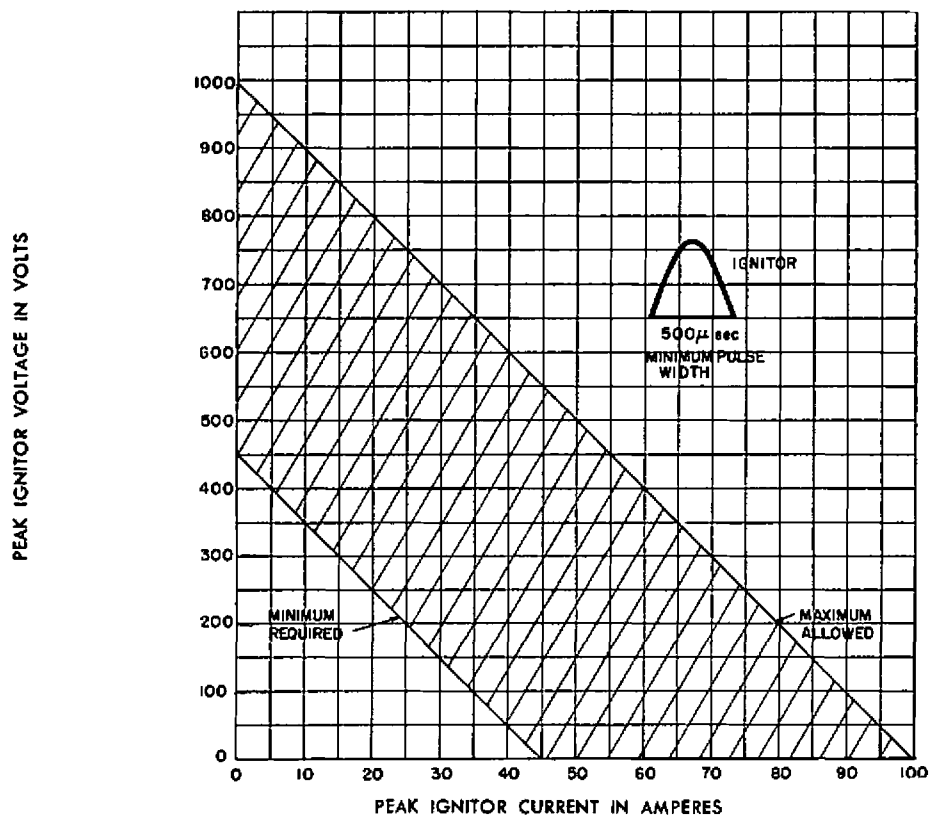


SELF OR ANODE EXCITATION IN WHICH A PART OF THE LOAD CURRENT IS DIVERTED THROUGH THE IGNITOR

K-9033542

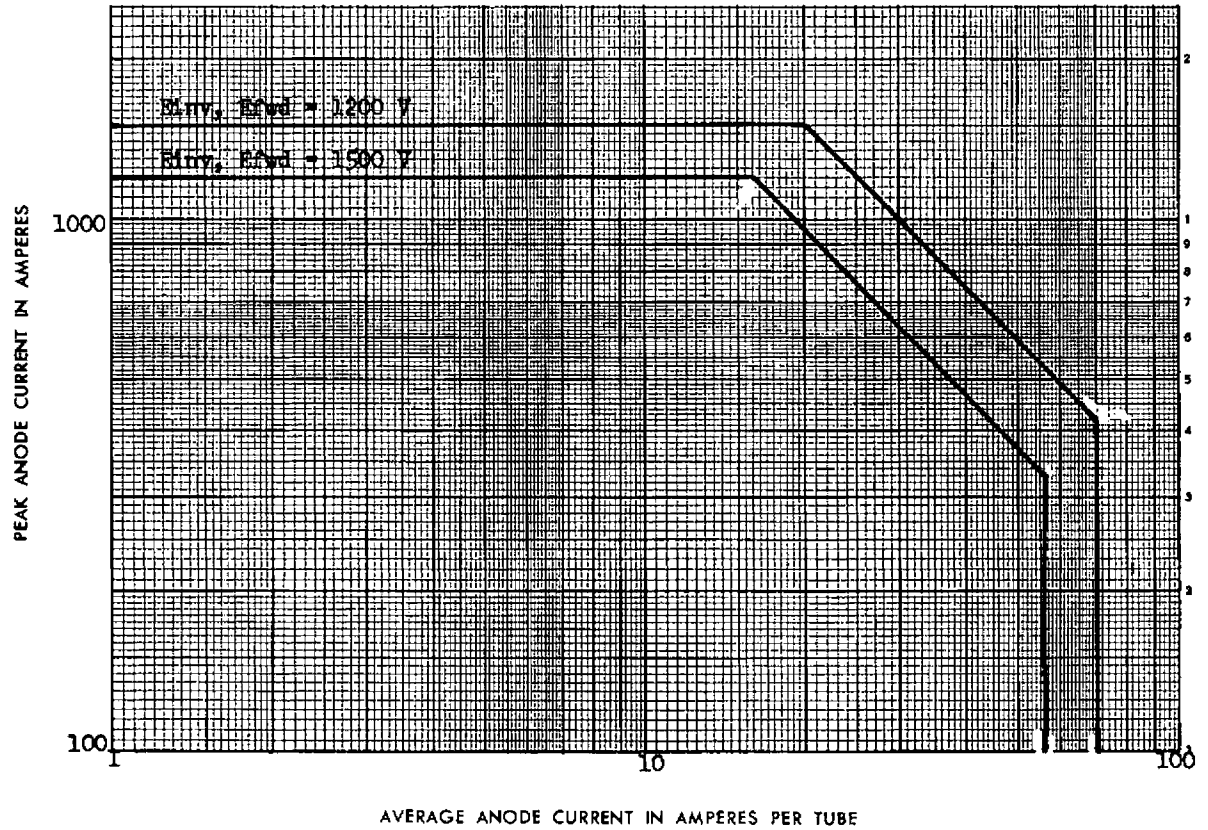
9-60

# IGNITOR VOLT-AMPERE REQUIREMENTS FOR SEPARATE EXCITATION SEALED-IGNITRON RECTIFIERS



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

FREQUENCY-CHANGER RESISTANCE-WELDING SERVICE



K-69087-72A316

9-56

MAXIMUM AVERAGING TIME=6.25 SECONDS

$$\frac{\text{AVERAGE CURRENT}}{\text{PEAK CURRENT}} \text{ MAXIMUM AVERAGING TIME } 0.2 \text{ SECOND} = 0.166 \text{ MAXIMUM}$$

$$\frac{\text{SURGE CURRENT}}{\text{PEAK CURRENT}} \text{ MAXIMUM DURATION OF FAULT CURRENT } 0.15 \text{ SECOND} = 12.5 \text{ MAXIMUM}$$

Control thermostats, with mounting brackets, are available through regular tube supply channels under the following catalog numbers:

AC Control Service

Flying-Lead Type

Water-Control Thermostat—N15272AA

Over-Temperature Thermostat—N15273AA

Terminal-Block Type

Water-Control Thermostat—N15286AA

Over-Temperature Thermostat—N15287AA

See Ignitron Accessories publication in front of Ignitron section for details.

