The 7136 is a single anode, high-voltage, mercury vapor rectifier having plate current ratings intermediate between the standard types 575A and 6693. It has a cathode and anode design similar to the 6693 and is based for the 575A socket. It is recommended for use as a replacement for the 575A in existing equipment when greater reliability is desired. For new equipment design, the use of the Amperex 6693 is preferred.

## GENERAL CHARACTERISTICS

### ELECTRICAL

- **Cathode**: Directly heated, oxide coated
- **Filament Voltage**: 5 volts
- **Filament Current**: 11.5 amps
- **Heating Time (minimum)**: 60 sec.
- **Tube Voltage Drop**: 12 volts
- **Equilibrium condensed mercury temperature rise over ambient (see curve)**
  - No Load: 19°C
  - Full Load: 21°C

### MECHANICAL

- **Mounting Position**: Vertical, base down
- **Max. Overall Length**: 11 9/16 inches
- **Max. Diameter**: 2 27/32 inches
- **Plate Cap**: Medium
- **Base**: Jumbo, 4 pin with bayonet
- **Socket**: Johnson 123-211-100 or equal

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1. For optimum performance, a phase shift of 90° ± 30° between the anode and filament voltages and use of a center tapped filament transformer are recommended.

2. For average conditions, e.g., temperatures within limits and proper distribution of mercury. To insure proper distribution of mercury, upon installation and after a long interruption of service, a longer heating time is required before anode voltage is applied. In general, a time of 30 minutes will be sufficient.

3. Measured at an average anode current of 3 amps.

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### MAXIMUM RATINGS

- **Peak Inverse Anode Voltage**: 15 max. KV
- **Average Anode Current**: 2.5 max. amps
- **Peak Anode Current**: 12 max. amps
- **Surge Anode Current for max. of 0.1 second**: 120 max. amps

### Relation Between Condensed Mercury Temperature, Ambient Temperature and Peak Inverse Voltage (see curve)

- **Peak Inverse Anode Voltage**: 15KV
- **Condensed Mercury Temp.**: 25-35°C
- **Ambient Temp.**: 15-35°C

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### MAXIMUM OPERATING CONDITIONS

**PEAK INVERSE ANODE VOLTAGE = 15 KV**

(Transformer regulation and tube voltage drop are not included)

<table>
<thead>
<tr>
<th>Circuit Diagram</th>
<th>Type of Circuit</th>
<th>Max transformer sec. rms voltage (Vr) KV</th>
<th>DC output voltage to filter (V0) KV</th>
<th>Max DC output current to filter (Io) Amps</th>
<th>Max DC output to filter (Io) KW</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Single-phase full-wave, 2 tubes</td>
<td>5.3</td>
<td>4.8</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>b.</td>
<td>Single-phase full-wave, 4 tubes</td>
<td>10.6</td>
<td>9.6</td>
<td>5</td>
<td>48</td>
</tr>
<tr>
<td>c.</td>
<td>Three-phase half-wave, 3 tubes</td>
<td>6.1</td>
<td>7.2</td>
<td>7.5</td>
<td>54</td>
</tr>
<tr>
<td>d.</td>
<td>Three-phase, double Y, 6 tubes parallel with balance coil</td>
<td>5.3</td>
<td>6.2</td>
<td>15</td>
<td>93</td>
</tr>
<tr>
<td>e.</td>
<td>Three-phase full-wave, 6 tubes</td>
<td>10.6</td>
<td>14.4</td>
<td>7.5</td>
<td>108</td>
</tr>
</tbody>
</table>

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4. For supply frequency up to 150 cycles per second.
5. Averaged over 10-sec. interval.
6. If the equipment is started at most twice daily it is permissible to apply high voltage at a condensed mercury temperature of 20°C.
7. With natural cooling, approx. values.
### TYPICAL OPERATING CONDITIONS

**PEAK INVERSE VOLTAGE = MAX. 15 KV**

<table>
<thead>
<tr>
<th>Circuit Diagram</th>
<th>Type of Circuit</th>
<th>No load transformer sec. rms voltage (Vtr) KV</th>
<th>DC output voltage to load (Vo) KV</th>
<th>DC output current (Io) Amps</th>
<th>DC output to load (Wo) KW</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Single-phase full-wave, 2 tubes</td>
<td>4.80</td>
<td>4.0</td>
<td>5</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>b. Single-phase full-wave, 4 tubes</td>
<td>9.60</td>
<td>8.0</td>
<td>5</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>c. Three-phase, half-wave, 3 tubes</td>
<td>5.55</td>
<td>6.0</td>
<td>7.5</td>
<td>.45</td>
<td></td>
</tr>
<tr>
<td>d. Three-phase, double Y, 6 tubes</td>
<td>4.80</td>
<td>5.15</td>
<td>15</td>
<td>77.25</td>
<td></td>
</tr>
<tr>
<td>e. Three-phase full-wave, 6 tubes</td>
<td>9.60</td>
<td>12.0</td>
<td>7.5</td>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>

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8 This value corresponds to a nominal peak inverse anode voltage of 13.6 KV, allowing a line fluctuation of ± 10%.

9 Tube voltage drop and losses in transformer, filter, ammeter, etc. amounting to 8% of Vo have already been deducted.
### Table

<table>
<thead>
<tr>
<th>Voltage (V)</th>
<th>Current (mA)</th>
<th>Temperature (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>150</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td>200</td>
<td>100</td>
<td>40</td>
</tr>
<tr>
<td>250</td>
<td>125</td>
<td>50</td>
</tr>
<tr>
<td>300</td>
<td>150</td>
<td>60</td>
</tr>
</tbody>
</table>

### Diagram

[Diagram showing电路图 and 电路原理图]

### Graphs

1. **Degrees Centigrade**
   - X-axis: Peak Inverse Anode Voltage (Volts)
   - Y-axis: Condensed Mercury Temperature Rise (°C)

2. **Condensed Mercury Temperature Rise**
   - X-axis: Heating Time (Minutes)
   - Y-axis: Average Ambient Temperature (°C)

### Notes

- **Trimmer:** Potentiometer
- **Input Voltage:** 240 V
- **Output Voltage:** 115 V
- **Thermal Rating:** 100 W
- **Current Rating:** 15 A
- **Operating Temperature:** -40°C to 70°C

**Figure 1**: Rectifier Circuit

**Figure 2**: Condensed Mercury Temperature Rise

**Figure 3**: Peak Inverse Anode Voltage

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**Revision Information:**

- **Date:** Revised 2/36
- **Page Number:** 477-V
- **Document Reference:** 736-7136

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**Technical Details:**

- **Electrical Specifications:**
  - Input Power: 240V, 115V
  - Current: 15A
  - Temperature Range: -40°C to 70°C

- **Circuit Diagrams:**
  - Rectifier Circuit
  - Condensed Mercury Temperature Rise
  - Peak Inverse Anode Voltage

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**Instruction:**

- Please refer to the diagrams and graphs for detailed specifications and operating conditions.