RAULAND

TYPE 12AFP-*, 12AFP-A CATHODE-RAY TUBES

The type 12AFP- is a 12" magnetic focus and magnetic deflection round metal envelope cathode ray tube, suitable for radar application.

It features an almost completely flat-face, which minimizes parallax error, a straight magnetic gun (no Ion Trap needed) and a gray filter glass (luxide) face to increase contrast. It has a long persistence screen.

The type 12AFP-A tube utilizes a metal backed (aluminized) screen for greater light output and to minimize screen charging effects. It is otherwise identical to the 12AFP-.*

TENTATIVE CHARACTERISTICS

GENERAL

Electrical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater voltage</td>
<td>6.3 Volts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater current</td>
<td>0.6 ± 10%</td>
<td>Amperes</td>
<td></td>
</tr>
<tr>
<td>Heater warm-up time (approx.)</td>
<td>11 Seconds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focusing method</td>
<td>Magnetic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deflecting method</td>
<td>Magnetic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deflecting angle (approx.)</td>
<td>54 Degrees</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Phosphor

- No. 7
- No. 14
- No. 19
- Blue
- Blue
- Orange
- Yellow
- Orange
- Orange
- Long
- Mid-long
- Long

Face Plate - Gray Filter Glass

Light Transmission (Approx.) 66%

Direct Inter-electrode Capacitances, Approx.

- Cathode to all other electrodes 5 uuf.
- Grid #1 to all other electrodes 6 uuf.

Mechanical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall length</td>
<td>17 7/8 ± 7/16</td>
<td>Inches</td>
<td></td>
</tr>
<tr>
<td>Greatest diameter of envelope</td>
<td>12 7/16 ± 1/8</td>
<td>Inches</td>
<td></td>
</tr>
<tr>
<td>Minimum useful screen diameter</td>
<td>11 3/8 Dia.</td>
<td>Inches</td>
<td></td>
</tr>
<tr>
<td>Face Radius</td>
<td>125 Inches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anode contact</td>
<td>Metal cone lip</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base (small shell Duodecal 5-pin)</td>
<td>B5-57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basing connections</td>
<td>12D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

from JETEC release #1472, May 31, 1955
MAXIMUM RATINGS
Design Center Values

Accelerator voltage$^1$ 14,000 Max. Volts D-C
Grid #2 voltage 7000 Max. Volts D-C
Grid #1 voltage (control electrode)
  Negative bias value -125 Max. Volts D-C
  Positive bias value 0 Max. Volts D-C
  Positive peak value 72 Max. Volts

Peak Heater-Cathode Voltage$^2$
  Heater negative with respect to cathode 180 Max. Volts D-C
  Heater positive with respect to cathode 180 Max. Volts D-C
  during warm-up period, not to exceed 15 sec. 140 Max. Volts D-C

Typical Operating Conditions

Accelerator voltage$^3$ 12,000 Volts D-C
Grid #2 voltage 700 Volts
Grid #1 voltage$^4$ 73 to 77 Volts
Spot Position (Undelected)$^5$ 20 in.
Field strength of adjustable centering magnet 0 to 8 Gausses
Focusing coil current (approx.)$^6$ 110 M.A. ± 20%

Maximum Circuit Values

Grid #1 circuit resistance 1.5 Max. Megohms

Note 1: At or near this rating, the effective resistance of the accelerator supply should be adequate to limit the accelerator input power to six watts. The screen of the 12AFP- can be permanently damaged should the current density be permitted to rise too high. To prevent burning, minimum beam current densities should be employed.

Note 2: Cathode should be returned to one side or to the mid-tap of the heater transformer windings.

Note 3: Brilliance and definition decrease with decreasing accelerator voltage. In general, accelerator voltage should not be less than 8000 volts.

Note 4: Visual extinction of undeflected focused spot.

Note 5: The center of the undeflected, focused spot will fall within a circle of 20 in. radius concentric with the center of the tube face.

Note 6: For standard focusing coil RT:A No. 106 or equivalent with a grid No. 1 bias to produce a 7-3/4" x 10-1/2" raster area. The coil to reference line (distance D) shall be 3-1/4 inches.

The Rauland Corporation
Chicago, Illinois
NOTE 1

Reference line determined by position where reference line gauge JETEC #112 will rest on glass funnel.

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