MAGNETIC FOCUS
EXCELLENT RESOLUTION CAPABILITY
For Outdoor and Studio Pickup with High-Quality
Black-and-White TV Cameras. The 7295-A is
Unilaterally Interchangeable with Type 7295.

DATA

General:
Heater, for Unipotential Cathode:
  Voltage (AC or DC) .................. 6.3 ± 10% volts
  Current at 6.3 volts .................. 0.6 amp
Direct interelectrode Capacitance:
  Anode to all other electrodes .......... 12 μf
Spectral Response ...................... S-10
Wavelength of Maximum Response ....... 4500 ± 300 angstroms
Photocathode, Semitransparent:
  Rectangular image (4 x 3 aspect ratio):
    Useful size of ..................... 1.6" max. diagonal
  Note: The size of the optical image focused on the
    photocathode should be adjusted so that its maximum
    diagonal does not exceed the specified value. The
    corresponding electron image on the target should
    have a size such that the corners of the rectangle
    just touch the target ring.
  Orientation of ...................... Proper orientation is obtained when the
    vertical scan is essentially parallel to the plane
    passing through center of the faceplate and the grid-
    No. 6 envelope terminal. The horizontal and vertical
    scan should start at the corner of the picture between
    the grid-No. 6 and the photocathode envelope terminals.
Target-to-Mesh Spacing .................. 0.002 in.
Focusing Method ...................... Magnetic
Deflection Method ...................... Magnetic
Overall Length ...................... 19.375" ± 0.310"
Greatest Diameter of Bulb .............. 4.500" ± 0.094"
Minimum Deflecting-Coil Inside Diameter .... 3.2"
Deflecting-Coil Length ................. 7"
Focusing-Coil Length .................. 15"
Alignment-Coil:
  Position on neck .................. Centerline of magnetic field should be
    located 9.25" from the flat area of the
    shoulder.
Operating Position .................. See Operating Considerations
Weight (Approx.) ...................... 2.3 lbs
Envelope Terminals .................. 5

BOTTOM VIEW
  Terminal Over Pin 2 — Field Mesh
  Terminal Over Pin 4 — Photocathode (PC)
  Terminal On Side of Envelope
  Opposite Base Key — Grid No. 6 (G6)

See basing diagram on next page.
Terminal Over Pin 9 - Grid No.5 (G₅)
Terminal Over Pin 11 - Target

End Base. Small-Shell Diheptal 14-Pin
(JEDEC Group 5, No.B14-45)

BOTTOM VIEW

Pin 1 - Heater
Pin 2 - Grid No.4
Pin 3 - Grid No.3
Pin 4 - Internal Connection - Do Not Use
Pin 5 - Dynode No.2
Pin 6 - Dynode No.4
Pin 7 - Anode
Pin 8 - Dynode No.5
Pin 9 - Dynode No.3
Pin 10 - Dynode No.1, Grid No.2
Pin 11 - Internal Connection - Do Not Use
Pin 12 - Grid No.1
Pin 13 - Cathode
Pin 14 - Heater

Maximum and Minimum Ratings, Absolute-Maximum Values:

PHOTOCATHODE:
- Voltage: -700 max. volts
- Illumination: 50 max. fc

OPERATING TEMPERATURE:
- Any part of bulb: 65 max. °C
- Of bulb at large end of tube (image section): 35 min. °C

TEMPERATURE DIFFERENCE:
- Between image section and any part of bulb hotter than image section: 5 max. °C

GRID-No.6 VOLTAGE: -700 max. volts

TARGET VOLTAGE:
- Positive value: 10 max. volts
- Negative value: 10 max. volts

FIELD-MESH VOLTAGE*:
- 30 max. volts

GRID-No.5 VOLTAGE:
- 300 max. volts

GRID-No.4 VOLTAGE:
- 350 max. volts

GRID-No.3 VOLTAGE:
- 400 max. volts

GRID-No.2 & DYNODE-No.1 VOLTAGE:
- 350 max. volts

GRID-No.1 VOLTAGE:
- Negative-bias value: 125 max. volts
- Positive-bias value: 0 max. volts

PEAK HEATER-CATHODE VOLTAGE:
- Heater negative with respect to cathode: 125 max. volts
- Heater positive with respect to cathode: 10 max. volts

ANODE SUPPLY VOLTAGE*:
- 1650 max. volts

VOLTAGE PER MULTIPLIER STAGE:
- 350 max. volts
Typical Operating Values:

Photocathode Voltage: .... -600 volts
Grid-No.6 Voltage (Image Focus)
  Approx. 50% of photocathode voltage: -250 to -350 volts
Target Voltage Above Cutoff: 2 to 3 volts
Field-Mesh Voltage: 15 to 25 volts
Grid-No.5 Voltage (Decelerator): 40 volts
Grid-No.4 Voltage (Beam Focus): 70 to 90 volts
Grid-No.3 Voltage: 250 to 275 volts
Grid-No.2 & Dynode-No.1 Voltage: 280 volts
Grid-No.1 Voltage for picture cutoff: -45 to -115 volts
Dynode-No.2 Voltage: 600 volts
Dynode-No.3 Voltage: 800 volts
Dynode-No.4 Voltage: 1000 volts
Dynode-No.5 Voltage: 1200 volts
Anode Voltage: 1250 volts
Target-Temperature Range: 35 to 45 °C
Minimum Peak-to-Peak Blanking Voltage: 5 volts

Field Strength of Focusing Coil:
(Expr.)
  At center of scanning section: 60 gausses
  In plane of photocathode: 120 gausses

Field Strength of Alignment Coil: 0 to 3 gausses

Performance Data:

With conditions shown under Typical Operating Values, target voltage adjusted to 3 volts above cutoff, and with the camera lens adjusted so that the picture highlights are twice those required to reach the "knee" of the accompanying Basic Light-Transfer-Characteristic Curve except as otherwise specified

<table>
<thead>
<tr>
<th>Min.</th>
<th>Average</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cathode Radiant Sensitivity at 4500 angstroms</td>
<td>-0.028</td>
<td>µa/µw</td>
</tr>
<tr>
<td>Anode Current (DC)</td>
<td>-30</td>
<td>µa</td>
</tr>
<tr>
<td>Signal-Output Current (Peak to Peak)</td>
<td>5</td>
<td>30 µa</td>
</tr>
<tr>
<td>Ratio of Peak-to-Peak High-light Video Signal Current to RMS Noise Current for Bandwidth of 4.5 Mc</td>
<td>65:1</td>
<td></td>
</tr>
<tr>
<td>Photocathode Illumination at 2870° K Required to Reach &quot;Knee&quot; of Light Transfer Characteristic</td>
<td>0.04</td>
<td>0.075 fc</td>
</tr>
<tr>
<td>Amplitude Response at 400 TV Lines per Picture Height (Per cent of large-area black to large-area white)</td>
<td>40</td>
<td>56</td>
</tr>
</tbody>
</table>
With respect to grid No. 4.

* Dynode-voltage values are shown under Typical Operating Values.

\# With 7295-A operated in RCA TK-12 camera at fixed photocathode voltage.

* Adjust for optimum focus.

* The target supply voltage should be adjustable from -5 to 5 volts.

\# Adjust to give the most uniformly shaded picture near maximum signal.

* Direction of current should be such that a north-seeking pole is attracted to the image end of the focusing coil, with the indicator located outside of and at the image end of the focusing coil.

\# Measured with amplifier having flat frequency response.

OPERATING CONSIDERATIONS

The operating position of the 7295-A should preferably be such that any loose particles in the neck of the tube will not fall down and strike or become lodged on the target. Therefore, it is recommended that the tube never be operated in a vertical position with the Diheptal-base end up nor in any other position where the axis of the tube with base up makes an angle of less than 20° with the vertical.

SPECTRAL-SENSITIVITY CHARACTERISTIC

of Photosensitive Device having S-10 Response

is shown at the front of this Section
BASIC LIGHT-TRANSFER CHARACTERISTIC

ILLUMINATION: TUNGSTEN LIGHT, DAYLIGHT, OR WHITE FLUORESCENT FOR SMALL-AREA HIGHLIGHTS.

TYPICAL SIGNAL OUTPUT—MICROAMPERES

0.1 2 4 6 8 10

HIGHLIGHT ILLUMINATION ON PHOTOCATHODE—FOOTCANDLES

0.0001 0.001 0.01 0.1 1

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