Anode-Supply Voltage \( d \) \(. . \) \( 1650 \) max. \( \) volts  
Voltage Per Multiplier Stage \(. . \) \( 350 \) max. \( \) volts  

**Typical Operating Values:**

- Photocathode Voltage \(. . \) \(-600 \) volts  
- Grid-No.6 Voltage (Image focus) \( f \) \( \) Approx. \(-370 \) to \(-470 \) volts  
- Target Voltage Above Cutoff \( g \) \( 2.3 \) volts  
- Field-Mesh Voltage \( c \) \( 15 \) to \( 25 \) volts  
- Grid-No.5 Voltage (Decelerator) \( \) \( 40 \) volts  
- Grid-No.4 Voltage (Beam Focus) \( \) \( 70 \) to \( 90 \) volts  
- Grid-No.3 Voltage \( h \) \( 250 \) to \( 275 \) volts  
- Grid-No.2 & Dynode-No.1 Voltage \( \) \( 280 \) volts  
- Grid-No.1 Voltage for Picture Cutoff \( i \) \( -45 \) 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  
- Recommended-Target-Temperature Range: \( b \) \( 35 \) to \( 45 \) \( \)\( ^\circ \)C  
- Minimum Peak-to-Peak Blanking Voltage \( \) \( 5 \) volts  
- Field Strength of Focusing Coil (Approx.) \( j \) \( \) 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 including Recommended Target-Temperature Range, target voltage adjusted to 2.3 volts above cutoff, and with the camera lens set to bring the picture highlights 1/2 stop above the "knee" of the accompanying Basic Light-Transfer-Characteristic Curve.

<table>
<thead>
<tr>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
</table>
| Cathode Radiant Sensitivity  
  at 4500 angstroms \( \) | \(-\) | 0.030 | \(-\) | a/w |
| Luminous Sensitivity \( \) | 30 | 60 | \(-\) | \( \mu \)a/lm |
| Anode Current (DC) \( \) | \(-\) | 30 | \(-\) | \( \mu \)a |
| Signal-Output Current (Peak to Peak) \( \) | 10 | \(-\) | 40 | \( \mu \)a |
| Ratio of Peak-to-Peak Highlight Video-Signal Current to RMS Noise Current for Bandwidth of 4.5 Mc. \( \) | 85:1 | 95:1 | \(-\) |
| Photocathode Illumination at 2870° K Required to bring Picture Highlights 1/2 Stop above "Knee" of Light Transfer Characteristic. \( \) | \(-\) | 0.070 | 0.130 | fc |
| Amplitude Response at 400 TV Lines per Picture Height (Percent of large-area black to large-area white) \( k \) \( \) | 60 | 75 | \(-\) | % |
Uniformity:

<table>
<thead>
<tr>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio of Shading (Background) Signal to Highlight Signal.</td>
<td>0.10</td>
<td>0.15</td>
</tr>
<tr>
<td>Decrease from Peak Highlight Signal Level of Signal from Any Point on Scanned Area of Target</td>
<td>12</td>
<td>25</td>
</tr>
</tbody>
</table>

a Cinch Manufacturing Corporation, 1026 South Homan Avenue, Chicago 24, Illinois.
b Operating outside the Recommended Target-Temperature Range shown under Typical Operating Values will not damage the 7389B provided the Maximum Temperature Ratings of the tube are not exceeded. Optimum performance, however, is only obtained when the tube is operated within the Recommended Target-Temperature Range.
c With respect to grid No. 4.
d Dynode-voltage values are shown under Typical Operating Values.
e With 7389B operated in RCA TK-60 camera at fixed photocathode voltage.
f Adjust for optimum focus.
g The target supply voltage should be adjustable from -5 to 5 volts.
h Adjust to give the most uniformly shaded picture near maximum signal.
i 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.
j Measured with amplifier having flat frequency response.
k With uniform illumination on photocathode.

OPERATING CONSIDERATIONS

The tube should never be operated in a vertical position with the Dileptal/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.
"MICRODAMP" CONSTRUCTION FOR REDUCED MICROPHONICS
FIELD MESH FOR REDUCED "WHITE EDGE" EFFECTS

MAGNETIC FOCUS

For High-Quality Black-and-White Studio TV Cameras,
Live Pickup, and Magnetic Tape Recording Requiring
High-Signal-to-Noise Ratio. The 7389B is Unilater-
ally Interchangeable with the 7389 and 7389A.

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 pf
Target-to-Mesh Spacing.......... 0.001 inch
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 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.

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
Socket............................ Cinch® Part No.3M14, or equivalent
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)
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**

Direction of Light:
Perpendicular to
Large End of Tube

Pin 1 - Heater
Pin 2 - Grid No. 4
Pin 3 - Grid No. 3
Pin 4 - 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 - 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. volt

Grid-No. 5 Voltage: ....... 300 max. vol
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

RADIO CORPORATION OF AMERICA
Electronic Components and Devices
Harrison, N. J.
DIMENSIONS IN INCHES

4.500 ± .094 DIA.

6.88 ± .022 - .015

5.550 ± .125

1.75 MIN.

.800 ± .125

.250 ± .030

VIBRATION-ABSORBING TIPS DO NOT REMOVE

DETAIL OF ENVELOPE TERMINALS

2 HOLES, 180° APART, .311 DIA.

SMALL-SHELL DINEPTAL 14-PIN BASE
JEDEC GROUP 5,
No. B14-45

LIGHT SHIELD COATING

DIMENSIONS IN INCHES
BASIC LIGHT-TRANSFER CHARACTERISTIC

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

TYPICAL SIGNAL OUTPUT—MICROAMPERES

HIGHLIGHT ILLUMINATION ON PHOTOCATHODE—FOOTCANDLES

92CS-10690