

## CHARACTERISTICS

### GENERAL DATA

|                                                                          |                  |
|--------------------------------------------------------------------------|------------------|
| Focusing Method . . . . .                                                | Electrostatic    |
| Deflection Method . . . . .                                              | Electrostatic    |
| Types*      Fluorescence      Phosphorescence      Persistence           |                  |
| 4MP1          Green                      —                      Medium   |                  |
| 4MP2          Blue - Green              Green                      Long  |                  |
| 4MP7          Blue - White              Yellow                      Long |                  |
| 4MP11          Blue                      —                      Short    |                  |
| Faceplate . . . . .                                                      | Spherical, Clear |

\*In addition to the types shown, the 4MP — can be supplied with several other screen phosphors.

### ELECTRICAL DATA

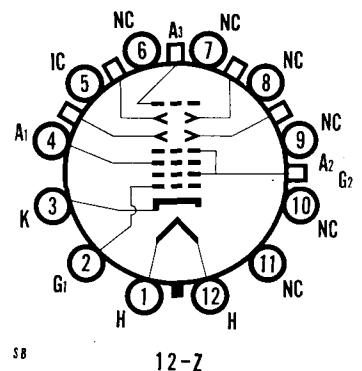
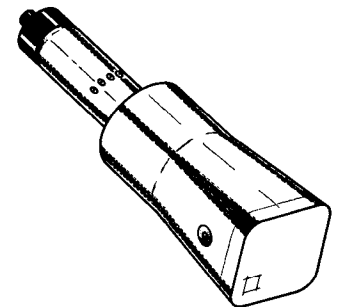
|                                                       |                   |
|-------------------------------------------------------|-------------------|
| Heater Voltage . . . . .                              | 6.3 Volts         |
| Heater Current . . . . .                              | 0.6 ± 10% Amperes |
| Direct Interelectrode Capacitances                    |                   |
| Cathode to All Other Electrodes . . . . .             | 5.0 μμf           |
| Grid No. 1 to All Other Electrodes . . . . .          | 6.2 μμf           |
| Between Deflecting Plates 1-2 <sup>11</sup> . . . . . | 2.7 μμf           |
| Between Deflecting Plates 3-4 <sup>11</sup> . . . . . | 1.9 μμf           |
| Deflecting Plate 1 to All Other Electrodes . . . . .  | 5.8 μμf           |
| Deflecting Plate 2 to All Other Electrodes . . . . .  | 5.8 μμf           |
| Deflecting Plate 3 to All Other Electrodes . . . . .  | 4.3 μμf           |
| Deflecting Plate 4 to All Other Electrodes . . . . .  | 4.0 μμf           |

### MECHANICAL DATA

|                                                  |                       |
|--------------------------------------------------|-----------------------|
| Minimum Useful Screen                            |                       |
| (Rounded Corners) . . . . .                      | 2 7/8 x 2 7/8 Inches  |
| Bulb Contact (Recessed Small Ball Cap) . . . . . | J1-22                 |
| Neck Contacts (Anode No. 2 and                   |                       |
| Deflection Plates) . . . . .                     | J1-25                 |
| Bulb . . . . .                                   | LEA 467 or Equivalent |
| Weight (Approx.) . . . . .                       | 1 1/2 Pounds          |
| Base (Small Shell Duodecal 12-Pin) . . . . .     | B12-43                |
| Basing . . . . .                                 | 12Z                   |
| Base Alignment                                   |                       |
| D1-D2 trace aligns with Pin No. 5                |                       |
| and Tube Axis . . . . .                          | ±10 Degrees           |
| Positive Voltage on D1 deflects beam             |                       |
| approx. toward Pin No. 5                         |                       |
| Positive Voltage on D3 deflects beam             |                       |
| approx. toward Pin No. 2                         |                       |
| Bulb Contact Alignment                           |                       |
| J1-22 Contact Aligns with D1-D2 Trace. . . . .   | ±10 Degrees           |
| J1-22 Contact on Same Side as Pin No. 5          |                       |
| Trace Alignment                                  |                       |
| Angle between D1-D2 and D3-D4 Trace . . . . .    | 90 ± 1 Degrees        |
| D1-D2 Trace Aligns with Bulb Wall . . . . .      | ± 1.5 Degrees         |

## QUICK REFERENCE DATA

3 1/2" x 3 1/2" Direct Viewed  
Square Glass Type  
Spherical Clear Faceplate  
Electrostatic Focus  
Electrostatic Deflection  
Post Deflection Acceleration  
Deflection Plate  
Connectors on Neck Wall



## SYLVANIA ELECTRONIC TUBES

A Division of  
Sylvania Electric Products Inc.

### PICTURE TUBE OPERATIONS SENECA FALLS, NEW YORK

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File Under  
SPECIAL AND GENERAL PURPOSE  
CATHODE RAY TUBES

## RATINGS

## MAXIMUM RATINGS (Absolute Maximum Values)

|                                                                               |               |
|-------------------------------------------------------------------------------|---------------|
| Anode No. 2 Input . . . . .                                                   | 6.6 Watts     |
| Anode No. 3 Voltage . . . . .                                                 | 6600 Volts dc |
| Anode No. 2 Voltage . . . . .                                                 | 3300 Volts dc |
| Ratio of Anode No. 3 Voltage to<br>Anode No. 2 Voltage <sup>1</sup> . . . . . | 2 : 1         |
| Anode No. 1 Voltage (Focusing Electrode) . . . . .                            | 1100 Volts dc |
| Grid No. 1 Voltage                                                            |               |
| Negative Bias Value . . . . .                                                 | 220 Volts dc  |
| Positive Bias Value . . . . .                                                 | 0 Volts dc    |
| Positive Peak Value . . . . .                                                 | 0 Volts       |
| Peak Heater-Cathode Voltage                                                   |               |
| Heater Negative with Respect to Cathode . . . . .                             | 200 Volts     |
| Heater Positive with Respect to Cathode . . . . .                             | 200 Volts     |
| Peak Voltage Between Anode No. 2 and<br>Any Deflecting Plate . . . . .        | 600 Volts     |

## TYPICAL OPERATING CONDITIONS

|                                                               |                             |
|---------------------------------------------------------------|-----------------------------|
| Anode No. 3 Voltage . . . . .                                 | 4000 Volts                  |
| Anode No. 2 Voltage . . . . .                                 | 2000 Volts                  |
| Anode No. 1 Voltage for Focus . . . . .                       | 340 to 510 Volts            |
| Grid No. 1 Voltage Required for Cutoff <sup>2</sup> . . . . . | -52 to -87 Volts            |
| Deflection Factor                                             |                             |
| Deflecting Plates 1-2 . . . . .                               | 68 to 82 Volts dc/Inch      |
| Deflecting Plates 3-4 . . . . .                               | 42 to 52 Volts dc/Inch      |
| Modulation at Ib3 = 25 $\mu$ a <sup>3</sup> . . . . .         | 38 Volts dc Max.            |
| Line Width "A" at Ib3 = 25 $\mu$ a <sup>3</sup> . . . . .     | .45 mm Max.                 |
| Line Width "B" at Ib3 = 25 $\mu$ a <sup>3</sup> . . . . .     | .65 mm Max.                 |
| Light Output at Ib3 = 25 $\mu$ a <sup>4</sup>                 |                             |
| 4MP1 <sup>5</sup> . . . . .                                   | 20 Ft. L. Min.              |
| 4MP11 <sup>6</sup> . . . . .                                  | 14 Ft. L. Min.              |
| Deflection Factor Uniformity <sup>3</sup> . . . . .           | 2 Percent Max.              |
| Pattern Distortion <sup>7</sup> . . . . .                     | 2 Percent Max.              |
| Undelected Spot Position <sup>8</sup> . . . . .               | Within a 10 mm Square       |
| Trace Distortion <sup>9</sup> . . . . .                       | .02 Inch Max.               |
| Useful Scan . . . . .                                         | 2 $\frac{7}{8}$ Inches Min. |

## CIRCUIT VALUES

|                                                       |                  |
|-------------------------------------------------------|------------------|
| Grid No. 1 Circuit Resistance . . . . .               | 1.5 Megohms Max. |
| Deflection Circuit Resistance <sup>10</sup> . . . . . | 1.0 Megohms Max. |

## NOTES:

1. This tube is designed for optimum performance when operated at an Eb3/Eb2 ratio of 2.0. Operation of other ratios of Eb3/Eb2 may result in changes of deflection uniformity and pattern distortion.

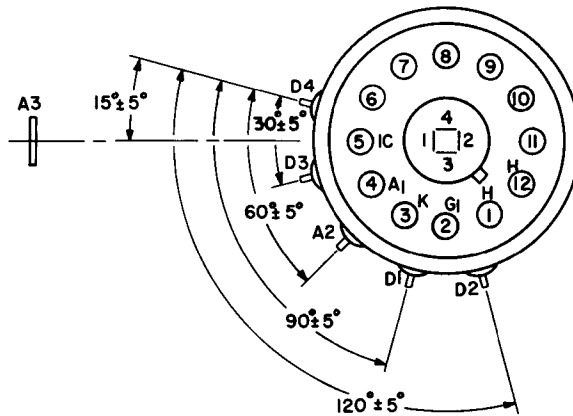
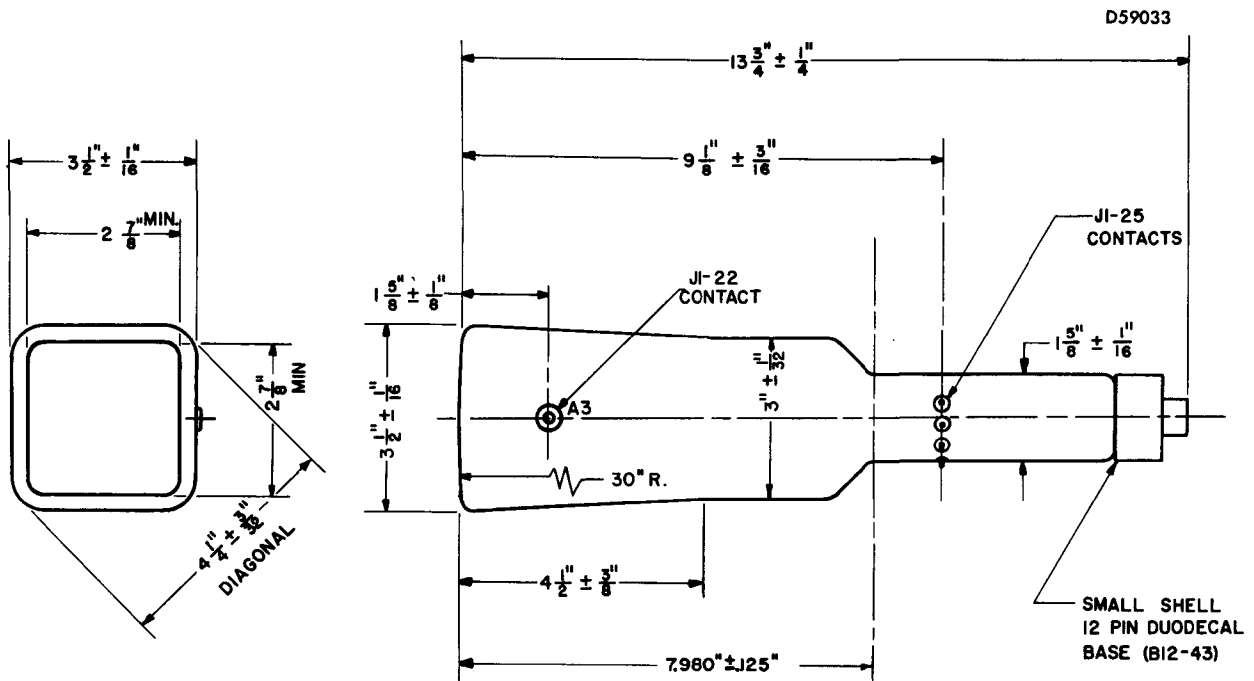
**NOTES: (Cont'd)**

2. *Visual extinction of undeflected focused spot.*
3. *Measured in accordance with MIL-E-1.*
4. *Using a raster size of 2¼ x 2¼ inches.*
5. *Using a No. 594 Photronic cell with Viscor filter (for eye correction).*
6. *Using a No. 594 Photronic cell without Viscor filter (without eye correction).*
7. *All portions of a raster, pattern adjusted so its widest points just touch the sides of 2.295 x 2.295 inch square, will fall within the area bounded by the 2.295 x 2.295 inch square and an inscribed 2.205 x 2.205 inch square.*
8. *Centered with respect to the tube face and with the tube shielded. Connect free deflection electrodes to accelerator.*
9. *A 2¼ inch long trace which is deflected and focused  $\pm 1\frac{1}{8}$  inch from center in both the horizontal and vertical directions, shall not deviate from straight lines by more than the indicated value.*
10. *It is recommended that the deflection electrode circuit resistances be approximately equal.*
11. *Deflecting plates D1 and D2 are nearer the screen while deflecting plates D3 and D4 are nearer the base.*

**WARNING:**

*X-ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if this tube is operated at higher than the manufacturer's Maximum Rated Anode Voltage or 16,000 volts, whichever is less.*

OUTLINE



BOTTOM VIEW OF BASE