CATHODE RAY TUBE

6FP-

The ETC type 6FP is a 4.5 x 5.5 inch rectangular, electrostatic deflection and focus mono-accelerator cathode-ray tube.

The mono-accelerator feature of the 6FP assures considerable improvement in general performance without sacrificing spot size, light output, or sensitivity.

For minimizing variation in focus with accelerator voltage variations, a low-voltage electrostatic focus lens is employed which requires only a small fraction of the accelerator voltage for focusing.

Deflection plates, the deflection plate leads are brought out through the neck of the tube.

GENERAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Electrical Data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage</td>
<td>6.3 Volts</td>
</tr>
<tr>
<td>Heater Current</td>
<td>0.6 ± 10% Amperes</td>
</tr>
<tr>
<td>Focusing Method</td>
<td>Electrostatic</td>
</tr>
<tr>
<td>Deflecting Method</td>
<td>Electrostatic</td>
</tr>
</tbody>
</table>

Phosphor

<table>
<thead>
<tr>
<th>Fluorescence</th>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 7</th>
<th>No. 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Green</td>
<td>Blue</td>
<td>Blue</td>
<td></td>
</tr>
<tr>
<td>Phosphorescence</td>
<td>Medium</td>
<td>Long</td>
<td>Long</td>
<td>Short</td>
</tr>
<tr>
<td>Persistence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Direct Interelectrode Capacitances

| Cathode to all other electrodes | 4.5 uuf |
| Grid No. 1 to all other electrodes | 4.5 uuf |
| D1 to D2                         | 3.5 uuf |
| D3 to D4                         | 1.7 uuf |
| D1 to All                        | 5.0 uuf |
| D2 to all                        | 5.0 uuf |
| D3 to all                        | 3.0 uuf |
| D4 to all                        | 3.0 uuf |

Mechanical Data

| Overall Length                  | 15-3/4 ± 1/4 Inches |
| Greatest Bulb Diameter          | 4-1/2 x 5-1/2 ±1/16 In. |
| Minimum Useful Screen (Along Tube Axis) | 3-3/4 x 4-3/4 Inches |
| Neck Contacts                   | Pins |
| Base (Medium Shell Diheptal 12 Pin) | D-12-37 |
| Basing                          | Special |
Mechanical Data

Base Alignment
D3D4 trace aligns with Index Key and Tube Axis ±10 Degrees
Positive voltage on D1 deflects the beam approximately towards Pin No.4
Positive voltage on D3 deflects the beam approximately towards Pin No.3

Trace Alignment - Side Walls
Angle between D3D4 and D1D2 trace 2 Degrees
                                        90° ± 1 Degrees

MAXIMUM RATINGS  Design Center Values

Accelerator Voltage (Note 1) 3500 Max. Volts D-C
Focusing Voltage 1500 Max. Volts D-C
Grid No. 1 Voltage
  Negative Bias Value 200 Max. Volts D-C
  Positive Bias Value 0 Max. Volts D-C
  Positive Peak Value 0 Max. Volts D-C
Peak Heater to Cathode Voltage
  Heater Negative with respect to Cathode 180 Max. Volts D-C
  Heater Positive with respect to Cathode 180 Max. Volts D-C

Peak Voltage between Accelerator and any
  Deflection Electrode 900 Max. Volts D-C

TYPICAL OPERATING CONDITIONS

For Accelerator Voltage of
Focusing Voltage
Grid No. 1 Voltage (Note 2)
  0 to 300 Volts D-C
  -34 to -56 Volts D-C

Modulation Factor (Note 3)
Line Width A (Note 3)
Pl Light Output (Note 3)

Deflection Factors
D1 and D2 48 to 60 Volts D-C/Inch
D3 and D4 32 to 42 Volts D-C/Inch

Deflection Factor Uniformity (Note 4)
Useful Scan
D1D2 4-3/4 Inches
D3D4 3-3/4 Inches

Spot Position (Undeflected and focused) Within 1/4" Radius Circle

CIRCUIT DESIGN VALUES

Focusing Current for any
operating condition -15 to +15 Microamperes D.C.
Grid No. 1 Voltage -13/6 to -22.4 Volts per Kilovolt of Accelerator Voltage
Grid No. 1 Circuit Resistance 1.5 Max. Megohms

Deflection Factors:
D1 and D2 19.4 to 24.0 Volts D-C/Inch/KV of Accelerator Voltage
D3 and D4 12.8 to 16.8 Volts D-C/Inch/KV of Accelerator Voltage

Resistance in any Deflecting-Electrode Circuit (Note 5) 1 Max. Megohms
1. The product of accelerator voltage and average accelerator current should be limited to 6 watts.

2. Visual extinction of undeflected focused spot.

3. Measured in accordance with MIL-E-1B Specifications

4. The deflection factor (for both D1D2 and D3D4 plate pairs, separately) for any deflection of less than 75% of the useful scan will not differ from the deflection factor for a deflection at 25% of the useful scan by more than indicated value.

5. It is recommended that the deflecting electrode circuit resistance be approximately equal.

6. An adjustable D-C potential between the accelerator and deflection plates may be used to secure best overall focus.
NOTE:
+102 TOWARDS PIN 4

BOTTOM VIEW OF BASE AND NECK CONNECTIONS

ELECTRONIC TUBE CORPORATION
PHILADELPHIA, PA.

TITLE
6FP TUBE OUTLINE DRAWING

TOLERANCES DEC. FRAC. AS NOTED ANG.
ENG. DATE 3-5-58 APP. DRAWING NO.
DR. M. WARREN SCALE 1/8 1/4 A-3340
CKD. M. WARREN REV. WAS 610 RP