TENTATIVE

DESCRIPTION:

The D-3001 is a 5 inch Iatron (Direct View Storage Cathode-Ray Tube) that produces a bright visual display of electrically stored information. It is electrostatically focused and deflected. The tube displays bright images that can be viewed in direct daylight, and the tube features the ability to write, store and erase signal information at the will of the operator. Gray shades are produced in accordance with the amplitude variations of the input signal. The tube has two electron guns, a writing gun which writes the input signal on an insulator storage screen, and a flood gun which illuminated the phosphor in accordance with the stored signal.

GENERAL:

Dimensions

Nominal Tube Diameter
4 Inches

Minimum Useful Display Diameter
P-20 Aluminized

Phosphor

Operating Position
Any

Weight (Approximate)
2 lb. 8 oz.

Cathode Pre-Heating Time
30 Seconds

Focus Method
Electrostatic

Deflection Method
Electrostatic

See Outline Attached

MAXIMUM RATINGS:

Viewing Screen
10 KV

Backin Electrode
425 V

Collector
4250 V

Anode #4
4150 V

Anode #3
4150 V

Anode #2
4150 V

Anode #1
480 V

Heater-Cathode Voltage
4125 V

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Write Section

Write Cathode

Grid #1 Negative Voltage Respect Write Cathode 150 V
Positive Voltage Respect Write Cathode 0 V

Grid #2 150 V
Grid #3 500 V Respect Write Cathode
Heater-Cathode Voltage 125 V
Grid #2 to any Deflecting Electrode 500 V

Typical Operating Values:

Flood Section

Viewing Screen 8.5 KV DC 1.0 Ma (Max.)
Backing Electrode 410 VDC
Collector 180 VDC 2.0 Ma (Max.)
Anode #4 90 VDC 1.5 Ma (Max.)
Anode #3 20 VDC 1.5 Ma (Max.)
Anode #2 30 VDC 1.8 Ma (Max.)
Anode #1 60 VDC 5.0 Ma (Max.)
Flood Cathode 0 VDC 10.0 Ma (Max.)
Heater 6.3 V AC or DC 1.4 A

Write Section

Write Cathode -750 VDC 3.0 Ma (Max.)
Grid #1 Cutoff (Note 1) -60 VDC Respect Write Cathode
Grid #2 0 VDC
Grid #3 165 VDC Respect Write Cathode
Heater 6.3 V AC or DC .6 A
Mean Deflection Plate Voltage 0 V

Range of Typical Operating Adjustments:

Anode #2 25 to 35 VDC Adjust for best collimation
Anode #3 15 to 30 VDC Adjust for best collimation
Grid #1 Cutoff (Note 1) -60 to -120 VDC
Grid #3 Focus 105 to 210 VDC Adjust for best focus
Erase Pulses 0 to 10 Volt amplitude, 1 usecond wide, 100-5000 PRF - Adjust for desired viewing time.

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TYPICAL PERFORMANCE:

Resolution (Note 2)
  50% of Full Brightness
  Brightness
  Writing Speed
  20 Volt Drive to 50% Brightness
  40 Volt Drive to 50% Brightness
  Erase Time (Note 3)
  Viewing Time (Note 4)
  Storage Time (Note 5)
  Deflection Factor
    D1-D2
    D3-D4
  Half-tone Steps

ENVIRONMENTAL DATA:

Ambient Temperature Range
  Operating
  Non-Operating
  Altitude
  Vibration (Continuous)
  Shock (3 Axes)
    Operating
    Operating
    Non-Operating (Crash Safety)

NOTES:

1. Visual cutoff of the stored, focused, undeflected spot.

2. Resolution is measured by the shrinking raster method at the center of the tube.

3. Erase time is the shortest time in which a signal can be removed from the tube after being stored at full brightness.

4. Viewing time is the minimum time that a signal stored at full brightness anywhere in the display areas can be viewed with erase pulses continuously applied to counteract ion writing.

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5. Storage time is the time required for the brightness to increase from cutoff to 50 per cent of full value in the absence of erase pulses.

SPECIAL PRECAUTIONS:

Observe maximum ratings to avoid possible damage to the tubes. In particular the viewing screen voltage should be limited so as to never exceed 10 KV. The full voltage should not be applied to the viewing screen instantaneously. An ordinary RC filter at the output of the power supply will provide adequate assurance that the voltage build up will not be too abrupt. The minimum resistance of the high voltage circuit should be 1 meg ohm.

Repeated bombardment with a high current focused writing beam on a small area of the storage surface can burn a dark image into the display area, which may remain for several hours or even permanently. Therefore, deflection voltages should be applied before operating the writing beam.

Additional information for specific applications can be obtained from the

Electron Tube Applications Section
ITT Components Division
Post Office Box 412
Clifton, New Jersey

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14 PIN BASE

1  ANODE #1
2  FLOOD HEATER
3  FLOOD HEATER
4  FLOOD CATHODE
5  D-3
6  GRID #3 (FOCUS)
7  D-1
8  WHITE CATHODE
9  WHITE HEATER
10 WRITE HEATER
11 GRID #1
12 GRID #2
13 D-2
14 D-4

FLYING LEADS

WHITE SMALL DIAMETER ELECTROSTATIC SHIELD

H.V. LEAD - BROWN

RED
VIOLET
BLUE
YELLOW

E7-1 PIN CONNECTIONS

D-3001

1  BACKING ELECTRODE
2  N/C
3  ANODE #2
4  ANODE #3
5  ANODE #4
6  N/C
7  COLLECTOR