WATERMAN PRODUCTS

ENGINEERING DATA

RAYONIC
3XP1
3XP2
3XP7
3XP11

RAYONIC® 3XP1 CATHODE RAY TUBE

GENERAL DATA

Focusing Method ..... Electrostatic
Deflecting Method ..... Electrostatic
Phosphor Number P1
  Fluorescent Color ..... Green
  Phosphorescent Color ..... None
  Persistence ..... Medium
Mounting Position ..... Any

ELECTRICAL DATA

Heater Voltage ..... 6.3 Volts
Heater Current ..... 0.6 ±10% Amperes
Direct Interelectrode Capacitances (approx.)
  Cathode to all other electrodes ..... 5.2 μμf
  Grid #1 to all other electrodes ..... 5.7 μμf
  D1 to D2 ..... 6.9 μμf
  D3 to D4 ..... 5.4 μμf
  D1 to all other electrodes ..... 7.0 μμf
  D2 to all other electrodes ..... 7.4 μμf
  D3 to all other electrodes ..... 8.0 μμf
  D4 to all other electrodes ..... 7.3 μμf

MECHANICAL DATA

Overall Length ..... 8⅞ ±⅛ Inches

Bulb Dimensions	Greatest Dim.	Min. Useful Screen	
Diagonal	3 11/32 ± 1/32	3	Inches
Width	3 ± 3/64	2¾	Inches
Height	1 15/32 ± 3/64	1⅛	Inches

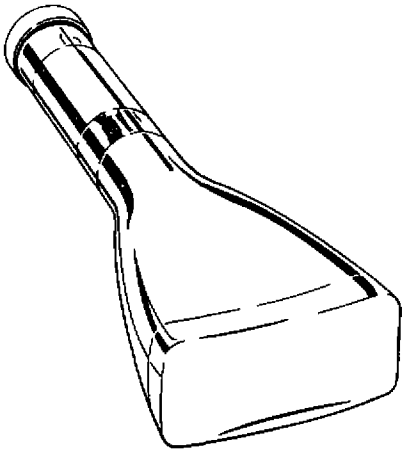
Base-Loctal ..... JETEC D8-1
Basing ..... See basing diagram
Base Alignment
  D1D2 trace aligns with pin #3 and tube axis 0 ±10 Degrees
  Positive voltage on D1 deflects beam approximately toward pin #3
  Positive voltage on D3 deflects beam approximately toward pin #5
  Angle between D3D4 and D1D2 traces;90 ±1 Degrees
Trace Alignment
  Angle between trace and bulb wall ±1½ Degrees
Deflection Plates
  D1-D2 are nearest to the screen (3" Dimension)
  D3-D4 are nearest to the base (1 15/32" Dimension)

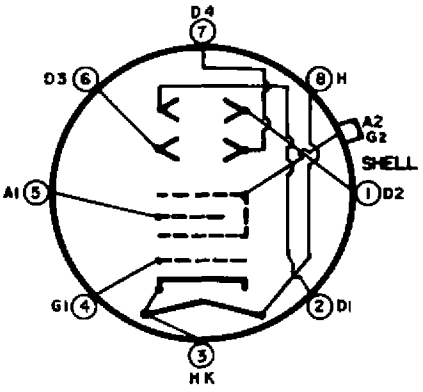
MAXIMUM RATINGS (Design Center Values)

Anode Voltage (A2) ..... 2750 Volts DC
Anode (A2) Input ..... 6 Watts
Anode #1 (Focusing Electrode) Voltage ..... 1100 Volts
Grid #1 (G1) Voltage
  Negative-Bias Value ..... 125 Volts DC
  Positive-Bias Value ..... 0 Volts DC
  Positive-Peak Value ..... 2 Volts
Peak voltage between Anode #2 and any deflecting plate ..... 550 Volts

QUICK REFERENCE DATA

OSCILLOSCOPE TUBE
FACE—1½" x 3"
DEFLECTION SENSITIVITY—HIGH
LENGTH—SHORT
MONOACCELERATOR
FACE PLATE—CLEAR, CYLINDRICAL
DEFLECTION—ELECTROSTATIC
FOCUSING—ELECTROSTATIC
JAN APPROVED





3XP1

TUBE RATINGS

Focusing Electrode (A1) current for any operating condition ..... −15 to +10 μAmps
Spot Position, Undeflected (Note 1) ..... 7.0 Max. mm
Useful Scan
D1D2 ..... 2¾ Inches
D3D4 ..... 1⅛ Inches
A1 Voltage 20% to 35% of A2 Voltage
G1 Voltage 3.375 max% of A2 Voltage (Note 2)
Deflection factors
D1 and D2 (3" Dimension) ..... 34 to 46 Volts DC/inch/A2 Kilovolts
D3 and D4 ($1\frac{15}{32}$" Dimension) ..... 14 to 19 Volts DC/inch/A2 Kilovolts

OPERATING CONDITIONS

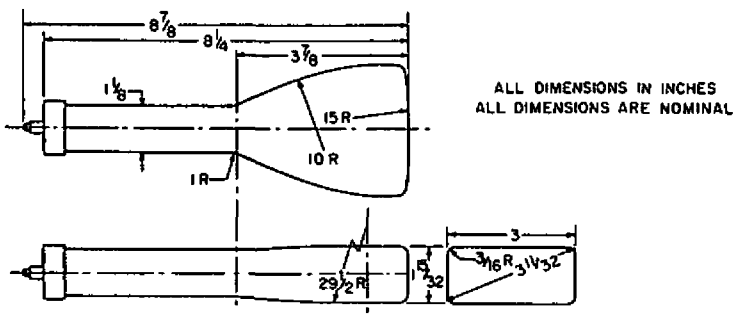
	Minimum	Typical	Typical	
Anode Voltage (A2)	1000	1500	2000	Volts
Focusing Electrode Voltage (A1)	200 to 350	300 to 525	400 to 700	Volts
Grid #1 Voltage (Note 2)	−34 max.	−51 max.	−67.5 max.	Volts
Deflection Factor D1-D2	34 to 46	51 to 69	68 to 92	Volts DC/Inch
Deflection Factor D3-D4	14 to 19	21 to 28.5	28 to 38	Volts DC/Inch

MAXIMUM CIRCUIT VALUES

Grid #1 Circuit Resistance ..... 1.5 Megohms
Resistance in any Deflecting Electrode Circuit (Note 3) ..... 1.0 Megohms

NOTES

1. *With deflecting electrodes connected to Anode (A2).*
2. *For visual extinction of undeflected focused spot.*
3. *The resistance in each deflecting electrode circuit should be approximately equal.*



ALL DIMENSIONS IN INCHES
ALL DIMENSIONS ARE NOMINAL

3XP2

The Waterman Rayonic Type 3XP2 is identical to the type 3XP1 except that it has a green fluorescent, green phosphorescent, long persistence phosphor.

3XP7

The Waterman Rayonic Type 3XP7 is identical to the Type 3XP1 except that it has a blue fluorescent, yellow phosphorescent, long persistence phosphor.

3XP11

The Waterman Rayonic Type 3XP11 is identical to the Type 3XP1 except that it has a blue fluorescent, short persistence phosphor.

WATERMAN PRODUCTS CO., INC.

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Manufacturers of POCKETSCOPE®, CRAFTSCOPE®, PULSESCOPE®, PANELSCOPE®, PANELPACK®, RAKSCOPE®, SYSTEMAT®, RAYONIC® TUBES

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