



TENTATIVE  
ENGINEERING DATA

RAYONIC 3YP1 CATHODE RAY TUBE

RAYONIC

3YP1  
3YP2  
3YP7  
3YP11

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 .....  $0.6 \pm 10\%$  Amperes  
Direct Interelectrode Capacitances (approx.)  
Cathode to all other electrodes ..... 5.2 uuf  
Grid #1 to all other electrodes ..... 5.9 uuf  
D1 to D2 ..... 4.6 uuf  
D3 to D4 ..... 5.0 uuf  
D1 to all other electrodes ..... 7.0 uuf  
D2 to all other electrodes ..... 6.4 uuf  
D3 to all other electrodes ..... 6.8 uuf  
D4 to all other electrodes ..... 6.4 uuf

MECHANICAL DATA

Overall Length .....  $7.0 \pm 1/8$  Inches

| Bulb Dimensions | Greatest Dim.                     | Min. Useful Screen |        |
|-----------------|-----------------------------------|--------------------|--------|
| Diagonal        | $3\frac{11}{32} \pm \frac{1}{32}$ | 3                  | Inches |
| Width           | $3 \pm \frac{3}{64}$              | $2\frac{3}{4}$     | Inches |
| Height          | $1\frac{15}{32} \pm \frac{3}{64}$ | $1\frac{1}{8}$     | Inches |

Base-Loctal ..... JETEC ..... D8-1  
Basing ..... See basing diagram  
Base Alignment

D1D2 trace aligns with pin #1 and tube axis  $0 \pm 10$  Degrees  
Positive volts on D1 deflects beam approx. toward pin #5  
Positive volts on D3 deflects beam approx. toward pin #3  
Angle between D3D4 and D1D2 traces  $90 \pm 1$  Degrees

Trace Alignment

Angle between trace and bulb wall  $\pm 1\frac{1}{2}$  Degrees

Deflection Plates

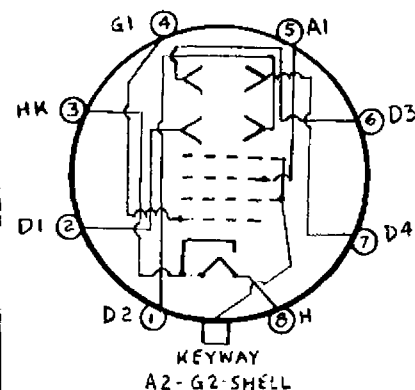
D1-D2 are nearest to the base  
D3-D4 are nearest to the screen

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 DC  
Peak volts between Anode #2 and any deflecting plate 550 Volts

QUICK REFERENCE DATA

OSCILLOSCOPE TUBE  
FACE— $1\frac{1}{2}'' \times 3''$   
DEFLECTION SENSITIVITY—GOOD  
LENGTH—SHORT  
MONOACCELERATOR  
FACE PLATE—CLEAR, CYLINDRICAL  
FOCUSING—ELECTROSTATIC  
DEFLECTION—ELECTROSTATIC



## TUBE RATINGS

Focusing Electrode (A1) current for any

operating condition ..... -50 to +10 uAmps  
Spot Position, Undelected ..... 10.0 Max. mm  
Useful Scan

D1D2 ..... 2 3/4 Inches

D3D4 ..... 1 1/8 Inches

A1 Voltage 18.5% to 34% of A2 Voltage

G1 Voltage 2.8% to 6.7% of A2 Voltage (NOTE 2)

Deflection factors

D1 and D2 (3" Dimension) ..... 68 to 92 Volts DC/inch/A2 Kilovolts

D3 and D4 (1 15/32" Dimension) ..... 44 to 60 Volts DC/inch/A2 Kilovolts

## OPERATING CONDITIONS

|                                 | Minimum      | Typical    | Typical     |               |
|---------------------------------|--------------|------------|-------------|---------------|
| Anode Voltage (A2)              | 500          | 1000       | 2000        | Volts         |
| Focusing Electrode Voltage (A1) | 92.5 to 170  | 185 to 340 | 370 to 680  | Volts         |
| Grid #1 Voltage (Note 2)        | -14 to -33.5 | -28 to -67 | -56 to -134 | Volts         |
| Deflection Factor D1-D2         | 34 to 46     | 68 to 92   | 136 to 184  | Volts DC/Inch |
| Deflection Factor D3-D4         | 22 to 30     | 44 to 60   | 88 to 120   | Volts DC/Inch |

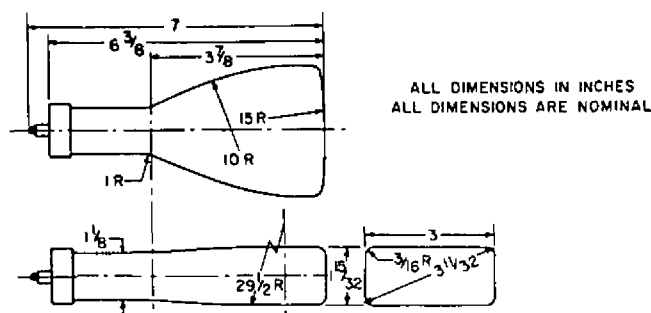
## MAXIMUM CIRCUIT VALUES

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.



### 3YP2

The Waterman Rayonic Type 3YP2 is identical to the Type 3YP1 except that it has a green fluorescent, green phosphorescent, long persistence phosphor.

### 3YP7

The Waterman Rayonic Type 3YP7 is identical to the Type 3YP1 except that it has a blue fluorescent, yellow phosphorescent, long persistence phosphor. Use of 3YP7 at anode voltages below 1000 volts is not recommended.

### 3YP11

The Waterman Rayonic Type 3YP11 is identical to the Type 3YP1 except that it has a blue fluorescent, short persistence phosphor.

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Manufacturers of PANELscope®, RAKscope®, PULSEscope®, PANELpack®,  
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