

NORTH AMERICAN PHILIPS CO., INC.
DOBS FERRY, N. Y.
ELECTRONIC TUBE DIV.

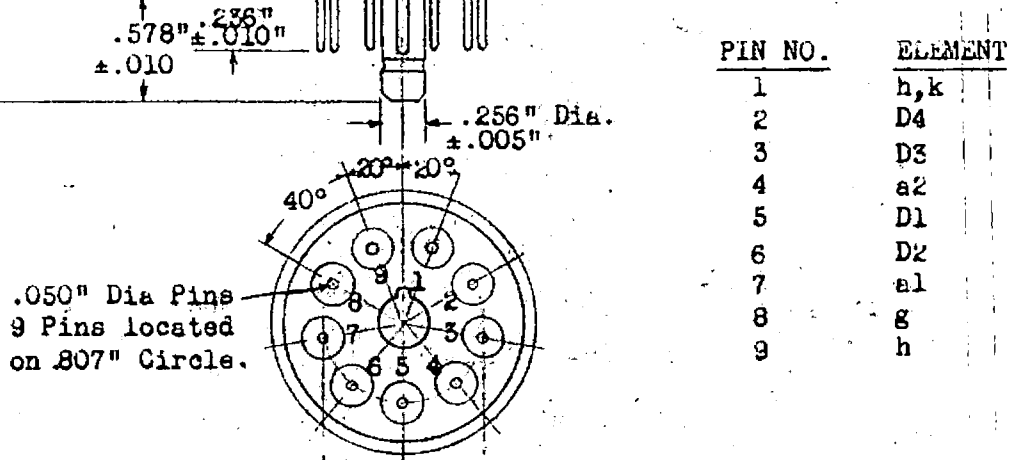
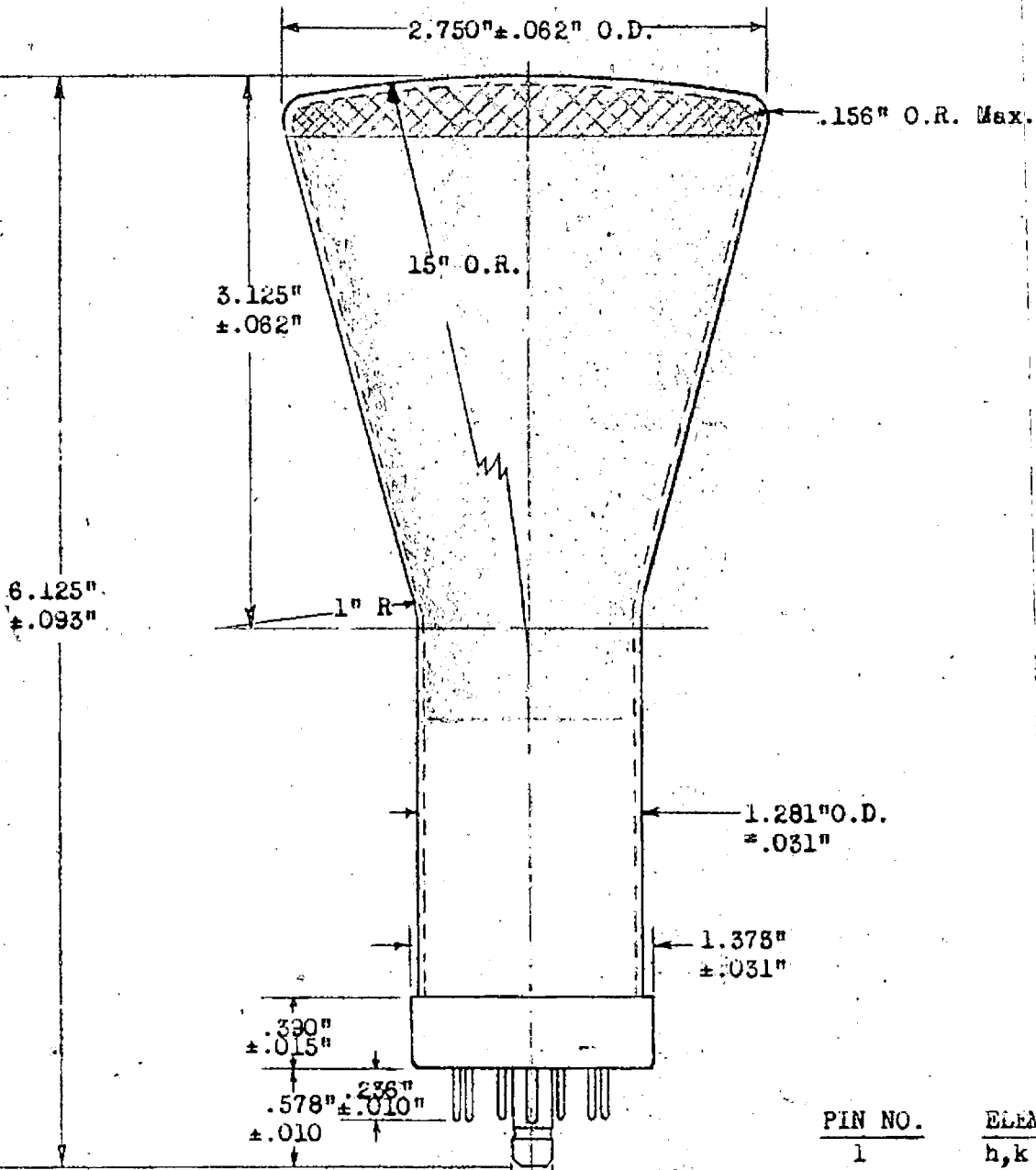
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DATE 4-2-47
SUPERSEDES 2-11-47

COMPLETE TUBE OUTLINE

SUBJECT

*3QP1 OSCILLOSCOPE CATHODE RAY TUBE
(Electrostatic Focus and Deflection)

PROCESS NO. _____
ISSUE 3



$.807 \pm .005$ Pin Center Dia.

BOTTOM VIEW OF BASE

*(Formerly N.A.P. Dev. 2.75KB1P1)

*Change **Addition

JETEC Standards Proposal
Data Form for Cathode-Ray Tubes

3CP1 OSCILLOSCOPE CATHODE RAY TUBE

DESCRIPTIVE PARAGRAPH 2 3" DIA. OSCILLOSCOPE TUBE
4

GENERAL DESIGN

Electrical

Heater Voltage 6.3 ±10% Volts
Heater Current 0.3 ±10% Amperes

Focusing Method Electrostatic
Deflecting Method Electrostatic
Max. Deflecting Angle _____

Phosphor P1
Fluorescence Green
Persistence Medium
Phosphorescence _____

Direct Interelectrode Capacitances, Nominal

Cathode to all other electrodes	<u>9</u>	uuf
Grid #1 to all other electrodes	<u>9</u>	uuf
D1 to D2	<u>2</u>	uuf
D3 to D4	<u>2</u>	uuf
D1 to all other electrodes except D2	<u>7</u>	uuf
D2 to all other electrodes except D1	<u>7</u>	uuf
D3 to all other electrodes except D4	<u>5</u>	uuf
D4 to all other electrodes except D3	<u>6</u>	uuf
External Conductive Coating to mode #2	<u>max</u>	uuf
	<u>min</u>	uuf

Mechanical

Overall Length 6.125 ± .093 Inches
Greatest Diameter of Bulb 2.750 ± .062 Inches
Minimum Useful Screen Diameter 2.375 Inches
Bulb Contact JETEC Designation None
Base JETEC Designation 9 Pin Octal
Basing JETEC Designation 9D
Base Alignment Horizontal trace Aligns
with Pin # 5 and tube axis ± 10° Degrees
Positive voltage on D1 deflects beam approx. toward Pin # 7.
Positive voltage on D3 deflects beam approx. toward Pin # 5.
Bulb contact alignment. Electrostatic-Deflection Types
Contact # _____ aligns with tract of _____ ± _____ degrees
Contact # _____ on same side as Pin # _____.

3CP1 TUBE

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MAXIMUM RATINGS Design Center Values

Anode No. 3 Voltage (accelerator High-Voltage Electrode) _____ Max Volts D-C
 Anode No. 2 Voltage 1500 Max Volts D-C
 Ratio Anode No. 3 Voltage to Anode No. 2 Voltage _____ Max
 Anode No. 1 Voltage 700 Max Volts D-C
 Grid No. 2 Voltage _____ Max Volts D-C
 Grid No. 1 Voltage _____
 Negative-Bias Value -125 Max Volts D-C
 Positive-Bias Value +2 Max Volts D-C
 Positive-Peak Value _____ Max Volts D-C

Peak Heater-Cathode Voltage¹
 Heater Negative with respect to cathode 125 Max Volts D-C
 Heater Positive with respect to cathode 125 Max Volts D-C

Peak Voltage between Anode No. 2 and any Deflection Electrode 550 Max Volts

TYPICAL OPERATING CONDITIONS, Magnetic-Deflection Types

Anode No. 2 Voltage _____ Volts D-C
 Anode No. 1 Voltage _____ ± _____ % Volts D-C
 Grid No. 2 Voltage _____ Volts D-C
 Grid No. 1 Voltage² _____ Volts D-C
 Focusing Coil Current³ (DC) _____ Approx Milliamperes
 Spot Centering _____ Maximum Milliamperes
 Ion Trap Current DC Standard Coil _____ Approx Milliamperes

TYPICAL DESIGN RANGE, Electrostatic-Deflection Types

Anode No. 1 Voltage 20% to 40% of Eb2 Volts
 Grid No. 1 Voltage for
 Visual cut-off of spot 2.6% to 6.2% of Eb2 Volts
 Anode No. 1 Current for
 any operating condition 0 to ± 250 Microamperes

Deflection Factors:

No 3rd Anode or Eb3 = Eb2
 D1 and D2 180 to 240 Volts D-C per inch per Kilovolt of Eb2
 D3 and D4 110 to 150 Volts D-C per inch per Kilovolt of Eb2
 Eb3 = Twice Eb2
 D1 and D2 _____ to _____ Volts D-C per inch per Kilovolt of Eb2
 D3 and D4 _____ to _____ Volts D-C per inch per Kilovolt of Eb2

Spot Centering (8 mm. square) 22 ~~Maximum~~ Milliamperes
 Max Volts

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EXAMPLES OF USE OF DESIGN RANGES: Electrostatic-Deflection Types

For Amode No. 3 Voltage of _____ Volts
For Amode No. 2 Voltage of 800 1200 Volts

Amode No. 1 Voltage 200 to 320 240 to 480 Volts
Grid No. 1 Voltage for Visual cutoff 21 to 50 31 to 74 Volts

Deflection Factors:

D1 and D2 143 to 193 214 to 290 Volts DC Per Inch
D3 and D4 89 to 121 133 to 181 Volts DC Per Inch

MAXIMUM CIRCUIT VALUES:

Grid No. 1 Circuit Resistance 1.5 Max Megohms
Resistance in any Deflecting - Electrode Circuit 3 Max Megohms

ADDITIONAL

- Tube outline with essential dimensions and tolerances.
- Basing drawings and connections.
- Average Characteristic Curves.

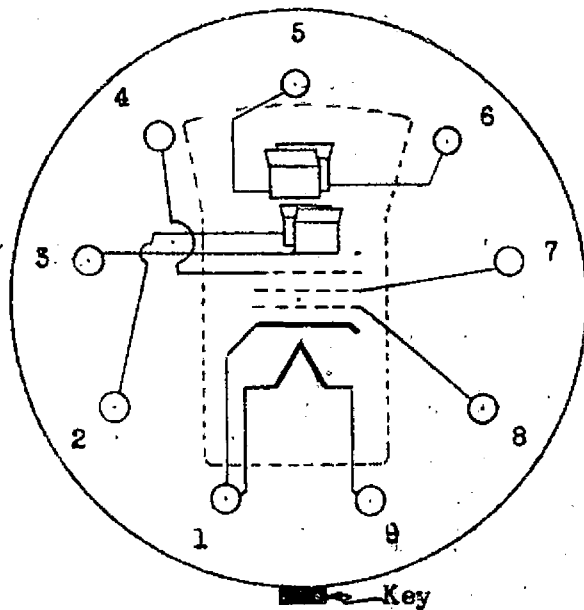
CATHODE RAY TUBE CHARACTERISTICS
NOTES

- Cathode should be returned to one side or to the mid-tap of the heater transformer winding.
- Visual extinction of undeflected focused spot. Supply should be adjustable to \pm ___% of indicated value.
- For standard focus coil #_____, or equivalent, with the combined grid- No. 1 - bias voltage and video-signal voltage adjusted to produce a high-light brightness of _____ foot lamberts on a _____ " X _____ " picture area. Distance (D) shall be _____ inches. If other than the standard focus coil is used the rating is then given in ampere turns.
- It is recommended that the deflecting-electrode-circuit resistances be approximately equal.

Notes in brackets are for the aid of those persons filling in the data and will not appear on the final sheets.

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BASING DIAGRAM
 Bottom View Of Base

<u>PIN No.</u>	<u>DESCRIPTION</u>	<u>MAXIMUM VOLTAGE RATING</u>
1	Heater Cathode	6.3 Volts ±10% A.C. or D.C. All elements voltages with respect to cathode
2	Def. Plate #4	1500 Volts D.C.
3	Def. Plate #3	
4	Anode #2	
5	Def. Plate #1	
6	Def. Plate #2	700 Volts D.C.
7	Anode #1	
8	Grid	-125 to 2 Volts D.C.
9	Heater	6.3 Volts ±10% A.C. or D.C.

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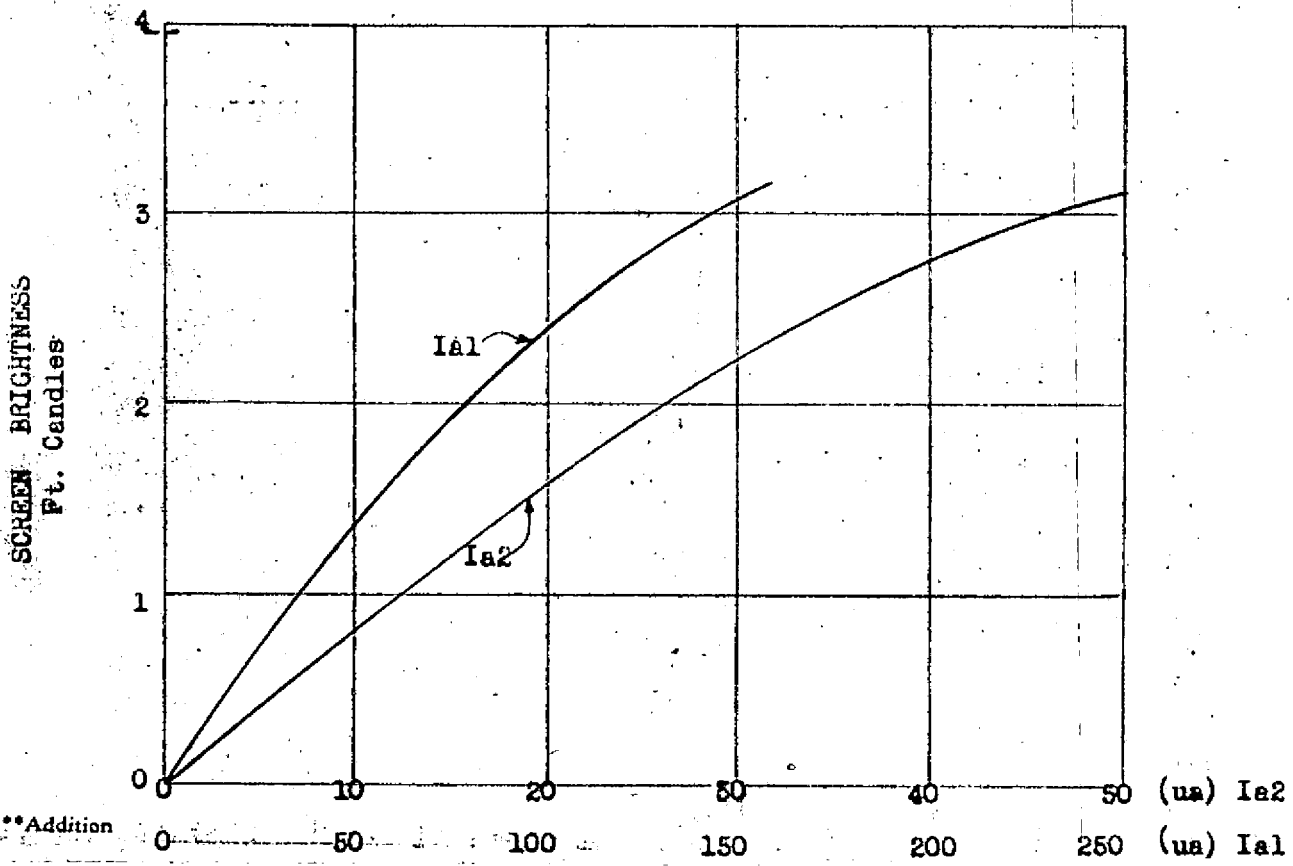
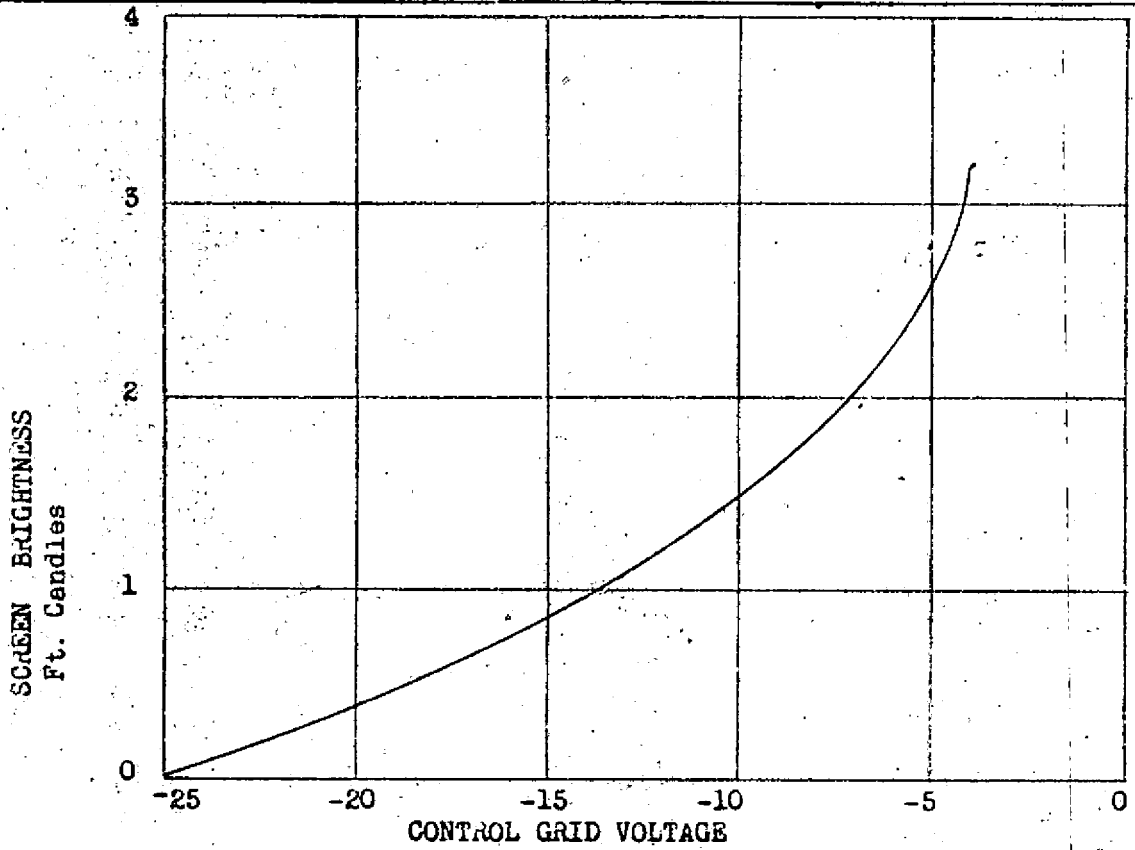
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