

NORTH AMERICAN PHILIPS CO., INC.

DOBBS FERRY, N. Y.

ELECTRONIC TUBE DIV.

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DATE 4-2-47

SUPERSEDES 2-11-47

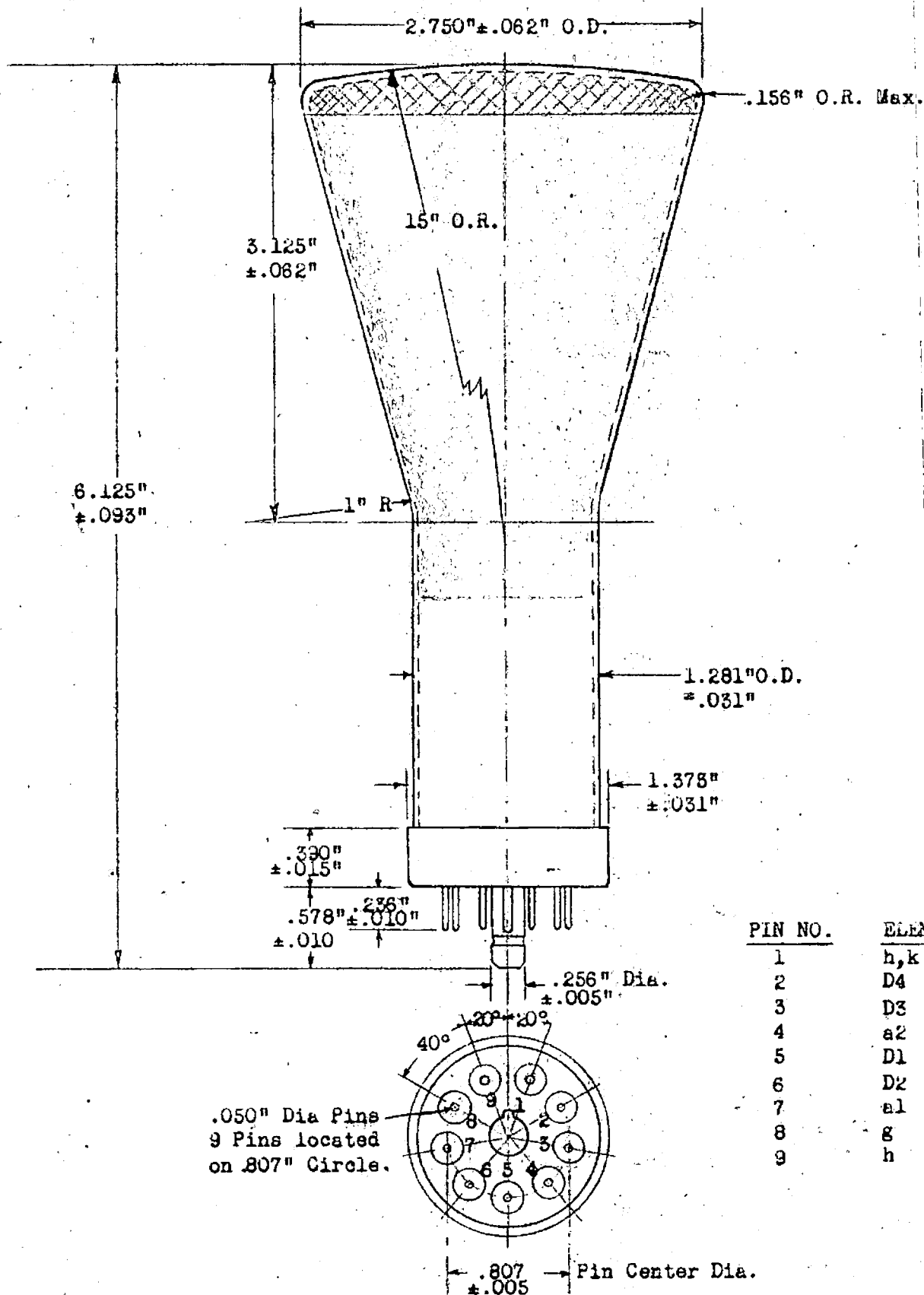
COMPLETE TUBE OUTLINE

SUBJECT

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

PROCESS NO. _____

ISSUE 3



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

*Change

**Addition

BOTTOM VIEW OF BASE

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 $\pm 10\%$ Volts
Heater Current 0.3 $\pm 10\%$ 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 9 uuf
Grid #1 to all other electrodes 9 uuf
D1 to D2 2 uuf
D3 to D4 2 uuf
D1 to all other electrodes except D2 7 uuf
D2 to all other electrodes except D1 7 uuf
D3 to all other electrodes except D4 5 uuf
D4 to all other electrodes except D3 6 uuf
External Conductive Coating to Mode #2 { max uuf
min uuf

Mechanical

Overall Length 6.125 $\pm$.093 Inches
Greatest Diameter of Bulb 2.750 $\pm$.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 $\pm$ 10⁰ 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 _____ $\pm$ _____ degrees
Contact # _____ on same side as Pin # _____.

80P1 TUBE

JETEC Standards Proposal
Data Form for Cathode-Ray Tubes

MAXIMUM RATINGS Design Center Values

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

Peak Heater-Cathode Voltage¹

Heater Negative with respect to cathode	<u>125</u>	Max Volts D-C
Heater Positive with respect to cathode	<u>125</u>	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 Voltage ²	_____	Volts D-C
Focusing Coil Current ³ (DC)	_____	Approx Milliampere
Spot Centering	_____	Maximum Milliampere
Ion Trap Current DC Standard Coil	_____	Approx Milliampere

RECOMMENDED DESIGN RANGES, Electrostatic-Deflection Types

Anode No. 1 Voltage	<u>20%</u> to <u>40%</u> of Eb2	Volts
Grid No. 1 Voltage for		
Visual cut-off of spot	<u>2.6%</u> to <u>6.2%</u> of Eb2	Volts

Anode No. 1 Current for		
any operating condition	<u>0</u> to <u>± 250</u>	Microamperes

Deflection Factors:

No 3rd Anode or Eb3 = Eb2

D1 and D2	<u>180</u> to <u>240</u>	Volts D-C	per inch per Kilovolt of Eb2
D3 and D4	<u>110</u> to <u>150</u>	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)	<u>22</u>	Maximum Milliampere
	_____	Max Volts

3CP1 TUBE

JETEC Standards Proposal
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EXAMPLES OF USE OF DESIGN RANGES: Electrostatic-Deflection TypesFor Amode No. 3 Voltage of _____ Volts
For Amode No. 2 Voltage of 800 1200 VoltsAmode 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 InchMAXIMUM CIRCUIT VALUES:Grid No. 1 Circuit Resistance 1.5 Max Megohms
Resistance in any Deflecting - Electrode Circuit 3 Max MegohmsADDITIONALTube outline with essential dimensions and tolerances.
Basing drawings and connections.
Average Characteristic Curves.CATHODE RAY TUBE CHARACTERISTICS
NOTES

1. Cathode should be returned to one side or to the mid-tap of the heater transformer winding.
2. Visual extinction of undeflected focused spot. Supply should be adjustable to $\pm$ ____% of indicated value.
3. 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.
4. 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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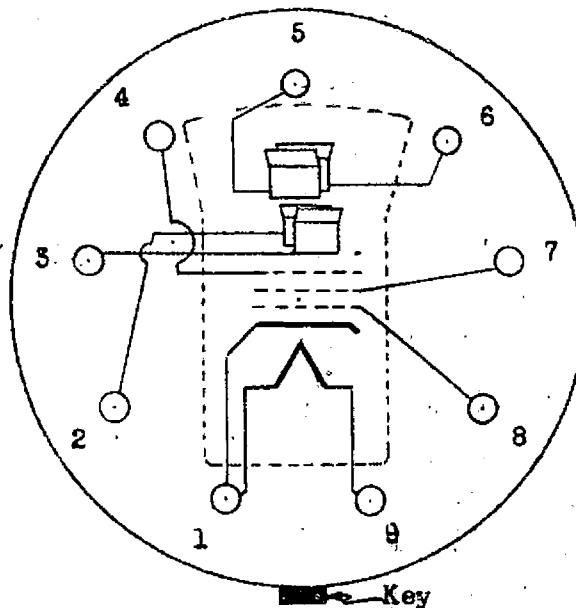
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SUBJECT 3QP1 OSCILLOSCOPE CATHODE RAY TUBE

BASING DIAGRAM

Bottom View Of Base

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

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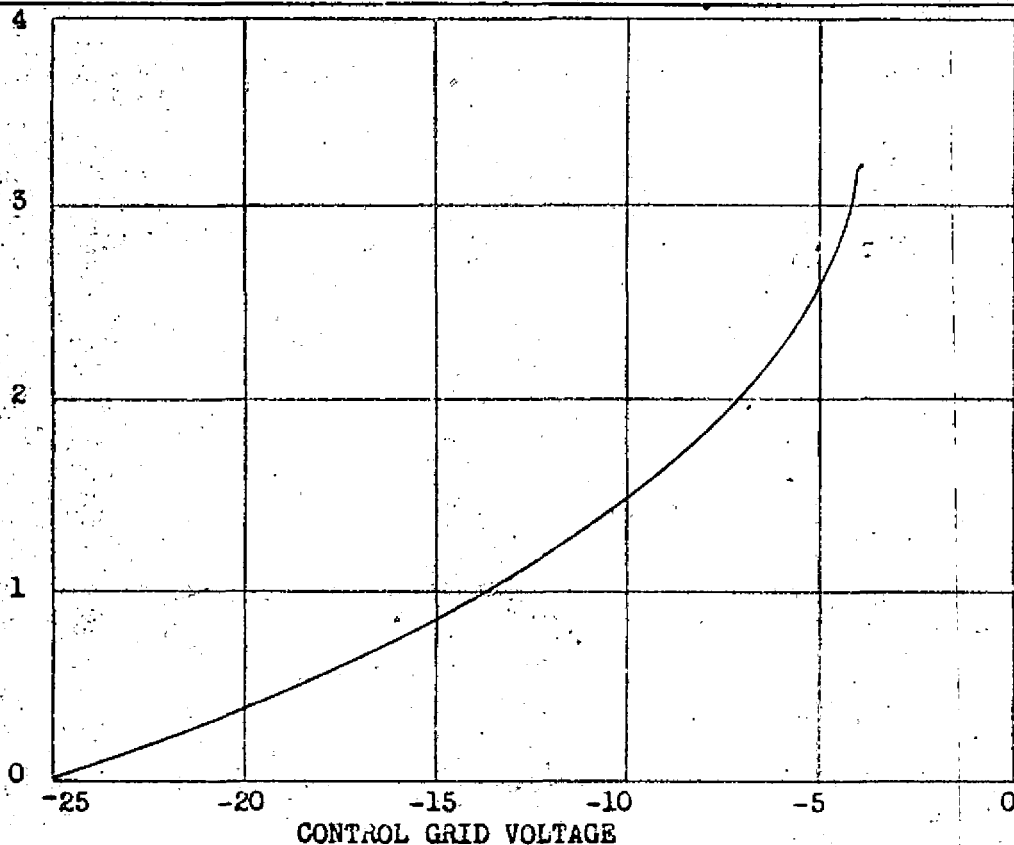
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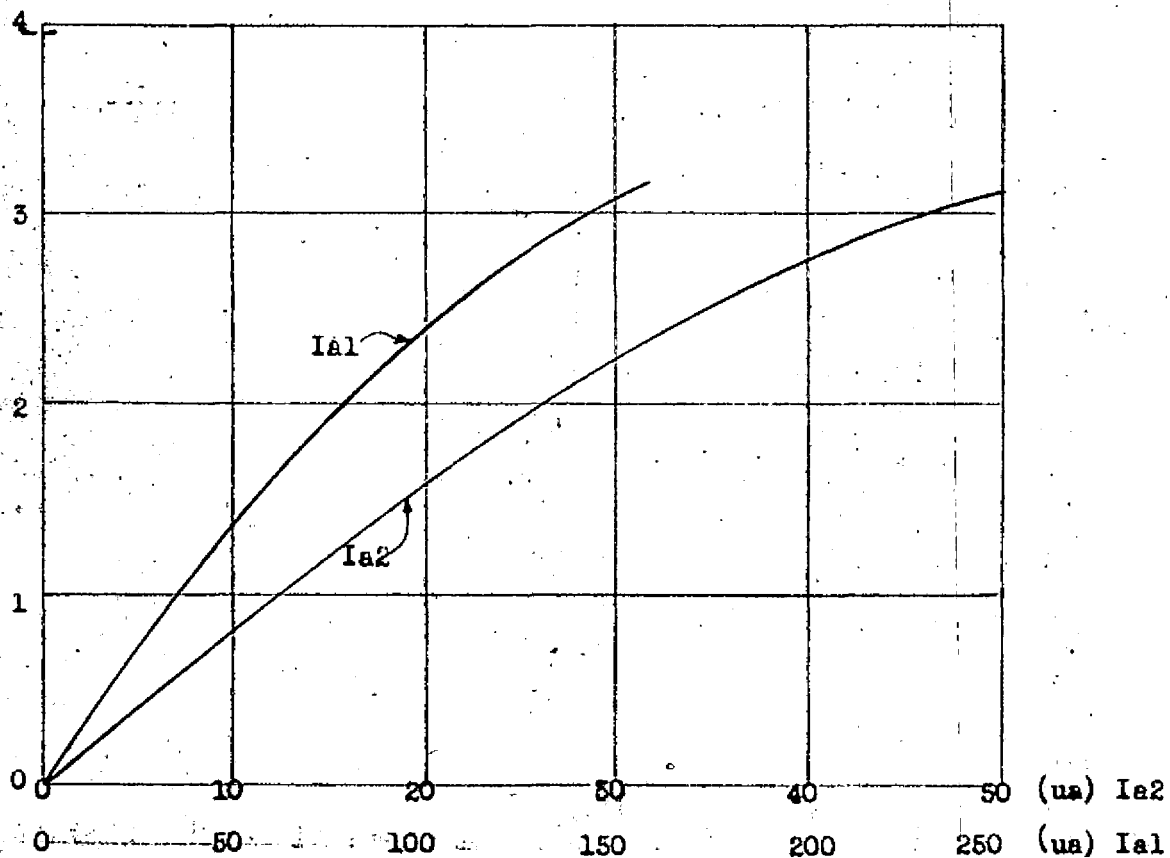
3QP1 OSCILLOSCOPE CATHODE RAY TUBE

SUBJECT

SCREEN BRIGHTNESS
 Ft. Candles



SCREEN BRIGHTNESS
 Ft. Candles



*Change **Addition