



**RADIO MANUFACTURERS ASSOCIATION  
ENGINEERING DEPARTMENT.**

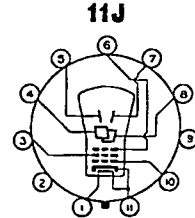
Release No. 349  
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Sponsor:  
Research Enterprises, Ltd.  
Ontario, Canada

CATHODE RAY TUBE CHARACTERISTIC SHEET

TYPE 12HP7

Physical Characteristics



Focusing Method	Electrostatic
Deflection Method	Electrostatic
Phosphor	P7
Overall Length	$23\frac{1}{2}'' + \frac{3}{8}$
Diameter of Bulb	$12'' + \frac{1}{4}$
Bulb Type	J 96 C 1
Base	11 Pin Magnal.
Basing, RMA designation	
Base Alignment	
D <sub>1</sub> - D <sub>2</sub> trace aligns with pin #8 and axis $\pm 10^\circ$	
Angle between traces, $90^\circ + 4^\circ$	
Positive voltage on D <sub>2</sub> deflects beam toward pin #8	
Positive voltage on D <sub>3</sub> deflects beam toward pin #11	

Spot centering<sup>1</sup>. within 45 m.m. square.

Direct Interelectrode Capacitances (Maximum)

Control grid to all other electrodes	12 mmf.
Deflecting Plate D <sub>1</sub> to Deflecting Plate D <sub>2</sub>	3 mmf.
Deflecting Plate D <sub>3</sub> to Deflecting Plate D <sub>4</sub>	3 mmf.
D <sub>1</sub> to all other electrodes	11 mmf.
D <sub>3</sub> to all other electrodes	11 mmf.
D <sub>1</sub> to all other electrodes except D <sub>2</sub>	9 mmf.
D <sub>2</sub> to all other electrodes except D <sub>1</sub>	9 mmf.
D <sub>3</sub> to all other electrodes except D <sub>4</sub>	9 mmf.
D <sub>4</sub> to all other electrodes except D <sub>3</sub>	9 mmf.

Electrical Characteristics.

Ratings

Heater Voltage	6.3 volts
Heater Current	.6 $\pm$ 10% amps.
Anode #2 (High Voltage Electrode)	5500 volts max.
Anode #1 (Focusing Electrode)	1500 volts max.
Grid Voltage (Control Electrode)	Never positive

Ratings

Peak Voltage between Anode #2 and any deflection plate	1000 volts max.
Resistance of circuit to grid	1.5 megohms max.
Impedance of any deflecting electrode circuit at heater supply frequency	1.0 megohms max.

Typical Operation

Heater Voltage	6.3 volts
Anode #2 Voltage	5000 volts
Anode #1 Voltage for focus	1150 + 25% - 30% volts $\bar{X}$
Anode #1 current at $E_{c1} = 0$ and $E_{p1}$ adjusted for focus	3000 ma. max.
Grid Voltage for cut-off <sup>2</sup> .	- 90 $\pm$ 50 volts.

$\bar{X}$  Required for focus when  $E_{c1}$ , is 75% of cut-off value.

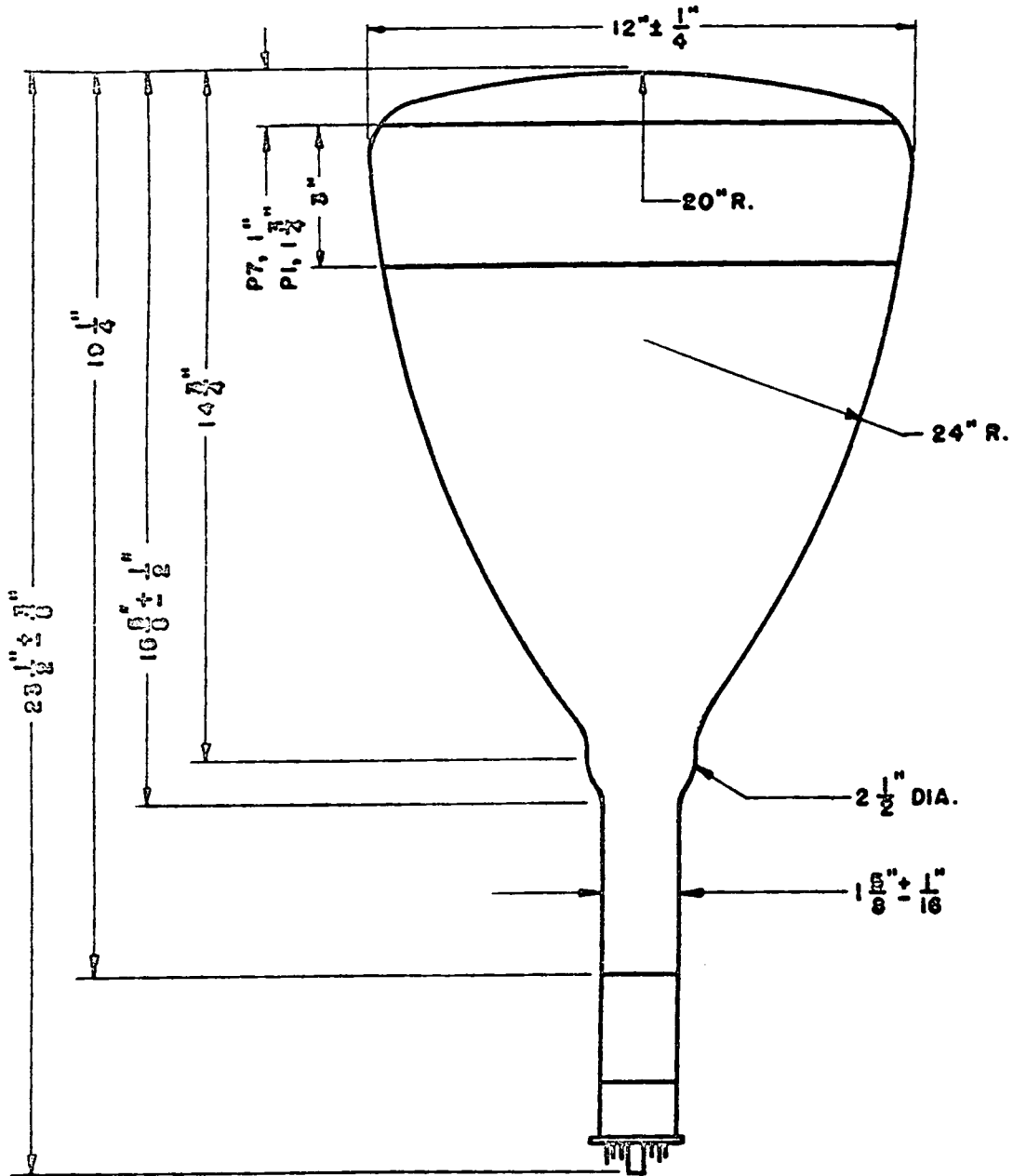
Deflection Factor

Electrodes $D_1$ and $D_2$	19 volts / (inch KV) $\pm$ 20%
Electrodes $D_3$ and $D_4$	25 volts / (inch KV) $\pm$ 20%

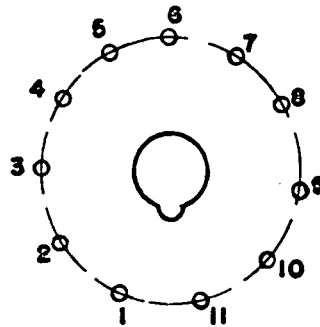
Notes:

1. When the tube is operated under typical conditions, and  $E_{c1}$  set to avoid damage to the screen, the focused undeflected spot will fall within a square of the given size centered at the geometric centre of the tube face and having one side parallel to the trace produced by  $D_1$ ,  $D_2$ .
2. Cut-off voltage is voltage necessary for visual extinction of stationary focused spot.

# HIGH VACUUM CATHODE RAY TUBE 12HP7



PIN NO.	ELEMENT
1	H.
2	INTERNAL CONNECTION
3	P1
4	D4
5	D1
6	P2
7	D2
8	D3
9	M.C.
10	G.
11	H & K.



BOTTOM VIEW OF  
BASE CONNECTIONS

BULD - J96C1

BASE - 11 PIN MAGNAL,  
METAL SHELL