

5BP-A CATHODE-RAY TUBES

The Type 5BP-A Cathode-ray Tubes are electrostatically focussed and deflected cathode-ray tubes with four free deflection plates for balanced deflection. Employing low accelerating voltages, the Type 5BP-A Cathode-ray Tubes are designed for applications where the use of an intensifier is not essential. The electron gun is designed to draw negligible focusing electrode current.

The Type 5BP-A is recommended for replacement only.



GENERAL CHARACTERISTICS

Electrical

Heater Voltage	6.3 Volts
Heater Current	$0.6 \pm 10\%$ Ampere
Focusing Method	Electrostatic
Deflecting Method	Electrostatic

Phosphor	No. 1	No. 11
Fluorescence	Green	Blue
Persistence	Medium	Short

Direct Interelectrode Capacitances, Nominal

Grid No. 1 to all other electrodes	$8.0 \mu\text{f.}$
D1 to D2	$1.4 \mu\text{f.}$
D3 to D4	$1.2 \mu\text{f.}$
D1 to all other electrodes except D2	$8.0 \mu\text{f.}$
D2 to all other electrodes except D1	$7.5 \mu\text{f.}$
D3 to all other electrodes except D4 ..	$10.0 \mu\text{f.}$
D4 to all other electrodes except D3	$7.5 \mu\text{f.}$

Mechanical

Overall Length	$16\frac{3}{4} \pm \frac{3}{8}$ Inches
Greatest Diameter of Bulb	$5\frac{1}{4} + \frac{1}{16}$, Inches — $\frac{3}{32}$ Inches
Minimum Useful Screen Diameter	$4\frac{1}{2}$ Inches
Base	Medium Magnal
Basing	11N
Base Alignment	
3D4 trace aligns with Pin No. 1 and tube axis	± 10 Degrees
Positive voltage on D1 deflects beam approximately toward Pin No. 4.	
Positive voltage on D3 deflects beam approximately toward Pin No. 1.	
Angle between 3D4 and 1D2 traces	90 ± 3 Degrees

MAXIMUM RATINGS—(Design Center Values)

Anode No. 2 Voltage	2000 Max. Volts D-C
Anode No. 1 Voltage ¹	1000 Max. Volts D-C
Grid No. 1 Voltage	
Negative Bias Value	125 Max. Volts D-C
Positive Bias Value	0 Max. Volts D-C
Positive Peak Value	2 Max. Volts
Peak Voltage between Anode No. 2 and any Deflection Electrode	500 Max. Volts

TYPICAL OPERATING CONDITIONS

For Anode No. 2 Voltage of	1500	2000	Volts
Anode No. 1 Voltage for focus	253 to 422	338 to 562	Volts
Grid No. 1 Voltage ²	-15 to -45	-20 to -60	Volts

Deflection Factors:

D1 and D2	52 to 74	70 to 98	Volts D-C per Inch
D3 and D4	47 to 67	63 to 89	Volts D-C per Inch

Anode No. 1 Voltage for focus	16.9% to 28.1% of Eb2 Volts
Grid No. 1 Voltage ²	1% to 3% of Eb2 Volts
Anode No. 1 Current for any operating condition	-50 to +10 Microamperes

Deflection Factors:

D1 and D2	35 to 49 Volts D-C per Inch per Kilovolt of Eb2
D3 and D4	31.5 to 44.5 Volts D-C per Inch per Kilovolt of Eb2

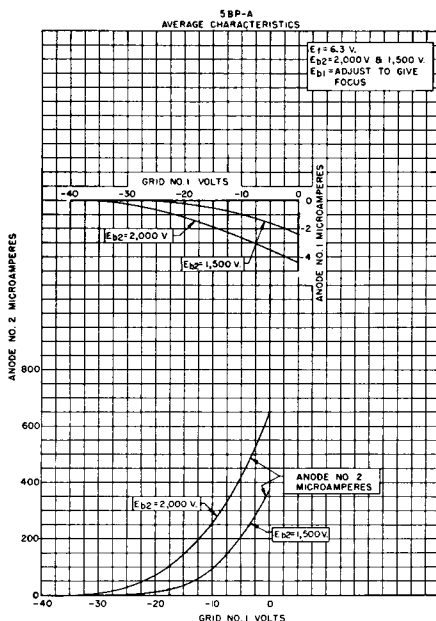
Spot Position (Undelected)³ Within 15 Millimeters square

MAXIMUM CIRCUIT VALUES

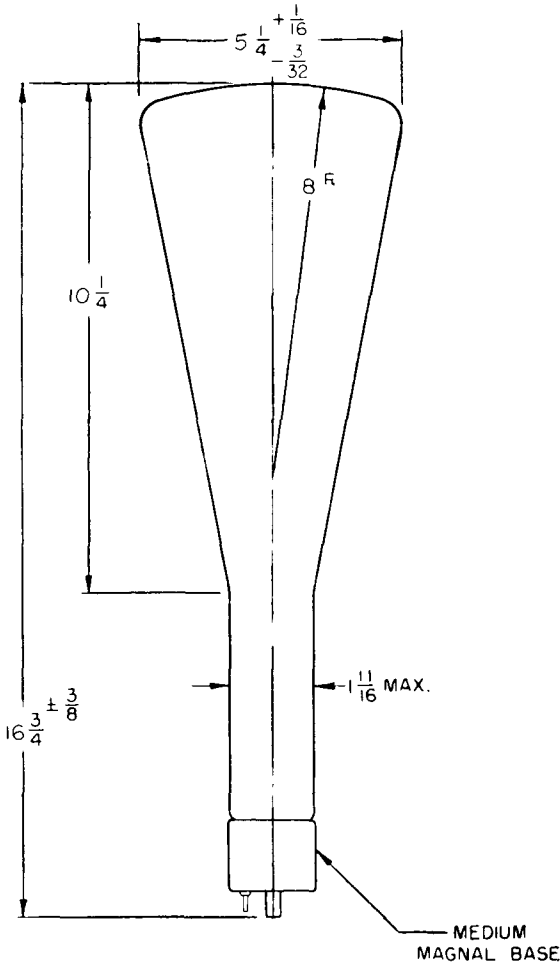
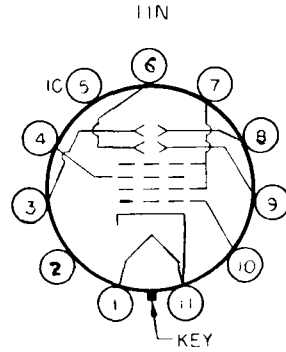
Grid No. 1 Circuit Resistance	1.5 Max. Megohms
Resistance in any Deflecting Electrode Circuit ⁴	5 Max. Megohms

NOTES

1. Anode No. 2 and Grid No. 2, which are connected together within the tube, are referred to herein as Anode No. 2.
2. Visual extinction of undeflected focused spot.
3. With Eb2=1500 volts and Eb1 adjusted for focus.
4. It is recommended that the deflecting electrode circuit resistances be approximately equal.
5. For optimum focus the average potentials of the deflection plates and second anode should be the same.



TYPE 5BP-A



BOTTOM VIEW OF BASE

PIN NO.	ELEMENT
1	HEATER
2	NO CONNECTION
3	DEFLECTING ELECTRODE D_1
4	ANODE NO. 1
5	INTERNAL CONNECTION
6	DEFLECTING ELECTRODE D_4
7	ANODE NO. 2, GRID NO. 2
8	DEFLECTING ELECTRODE D_2
9	DEFLECTING ELECTRODE D_3
10	GRID NO. 1
11	HEATER AND CATHODE