

HITACHI PICTURE TUBE

16AUP4

114° deflection
Squared corner type

The Hitachi 16AUP4 is a directly viewed, squared corner type rectangular 16" glass picture tube having aluminized screen $12\text{-}\frac{3}{4}\text{''} \times 10\text{-}\frac{1}{6}\text{'}$ with nearly straight sides and slightly rounded corners, and a minimum projected screen area of 119 square inches. Maximum overall length is $10\text{-}\frac{1}{8}\text{'}$.

The 16AUP4 features an envelope having relatively flat, compound radius faceplate and special internal contouring in the deflecting yoke region to obtain 114 deflection with 110° deflecting components. These features minimize the obstruction of outer light reflection and make the picture clearer.

Other design features of the 16AUP4 include a very short electron gun that minimizes deflection distortion and requires no ion-trap magnet; a neck diameter of $1\text{-}\frac{1}{8}\text{'}$; and a "neoeighter" 7-pin base of the integral glass-button type having straight through leads fitted with an indexing plug.

The 16AUP4 is also very suitable for portable televisions.

ELECTRICAL DATA

Focusing Method	Electrostatic
Deflection Angles (approx.)	
Horizontal	102 Degrees
Vertical	85 Degrees
Diagonal	114 Degrees
Direct Interelectrode Capacitances	
Cathode to All Other Electrodes (approx.)	5 μf
Grid No. 1 to All Other Electrodes (approx.)	6 μf
External Conductive Coating to Anode	1,500 max. μf
	800 min. μf
Heater Characteristics	
Heater Voltage	6.3 Volts
Heater Current	0.6 Amperes
Heater Warm up Time	11 Seconds

OPTICAL DATA

Phosphor Number	P4-Sulfide Type, Aluminized
Light Transmittance at Center (approx.)	78 Percent

MECHANICAL DATA

Overall Length	10- $\frac{1}{16}$ + $\frac{3}{8}$	Inches
 - $\frac{1}{4}$	Inches
Greatest Dimensions of Tube		
Diagonal	15- $\frac{5}{8}$ ± $\frac{1}{8}$	Inches
Width	13- $\frac{49}{64}$ ± $\frac{1}{8}$	Inches
Height	11- $\frac{3}{32}$ ± $\frac{1}{8}$	Inches
Minimum Useful Screen Dimensions (Projected)		
Diagonal	14- $\frac{11}{16}$	Inches
Horizontal axis	12- $\frac{3}{4}$	Inches
Vertical axis	10- $\frac{1}{16}$	Inches
Area	119 Sq.	Inches
Neck Length	4 + $\frac{1}{4}$	Inches
 - $\frac{1}{8}$	Inches
Bulb Contact		JI-21
Base		B7-208
Basing		8 HR

MAXIMUM RATINGS (Design Maximum System)

Unless otherwise specified, voltage values are positive and measured with respect to cathode.

Maximum Anode Voltage	15,400	Volts
Minimum Anode Voltage	9,000	Volts
Maximum Grid No. 4 (Focusing Electrode) Voltage	+1,100	Volts
 -550	Volts
Maximum Grid No. 2 Voltage	550	Volts
Minimum Grid No. 2 Voltage	200	Volts
Grid No. 1 Voltage		
Maximum Negative Value	154	Volts DC
Maximum Negative Peak Value	220	Volts
Maximum Positive Value	0	Volts DC
Maximum Positive Peak Value	2	Volts
Maximum Heater Voltage	6.9	Volts
Minimum Heater Voltage	5.7	Volts
Maximum Heater Cathode Voltage		
Heater Negative with Respect to Cathode		
During warm-up period not to exceed 15 seconds	450	Volts
After equipment warm-up period	200	Volts
Heater Positive with Respect to Cathode	200	Volts

TYPICAL OPERATING CONDITIONS

Grid Drive Service

Unless otherwise specified, all voltage values are positive with respect to cathode

Anode Voltage	12,000	Volts DC
Grid No. 4 Voltage (Note 2 & 3)	0 to +400	Volts DC
Grid No. 2 Voltage	400	Volts DC
Grid No. 1 Voltage	-36 to -94	Volts DC

Cathode Drive Service

Unless otherwise specified, all voltage values are positive with respect to Grid No. 1.

Anode Voltage	12,000	Volts DC
Grid No. 4 Voltage (Note 2 & 3)	0 to +400	Volts DC
Grid No. 2 Voltage	400	Volts DC
Cathode Voltage (Note 1).....	36 to 78	Volts DC

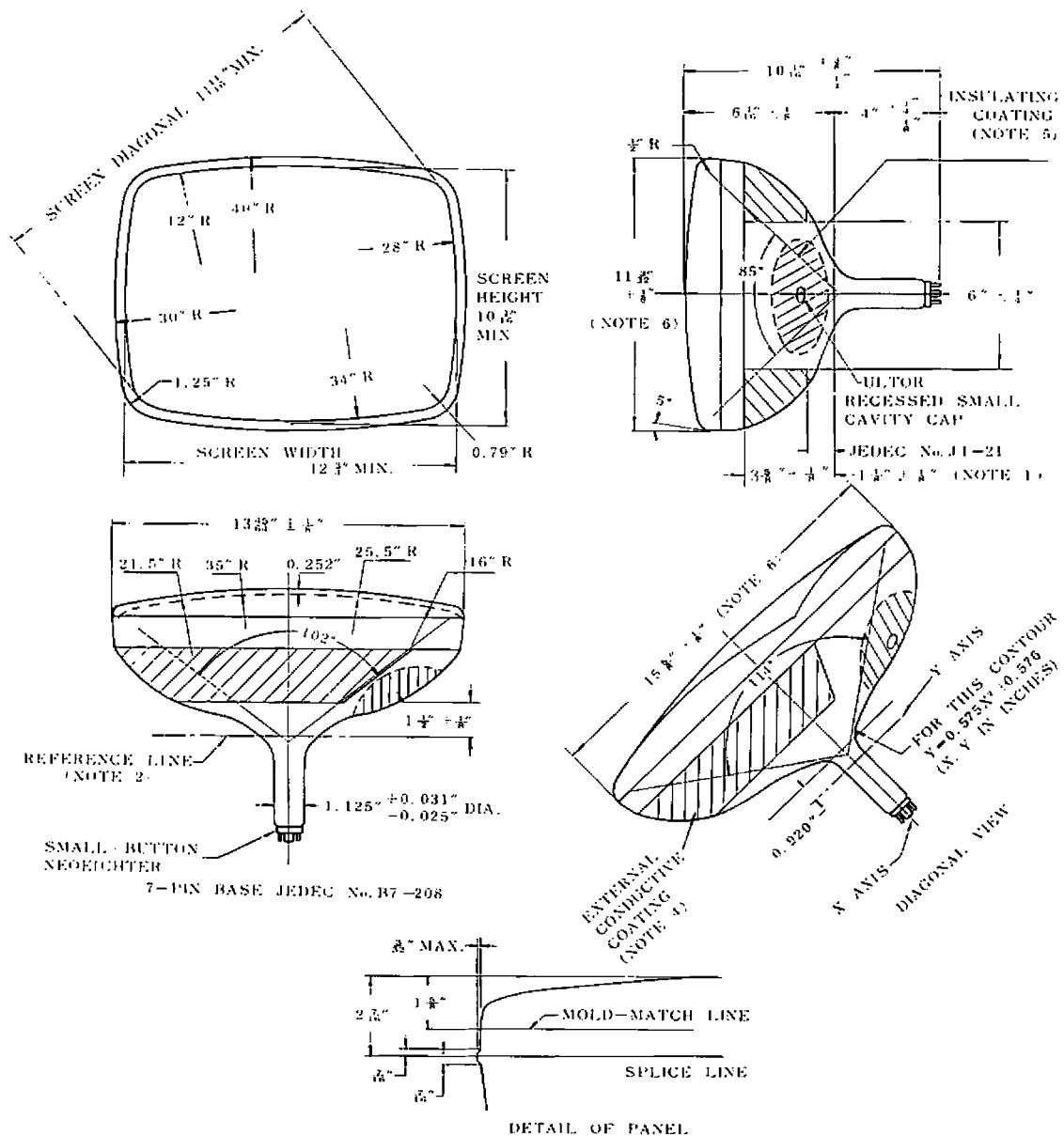
- Notes**
1. Visual extinction of focused raster.
 2. With the combined grid No. 1 bias voltage and video-signal voltage adjusted to give an anode current of 100 microamperes on a $10\frac{1}{16}'' \times 12\frac{3}{4}''$ pattern from RCA 2F21 Monoscope or equivalent.
 3. Individual tubes will have satisfactory focus at some value between 0 and 400 Volts.

GRAPHS AND DRAWINGS

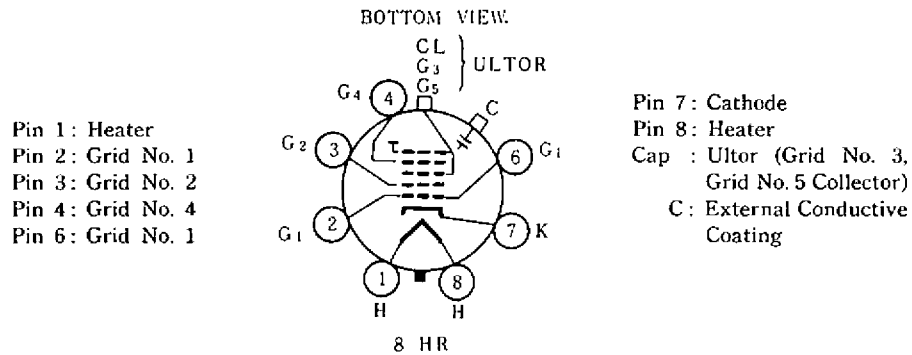
Tube Outline with essential dimensions and tolerances

Pin Connections

Pin 1 Heater	Pin 6 Grid No. 1
Pin 2 Grid No. 1	Pin 7 Cathode
Pin 3 Grid No. 2	Pin 8 Heater
Pin 4 Grid No. 4	
Bulb Contact Ultor (Grid No. 3, No. 5, Collector)	



SOCKET CONNECTIONS



- NOTE 1 :** The plane through the tube axis and pin No. 4 may vary from the plane through the tube axis and ultor terminal by angular tolerance (measured about the tube axis) of $\pm 80\%$. Ultor terminal is on same side as pin No. 4.
- NOTE 2 :** With tube neck inserted through flared end of reference-line gauge JEDEC No. 126 and with tube seated in gauge, the reference-line is determined by the intersection of the plane CC' of the gauge with the glass funnel.
- NOTE 3 :** Socket for this base should not be rigidly mounted; it should have flexible leads and be allowed to move freely. The design of the socket should be such that the circuit wiring cannot impress lateral strains through the socket contacts on the base pins. Bottom circumference of base wafer will fall within a circle concentric with bulb axis and having a diameter of $1-\frac{3}{4}$ ".
- NOTE 4 :** External conductive coating must be grounded.
- NOTE 5 :** To clean this area, wipe only with soft dry lintless cloth.
- NOTE 6 :** Measured at the mold match line.



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