

Seventeen-inch aluminized television picture tube with 110-degree magnetic deflection, low-voltage electrostatic focusing, and a straight electron gun. Its wide-angle geometry reduces cabinet depth while retaining a bright direct-view P4 display.

GENERAL CHARACTERISTICS

BASE DESIGNATION	B8HR	BASE PINS	—
NOMINAL HEATER	6.3 V / 600 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Cathode Ray	
MAXIMUM PLATE VOLTAGE	17600 V
MAXIMUM SCREEN VOLTAGE	550 V
Maximum anode/grid ratings and capacitance presence promoted from supplied Sylvania CRT data. X-ray warning is explicitly published.	

17CAP4 Television Picture Tube

The **17CAP4** is a 17-inch direct-viewed rectangular glass television picture tube designed for use in television receivers. It features a lightweight construction, low-voltage electrostatic focusing, and 110-degree magnetic deflection. The tube utilizes a straight electron gun that does not require an ion-trap magnet, and incorporates an aluminized screen with an external conductive coating.

Mechanical and Optical Construction

The 17CAP4 is built with a rectangular glass envelope and a spherical faceplate made of neutral gray filter glass, which provides a light transmittance of approximately 78% to 79%. The screen uses an aluminized P4 phosphor, exhibiting white fluorescence with short to medium persistence.

To assist in power supply filtering, the envelope features an external conductive coating that forms a supplementary filter capacitor with the internal anode. This external coating must be grounded during operation. Additionally, a transparent insulating coating of approximately 6 inches in diameter is applied to the bulb.

Physical Dimensions and Mounting

The tube can be mounted in any position. Its physical specifications include:

- **Overall Length:** 12-9/16 $\pm$ 1/4 inches
- **Neck Length:** 5-7/16 $\pm$ 1/8 inches
- **Neck Diameter:** 1.168 inches maximum at the splice (with a nominal 1-1/8 inch neck diameter)
- **Minimum Useful Screen Dimensions:** 14-3/4 inches Wide x 11-11/16 inches High, with a diagonal of 15-3/4 inches and a minimum useful area of 155 square inches
- **Maximum Bulb Dimensions:** 15-5/8 $\pm$ 1/8 inches Wide x 12-3/4 $\pm$ 1/8 inches High x 16-9/16 $\pm$ 1/8 inches Diagonal
- **Bulb Designation:** J132 1/2 A1 or equivalent
- **Net Weight:** Approximately 10 lbs

Electrical Connections and Basing

The 17CAP4 uses a small button 7-pin base (Style B, JETEC No. B7-183) with an **8HR** basing arrangement. In this configuration, Pin 4 aligns with the horizontal centerline of the tube within 10 degrees, positioned on the same side as the anode contact. The anode terminal is a recessed small cavity cap (JETEC No. J1-21).

The pin connections are assigned as follows:

Pin	Connection
Pin 1	Heater
Pin 2	Grid No. 1
Pin 3	Grid No. 2
Pin 4	Grid No. 4 (Focusing Electrode)
Pin 6	Grid No. 1
Pin 7	Cathode

Pin	Connection
Pin 8	Heater
Cap	Anode (Grid No. 3, Grid No. 5, and Anode)

Heater and Interelectrode Capacitances

The tube is equipped with a coated unipotential cathode. The heater is designed for either AC or DC operation.

- **Heater Voltage:** 6.3 V
- **Heater Current:** 0.6 A $\pm$ 5%
- **Heater Warm-up Time:** 11 seconds

The 11-second warm-up time is measured using a standard test circuit where the supply voltage (E) is 25 V, the series resistance (R) is 31.5 ohms, and the measurement represents the time required for the heater to reach 5.0 V.

Direct Interelectrode Capacitances

- **Grid No. 1 to all other electrodes:** Approximately 6 pF (μpF)
- **Cathode to all other electrodes:** Approximately 5 pF (μpF)
- **External conductive coating to anode:** 1000 pF minimum to 1500 pF maximum

Operating Ratings and Safety Limits

The operating limits of the 17CAP4 are defined under both Design Center and Absolute Maximum rating systems. Operating the tube below an anode voltage of 12,000 V is not recommended.

Maximum Ratings

Parameter	Design Center Value	Absolute Maximum Value
Anode Voltage	16,000 V max	17,600 V dc
Grid No. 4 Voltage (Focus)	-500 V to +1000 V max	-550 V to +1100 V dc
Grid No. 2 Voltage	500 V max	550 V dc
Grid No. 1 Negative Bias	140 V max	154 V dc
Grid No. 1 Negative Peak	200 V max	220 V
Grid No. 1 Positive Bias	0 V max	0 V dc
Grid No. 1 Positive Peak	2 V max	2 V

Peak Heater-Cathode Voltage Limits

- **Design Center:** Heater negative or positive with respect to cathode: 180 V maximum.
- **Absolute Maximum (Heater negative during warm-up ≤ 15 s):** 450 V
- **Absolute Maximum (Heater negative after warm-up):** 200 V
- **Absolute Maximum (Heater positive with respect to cathode):** 200 V

Limiting Circuit Values

- **Grid No. 1 Circuit Resistance:** 1.5 Megohms maximum.
- **Grid No. 2 Circuit Resistance:** 10,000 ohms minimum (protective resistance is advised).
- **Grid No. 4 Circuit Resistance:** 10,000 ohms minimum (protective resistance is advised).

Safety Warning

The 17CAP4 can produce X-ray radiation when operated. Suitable shielding may be required if the tube is operated above 16,000 V or at its maximum rated anode voltage.

Typical Operating Conditions

The tube can be operated using either Grid Drive (video signal applied to Grid No. 1) or Cathode Drive (video signal applied to the cathode).

Grid Drive (Video to Grid No. 1)

Under Grid Drive conditions, the focusing voltage on Grid No. 4 is adjusted between 0 and +400 V.

- **At Anode Voltage of 14,000 V and Grid No. 2 of 300 V:**
 - Grid No. 1 Raster Cutoff: -28 V to -72 V
- **At Anode Voltage of 16,000 V and Grid No. 2 of 400 V:**
 - Grid No. 1 Raster Cutoff: -36 V to -94 V

Cathode Drive (Video to Cathode)

Under Cathode Drive conditions, voltages are referenced to Grid No. 1. The focusing voltage on Grid No. 4 (referenced to Grid No. 1) is adjusted between 0 and 400 V.

- **At Anode-to-Grid No. 1 Voltage of 14,000 V and Grid No. 2-to-Grid No. 1 of 300 V:**
 - Cathode-to-Grid No. 1 Raster Cutoff: 28 V to 60 V
- **At Anode-to-Grid No. 1 Voltage of 16,000 V and Grid No. 2-to-Grid No. 1 of 400 V:**
 - Cathode-to-Grid No. 1 Raster Cutoff: 36 V to 78 V

Alternative Operating Point

An alternative typical operating point is specified with the following parameters:

- **Anode Voltage:** 14,000 V dc

- **Grid No. 4 Voltage for Focus:** -50 V to +350 V dc
- **Grid No. 2 Voltage:** 300 V dc
- **Grid No. 1 Voltage for Cutoff:** -35 V to -72 V dc (for visual extinction of the focused raster; visual extinction of a stationary spot requires approximately 5 V more negative bias).

Technical Summary

The **17CAP4** is a 17-inch rectangular glass television picture tube featuring 110-degree magnetic deflection and low-voltage electrostatic focusing. Its straight electron gun design eliminates the need for an ion-trap magnet, simplifying receiver design. With a standard 6.3 V, 0.6 A heater, an aluminized P4 screen, and dual drive capability (Grid or Cathode drive), the 17CAP4 provides a reliable display solution under design-center anode voltages up to 16,000 V (absolute maximum 17,600 V). Proper grounding of its external conductive coating is required to utilize its supplementary filtering capacitance, and appropriate shielding must be considered when operating near its maximum voltage limits to protect against X-ray radiation.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1950 Sylvania

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1950 SYLVANIA

Section 1 · Cathode Ray

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	600 mA	—
Cathode To All Other Electrodes Capacitance	5 pF	Approximate

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Anode Voltage	17600 V	—
Maximum Grid2 Voltage	550 V	—
Typical Anode Voltage	14000 V	—



SOURCE OPERATING CONDITIONS

1965 Sylvania Electronic Tubes Vol3

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1965 SYLVANIA ELECTRONIC TUBES VOL3

Section 1 · Cathode Ray

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Focusing method	1 code	LowVoltageElectrostatic
Deflection method	1 code	Magnetic
Deflection angle	110 deg	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode voltage maximum	16000 V	—
Anode voltage	14000 V	—
Grid No. 2 voltage maximum	500 V	—
Grid No. 4 focusing voltage minimum	0 V	—
Grid No. 4 focusing voltage maximum	400 V	—

TUBE TINKER

An independent reference for electronic tubes, vacuum tubes, and their source documents.

[Catalog](#)
[Tube types](#)
[Full books](#)
[Blog](#)
[Feedback & corrections](#)

© 2026 Tube Tinker