

Seventeen-inch electrostatically focused, magnetically deflected monochrome picture tube with a metal-backed P4 screen. Intended for high-voltage direct-view television display, its documentation specifically warns that X-ray shielding may be required above 16 kV.

GENERAL CHARACTERISTICS

BASE DESIGNATION	8HR	BASE PINS	8
NOMINAL HEATER	6.3 V / 450 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Cathode Ray	
MAXIMUM PLATE VOLTAGE	17600 V
MAXIMUM SCREEN VOLTAGE	550 V
MAXIMUM HEATER-CATHODE VOLTAGE	180 V
CRT anode and grid-2 maximum ratings are promoted from the printed ratings block; other CRT-specific focus/drive/deflection values are preserved in parameters.	

17DZP4

The **17DZP4** is a cathode-ray picture tube designed for television display applications. It features electrostatic focusing and magnetic deflection, utilizing a straight electron gun design that operates without the need for an external ion trap. The tube is constructed with a metal-backed (aluminized) screen to optimize brightness and contrast.

Mechanical Specifications and Envelope

The 17DZP4 utilizes a glass envelope designated as bulb J132 1/2A1/B1, paired with a B7-208 base and an 8HR basing arrangement. Electrical connection to the high-voltage anode is made via a J1-21 bulb contact.

Physical Dimensions

- **Overall Length:** 10 11/16 ± 1/4 inches
- **Neck Length:** 3 9/16 ± 1/8 inches
- **Greatest Diagonal:** 16 9/16 ± 1/8 inches
- **Greatest Width:** 15 5/8 ± 1/8 inches
- **Greatest Height:** 12 3/4 ± 1/8 inches

The splice line seal bulge may increase the maximum width, diagonal, and height by up to 1/8 inch. This bulge must not protrude more than 1/16 inch beyond the mold match line. A minimum undisturbed area of 3/4 inch must be maintained between the mold match line and the panel side of the seal bulge.

Screen Characteristics

The minimum useful projected screen dimensions are:

- **Diagonal:** 15 3/4 inches
- **Horizontal Axis:** 14 3/4 inches
- **Vertical Axis:** 11 11/16 inches
- **Total Useful Area:** 155 square inches

The screen is coated with No. 4 aluminized phosphor and exhibits a light transmittance of approximately 78% at the center.

Electrical and Optical Characteristics

The 17DZP4 is designed with a heater rated for nominal operation at 6.3 V and 0.45 A (450 mA), with an allowable variation of ± 10%. Under design-maximum ratings, the heater voltage must be maintained between a minimum of 5.6 V and a maximum of 7.0 V.

Deflection and Capacitance

The tube provides wide-angle magnetic deflection to scan the screen area:

- **Horizontal Deflection Angle:** 105°
- **Vertical Deflection Angle:** 87°
- **Diagonal Deflection Angle:** 110°

The internal electrostatic structure exhibits an interelectrode capacitance from the external conductive coating to the anode of 1000 pF minimum to 1500 pF maximum.

Pin Connections and Basing

The 17DZP4 uses the 8HR basing configuration. The pin assignments, viewed from the bottom of the base, are 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 8	Heater
Bulb Contact	Ultor (Anode, Grid No. 3, Grid No. 5)

Operating Conditions and Ratings

The operating limits of the 17DZP4 are defined under the Design-Maximum System. All voltages are positive and referenced to the cathode unless otherwise specified.

Design-Maximum Ratings

- **Anode Voltage:** 17,600 V maximum
- **Grid No. 4 (Focusing Electrode) Voltage:** -500 V to +1000 V maximum
- **Grid No. 2 Voltage:** 550 V maximum
- **Grid No. 1 Voltage:**
 - Maximum Negative DC Value: 155 V
 - Maximum Negative Peak Value: 220 V
 - Maximum Positive DC Value: 0 V
 - Maximum Positive Peak Value: 2 V
- **Heater-Cathode Voltage:**
 - Heater negative with respect to cathode during warm-up (first 15 seconds or less): 410 V maximum
 - Heater negative with respect to cathode after warm-up: 180 V maximum
 - Heater positive with respect to cathode: 180 V maximum

Typical Operating Conditions (Grid Drive Service)

Under typical grid drive operating conditions, the tube is configured with the following parameters:

- **Anode Voltage:** 14,000 V DC
- **Grid No. 4 Voltage:** 0 to 400 V DC (Individual tubes focus satisfactorily between 0 and 450 V when adjusted for 100 μ A anode current on an 11 11/16 x 14 3/4 inches pattern from an RCA [2F21](#) Monoscope or equivalent)
- **Grid No. 2 Voltage:** 300 V DC
- **Grid No. 1 Voltage:** -28 to -72 V DC (required for visual extinction of the focused raster)

Installation and Safety Requirements

Proper physical and electrical installation is required to ensure reliable operation and operator safety:

- **Socket Mounting:** The socket must not be rigidly mounted. It must be connected via flexible leads to allow free movement, preventing mechanical stress on the tube base.
- **Reference Line:** The reference line of the tube is determined using JEDEC gauge #126.
- **Insulating Coating:** An insulating coating is applied around the button area of the bulb contact to prevent electrical leakage or arcing.
- **X-Ray Protection:** When operated at anode voltages exceeding 16,000 V, the tube may produce X-radiation. Adequate shielding must be provided in the equipment design to protect personnel from exposure.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1956 National Video

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

1956 NATIONAL VIDEO

Section 1 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Typical Anode Voltage	14000 V	—
Phosphor	P4	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage Nominal	6.3 V	—
Heater Current Nominal	450 mA	—