



ELECTRONIC TUBE REFERENCE

17CBP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Seventeen-inch aluminized direct-view television picture tube with magnetic deflection, a unipotential cathode, and high-voltage anode operation. Manufacturer documentation also describes its focusing system, optical screen data, and external ion-trap arrangement.

GENERAL CHARACTERISTICS

BASE DESIGNATION	B6-65	BASE PINS	6
NOMINAL HEATER	– / 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	0 V
MAXIMUM SCREEN VOLTAGE	500 V
<i>CRT electron-gun/display section; published electrode ratings promoted where unambiguous.</i>	

17CBP4 — Cathode Ray Picture Tube

A rectangular glass, direct-view cathode ray tube featuring electrostatic focus and magnetic deflection, designed for television receiver applications.

Overview

The **17CBP4** is a direct-view cathode ray picture tube designed for television display systems. It features a rectangular glass construction, electrostatic focusing, and magnetic deflection. The tube is equipped with a unipotential cathode, an external conductive coating, a gray filter faceplate, and requires an external single-field ion trap.

The 17CBP4 is identical to the [17BUP4](#) picture tube in its electrical and mechanical specifications, with the sole distinction being that the 17CBP4 has a non-aluminized screen.

Construction and Optical Characteristics

The 17CBP4 is built with a rectangular glass envelope and utilizes magnetic deflection to sweep the electron beam across the screen. The approximate deflection angles are:

- **Horizontal:** 85°
- **Vertical:** 68°
- **Diagonal:** 90°

The screen has a minimum useful diagonal of 15 9/16 inches, a width of 14 5/16 inches, and a height of 11 1/8 inches, producing a standard raster size of 14 5/16" x 11 1/8".

The optical characteristics of the screen and faceplate include:

- **Phosphor:** P-4 (Sulfide type)
- **Fluorescent Color:** White
- **Phosphorescent Color:** White
- **Persistence:** Short
- **Faceplate Transmission:** Approximately 74% at the center
- **Screen Type:** Non-aluminized

An external conductive coating is applied to the bulb, which, in combination with the internal anode, forms a capacitor. The direct interelectrode capacitances are:

- **Cathode to all other electrodes:** Approximately 5 μ f
- **Grid #1 to all other electrodes:** Approximately 6 μ f
- **External conductive coating to anode:** Minimum 1200 μ f, Maximum 1500 μ f

Mechanical Specifications and Basing

The physical dimensions and mechanical features of the 17CBP4 are:

- **Overall Length:** 15 1/4 $\pm$ 3/8 inches
- **Neck Diameter:** 1 7/16 inches
- **Greatest Bulb Dimensions:**
 - Diagonal: 16 5/8 $\pm$ 1/8 inches
 - Width: 15 3/8 $\pm$ 1/8 inches
 - Height: 12 9/32 $\pm$ 1/8 inches
- **Bulb Contact:** Recessed small cavity cap (J1-21)
- **Base:** Small shell duodecal 6-pin (B6-63)
- **Basing Arrangement:** 12L
- **Bulb Contact Alignment:** The J1-21 contact aligns with pin position #6 $\pm$ 30 degrees.

The bottom view of the 12L basing arrangement provides the following pin connections:

- **Pin 1:** Heater
- **Pin 2:** Grid #1
- **Pin 6:** Grid #4
- **Pin 10:** Grid #2
- **Pin 11:** Cathode
- **Pin 12:** Heater
- **Anode Cap:** Grid No. 3, Grid No. 5, Anode

Electrical Characteristics and Typical Operating Conditions

The 17CBP4 operates with a nominal heater supply of:

- **Heater Voltage:** 6.3 V
- **Heater Current:** 0.6 A

Calculated Heater Power

The nominal heater power is calculated as: $\text{Heater Power} = 6.3 \text{ V} \times 0.6 \text{ A} = 3.78 \text{ W}$ This calculation uses the nominal heater voltage and current as inputs.

Under typical operating conditions, the tube is set up with the following parameters:

- **DC Anode Voltage:** 12,000 V (Note: Brilliance and definition decrease below this value; operating voltage should not be less than 12,000 V)
- **DC Grid #4 Voltage:** -50 to +350 V
- **DC Grid #2 Voltage:** 300 V
- **DC Grid #1 Voltage (for visual extinction of focused raster):** -28 to -72 V
- **DC Ion Trap Magnet Rated Strength:** 32 Gauss (requires an external single field ion trap)

Maximum Ratings (Design Center System)

The maximum ratings are established under the Design Center System and must not be exceeded:

- **Maximum DC Anode Voltage:** 18,000 V
- **Maximum DC Grid #4 Voltage:** -500 to +1000 V
- **Maximum DC Grid #2 Voltage:** 500 V
- **Maximum Grid #1 Voltage:**
 - DC Negative-bias: 125 V
 - DC Positive-bias: 0 V
 - Positive-peak: 0 V
- **Maximum DC Peak Heater-Cathode Voltage:**
 - Heater negative with respect to cathode (during warm-up period ≤ 15 seconds): 410 V

- Heater negative with respect to cathode (after equipment warm-up): 180 V
- Heater positive with respect to cathode: 180 V
- **Maximum Grid #1 Circuit Resistance:** 1.5 MΩ

Technical Summary

The **17CBP4** is a rectangular glass, direct-view cathode ray picture tube featuring electrostatic focus and magnetic deflection. It is designed with a 90-degree diagonal deflection angle, a unipotential cathode, and a non-aluminized P-4 sulfide-type white phosphor screen. Operating at a nominal heater rating of 6.3 V and 0.6 A, the tube typically runs at an anode voltage of 12,000 V (with a design center maximum of 18,000 V) and requires an external single-field ion trap of 32 Gauss. It is identical to the **17BUP4** except for its non-aluminized screen construction.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1961 Tung Sol

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

1961 TUNG SOL

Section 1 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater current	600 mA	Nominal
Anode voltage	18 V	Published CRT operating condition
Grid 2 voltage	300 V	Published CRT operating condition



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1966 Tung Sol Electronic Tubes 4 of 4

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

1966 TUNG SOL ELECTRONIC TUBES 4 OF 4

Section 1 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Grid No. 2 voltage	500 V	Published maximum Grid No. 2 voltage
Maximum anode voltage	0 V	Published maximum anode voltage
FACEPLATE TRANSMISSION AT CENTER (APPROX.)	74 %	FACEPLATE TRANSMISSION AT CENTER (APPROX.) : 74 PERCENT
HEATER VOLTAGE	6.3 V	HEATER VOLTAGE 6.3 VOLTS
HEATER CURRENT	600 mA	HEATER CURRENT 0.6 AMP.
MAXIMUM DC ANODE VOLTAGE LS	0 V	MAXIMUM DC ANODE VOLTAGE LS 000 VOLTS
MAXIMUM DC GRID #2 VOLTAGE	500 V	MAXIMUM DC GRID #2 VOLTAGE 500 VOLTS

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HEATER POSITIVE WITH RESPECT TO CATHODE 1H	0 V	HEATER POSITIVE WITH RESPECT TO CATHODE 1H 0 VOLTS
MAXIMUM 6R 10 #1 CIRCUIT RESISTANCE	1.5 Mohm	MAXIMUM 6R 10 #1 CIRCUIT RESISTANCE 1.5 MEGOHMS
DC ANODE VOLTAGE A 'Z	0 V	DC ANODE VOLTAGE A 'Z 000 VOLTS
OC GRID #2 VOLTAGE	300 V	OC GRID #2 VOLTAGE 300 VOLTS
DC GRID #1 VOLTAGE B -28 70	72 V	DC GRID #1 VOLTAGE B -28 70 -72 VOLTS
VOLTAGE SHOULD NOT BE LESS THAN 17, G	0 V	VOLTAGE SHOULD NOT BE LESS THAN 17, 000 VOLTS.

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
CATHODE TO ALL OTHER ELECTRODES	5 MMF	CATHODE TO ALL OTHER ELECTRODES 5 μmf
MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE]	500 MMF	MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE] 500 μmf

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