

ELECTRONIC TUBE REFERENCE

17CGP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Seventeen-inch aluminized direct-view television picture tube with electrostatic focusing and magnetic deflection. The unipotential electron gun and high-voltage anode system are supported by published optical and operating-condition data.

GENERAL CHARACTERISTICS

BASE DESIGNATION	E6-6	BASE PINS	6
NOMINAL HEATER	6.3 V / –	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Cathode Ray	
MAXIMUM SCREEN VOLTAGE	500 V
CRT electron-gun/display section; published electrode ratings promoted where unambiguous.	

17CGP4 — Direct-View Television Picture Tube

The **17CGP4** is a direct-view rectangular glass cathode ray tube (CRT) designed for television applications. It features an aluminized screen, electrostatic focus, magnetic deflection, a unipotential cathode, an external conductive coating, and a gray filter faceplate. The tube is designed to operate without the need for an ion trap.

Mechanical Specifications and Physical Dimensions

The 17CGP4 is constructed with a rectangular glass bulb. Its physical dimensions and screen specifications are as follows:

- Overall Length:** 17-3/16 inches ± 3/8 inch

- **Greatest Bulb Dimensions:**
 - **Diagonal:** 16-5/8 inches $\pm$ 1/8 inch
 - **Width:** 15-3/8 inches $\pm$ 1/8 inch
 - **Height:** 12-1/4 inches $\pm$ 1/8 inch
- **Minimum Useful Screen Dimensions:**
 - **Diagonal:** 15-9/16 inches
 - **Width:** 14-5/16 inches
 - **Height:** 11-1/8 inches
- **Approximate Raster Size:** 14-5/16 inches by 10-1/8 inches

Tube Base and Bulb Contact Alignment

The tube uses a **Small Shell Duodecal 6-Pin** base (designation **B6-63**) with a **12L** basing configuration. The high-voltage anode connection is made via a **Recessed Small Cavity Cap** (designation **J1-21**). The J1-21 contact is aligned with pin position #6 within a tolerance of ± 30 degrees.

Pin Connections

The bottom-view pin connections for the 12L basing arrangement are:

Pin	Connection
Pin 1	Heater
Pin 2	Grid No. 1
Pin 6	Grid No. 4
Pin 10	Grid No. 2
Pin 11	Cathode
Pin 12	Heater
Anode Cap	Grid No. 3, Grid No. 5, Anode

Electrical and Optical Characteristics

The 17CGP4 utilizes electrostatic focusing and magnetic deflection. The deflection angles are approximately:

- **Horizontal Deflection Angle:** 65 degrees
- **Diagonal Deflection Angle:** 70 degrees

Optical Data

The screen is coated with **P-4** sulfide-type phosphor, which produces a white fluorescent color and a white phosphorescent color with medium persistence. The gray filter faceplate has an approximate light

transmission of 74% at its center.

Direct Interelectrode Capacitances

The direct interelectrode capacitances of the tube are:

- **Cathode to all other electrodes:** 5 μF (approximate)
- **Grid #1 to all other electrodes:** 6 μF (approximate)
- **External conductive coating to anode:** 500 μF minimum to 750 μF maximum

Design Center Ratings

The maximum ratings for the 17CGP4 are established under the Design Center System:

- **Heater Voltage:** 6.3 Volts
- **Heater Current:** 0.6 Ampere $\pm$ 10%
- **Maximum DC Anode Voltage:** 14,000 Volts
- **Maximum DC Grid #4 Voltage:** -500 to +1000 Volts
- **Maximum DC Grid #2 Voltage:** 500 Volts
- **Maximum Grid #1 Voltage:**
 - **DC Negative-bias value:** 125 Volts
 - **DC Positive-bias value:** 0 Volts
 - **Positive-peak value:** 2 Volts
- **Maximum DC Peak Heater-Cathode Voltage:**
 - **Heater negative with respect to cathode:**
 - *During warm-up period (not to exceed 15 seconds):* 410 Volts
 - *After equipment warm-up period:* 180 Volts
 - **Heater positive with respect to cathode:** 180 Volts
- **Maximum Grid #1 Circuit Resistance:** 1.5 Megohms

Typical Operating Conditions

Under typical operating conditions, the 17CGP4 is configured with the following electrical parameters:

- **DC Anode Voltage:** 11,000 Volts
- **DC Grid #4 Voltage:** -56 to +310 Volts
- **DC Grid #2 Voltage:** 300 Volts
- **DC Grid #1 Voltage (for visual extinction of focused raster):** -28 to -72 Volts

Technical Summary

The **17CGP4** is a rectangular glass picture tube designed for direct-view television applications. It features electrostatic focusing, magnetic deflection (65° horizontal, 70° diagonal), and a P-4 sulfide-type white phosphor screen. Operating typically at an anode voltage of 11,000 Volts, the tube provides a

reliable display without requiring an ion trap. It utilizes a standard 6.3 V heater, a small shell duodecal 6-pin base, and a J1-21 recessed cavity cap for high-voltage anode connection.



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 voltage	6.3 V	Nominal
Anode voltage	14 V	Published CRT operating condition
Grid 2 voltage	500 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
FACEPLATE TRANSMISSION AT CENTER (APPR OX.)	74 %	FACEPLATE TRANSMISSION AT CENTER (APPR OX.): 74 PERCENT
HEATER VOLTAGE	6.3 V	HEATER VOLTAGE 6.3 VOLTS
MAXIMUM DC ANODE VOLTAGE	14000 V	MAXIMUM DC ANODE VOLTAGE 14 000 VOLTS
MAXIMUM DC GRID #2 VOLTAGE	500 V	MAXIMUM DC GRID #2 VOLTAGE 500 VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE 1\$	0 V	HEATER POSITIVE WITH RESPECT TO CATHODE 1\$0 VOLTS
DC ANODE VOLTAGE	11000 V	DC ANODE VOLTAGE 11 000 VOLTS

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC GRID #2 VOLTAGE	300 V	DC GRID #2 VOLTAGE 300 voLTs
DC GRID #1 VOLTAGE A -2\$ TO	-72 V	DC GRID #1 VOLTAGE A -2\$ TO -72 VOLTS

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
CATHODE TO ALL OTHER ELECTRODES	5 MMF	CATHODE TO ALL OTHER ELECTRODES 5 μpf
GRID #i TO ALL OTHER ELECTR bDES	6 MMF	GRID #i TO ALL OTHER ELECTR bDES 6 μpf
MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	750 MMF	MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE 750 μpf
MINIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	500 MMF	MINIMUM EXTERNAL CONDUCTIVE COATING TO ANODE 500 μpf