



ELECTRONIC TUBE REFERENCE

17HP4A

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Seventeen-inch direct-view television picture tube with magnetic focusing, magnetic deflection, and a white P4 screen. Its approximately 90-degree deflection system and high-voltage operation are intended for large-screen monochrome receiver display service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	66-63	BASE PINS	6
NOMINAL HEATER	6.3 V / 600 mA	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-specific electrode/focus/deflection data retained as parameter rows.	

17HP4A — Cathode Ray Picture Tube

The **17HP4A** is a direct-view rectangular glass cathode ray picture tube designed primarily for television applications. It features electrostatic focusing and magnetic deflection, utilizing a unipotential cathode. The tube is constructed with an external conductive coating and requires an external single-field ion trap.

Physical and Optical Characteristics

The 17HP4A is characterized by its rectangular glass envelope and specific faceplate construction. It features a grey frosted filter faceplate, which distinguishes it from the related [17HP4](#) (which has a plain grey filter faceplate) and the [17HP4B](#) (which features an aluminized screen).

Dimensional Specifications

- **Overall Length:** 19 3/16 ± 3/8 inches
- **Greatest Diagonal Dimension:** 16 5/8 ± 1/8 inches
- **Greatest Width:** 15 3/8 ± 1/8 inches
- **Greatest Height:** 12 1/4 ± 1/8 inches
- **Minimum Useful Screen Width:** 14 5/16 inches
- **Minimum Useful Screen Height:** 10 3/4 inches
- **Raster Size:** 10 3/4 inches by 14 1/4 inches

Optical and Deflection Data

The tube utilizes Phosphor No. 4, which produces a white fluorescent color and a white phosphorescent color with medium persistence. The faceplate light transmission at the center is approximately 66%. The deflection angles of the tube are approximately:

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

Base, Pinout, and Electrode Connections

The 17HP4A uses a small shell duodecal 6-pin base (designation B6-63) with a 12L basing arrangement. High-voltage connections to Grid No. 3, Grid No. 5, and the collector are made via a recessed small cavity cap (designation J1-21) located on the bulb. This bulb contact aligns with pin position #6 within a tolerance of ± 30 degrees.

The pin connections, viewed from the bottom of the base, are assigned as follows:

Pin Number	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, Collector

Electrical Ratings and Operating Conditions

The electrical limits and typical operating parameters of the 17HP4A are defined under the design center rating system.

Design Center Maximum Ratings

- **Heater Voltage:** 6.3 Volts
- **Heater Current:** 0.6 Ampere
- **Maximum DC Grid No. 3, Grid No. 5, and Collector Voltage:** 16,000 Volts
- **Maximum DC Grid No. 4 Voltage:** 500 Volts
- **Maximum DC Grid No. 2 Voltage:** 500 Volts
- **Maximum Grid No. 1 Voltage (DC Negative-Bias):** 125 Volts
- **Maximum Grid No. 1 Voltage (DC Positive-Bias):** 0 Volts
- **Maximum Grid No. 1 Voltage (Positive-Peak):** 2 Volts
- **Maximum Grid No. 1 Circuit Resistance:** 1.5 Megohms

Heater-Cathode Voltage Ratings

The maximum DC peak heater-cathode voltage limits depend on the operating state of the equipment:

- **Heater negative with respect to cathode during warm-up (not to exceed 15 seconds):** 410 Volts
- **Heater negative with respect to cathode after equipment warm-up:** 180 Volts
- **Heater positive with respect to cathode:** 180 Volts

Typical Operating Conditions

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

- **DC Grid No. 3, Grid No. 5, and Collector Voltage:** 14,000 Volts
- **DC Grid No. 4 Voltage:** -56 to 310 Volts
- **DC Grid No. 2 Voltage:** 300 Volts
- **DC Grid No. 1 Voltage (for visual extinction of undeflected focused spot):** -33 to -77 Volts
- **DC Ion Trap Current (using Standard Coil No. 111):** Approximately 85 mA

Interelectrode Capacitances

The direct interelectrode capacitances of the 17HP4A are approximately:

- **Cathode to all other electrodes:** 5 μf
- **Grid No. 1 to all other electrodes:** 6 μf
- **External conductive coating to anode (Maximum):** 1,500 μf
- **External conductive coating to anode (Minimum):** 750 μf



SOURCE OPERATING CONDITIONS

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
Maximum Anode Voltage	18000 V	—
Typical Anode Voltage	14000 V	—
Maximum Grid2 Voltage	500 V	—
Typical Grid2 Voltage	300 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
FocusingMethod	Magnetic	—
DeflectingMethod	Magnetic	—
DeflectionAngleApproximate	90 degree	—
PhosphorNumber	4	—
FluorescentColor	White	—
Variant	Published faceplate/screen variant on shared datasheet	—



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 LIGHT TRANSMISSION AT CENTER (APPROX.)	66 %	FACEPLATE LIGHT TRANSMISSION AT CENTER (APPROX.) 66 PERCENT
HEATER VOLTAGE	6.3 V	HEATER VOLTAGE 6.3 voLTs
HEATER CURRENT	600 mA	HEATER CURRENT 0.6 AMP.
MAXIMUM DC GRID #3, GRID #5, COLLECTOR VOLTAGE	16000 V	MAXIMUM DC GRID #3, GRID #5, COLLECTOR VOLTAGE 16 000 VOLTS
MAXIMUM DC GRID #4 VOLTAGE	500 V	MAXIMUM DC GRID #4 VOLTAGE 500 voLTs
MAXIMUM DC GRID #2 VOLTAGE	500 V	MAXIMUM DC GRID #2 VOLTAGE 500 VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE IS	0 V	HEATER POSITIVE WITH RESPECT TO CATHODE ISO VOLTS
DC GRID #3, GRID #5, COLLECTOR VOLTAGE	14000 V	DC GRID #3, GRID #5, COLLECTOR VOLTAGE 14 000 voLTs
DC GRID #4 VOLTAGE —56 v	310 V	DC GRID #4 VOLTAGE —56 to 310 voLTs
DC GRID #2 VOLTAGE	300 V	DC GRID #2 VOLTAGE 300 voLTs
DC GRID #1 VOLTAGE A —33 To —	77 V	DC GRID #1 VOLTAGE A —33 To —77 voLTs
DC ION TRAP CURRENT STANDARD COIL #111 (APPROX.)	85 mA	DC ION TRAP CURRENT STANDARD COIL #111 (APPROX.) 85 MA.

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
CATHODE TO ALL OTHER ELECTRODES	5 MMF	CATHODE TO ALL OTHER ELECTRODES 5 μmf
GRID #i TO ALL OTHER ELECTRODES	6 MMF	GRID #i TO ALL OTHER ELECTRODES 6 μmf
MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	1500 MMF	MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE 1 500 μmf
MINIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	750 MMF	MINIMUM EXTERNAL CONDUCTIVE COATING TO ANODE 750 μmf

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