

ELECTRONIC TUBE REFERENCE

15CP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Magnetically focused and deflected P4 cathode-ray display tube with white fluorescence, approximately 50-degree deflection, typical 12 kV anode operation, and a 15 kV maximum rating.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	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

SECTION1 Cathode Ray
No fixed ratings recorded.
CRT-specific electrode/focus/deflection values retained in parameter rows.

15CP4 — Electromagnetic Cathode Ray Tube

The **15CP4** is an electromagnetic cathode ray tube (CRT) designed primarily for direct-view black-and-white television receivers. It features a glass bulb construction and produces a rectangular picture of approximately 9" x 12" with good definition. The tube utilizes magnetic deflection and magnetic focusing, and it requires an external ion-trap magnet to prevent the formation of ion-spot blemishes on the screen.

Optical and Screen Characteristics

The screen of the 15CP4 is designed to provide a clear, high-contrast display suitable for television viewing. Its primary characteristics include:

- Fluorescence and Phosphorescence:** White

- **Persistence:** Medium
- **Deflection and Focus:** Magnetic
- **Deflection Angle:** Approximately 50 degrees
- **Ion-Trap:** Magnetic (requires an external ion-trap magnet)
- **Bulb Contact:** Recessed small cavity for the anode connection

Physical Dimensions and Mounting

The 15CP4 is a large-format television tube of its era. It can be operated in any mounting position. The physical dimensions of the glass envelope are specified as follows:

Dimension	Value	Tolerance
Overall Length	21-1/2"	± 3/8"
Face Diameter	15-1/2"	± 1/4"
Neck Length	8"	± 1/8"
Neck Diameter	1-7/16"	± 1/16"

Heater and Base Connections

The tube incorporates a coated unipotential cathode. The heater is designed to operate on either alternating current (AC) or direct current (DC).

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

The 15CP4 uses a **small shell duodecal 5-pin base** (utilizing the [12D](#) basing arrangement). The pin connections, viewed from the bottom of the base, are as follows:

Pin Number	Connection
1	Heater
2	Grid #1
10	Grid #2
11	Cathode
12	Heater
Cap	Anode

Electrical Ratings

The maximum ratings for the 15CP4 are interpreted according to the RMA Standard M8-210 rating system. Operating the tube beyond these limits may impair performance or cause permanent damage.

Parameter	Rating	Unit
Maximum Anode Voltage	15,000	V
Maximum Grid #2 Voltage	410	V
Maximum Grid #1 Negative Bias Voltage	125	V
Maximum Grid #1 Positive Bias Voltage	2	V
Peak Heater-Cathode Voltage (Heater Negative)	125	V
Peak Heater-Cathode Voltage (Heater Positive)	125	V
Maximum Grid #1 Circuit Resistance	1.5	MΩ

Direct Interelectrode Capacitances

- Grid #1 to all other electrodes: 6.5 IIF
- Cathode to all other electrodes: 5 IIF

Typical Operating Conditions and Characteristics

Under typical operating conditions, the 15CP4 requires specific voltage and current levels to maintain optimal picture brilliance and definition.

Parameter	Typical Value	Unit
Anode Voltage	9,000 to 15,000	V
Grid #2 Voltage	250	V
Grid #1 Voltage	-45	V
DC Focusing Coil Current	115 (±15%)	mA
DC Ion-Trap Magnet Current	109 (approx.)	mA

Operating Considerations and Performance Notes

- **Anode Voltage Limits:** While the tube is rated for typical operation between 9,000 and 15,000 V, a decrease in anode voltage below 9,000 V results in a noticeable reduction in picture brilliance and definition. In general, the anode voltage should not be allowed to fall below this 9,000 V threshold.
- **Grid #2 Voltage Limits:** Similarly, the brilliance and definition of the display will decrease if the Grid #2 voltage is reduced. For satisfactory performance, the Grid #2 voltage should not be less than 125 V.

Technical Summary

The **15CP4** is a 15-inch class electromagnetic cathode ray tube designed for direct-view black-and-white television applications. It features a 50-degree deflection angle, medium-persistence white phosphor, and requires external magnetic focusing, deflection, and ion-trap components. Operating with a standard 6.3 V, 0.6 A heater, the tube is capable of handling anode potentials up to 15,000 V, delivering a clear 9" x 12" picture when operated within its recommended typical conditions.

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
Maximum Anode Voltage	15000 V	—
Typical Anode Voltage	12000 V	—
Maximum Grid2 Voltage	410 V	—
Typical Grid2 Voltage	300 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
FocusingMethod	Magnetic	—
DeflectingMethod	Magnetic	—
DeflectionAngleApproximate	50 degree	—
PhosphorNumber	4	—
FluorescentColor	White	—