

ELECTRONIC TUBE REFERENCE

17QCP1

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Seventeen-inch magnetically focused and deflected cathode-ray display tube with approximately 65-degree horizontal and 50-degree vertical deflection. The available source does not clearly establish television, radar, or oscilloscope service, so its functional classification remains general.

GENERAL CHARACTERISTICS

BASE DESIGNATION	12N	BASE PINS	12
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 PLATE VOLTAGE	9000 V
MAXIMUM SCREEN VOLTAGE	500 V
Magnetically focused and deflected cathode-ray tube.	

17QCP1 — Cathode-Ray Tube

The **17QCP1** is a high-resolution, magnetically focused and deflected cathode-ray tube (CRT) designed for display applications. It features an aluminized screen, a non-ion trap gun structure, and a low anode voltage design. The tube incorporates a P1 phosphor screen, which provides green fluorescence with medium persistence, and a faceplate with approximately 72% light transmission.

Construction and Mechanical Characteristics

The 17QCP1 is constructed with a rectangular glass envelope and an aluminized screen to enhance brightness and prevent screen charging. It does not require an external ion trap magnet.

Physical Dimensions

The physical envelope of the 17QCP1 is characterized by the following dimensions:

- **Overall Length:** $19\text{-}3/16 \pm 3/8$ inches
- **Greatest Diameter:** $16\text{-}5/8 \pm 1/8$ inches
- **Greatest Width:** $15\text{-}5/8 \pm 1/8$ inches
- **Greatest Height:** $12\text{-}1/4 \pm 1/8$ inches
- **Neck Length:** $7\text{-}1/2 \pm 3/16$ inches

The minimum useful projected screen dimensions are:

- **Diagonal:** 15-9/16 inches
- **Horizontal:** 14-3/8 inches
- **Vertical:** 10-3/4 inches

Deflection and Focus

The tube utilizes magnetic deflection and magnetic focusing. The deflection angles are:

- **Horizontal:** 65°
- **Vertical:** 50°
- **Diagonal:** 70°

Base, Bulb Contact, and Alignment

The tube uses a **B5-57** base with a **12N** basing arrangement. High-voltage anode connection is made via a **J1-21** bulb contact (recessed small cavity cap). The mechanical alignment of the bulb contact and pins is specified as follows:

- The J1-21 contact aligns with pin #6 within a tolerance of $\pm 30^\circ$.
- Pin #6 aligns with the horizontal picture axis within a tolerance of $\pm 30^\circ$.

Electrical Connections and Pinout

The B5-57 base (12N basing) provides the following pin connections:

Pin Number	Connection
Pin 1	Heater
Pin 2	Grid #1 (Control Grid)
Pin 10	Grid #2 (Screen Grid)
Pin 11	Cathode
Pin 12	Heater

Pin Number	Connection
Recessed Cap (J1-21)	Anode

Interelectrode Capacitances

The interelectrode capacitances of the 17QCP1 are:

- **Cathode to all other electrodes:** approximately 5 pF
- **Grid #1 to all other electrodes:** approximately 6 pF
- **External conductive coating to anode:** 750 pF minimum to 1500 pF maximum

Heater and Electrical Ratings

The heater is designed for operation at a nominal voltage of 6.3 V with a current of $600 \pm 10\%$ mA.

Design-Maximum Ratings

The ratings for the 17QCP1 are established under the Design Maximum System. Operating the tube beyond these limits may impair performance or cause permanent damage.

Parameter	Rating
Maximum Anode Voltage	9,000 V
Minimum Anode Voltage	5,000 V
Maximum Grid #2 Voltage	500 V
Maximum Negative Grid #1 DC Voltage	140 V
Maximum Negative Grid #1 Peak Voltage	200 V
Maximum Positive Grid #1 DC Voltage	0 V
Maximum Positive Grid #1 Peak Voltage	2 V
Maximum Heater-Cathode Voltage (Heater negative to cathode) during warm-up (≤ 15 s)	410 V
Maximum Heater-Cathode Voltage (Heater negative to cathode) after warm-up	180 V

Maximum Circuit Values

- **Maximum Grid #1 Circuit Resistance:** 1.5 Megohms

Typical Operating Conditions

For typical grid drive service, the operating parameters are defined as follows:

Parameter	Typical Value
Anode Voltage	5,000 V DC
Grid #2 Voltage	300 V DC
Grid #1 Voltage (for visual cutoff)	-28 V to -72 V DC
Focusing Coil Current	60 mA DC

The focusing coil current of 60 mA DC is required under these typical conditions to achieve optimal spot focus across the screen. The grid #1 voltage range of -28 to -72 V DC represents the variation required to achieve visual cutoff of the raster.

Technical Summary

The **17QCP1** is a magnetically focused and deflected cathode-ray tube featuring a 17-inch class rectangular envelope, a P1 green phosphor screen with medium persistence, and an aluminized backing. Operating under the Design Maximum System, it supports anode voltages between 5,000 V and 9,000 V, with typical grid drive operation specified at 5,000 V. The tube utilizes a B5-57 base (12N basing) and a J1-21 anode cap, with a 6.3 V, 600 mA heater.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1945 Continental Electronics

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

1945 CONTINENTAL ELECTRONICS

Section 1 · Cathode Ray

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Focusing Method	Magnetic	—
Deflecting Method	Magnetic	—
Horizontal Deflection Angle	65 deg	Approximate
Vertical Deflection Angle	50 deg	Approximate

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode Voltage Minimum	5000— V	—
Anode Voltage Typical	9000 V	Grid drive service
Grid 2 Voltage Typical	300 V	Grid drive service
Grid 1 Voltage	-72--28 V	Grid drive service