

# Rogers Electronic Tubes & Components

21CLP4

Description: Rectangular television picture tube with filter glass, metal-backed screen, ion trap, electrostatic focusing and 90° magnetic deflection

## Heater data

Heater voltage 6.3 volts  
Heater current 0.3 amp

Note: (applies to series operation only) The surge heater voltage must not exceed 9.5 volts rms when the supply is switched on. When used in a series chain a current limiting device may be necessary in the circuit to ensure that this voltage is not exceeded

## Direct interelectrode capacitances

Grid No. 1 to all other electrodes 7  $\mu\text{F}$   
Cathode to all other electrodes 4  $\mu\text{F}$   
External conductive coating to grids No. 4 and 6 max. 1750  $\mu\text{F}$   
min. 1250  $\mu\text{F}$

## Screen

Phosphor number (JETEC designation) P4  
Fluorescent color white  
Persistence short  
Light transmission 70 %  
Useful diagonal min. 20 1/8"  
Useful width min. 19 "  
Useful height min. 14 7/8"

## Focusing method

electrostatic

## Deflection method

double magnetic

Deflection angle, diagonal 90 °  
Deflection angle, horizontal 85 °  
Deflection angle, vertical 65 °

## Mounting position

any

The socket for the base should not be rigidly mounted; it should have flexible leads and be allowed to move freely. The outer circumference of the base will fall within a circle which is concentric with the perpendicular from the centre of the face and which has a diameter of 2 3/16"

## Ion trap magnet

Single magnet, field strength approx. 50 Gauss

Picture centring magnet

Field intensity perpendicular to the tube axis for centering of the picture: 0-10 gaussess.

Maximum distance between centre of field of this magnet and reference line is 2 3/4"

Ratings (Design center values)

Grid No. 4 and 6 voltage	18000 max. volts <sup>X)</sup>
Grid No. 3 and 5 voltage	12000 min. volts
positive	500 max. volts
negative	500 max. volts
Grid No. 2 voltage	500 max. volts
Grid No. 1 voltage	200 min. volts
negative	150 max. volts
positive	0 max. volt
positive peak	2 max. volts
Heater to cathode voltage <sup>+</sup> )	
Heater positive with respect to cathode	125 max. volts
Heater negative with respect to cathode	200 max. volts
Peak value during a warm-up period not exceeding 45 sec; heater negative	410 max. volts

Maximum circuit values

Grid No. 1 circuit resistance	1,5 max. megohms
Grid No. 1 circuit impedance at 50 cps	0,5 max. megohms
Circuit resistance between cathode and heater	see <sup>o)</sup> )

Circuit design values

Negative grid No. 3 and 5 current	10 max. microamps
Positive grid No. 3 and 5 current	10 max. microamps

<sup>X)</sup> At zero current

<sup>+</sup>) In order to avoid excessive hum, the A.C. component of the heater to cathode voltage should be as low as possible and must not exceed 20 volts, rms.

<sup>o)</sup> When the heater is supplied from a separate transformer, the maximum value of the circuit resistance between cathode and heater = 1 megohm. When the heater is in a series chain or earthed the maximum circuit impedance at 50 cps = 0,1 MΩ

Typical operating conditions

Grids No. 4 and 6 voltage	14000	16000 volts
Grids No. 3 and 5 voltage at final accelerating electrodes current of 100 microamps	-103 to +203	-75 to +235 volts <sup>XX)</sup>
Grid No. 2 voltage	300	300 volts
Grid No. 1 voltage for visual extinction of undeflected focused spot	-40 to -80	-40 to -80 volts

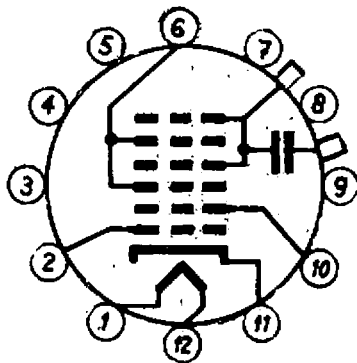
Mechanical data

Overall length	19" ± 3/8"
Greatest dimensions of bulb	
diagonal	21 3/8" ± 1/8"
width	20 1/4" ± 1/8"
height	16 3/8" ± 1/8"
Neck length	6 1/2"
Bulb number (ASA designation)	J171
Bulb contact (JETEC designation)	J1-21
Base (JETEC designation)	B7-51

<sup>XX)</sup> At the specified value of grids No. 3 and 5 voltage the focusing of the tube is optimum in the centre of the screen. If a uniform focusing over the entire screen is preferred this voltage has to be raised with 100 to 200 volts

Notes from page 5 and 6

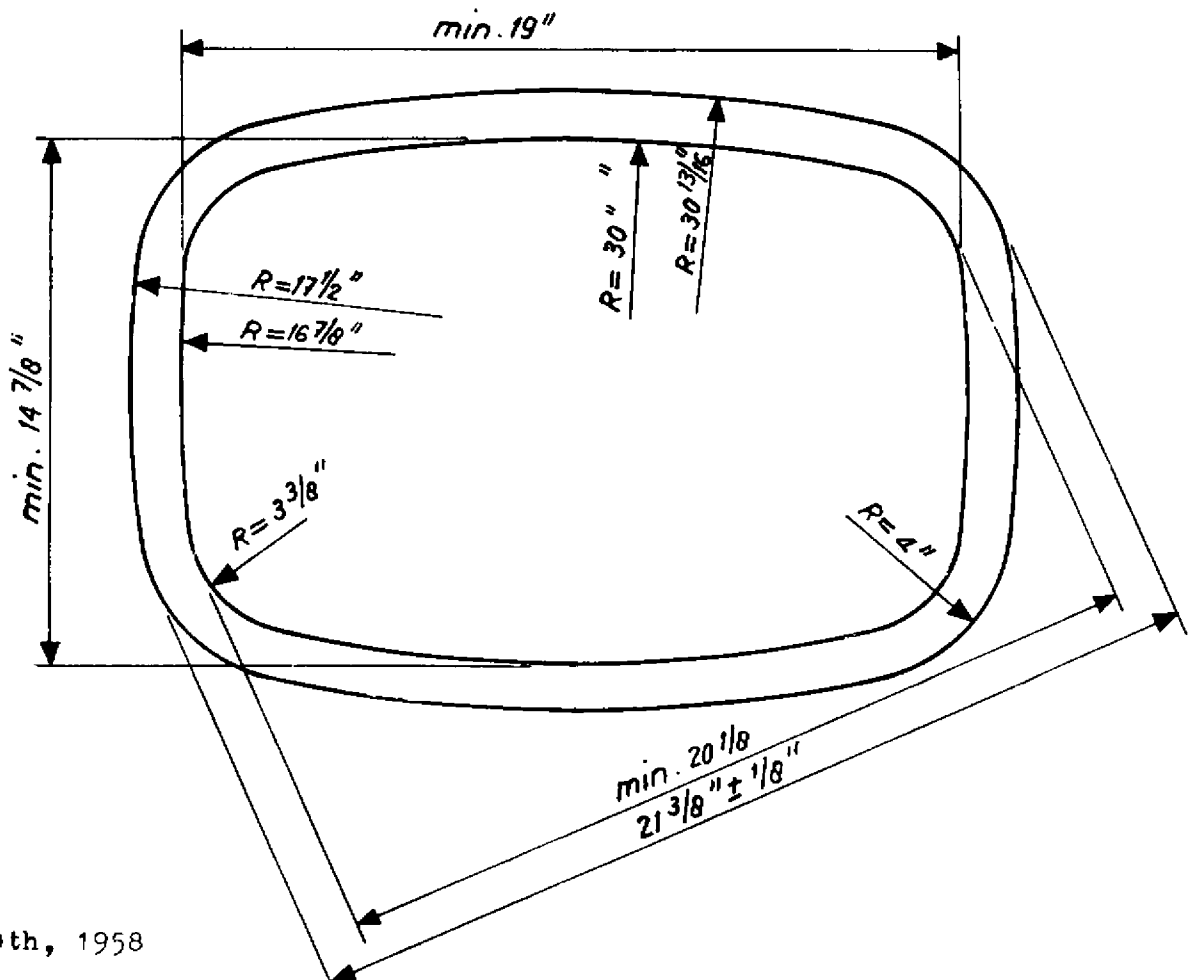
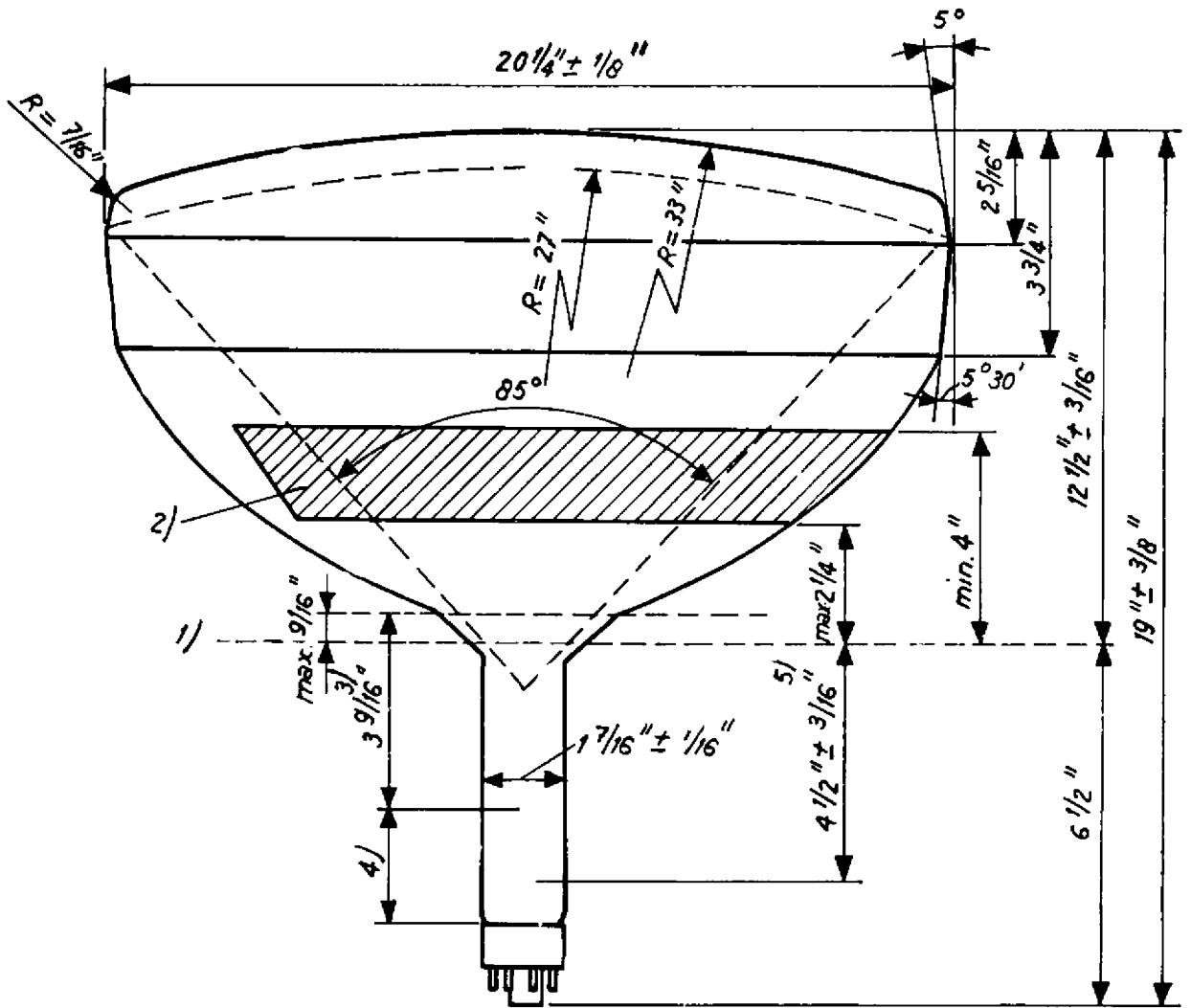
- 1) Reference line, determined by the plane of the upper edge of the flange of the reference gauge JETEC No. 116 when the gauge is resting on the cone.
- 2) Allowable contact area
- 3) Space for deflection coils and centering magnet
- 4) Space for the ion trap magnet
- 5) Distance from reference line to top centre of grid
- 6) Recessed cavity contact
- 7) Ion trap magnet
- 8) This area must be kept clean

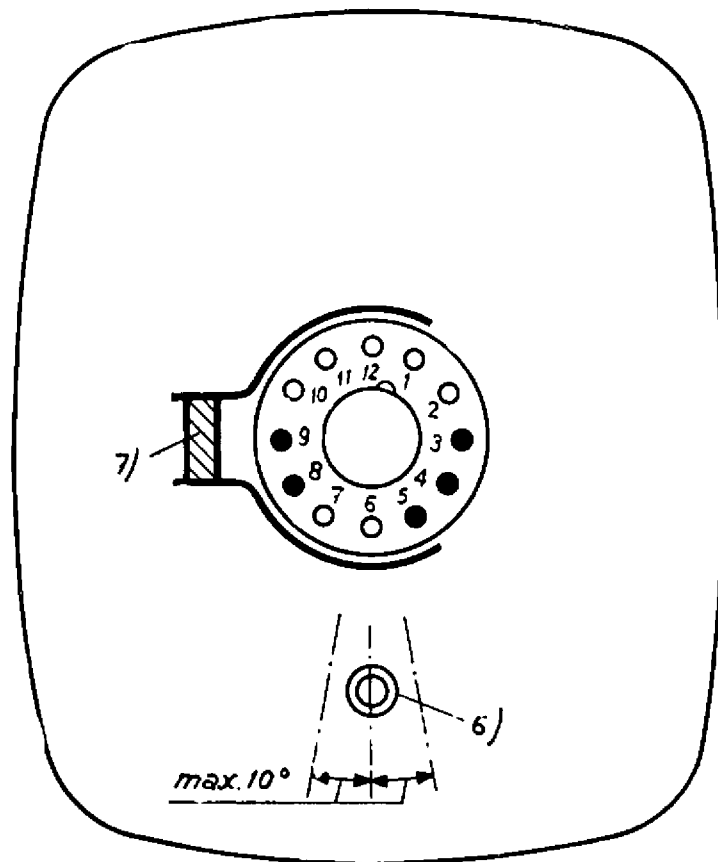
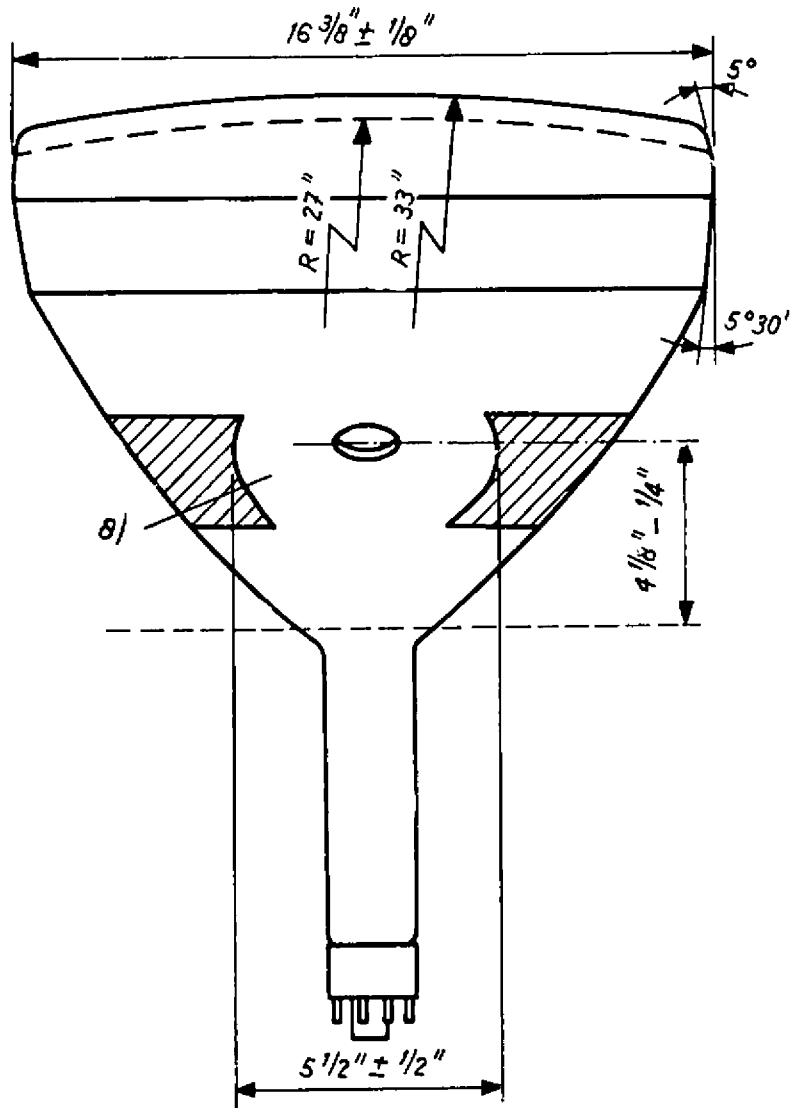
BOTTOM VIEW OF BASE

12AJ

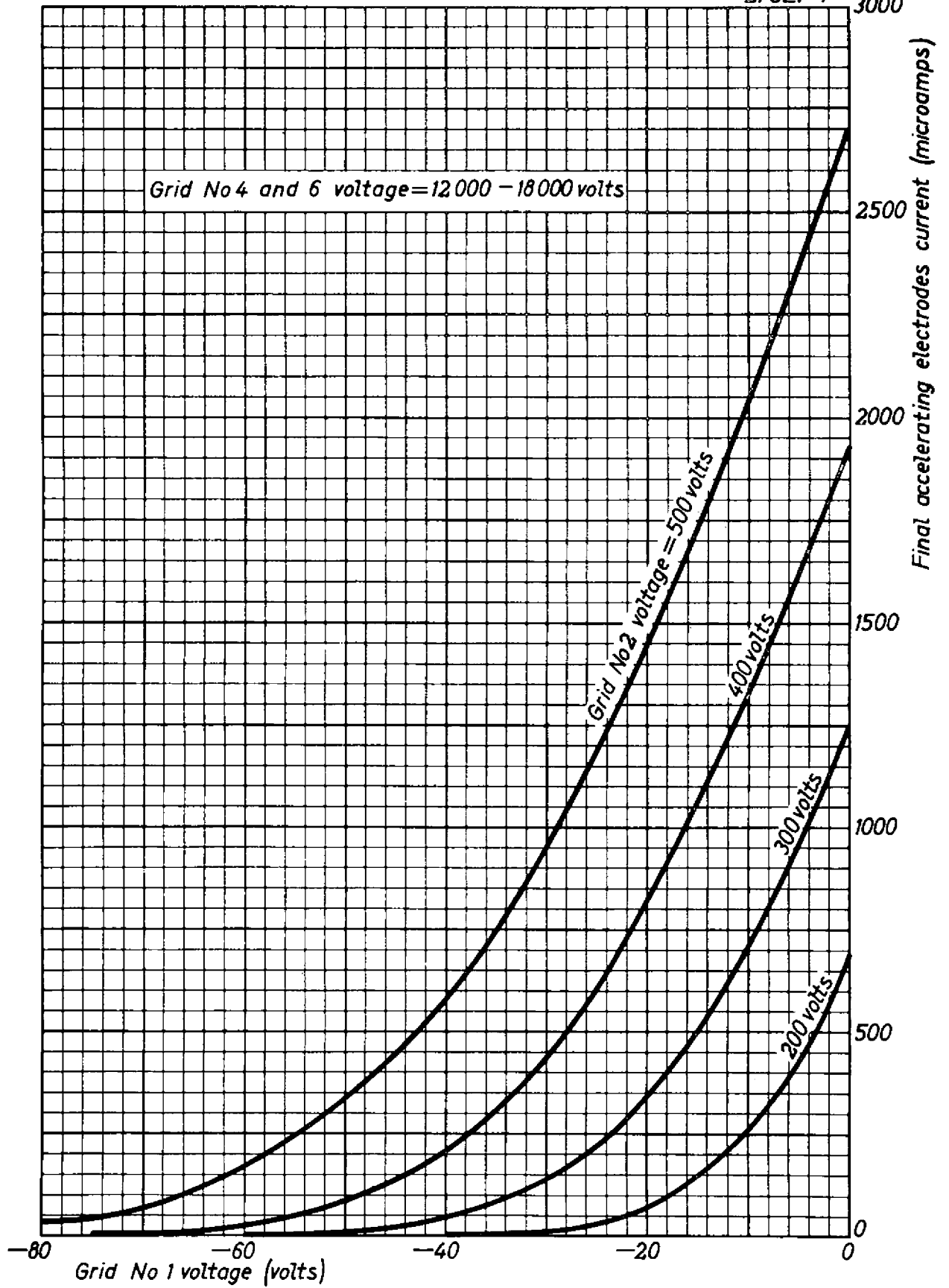
BASE PIN  
No.ELEMENT

1	heater
2	grid No.1
6	grid No.3 and 5
10	grid No.2
11	cathode
12	heater
bulb contact	grid no.4 and 6 collector





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10.10.1958

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