

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 μ F
Cathode to all other electrodes	4 μ F
External conductive coating to grids No. 4 and 6	max. 1750 μ F min. 1250 μ 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 gaussses.

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 ^{X)}
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 ⁺)	
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 ^{o)}

Circuit design values

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

^{X)} At zero current

⁺) 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.

^{o)} 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 ^{xx)}
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

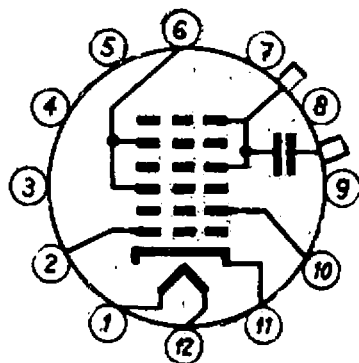
Mechanical data

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

^{xx)} 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

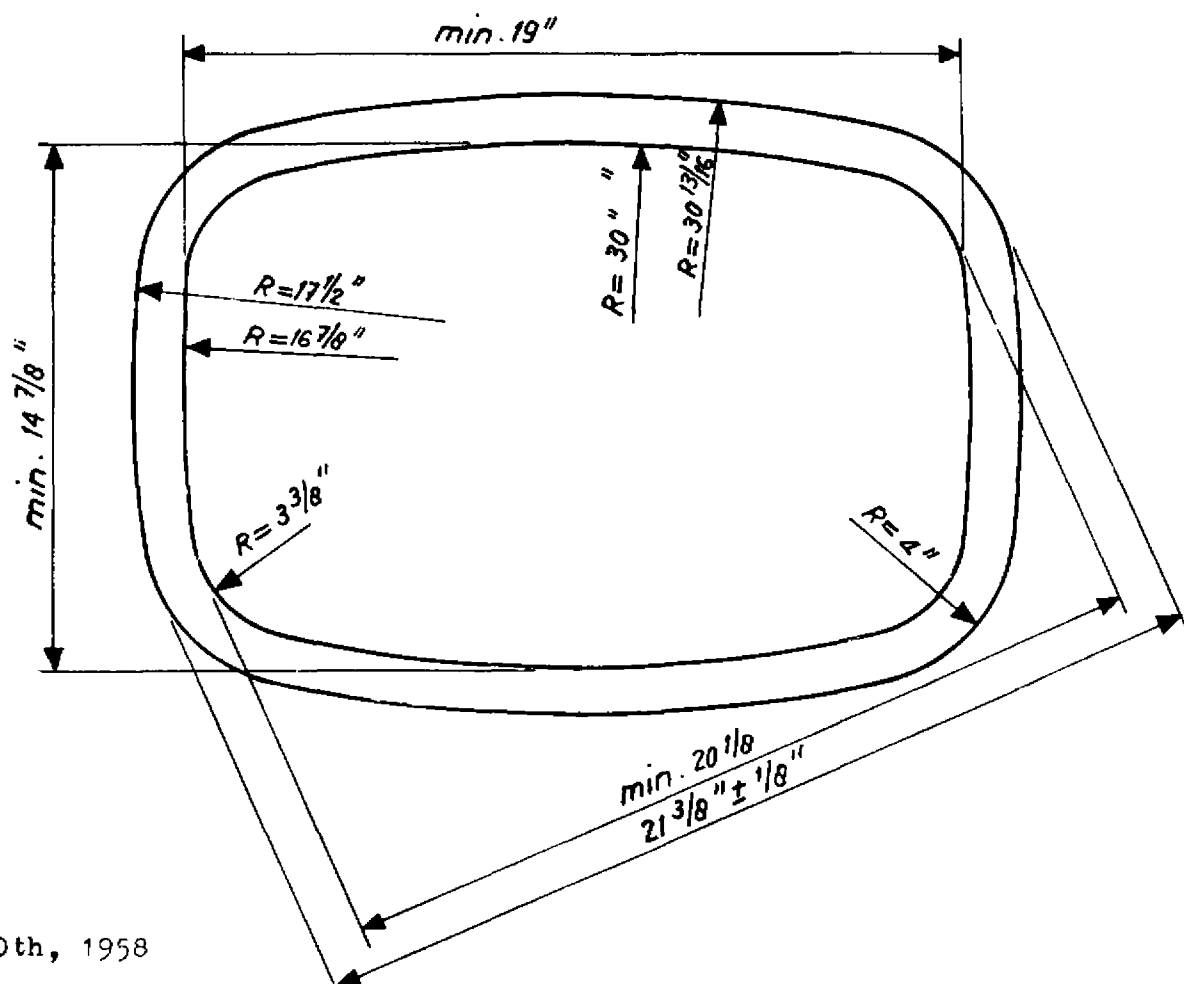
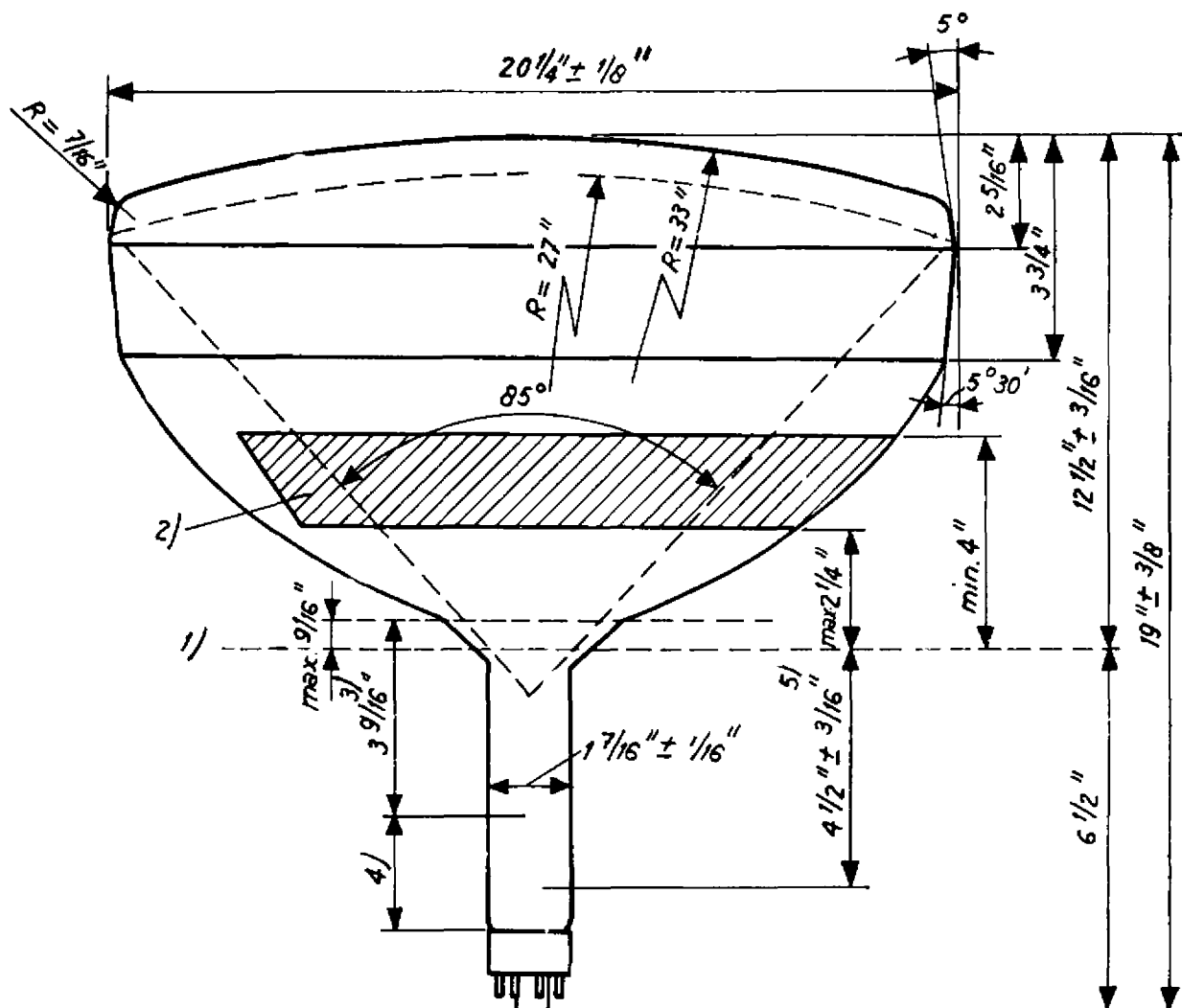
- 1) Reference line, determined by the plane of the upper edge of the flange of the reference gauge JETEC No. 116 when the gauge is resting on the cone.
- 2) Allowable contact area
- 3) Space for deflection coils and centering magnet
- 4) Space for the ion trap magnet
- 5) Distance from reference line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

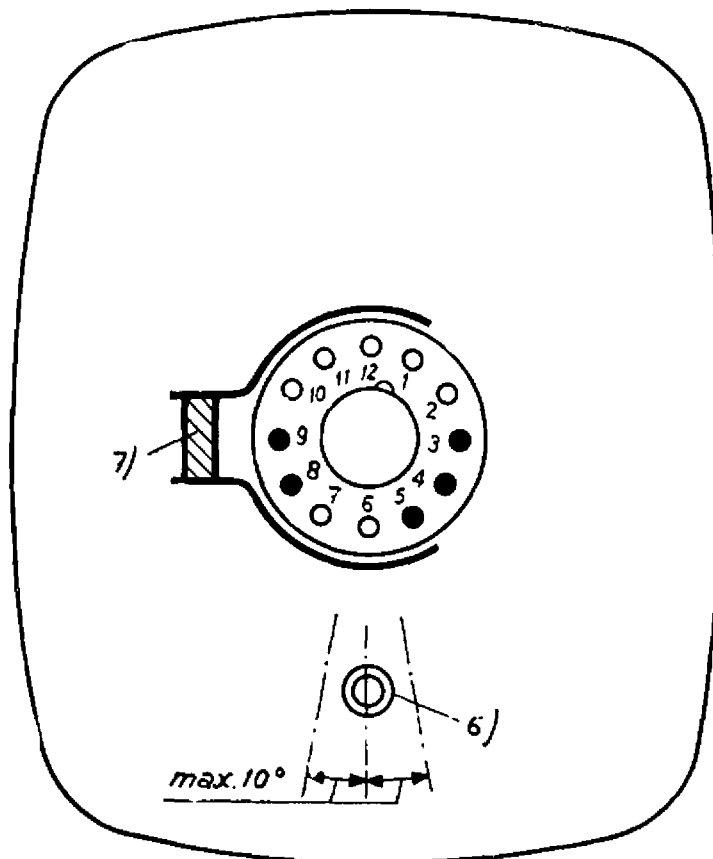
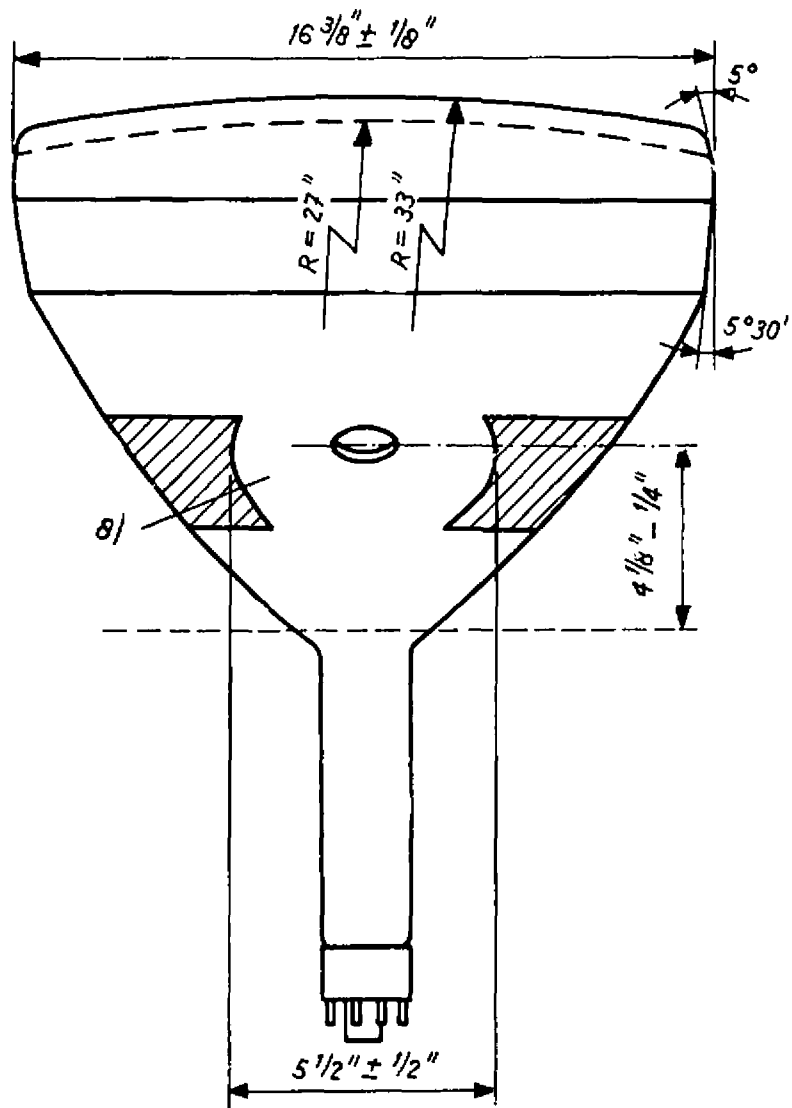
BOTTOM VIEW OF BASE

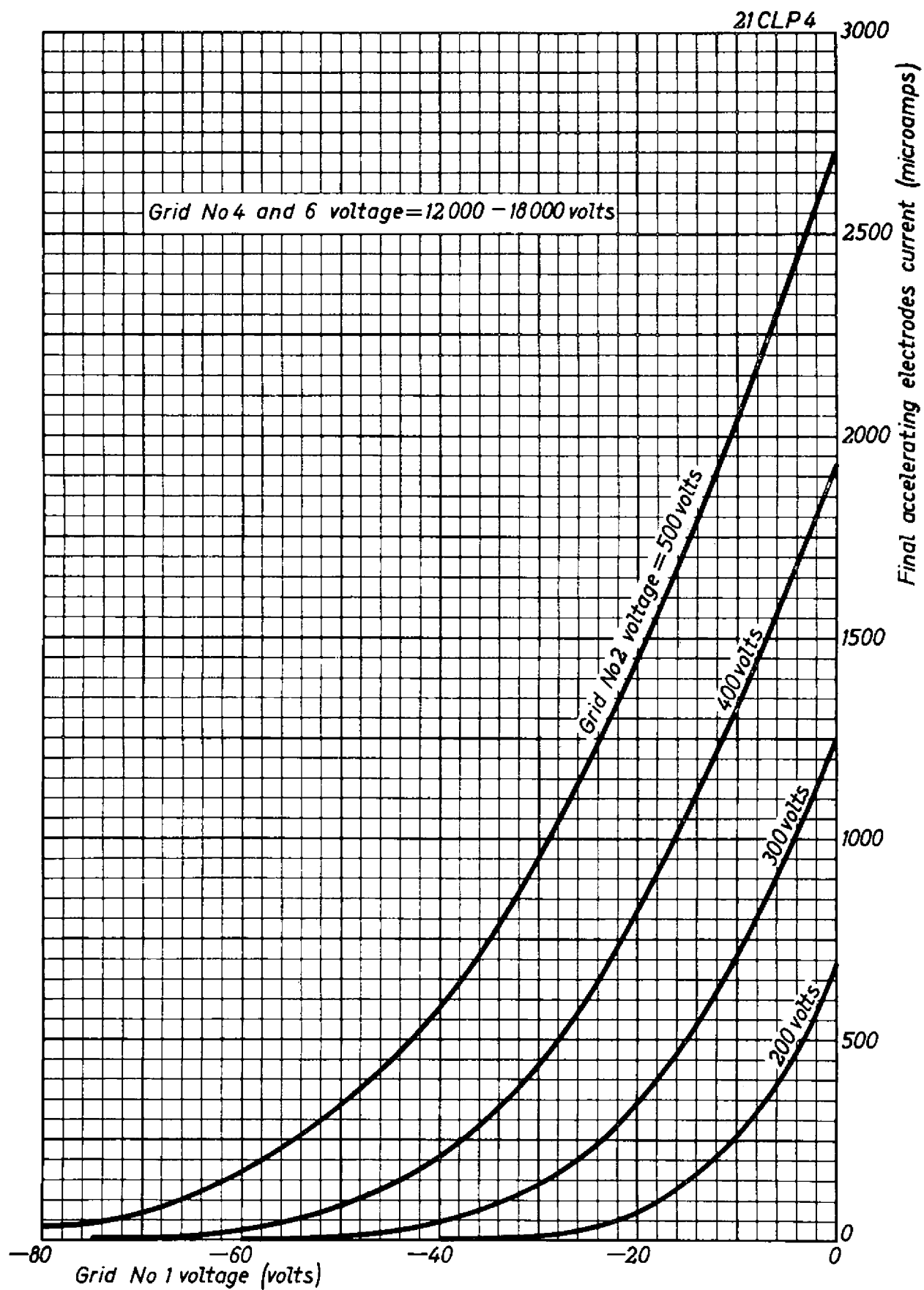
12AJ

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







10.10.1958

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