

# LE CATHOSCOPE FRANÇAIS

50, Rue J.-P. Timbaud - COURBEVOIE - FRANCE

19BEP4

## Cathode Ray Tube

### GENERAL DESCRIPTION

The 19BEP4 is an electrostatic focus and magnetic deflection, direct viewing, rectangular picture tube. Feature of this tube include a very short overall length, a small neck diameter, an aluminized screen and a non-ion trap gun.

#### Heater, for unipotential cathode

Heater voltage (a.c. or d.c.) .....	6.3 volts
Heater current at 6.3 volts .....	0.3 ± 5 % amp.
Warm-up time (average) .....	11 seconds (*)

#### Direct interelectrode capacitances

Grid n°1 to all other electrodes .....	6 uuF
Cathode to all other electrodes .....	5 uuF
External conductive coating to anode	
maximum .....	1500 uuF
minimum .....	1000 uuF

#### Phosphor : P4 sulfide type

Fluorescence .....	white
Phosphorescence .....	white
Persistence .....	short

Focusing methode : electrostatic

Deflecting method : magnetic

Deflection angle (approx.)

diagonal .....	110°
horizontal .....	99°
vertical .....	82°

Electron gun : type requiring non ion-trap magnet.

#### Tube dimensions

overall length .....	11 15/16" ± 1/4" (300 ± 6,5 mm)
greatest width .....	16 13/32" ± 1/8" (416,5 ± 3,2 mm)
greatest height .....	13 11/32" ± 1/8" (339 ± 3,2 mm)
Diagonal .....	18 5/8" ± 1/8" (473 ± 3,2 mm)
Neck length .....	4 1/4" ± 1/8" (107,5 ± 3,2 mm)

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## Screen dimensions (minimum)

Greatest width .....	15 1/8" (384 mm)
Greatest height .....	12" (305 mm)
Diagonal .....	17 9/16" (446 mm)
Projected area .....	172 sq. in. (1110 cm <sup>2</sup> )
Weight (approx.) .....	14 lbs (6,5 kg)
Bulb .....	(See drawing)
Cap .....	J1-21
Base .....	B7-208
Basing .....	8HR

## Socket connections

Pin n°1 =	heater
Pin n°2 =	grid n°1
Pin n°3 =	grid n°2
Pin n°4 =	grid n°4
Pin n°6 =	grid n°1
Pin n°7 =	cathode
Pin n°8 =	heater
Cap =	grid n°3, grid n°5, collector

(\*) The time required for the voltage across the heater to reach 80 per cent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by rated heater current.

## MAXIMUM RATINGS

Design Maximum Values

Cathode Drive Service

Unless otherwise specified, voltage values are positive with respect to grid n°1.

Anode to grid n°1 voltage .....	20 000 max. volts
	14 000 min. volts
Grid n°4 to grid n°1 voltage	
positive value .....	1 100 max. volts
negative value .....	550 min. volts
Grid n°2 to grid n°1 voltage .....	700 max. volts
Grid n°2 to cathode voltage .....	550 max. volts
Cathode to grid n°1 voltage	
Positive peak value .....	220 max. volts
Positive bias value .....	154 max. volts
Negative bias value .....	0 max. volt
Negative peak value .....	2 max. volts

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Peak heater cathode voltage	
- Heater negative with respect to cathode :	
during equipment warm-up period not exceeding	
15 seconds .....	450 max. volts
After equipment warm-up period .....	200 max. volts
Heater positive with respect to cathode .....	200 max. volts
Grid n°1 circuit resistance .....	1.5 max. megohms

## TYPICAL OPERATING CONDITIONS

### Cathode Drive Service

Anode to grid n°1 voltage .....	16 000 volts
Grid n°2 to grid n°1 voltage .....	400 volts
Grid n°2 current .....	-15 to +15 ua
Grid n°4 to grid n°1 voltage (1) .....	0 to 400 volts
Grid n°4 current .....	-25 to +25 ua
Cathode to grid n°1 voltage for visual extinction of focused raster .....	42 to 78 volts
Field strength of adjustable centering magnet. (3) .....	0 to 8 gauss

- (1) The grid n°4 voltage required for optimum focus of any individual tube may have a value anywhere between 0 and 400 volts. It is independent of anode current and will remain essentially constant for values of anode voltage or grid n°2 voltage within design ranges shown for these items.

It is necessary to provide means such a potentiometer for adjusting the focusing voltage.

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## NOTES for DIMENSIONAL OUTLINE

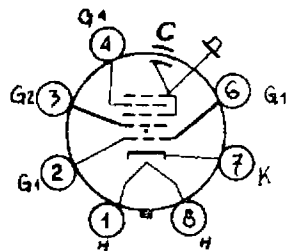
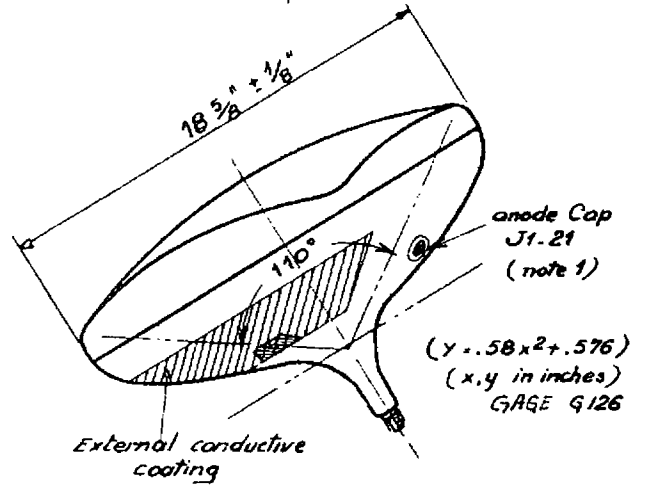
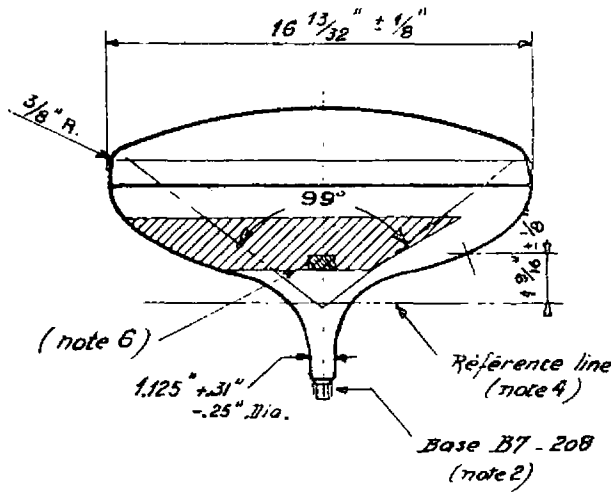
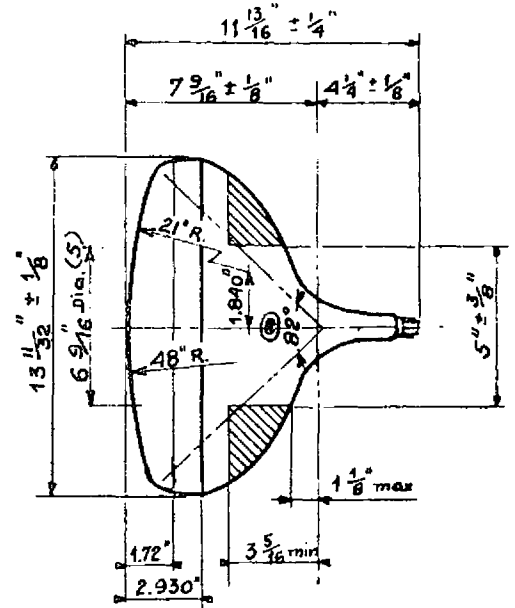
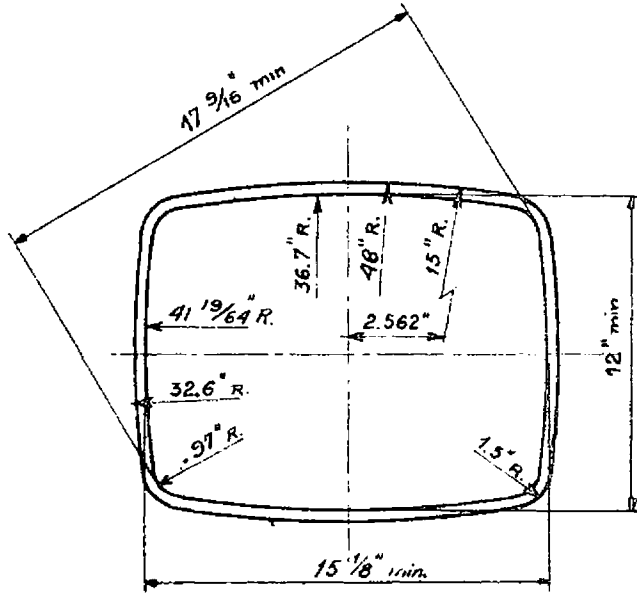
- Note 1 - The plane through the tube axis and pin 4 may vary from the plane through the tube axis and anode terminal by angular tolerance (measured about the tube axis) of  $\pm 30^\circ$ . Anode terminal is on same side as pin 4.
- Note 2 - Socket for this base should not be rigidly mounted; it should have flexible leads and be allowed to move freely. The design of the socket should be such that the circuit wiring cannot impress lateral strains through the socket contacts on the base pins. Bottom circumference of base wafer will fall within a circle concentric with bulb axis and having a diameter of  $1 \frac{3}{4}$ ".
- Note 3 - Width of undisturbed region between mold-match line and splice line is .670" minimum. This should be the maximum width of tube support band.
- Note 4 - With tube neck inserted through flared end of the reference line gauge JEDEC G.126 and with tube seated in gauge, the reference-line is determined by the intersection of the plane CC' of the gauge with the glass funnel.
- Note 5 - This surface has a radius of 48".
- Note 6 - The minimum size of the contact area of the external conductive coating is 2" x 2" min. The actual area of this coating will be greater than the contact area so as to provide the required capacitance. External conductive coating must be grounded.

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C. External conductive coating  
Cap: G3 - G5. Collector

