



ABRIDGED DATA

16-inch diameter, high resolution radar tube.

Neck Diameter	1.378 inches (35mm)
Deflection Angle	50 Degrees
Deflection Method	Magnetic
Focus Method	Electrostatic
E.H.T. Voltage	15 kV

GENERAL

Electrical and General

Cathode	Indirectly Heated, Oxide Coated
Heater Voltage (<i>See Note 1</i>)	6.3 V
Heater Current	0.3 A
Faceplate	Clear
Screen (<i>See Note 2</i>)	Aluminised
Fluorescent Colour	Orange
Persistence	Very Long
Inter-electrode Capacitances:	
Grid to all other electrodes, less than	12 pF
Cathode to all other electrodes, less than	12 pF

Mechanical

Overall Length	24.016 inches (610 mm)	Max
Overall Diameter	16.142 inches (410 mm)	Max
Useful Screen Diameter	14.685 inches (373 mm)	Min
Neck Diameter	1.398 inches (35.5 mm)	Max
Net Weight	24 pounds (11 kg)	Approx
Base	B.S.448-B12A	
Final Anode Connection	Cavity Cap B.S.448-CT8	
Mounting Position	<i>See Note 3</i>	

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MAXIMUM AND MINIMUM RATINGS

(Absolute Values)

(All voltages with respect to cathode except where otherwise stated)

	<i>Min</i>	<i>Max</i>	
Anode 2 and Anode 4 Voltage	8.0	18	kV
Anode 3 Voltage:			
positive	—	700	V
negative	—	500	V
Anode 1 Voltage	200	500	V
Grid Voltage, negative value (<i>See Note 4</i>) ..	1.0	200	V
Heater to Cathode Voltage (<i>See Note 5</i>) ..	—	150	V
Cathode Current (Mean)	—	150	μ A
Grid to Cathode Resistance	—	1.5	M Ω
Grid to Cathode Impedance (at 50Hz) ..	—	0.5	M Ω

TYPICAL OPERATING CONDITIONS

Anode 2 and Anode 4 Voltage	15	kV
Anode 3 Voltage (<i>See Note 6</i>)	0 to +400	V
Anode 3 Current	-15 to +15	μ A
Anode 1 Voltage	300	V
Grid Voltage for cut-off	-30 to -70	V
Spot Size at 50 μ A beam current	0.55	mm

BEAM CENTRING

In order to obtain maximum brightness and the best focused spot size, stray magnetic fields must be minimised over the length of the gun structure. This may be achieved by using a tubular mumetal shield over the neck.

Where optimum performance is required, a small magnet should be used for centring the beam in the defining aperture. (Elac type BC11 is suitable.) The magnet should be located in the region of the grid and its position and strength adjusted to give maximum brightness.

X-RAY WARNING

X-Rays are produced when the T983Z is operated with anode voltages above 16kV (absolute value). These rays can constitute a health hazard unless the tube is adequately shielded for X-ray radiation. This is entirely a function of high voltage devices and does not reflect on the design of the tube.

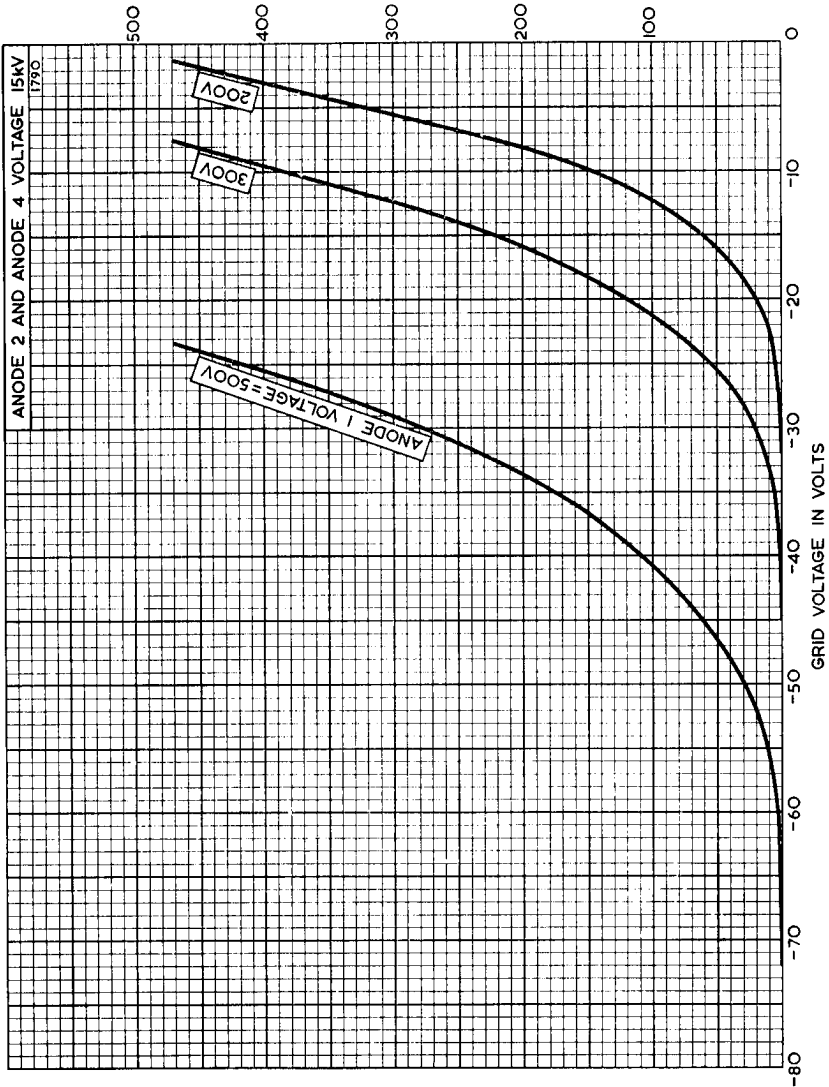
NOTES

1. The heater is suitable for series or parallel operation. In series operation the surge heater voltage must not exceed $9.5V_{r.m.s.}$: when the supply is switched on and a current limiting device may be necessary in the circuit to ensure that this voltage is not exceeded.
2. The T983Z is supplied with an EEV Z screen which has very long persistence and satisfies the requirements of E.V.S.009 screen specification. This is a fluoride screen which is sensitive to burn and should not be operated with slow moving spots.
The tube can be manufactured with alternative screens, and customers' enquiries are invited.
3. The tube may be mounted in any position except with the screen down and the axis of the tube making an angle of less than 20° with the vertical.
4. The d.c. value of grid bias must not be allowed to become positive with respect to the cathode except during the period immediately after switching the equipment on or off when it may be allowed to rise to $+1V$. The maximum positive grid excursion may reach $2V$ and at this voltage the grid current may be expected to be approximately $2mA$.
5. To avoid excessive hum, the a.c. component of the heater to cathode voltage should be as low as possible, preferably less than $20V_{r.m.s.}$.
6. An acceptable focus quality will be obtained with an anode 3 voltage range of 0 to $+400V$. If it is required to pass through the point of focus a voltage range of at least -100 to $+500V$ will be required.

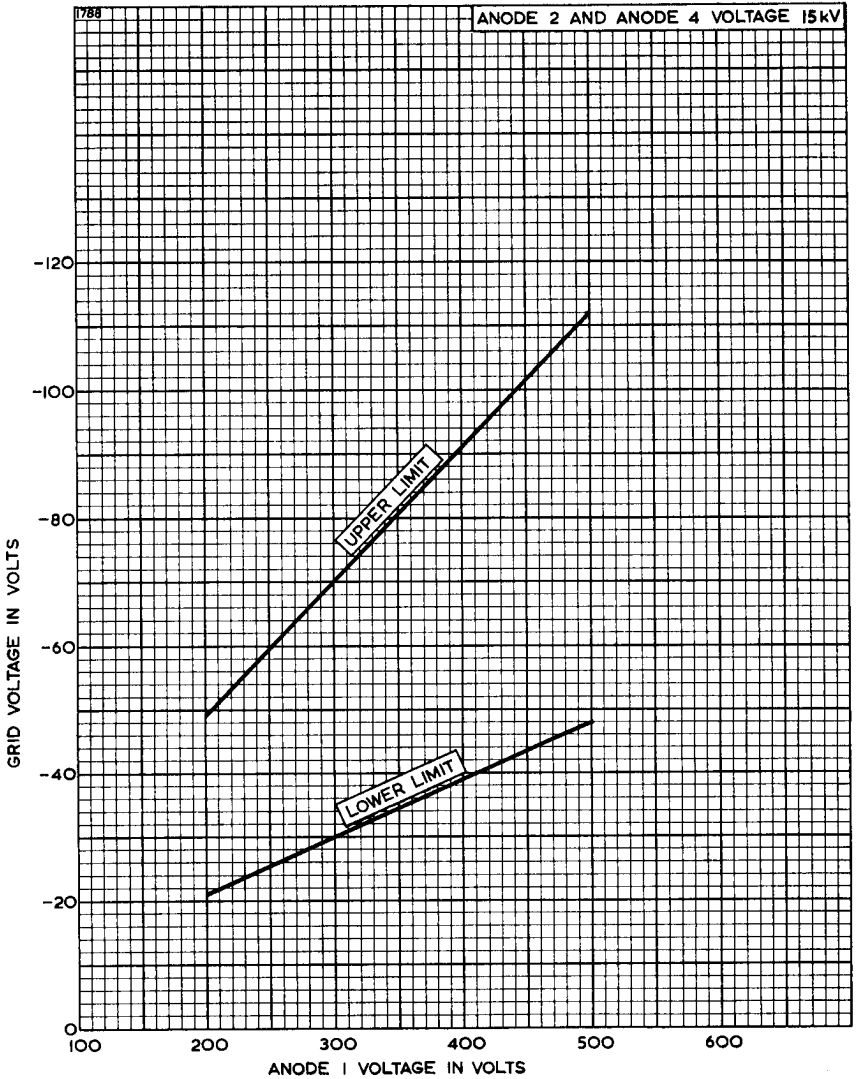
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GRID VOLTAGE CHARACTERISTICS

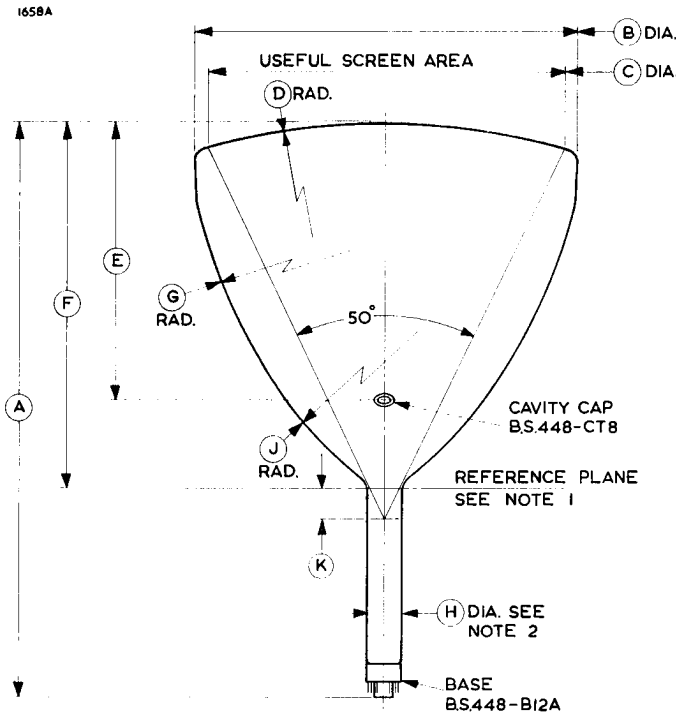
ANODE 2 + ANODE 4 CURRENT IN MICROAMPERES



GRID VOLTAGE CUT-OFF LIMITS



OUTLINE



Ref.	Inches	Millimetres	Ref.	Inches	Millimetres
A	23.622 ± 0.394	600.0 ± 10.0	G	23.504	597.0
B	15.984 ± 0.157	406.0 ± 4.0	H	1.378 ^{+0.020} _{-0.039}	35.00 ^{+0.5} _{-1.0}
C	14.685 Min	373.0 Min	J	16.732	425.0
D	27.559	700.0	K	1.260	32.0
E	11.417 ± 0.394	290.0 ± 10.0			
F	14.961 ± 0.197	380.0 ± 5.0			

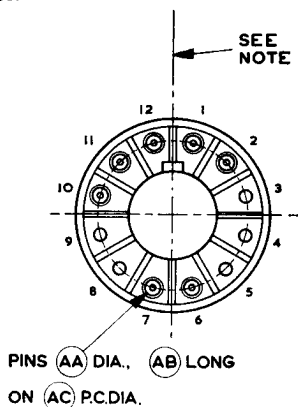
Inch dimensions have been derived from millimetres.

NOTES

1. Reference plane determined by 36.0mm diameter ring gauge.
2. A ring gauge 36.0mm diameter by 100mm long will pass over base and neck to reference plane.

OUTLINE DETAILS

1198B



Pin	Element
1	Heater
2	Grid
3	No Pin
4	No Pin
5	No Pin
6	Anode 3
7	Internal Connection
8	No Pin
9	No Pin
10	Anode 1
11	Cathode
12	Heater
Cavity Cap	Anode 2 & Anode 4

Ref.	Inches	Millimetres
AA	0.098 ± 0.003	2.362 ± 0.076
AB	0.410 Max	10.41 Max
AC	1.063	27.00

Millimetre dimensions have been derived from inches.

Note: The anode cavity cap will be in line with the base key to within 15° .