

ABRIDGED DATA

21-inch diagonal, rectangular display tubes for monitor and radar applications. They feature long necks, enabling two sets of scan coils to be fitted for display of alpha-numeric characters in computer read-out or radar systems. The T975D gives a flicker free display at low repetition frequencies for computer read-out.

Neck Diameter	1.437 inches (36.5mm)
Deflection Angle	90 Degrees
Deflection Method	Magnetic
Focus Method	Electrostatic
E.H.T. Voltage	15 kV

GENERAL

Electrical and General

Cathode	Indirectly Heated, Oxide Coated
Heater Voltage (See Note 1)	6.3 V
Heater Current	0.3 ± 10% A
Faceplate	Tinted
Screen (See Note 2)	Aluminised
Inter-electrode Capacitances:		
Grid to all other electrodes, less than	8.0 pF
Cathode to all other electrodes, less than	8.0 pF

Mechanical

Overall Length	26.260 inches (667 mm)	Max
Faceplate Diagonal	21.500 inches (546 mm)	Max
Neck Diameter	1.496 inches (38 mm)	Max
Net Weight	25.5 pounds (11.6 kg)	Approx
Base	B.S.448-B12A	
Final Anode Connection	Cavity Cap B.S.448-CT8	
Mounting Position	See Note 3	



MAXIMUM AND MINIMUM RATINGS
(Absolute Values)

(All voltages with respect to cathode)

	<i>Min</i>	<i>Max</i>	
Anode 2 and Anode 4 Voltage	8.0	18	kV
Anode 3 Voltage:			
positive	—	1000	V
negative	—	500	V
Anode 1 Voltage	200	600	V
Grid Voltage, negative value (<i>See Note 4</i>) ..	1.0	200	V
Heater to Cathode Voltage (<i>See Note 5</i>):			
Cathode negative	—	150	V
Cathode positive	—	200	V
Peak Heater to Cathode Voltage,			
Cathode positive (<i>See Note 6</i>)	—	410	V
Grid to Cathode Resistance	—	1.5	MΩ
Grid to Cathode Impedance (at 50Hz) ..	—	0.5	MΩ
Heater to Cathode Resistance			<i>See Note 7</i>

TYPICAL OPERATING CONDITIONS

Anode 2 and Anode 4 Voltage	15	kV
Anode 3 Voltage (<i>See Note 8</i>)	-200 to +200	V
Anode 3 Current	-15 to +15	μA
Anode 1 Voltage	300	V
Grid Voltage for cut-off	-30 to -70	V

X-RAY WARNING

X-Rays are produced when types in the T975 series are operated with anode voltages above 16kV (absolute value). These rays can constitute a health hazard unless the tubes are adequately shielded for X-ray radiation. This is entirely a function of high voltage devices and does not reflect on the design of the tubes.

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. Tubes in the T975 series have screens with the following characteristics.

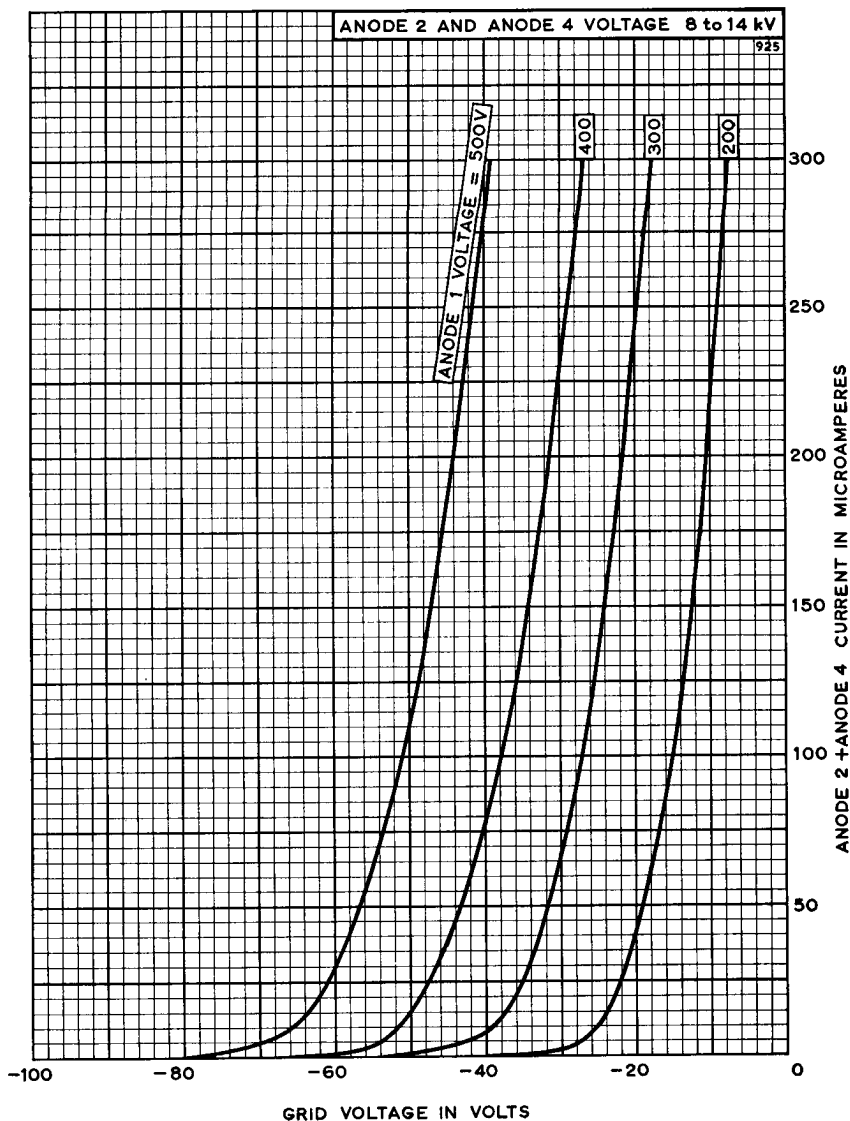
Type	EEV Screen	Equivalent	Fluorescent Colour	Persistence
T975D	D*	E.V.S.007	Yellow-orange	Long
T975S	S*	—	Yellow-orange	Long
T975Y	Y*	P33	Orange	Long

*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. During a warming-up period not exceeding 45 seconds.
7. When the heater is in a series chain or earthed, the impedance between the cathode and earth at $50Hz$ must not exceed $100k\Omega$. When the heater is supplied from a separate transformer, the heater to cathode resistance must not exceed $1M\Omega$.
8. An acceptable focus quality will be obtained with an anode 3 voltage range of -200 to $+200V$. If it is required to pass through the point of focus a voltage range of at least -300 to $+300V$ will be required.

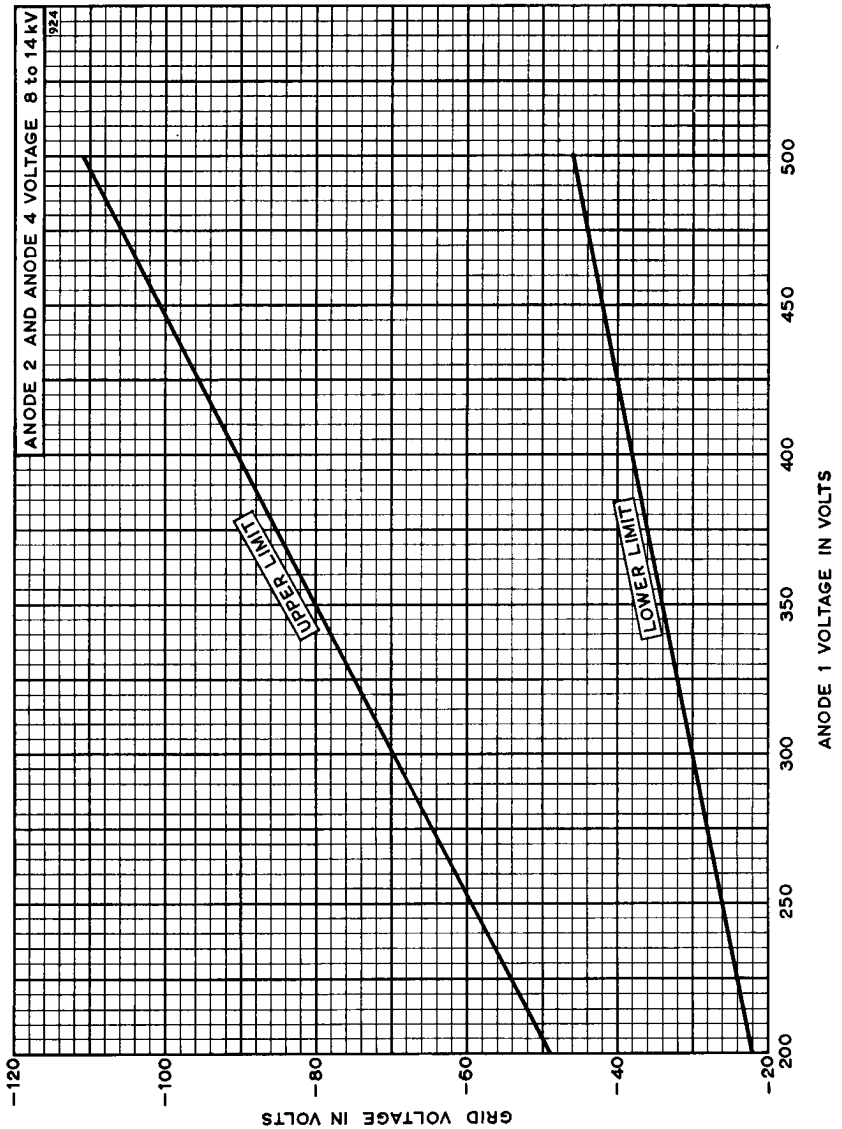


GRID VOLTAGE CHARACTERISTICS





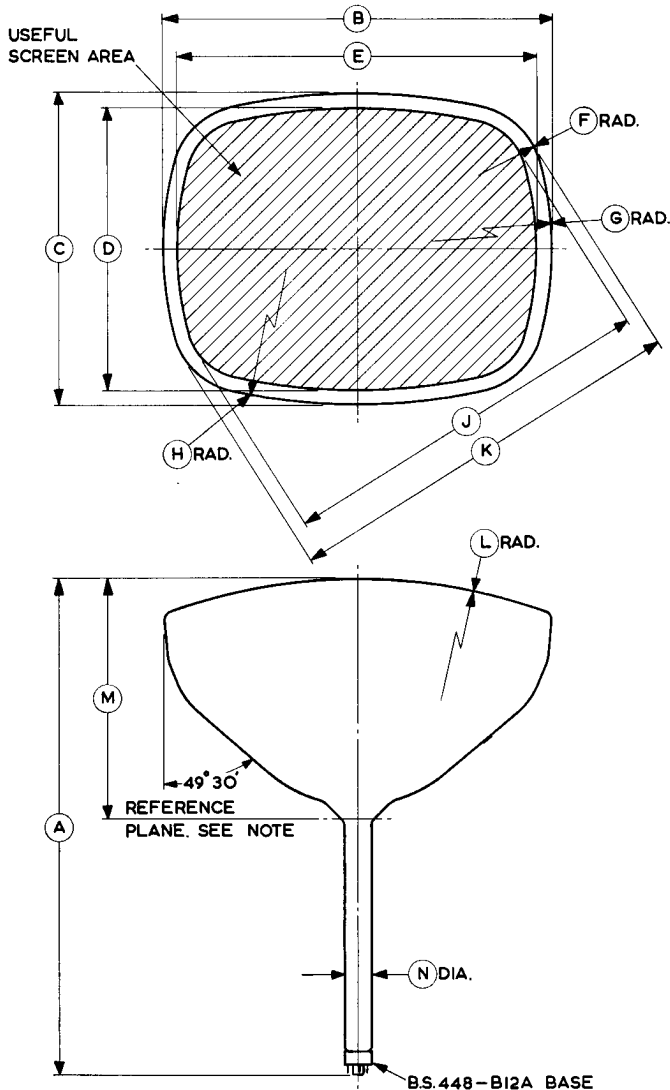
GRID CUT-OFF VOLTAGE LIMITS





OUTLINE

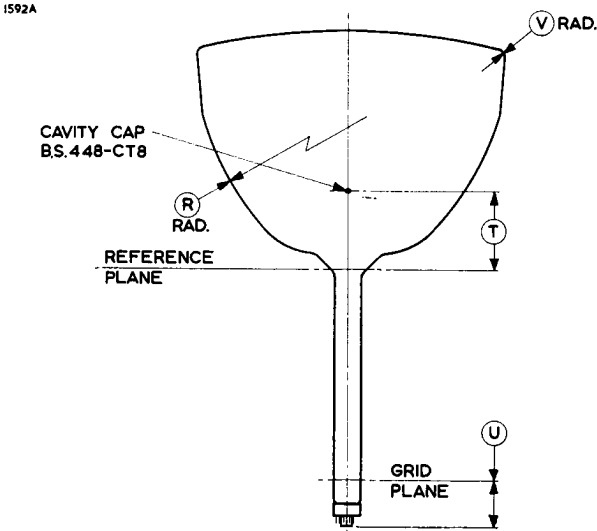
1591



Note Reference plane determined by gauge JEDEC G116 (See page 9)



OUTLINE



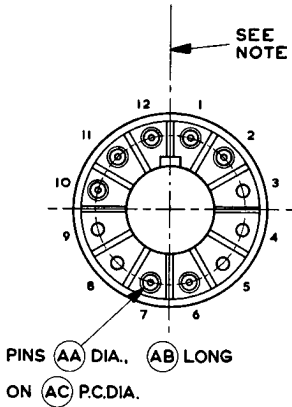
Ref.	Inches	Millimetres	Ref.	Inches	Millimetres
A	25.945 ± 0.315	659.0 ± 8.0	K	21.375 ± 0.125	542.9 ± 3.2
B	20.236 ± 0.138	514.0 ± 3.5	L	32.992	838.0
C	16.378 ± 0.138	416.0 ± 3.5	M	12.500 ± 0.197	317.5 ± 5.0
D	14.764 Min	375.0 Min	N	1.437 ± 0.059	36.5 ± 1.5
E	18.898 Min	480.0 Min	R	15.000	381.0
F	4.016	102.0	T	4.134 ± 0.256	105.0 ± 6.5
G	17.677	449.0	U	1.969 Nom	50.0 Nom
H	30.787	782.0	V	0.433	11.0
J	19.843 Min	504.0 Min			

Inch dimensions have been derived from millimetres except dimension K



OUTLINE DETAILS

11985



Pin	Element
1	Heater
2	Grid
3	No Pin
4	No Pin
5	No Pin
6	Anode 3
7	No 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

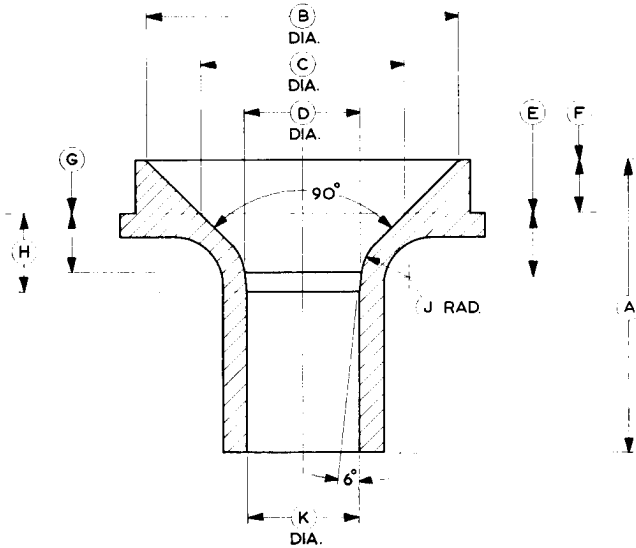
Millimetre dimensions have been derived from inches.

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



REFERENCE LINE GAUGE

1406



Ref.	Inches	Millimetres	Ref.	Inches	Millimetres
A	3.062	77.77	F	0.562 ± 0.001	14.275 ± 0.025
B	3.244 ± 0.001	82.398 ± 0.025	G	0.448	11.38
C	2.120 ± 0.002	53.848 ± 0.051	H	0.650	16.51
D	1.542 ± 0.003	39.167 ± 0.076	J	0.500	12.70
E	0.500 ± 0.001	12.700 ± 0.025	K	1.500 + 0.003 - 0.000	38.10 + 0.076 - 0.000

Millimetre dimensions have been derived from inches.