ENGLISH ELECTRIC

ABRIDGED DATA

12-inch diameter high brightness Radar Tubes intended primarily for marine radar P.P.I. displays. The narrow scan angle permits the use of valve or transistor scan amplifiers. They are electrically and mechanically interchangeable with T974Y and T974Z, but give a display more than twice as bright when operated under the same conditions.

Neck Diameter	1·378 inches	(35mm)
Deflection Angle	40	Degrees
Deflection Method		Magnetic
Focus Method		Electrostatic
E.H.T. Voltage	16	kV

GENERAL

Electrical and General

Cathode	Indirectly Heated, Oxide Coated	
Heater Voltage (*See Note* 1)	6·3	V
Heater Current	0·3±10%	A
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
Anode 2 and Anode 4 to external conductive coating (*See Note* 3)	1500	pF

Mechanical

Overall Length	22·560 inches	(573 mm)	Max
Overall Diameter	12·090 inches	(307 mm)	Max
Useful Screen Diameter	10·430 inches	(265 mm)	Min
Neck Diameter	1·400 inches	(35·5 mm)	Max
Net Weight	13½ pounds	(6·2 kg)	Approx
Base (*See Note* 4)			B8H
Anode 2 and Anode 4 Connection			B.S.448–CT8 Cavity Cap
Mounting Position (*See Note* 4)			Any

ENGLISH ELECTRIC VALVE CO. LTD. CHELMSFORD ENGLAND

Printed in England

MAXIMUM AND MINIMUM RATINGS

(Absolute Values. *See Note* 5)

	Min	*Max*	
Anode 2 and Anode 4 Voltage (*See Note* 6) ..	8·0	18	kV
Anode 3 Voltage:			
Positive value	—	1·0	kV
Negative value	—	0·5	kV
Anode 1 Voltage	0·2	0·8	kV
Grid Voltage (negative value)	1·0	200	V
Grid to Cathode Impedance (at 50Hz) ..	—	0·5	MΩ
Grid to Cathode Resistance	—	1·5	MΩ
Heater to Cathode Voltage:			
Heater positive with respect to cathode			
D.C.	—	150	V
Peak	—	250	V
Heater negative with respect to cathode			
D.C.	—	150	V
Peak	—	300	V
Heater to Cathode Resistance		*See Note* 7	

TYPICAL OPERATING CONDITIONS

Anode 2 and Anode 4 Voltage	12 to 16	kV
Anode 3 Voltage	−100 to +300	V
Anode 3 Current (positive or negative)	15	μA
Anode 1 Voltage	600	V
Anode 1 Current (positive or negative)	15	μA
Grid Voltage for visual cut-off	−40 to −85	V
Cathode Voltage for visual cut-off (*See Note* 8) ..	43 to 82	V

NOTES

1. The heater is suitable for either series or parallel operation. In series operation, the surge heater voltage when switching on must not exceed $9{\cdot}5V_{r.m.s.}$ and a current limiting device may be required in the circuit to reduce the surge voltage below this value.

2. Tubes in the T986 series have screens with the following characteristics.

Type	EEV Screen	Equivalent	Fluorescent Colour	Persistence
T986D	D*	E.V.S.007	Yellow-orange	Long
T986Y	Y*	P33	Orange	Long
T986Z	Z*	P26	Orange	Very 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.

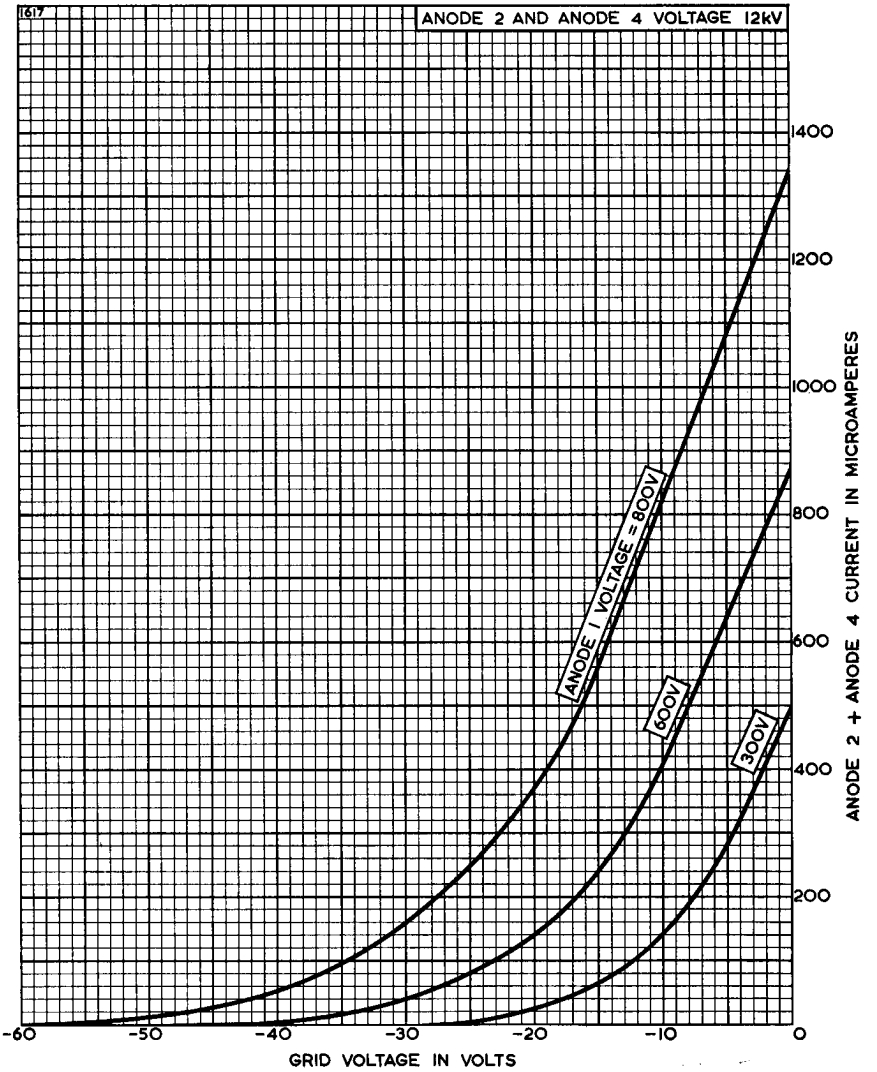
3. The capacitance of anode 2 and anode 4 to the external conductive coating may be used to provide smoothing for the e.h.t. supply.
4. The tube should not be supported by the base alone and under no circumstances should the socket be used for support purposes.
5. All voltages are with respect to cathode except where otherwise specified.
6. The associated equipment should be adequately protected against damage caused by possible high voltage flashovers inside the tube.
7. When the heater is in a series chain or earthed, the impedance between the cathode and earth at 50Hz must not exceed 100kΩ. When the heater is supplied from a separate transformer, the heater to cathode resistance must not exceed 1MΩ.
8. For cathode modulation, all voltages are with respect to the grid.

X-RAY WARNING

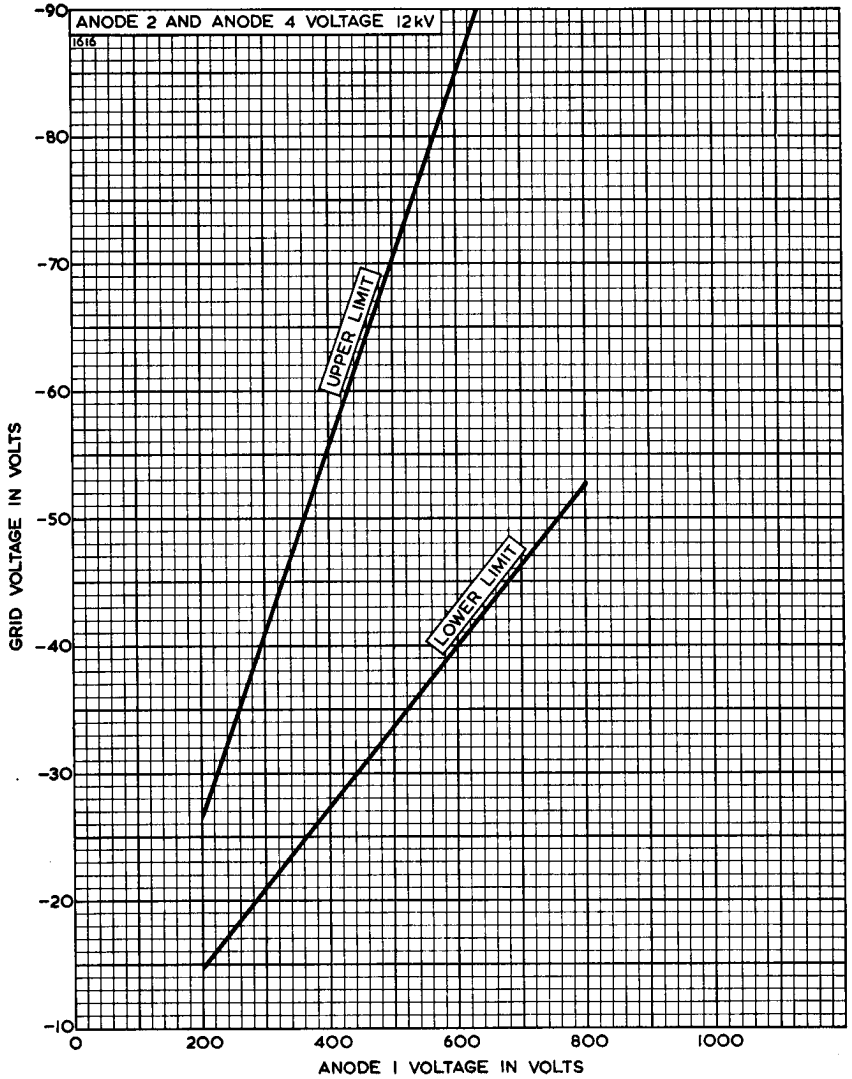
X-rays are produced when the T986 is operated above 16kV (absolute value). These rays can constitute a health hazard unless the tube is adequately shielded for X-ray radiation. This is entirely a function of high voltage devices and does not reflect upon the design of the tube.

ENGLISH ELECTRIC

GRID VOLTAGE CHARACTERISTICS



GRID VOLTAGE CUT-OFF LIMITS



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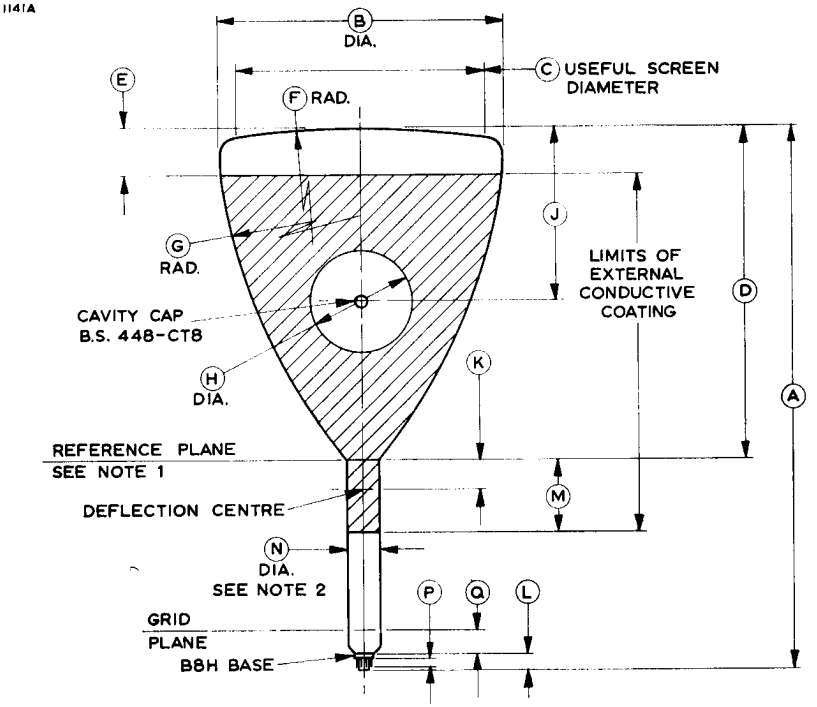
ENGLISH ELECTRIC

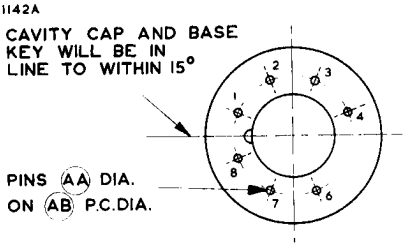
OUTLINE



Ref.	Inches	Millimetres	Ref.	Inches	Millimetres
A	22·560 Max	573·0 Max	J	7·244 ± 0·118	184·0 ± 3·0
B	12·010 $^{+0·080}_{-0·100}$	305·0 $^{+2·0}_{-2·5}$	K	1·240 Max	31·5 Max
C	10·430 Min	265·0 Min	L	0·630	16·0
D	13·900 ± 0·180	353·0 ± 4·5	M	2·953 ± 0·197	75·0 ± 5·0
E	1·969	50·0	N	1·378 $^{+0·020}_{-0·039}$	35·0 $^{+0·5}_{-1·0}$
F	39·370	1000	P	0·333 Max	8·46 Max
G	23·620	600·0	Q	0·984	25·0
H	4·331 ± 0·394	110·0 ± 10·0			

Inch dimensions have been derived from millimetres.

OUTLINE DETAILS



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

Ref.	Inches	Millimetres
AA	0·040	1·02
AB	0·600	15·24

Millimetre dimensions have been derived from inches.

OUTLINE NOTES

1. The Reference Plane is determined by the position where 36·0mm internal diameter ring gauge rests.
2. A ring gauge 36·0mm internal diameter × 100·0mm long will pass over the neck and base to the reference plane.
3. The projected neck axis will pass within 3·5mm (0·138 inch) of the geometric centre of the tube face. The neck axis will make an angle of less than 1° 30′ with the normal to the tangential plane at the centre of the faceplate.

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