TELEVISION TUBE

AW47-90

Direct viewing television tube with 19in. diagonal metal-backed rectangular grey glass screen. This tube is electrostatically focused and has a 110° deflection angle. An ion trap magnet is not required.

This data should be read in conjunction with GENERAL OPERATIONAL RECOMMENDATIONS—CATHODE RAY TUBES, which precede this section of the handbook.

HEATER

Suitable for series or parallel operation.

V_h	6.3	V
I_h	300	mA

The limits of heater voltage and current are contained in 'General operational recommendations—cathode ray tubes.'

Note—(applies to series operation only). The surge heater voltage must not exceed $9.5V_{r.m.s.}$ when the supply is switched on. When used in a series heater chain a current limiting device may be necessary in the circuit to ensure that this voltage is not exceeded.

EXTERNAL CONDUCTIVE COATING

This tube has an external conductive coating, M, which must be earthed and the capacitance of this to the final anode is used to provide smoothing for the e.h.t. supply. The tube marking and warning labels are on the side of the cone opposite the final anode connector and this side should not be used for making contact to the external conductive coating.

CAPACITANCES

C_{g-all}	6.0	pF
C_{k-all}	4.0	pF
$C_{a2+a4-M}$	1150	pF

SCREEN

Metal backed		
Fluorescent colour	white	
Light transmission	75	%
Useful screen area	See drawing on pages D4 and D7	

FOCUSING

Electrostatic

The range of focus voltage shown in 'Typical operating conditions' results in optimum overall focus at a beam current of 100μA.

DEFLECTION

Double magnetic

The spread in the cone length can be obtained from the outline drawing. The deflection coils should be designed so that their internal contour is in accordance with JETEC gauge 126.

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REFERENCE LINE GAUGE

JETEC 126. For details see 'General operational recommendations—cathode ray tubes.'

RASTER CENTRING

See notes under this heading in 'General operational recommendations—cathode ray tubes.'

Centring magnet field intensity	0 to 10	G
Maximum distance of centre of centring field from reference line	57	mm

Adjustment of the centring magnet should not be such that a general reduction in brightness or shading of the raster occurs.

MOUNTING POSITION

Any

The tube socket should not be rigidly mounted but should have flexible leads and be allowed to move freely. The bottom circumference of the base shell will fall within a circle of 45mm which is centred upon the perpendicular from the centre of the face.

This tube is fitted with a pin protector in order to avoid damage to the glass base due to bending of the base pins whilst handling the tube.

It is advisable to keep this pin protector on the base until it can be replaced by the socket after installation of the tube in an equipment.

TYPICAL OPERATING CONDITIONS

$V_{a2\ a1}$	16	kV
V_{a3} (focus electrode control range)	0 to 400	V
V_{a1}	400	V
†V_g for visual extinction of focused raster	−38 to −94	V
†V_K for visual extinction of focused raster	36 to 78	V

†For grid modulation all voltages are measured with respect to the cathode: for cathode modulation, all voltages are measured with respect to the grid.

LIMITING VALUES (design centre ratings)

‡V_{a2+a4} max.	18	kV
V_{a2+a4} min.	13	kV
$+V_{a3}$ max.	1.0	kV
$-V_{a3}$ max.	500	V
V_{a1} max.	500	V
V_{a1} min.	200	V
**$-v_{g(pk)}$ max.	400	V
*$-V_g$ max.	150	V
$\pm I_{a3}$ max.	25	μA
$\pm I_{a1}$ max.	15	μA
†V_{h-k}		
Cathode positive		
d.c. max.	200	V
pk max.	300	V
Cathode negative		
d.c. max.	125	V
pk max.	250	V
R_{h-k} max.	1.0	MΩ
Z_{k-e} max. (f = 50c/s)	100	kΩ
R_{g-k} max.	1.5	MΩ
Z_{g-k} max. (f = 50c/s)	500	kΩ

‡Adequate precautions should be taken to ensure that the receiver is protected from damage which may be caused by a possible high voltage flashover within the cathode ray tube.

**Maximum pulse duration 22% of a cycle with a maximum of 1.5ms.

*The d.c. value of bias must not be such as to allow the grid to become positive with respect to the cathode, except during the period immediately after switching the receiver on or off when it may be allowed to rise to +1V. The maximum positive excursion of the video signal must not exceed +2V and at this voltage the grid current may be expected to be approximately 2mA.

†In order to avoid excessive hum the a.c. component of V_{h-k} should be as low as possible ($<20V_{r.m.s.}$).
During a warming-up period not exceeding 45s, $v_{h-k(pk)}$ max. (cathode positive) is allowed to rise to 410V.

WEIGHT

Tube alone	7 15	kg lb

WARNING

X-ray shielding is advisable to give protection against possible danger of personal injury arising from prolonged exposure at close range to this tube when operated above 16 kV.

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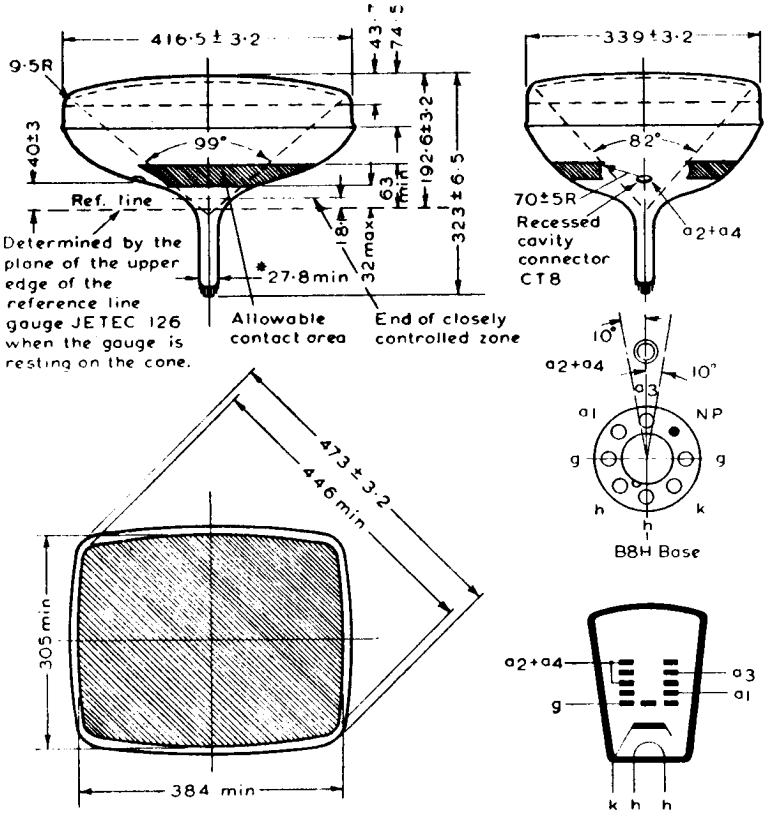

All dimensions in mm

*The maximum value is determined by the reference line gauge

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