

TELEVISION MONITOR TUBE

MW43-67

Direct viewing television tube with 17-in. diagonal rectangular metal-backed grey-glass screen. Primarily intended for use as a television studio monitor tube.

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

HEATER

Suitable for series or parallel operation.

V_h	6.3	V
I_h	300	mA

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, and the capacitance of this to the final anode may be 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-a11}	<8	pF
C_{k-a11}	<8	pF
C_{a2-M}	1100	pF

SCREEN

Metal-backed		
Fluorescent colour	White	
Light transmission	66	%
Useful screen area	See drawing on p. 3	

FOCUSING

Magnetic

DEFLECTION

Double magnetic

REFERENCE LINE GAUGE

See 'General operational recommendations—cathode ray tubes'

MOUNTING POSITION

Any, except vertical with screen downward and the axis of the tube making an angle of less than 20° with the vertical. 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 having a diameter of 55mm which is centred upon the perpendicular from the centre of the face.

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TYPICAL OPERATING CONDITIONS

V_{a2}	14	kV
V_{a1}	300	V
* V_g for cut-off	-30 to -70	V
Recommended distance of centre of magnetic length of focus unit from reference line		
	100	mm

LIMITING VALUES (Absolute ratings)

** V_{a2} max.	15	kV
V_{a2} min.	9.0	kV
V_{a1} max.	500	V
V_{a1} min.	250	V
* $-V_g$ max.	150	V
† V_{h-k} max. (cathode negative)	125	V
† V_{h-k} max. (cathode positive)	200	V
†† $V_{h-k(pk)}$ max. (cathode positive)	410	V
R_{g-k} max.	1.5	MΩ
Z_{g-k} max. ($f=50c/s$)	500	kΩ
R_{h-k} max.	See note §	
Max. a_1 supply source impedance	1.5	MΩ

*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 of the video signal may reach 2V and at this voltage the grid current may be expected to be approximately 2mA.

**The product of V_{a2} and I_1 (average value for the whole screen) must not exceed 6W.

†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 45 sec.

§When the heater is in a series chain, or earthed, Z_k max. is 100kΩ, where Z_k is the 50c/s impedance between earth and the cathode. When the heater is supplied from a separate transformer R_{h-k} max. is 1MΩ.

WEIGHT Tube alone

{ 7.7 kg
17 lb



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Technical drawings of the 1936 vacuum tube, showing side and front views with dimensions and internal structure.

Left View (Side View):

- Overall width: $390.5^{+3.2}_{-3.2}$
- Top radius: $600R$
- Internal radius: $686R$
- Bottom radius: $586R$
- Top height: 102 ± 6
- Reference line height: 160 ± 2
- Centre of grid height: 36.5 ± 1.5
- Centre of magnetic length of focus unit height: 100
- Bottom height: 298 ± 5
- Internal angle: 65°
- Internal angle: 42.5°
- Internal angle: a_2
- Internal angle: 57 ± 6
- Internal angle: 29 max

Right View (Front View):

- Overall width: $311^{+3.2}_{-3.2}$
- Top radius: $11R$
- Internal radius: $275R$
- Bottom radius: $a_2 O$
- Top height: 191 ± 6
- Bottom height: 140 ± 10
- Internal angle: 36°
- Internal angle: a_2
- Internal angle: $11R$
- Internal angle: $275R$
- Internal angle: $a_2 O$
- Internal angle: 140 ± 10
- Internal angle: $11R$
- Internal angle: $275R$
- Internal angle: $a_2 O$
- Internal angle: 140 ± 10

Bottom View (Top View):

- Overall width: $422^{+3.2}_{-3.2}$
- Overall height: 390 min
- Internal width: 362 min
- Internal height: 273 min
- Internal radius: $51R$
- Internal radius: $737R$
- Internal radius: $686R$
- Internal radius: $508R$
- Internal radius: $533R$
- Internal radius: $66R$
- Internal angle: $165^\circ \pm 15^\circ$
- Internal angle: a_2
- Internal angle: NC
- Internal angle: g
- Internal angle: a_1
- Internal angle: h
- Internal angle: h
- Internal angle: h

BI2A Base:

- Internal radius: a_2
- Internal radius: a_1
- Internal radius: g
- Internal radius: k
- Internal radius: h
- Internal radius: h

1936

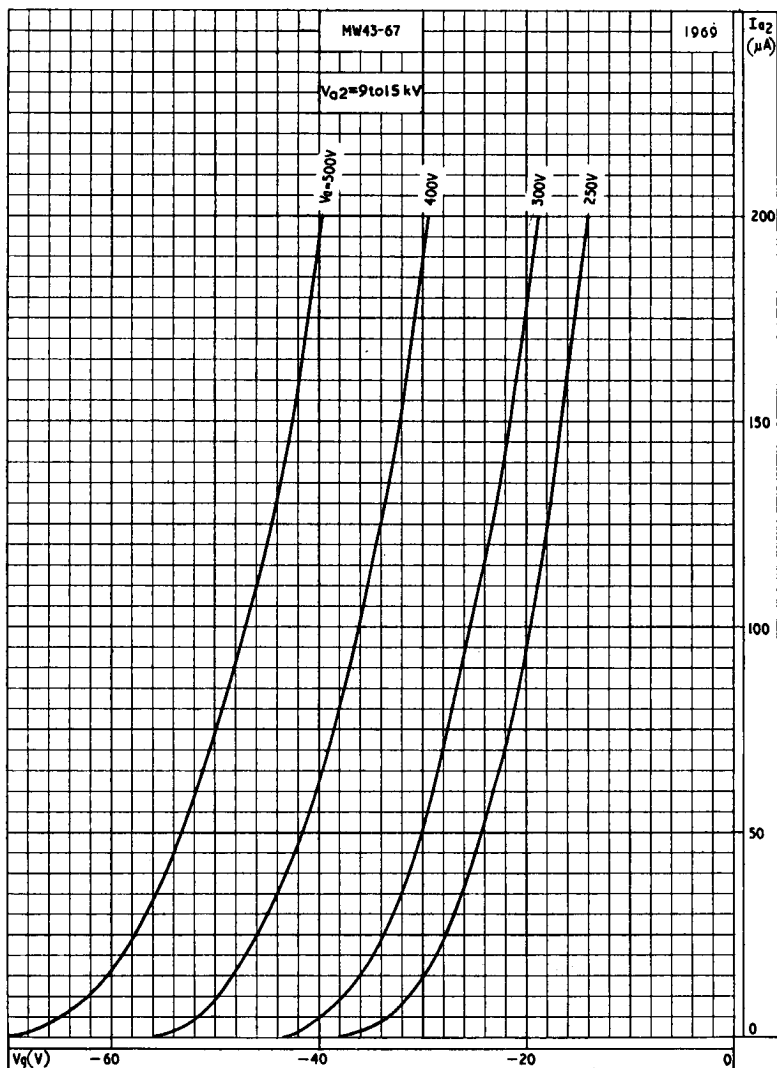
All dimensions in mm

The indicated radius of faceplate curvature is not an exact but an average value.

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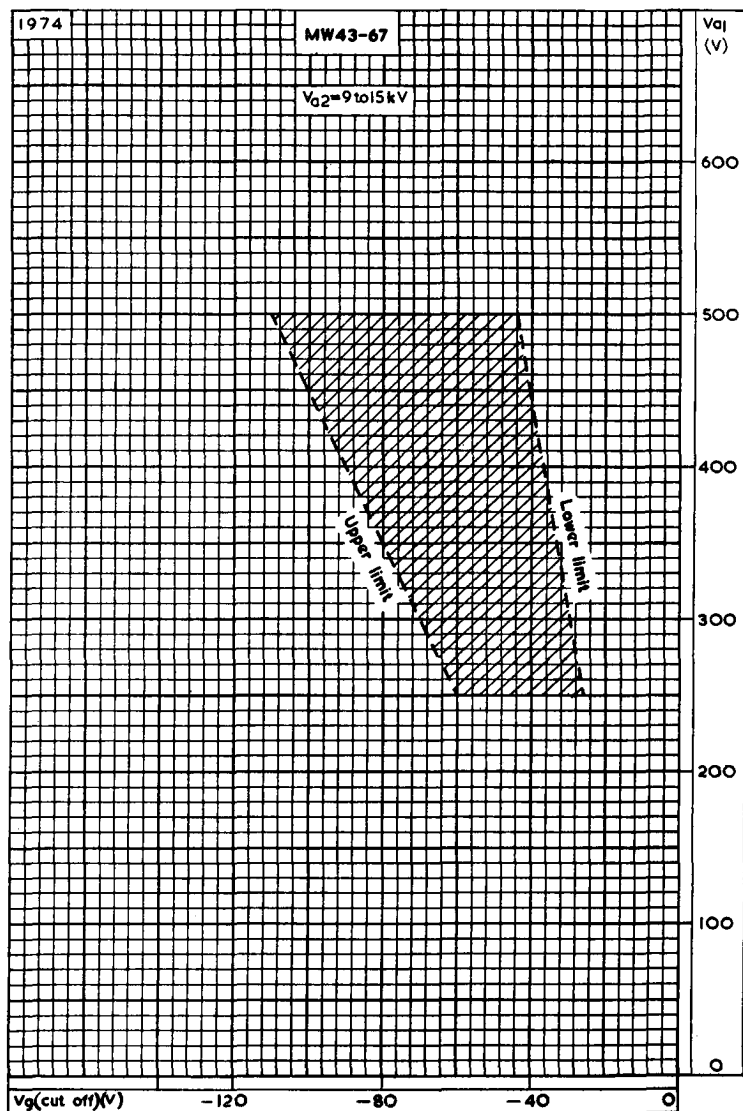


FINAL ANODE CURRENT PLOTTED AGAINST GRID VOLTAGE

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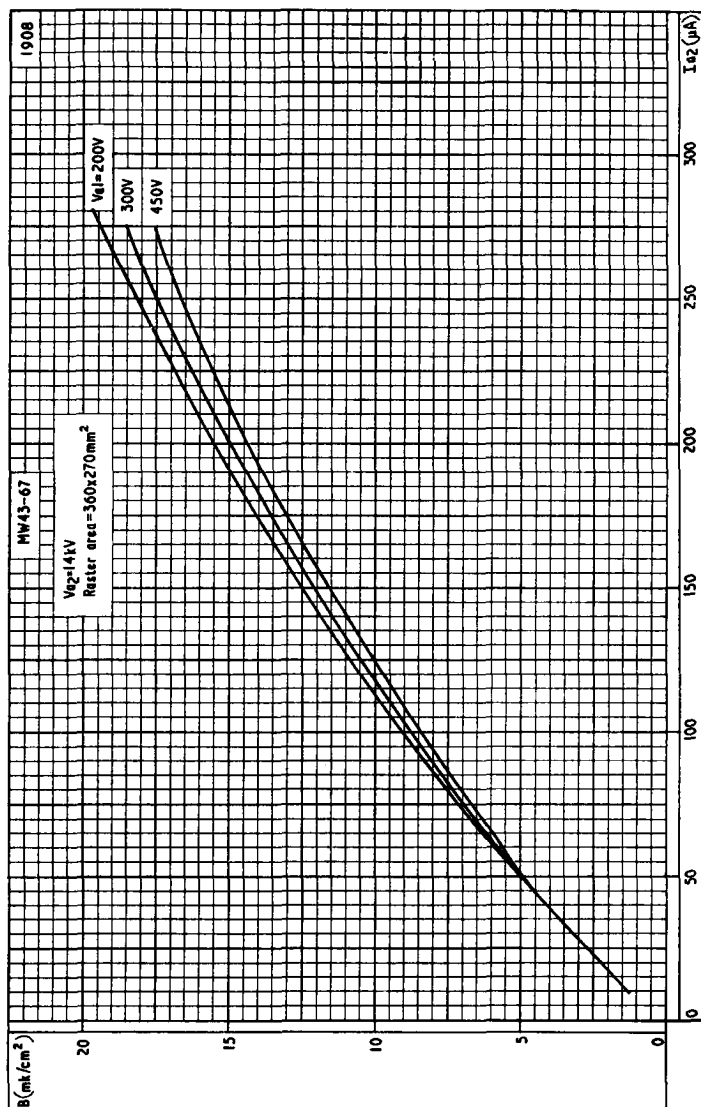


LIMITS OF GRID CUT-OFF VOLTAGE FOR FIRST ANODE VOLTAGES FROM 250 TO 500V

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LIGHT OUTPUT PLOTTED AGAINST FINAL ANODE CURRENT
FOR VARIOUS FIRST ANODE VOLTAGES

($1 \text{ mk/cm}^2 = 2.9 \text{ e.f.c.} = 2.9 \text{ ft.-lambert}$)