

TELEVISION TUBE

Direct viewing television tube with 14-in. diagonal rectangular grey glass screen. This tube has electrostatic focusing, magnetic deflection and incorporates an ion trap.

AW36-20 AW36-21

The only difference between the AW36-20 and the AW36-21 is that the AW36-20 has a metal-backed screen.

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-all}	< 8.0	pF
C_{k-all}	< 6.0	pF
$C_{B3+B5-M}$	900	pF

SCREEN

Fluorescent colour	white	
Light transmission	70	%
Useful screen area	See drawing on p. 3	

FOCUSING

Electrostatic

The range of focus voltage shown in the curves results in optimum focus at the centre of the screen. An increase in focus voltage of 100 to 200V in the positive direction will give a greater uniformity of focus over the whole screen.

DEFLECTION

Double magnetic

REFERENCE LINE

See 'General operational recommendations—cathode ray tubes'.

ION TRAP

Ion trap magnetic field intensity 59 to 67 G

The space between a point 80mm from the reference line along the neck of the tube and the edge of the base should be kept clear for the ion trap magnet. The direction of the field of the ion trap magnet should be such that the south pole is adjacent to the spigot. The procedure for adjusting the ion trap magnet is given in the 'General operational recommendations—cathode ray tubes' preceding this section of the handbook.

If V_{B3+B5} exceeds 10kV, the ion trap magnet assembly should be earthed.



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RASTER CENTRING

See note 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 70 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 55mm which is centred upon the perpendicular from the centre of the face.

TYPICAL OPERATING CONDITIONS

V_{a3+a5} 12 kV
 V_{a2+a4} (focus electrode) See curves
 V_{a1} 300 V
 V_g for cut-off -40 to -80 V

LIMITING VALUES (design centre ratings)

** V_{a3+a5} max. 14 kV ←
 V_{a3+a5} min. 9.0 kV
+ V_{a2+a4} max. 500 V
- V_{a2+a4} max. 500 V
 V_{a1} max. 410 V
 V_{a1} min. 200 V
* $-V_g$ max. 150 V
± I_{a2+a4} max. 15 μ A
† 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_{h-k} max. See note §
Max. a_1 supply source impedance 1.5 $M\Omega$
 R_{g-k} max. 1.5 $M\Omega$
 Z_{g-k} max. ($f=50c/s$) 500 $k\Omega$

*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 receiver 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_{a3+a5} and I_t (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 45s.

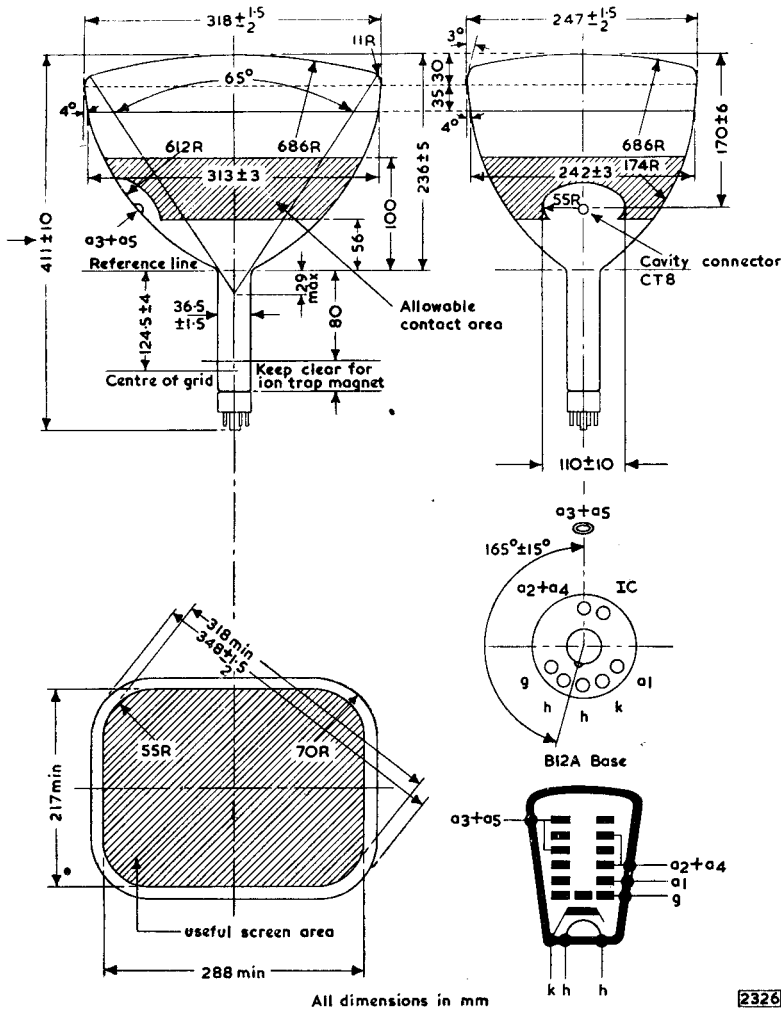
§When the heater is in a series chain, or earthed, Z_k max. is 100k Ω where Z_k is the 50c/s impedance between earth and the cathode.

When the heater is supplied from a separate transformer R_{h-k} max. is 1.0M Ω .

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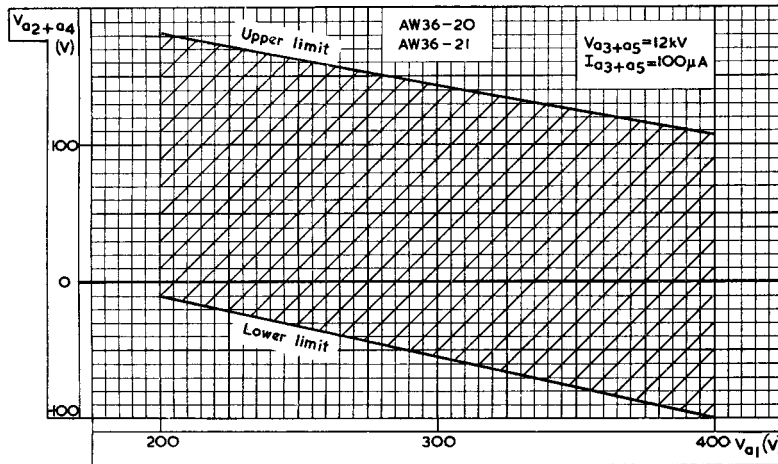
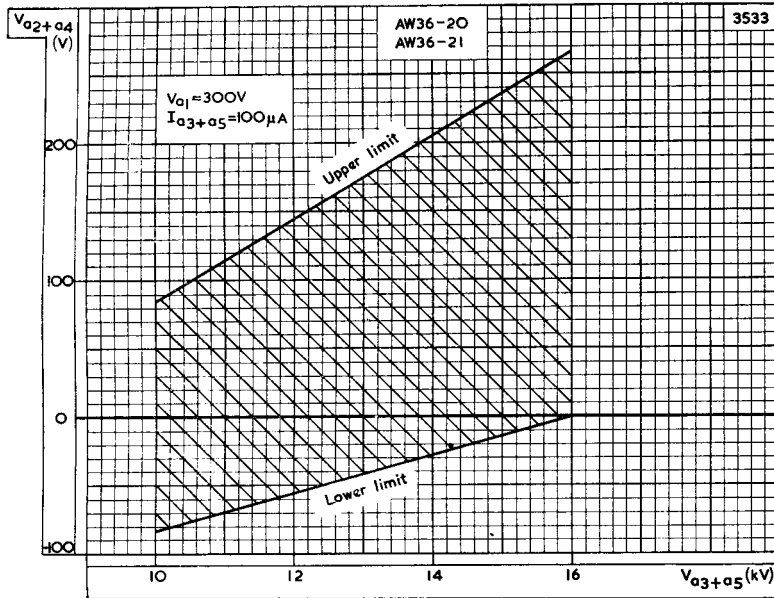
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The indicated radius of curvature of the faceplate is not an exact but an average value.

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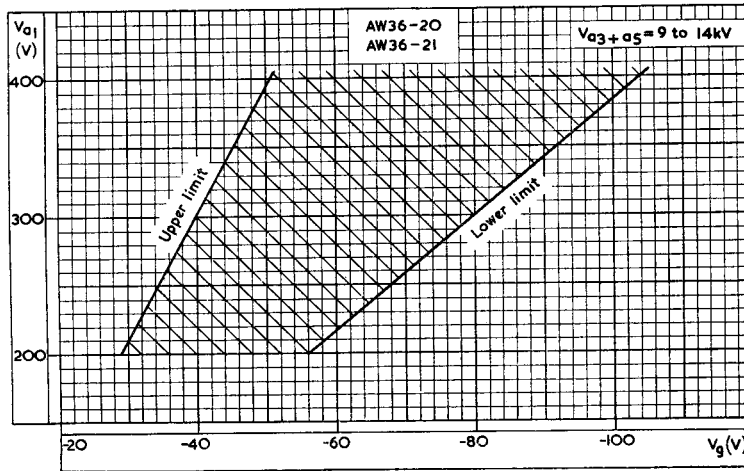
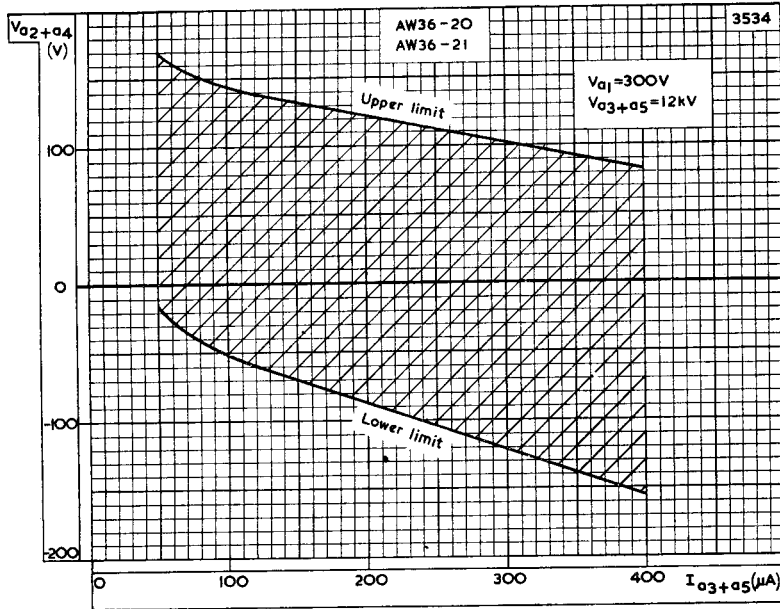


RANGE OF FOCUS VOLTAGE PLOTTED AGAINST FINAL ANODE VOLTAGE AND FIRST ANODE VOLTAGE

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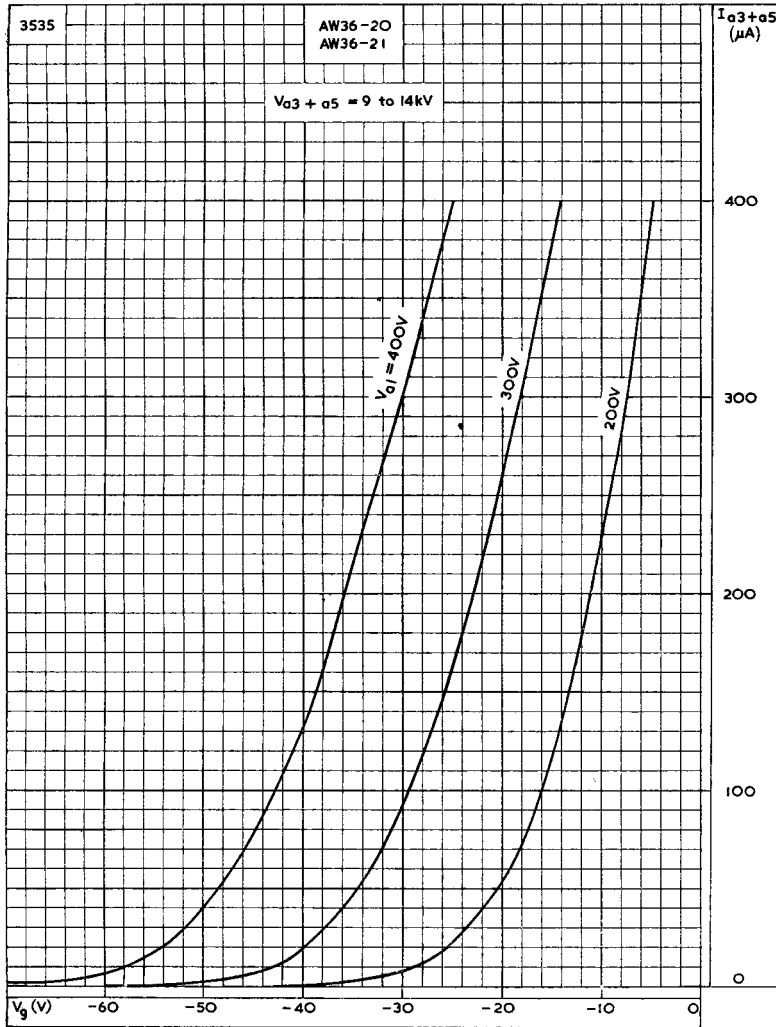


RANGE OF FOCUS VOLTAGE PLOTTED AGAINST FINAL ANODE CURRENT AND LIMITS OF GRID CUT-OFF VOLTAGE FOR FIRST ANODE VOLTAGES FROM 200 TO 410V.

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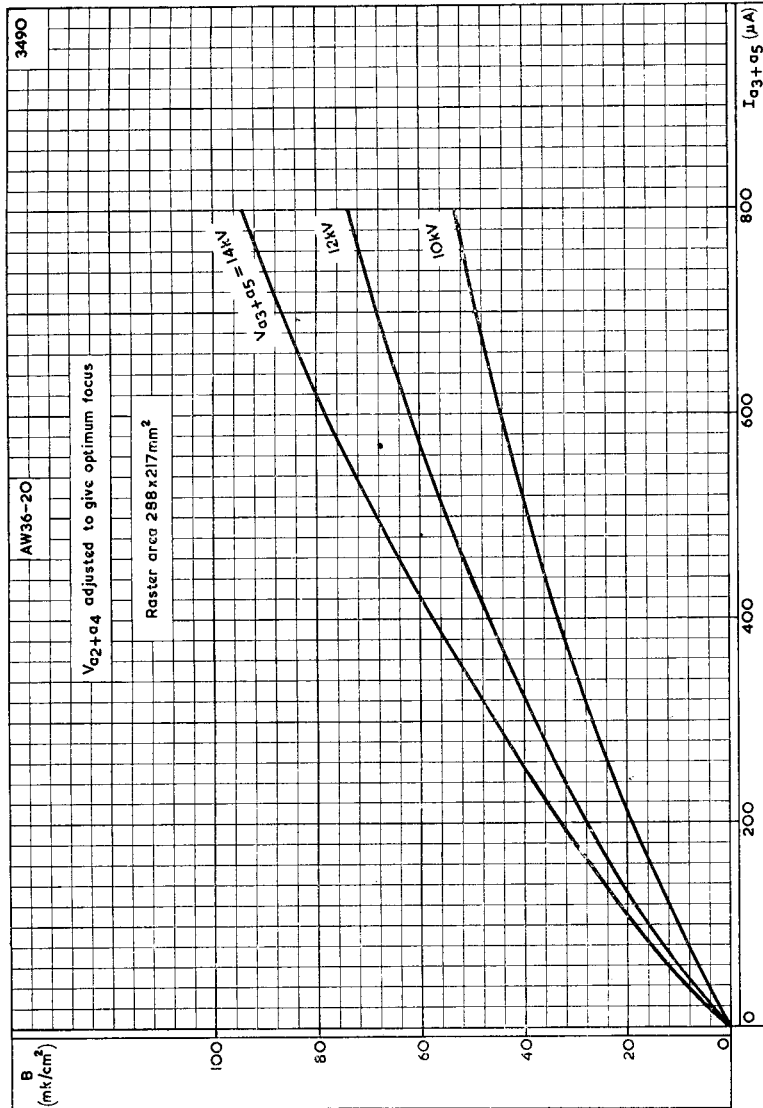


FINAL ANODE CURRENT PLOTTED AGAINST GRID VOLTAGE

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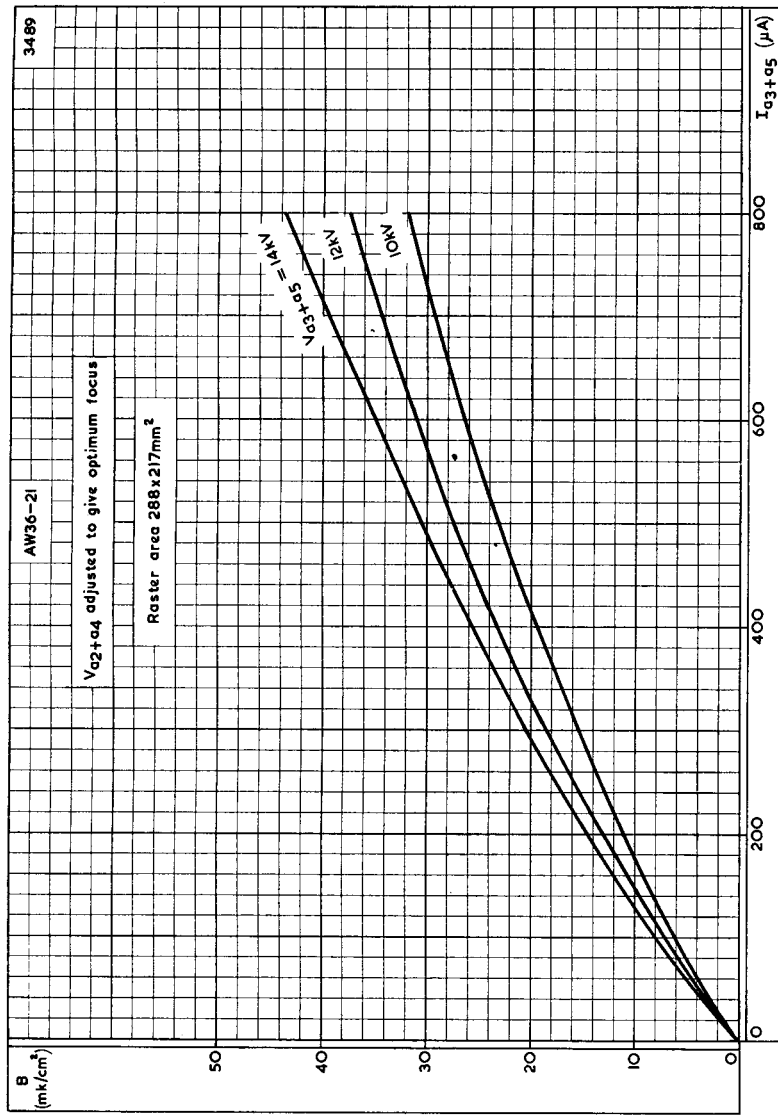
LIGHT OUTPUT PLOTTED AGAINST FINAL ANODE CURRENT
(1 $\text{mk/cm}^2 = 2.9 \text{ e.f.c.} = 2.9 \text{ ft.-lambert}$)



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