VERY HIGH RESOLUTION CATHODE-RAY TUBE/COIL ASSEMBLY

This tube/coil assembly consists of the very high resolution tube M38-200 and the deflection unit AT1991. The assembly is adjusted for astigmatism correction of the spot, over the entire screen. For further information see the data sheets of M38-200 and AT1991.

QUICK REFERENCE DATA

Deflection angle	70°
Face diagonal	38 cm
Overall length	478 mm
Neck diameter	36,8 mm
Screen dimensions	226 mm x 291 mm
Resolution	3000 TV lines* 1800 lines* (shrinking raster)

MECHANICAL DATA

Dimensions in mm

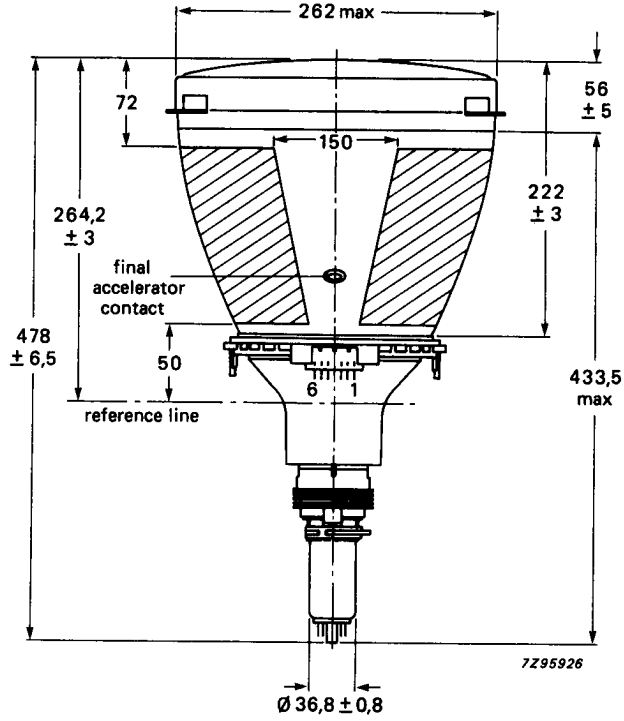


Fig. 1 M38-201 tube assembly.

MECHANICAL DATA (continued)

Dimensions in mm

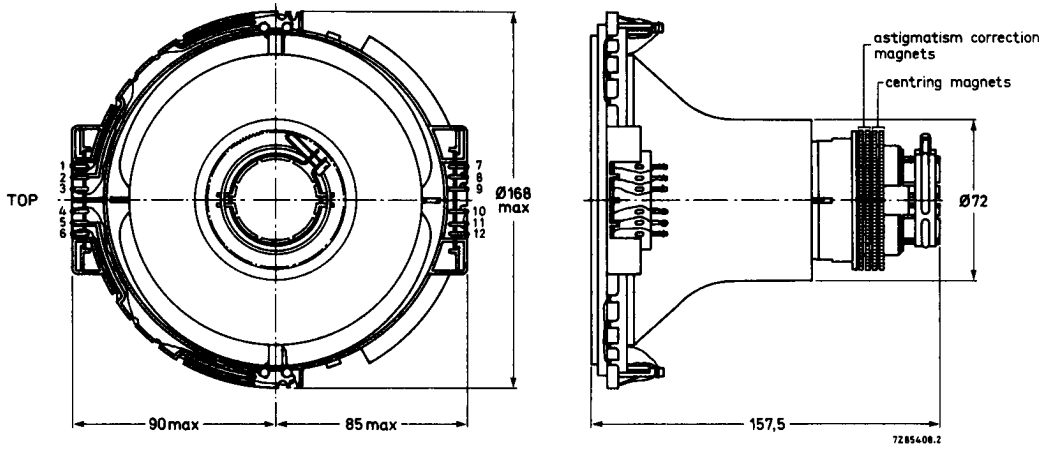


Fig. 2 AT1991 deflection unit.

ELECTRICAL DATA (for landscape format: 290 mm x 225 mm scan)

Line deflection coils, parallel connected; (see Fig. 3)	
inductance (at 1 kHz)	140 μH
resistance (DC)	0,23 Ω
Line deflection current, for 290 mm scan, at 18 kV	7,6 A
Field deflection coils, parallel connected; (see Fig. 3)	
inductance (at 1 kHz)	5 mH
resistance (DC)	5,6 Ω
Field deflection current, for 225 mm scan, at 18 kV	940 mA
Maximum voltage between line and field coils	2500 V (DC)

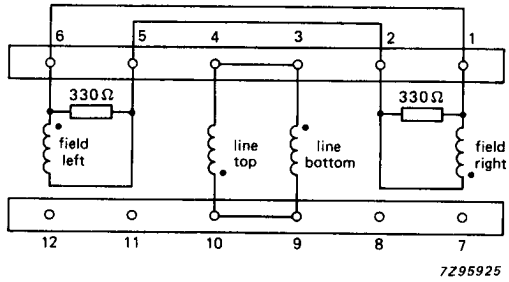
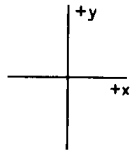


Fig. 3 Diagram of the coils. The beginning of the windings are indicated with ●.

Geometric distortion measured without centring magnets.



$Fy: +1,0^{+1,5}_{-1,0}$ $Fx: -1,0^{+1,0}_{-1,5}$

$Gy: +1,0^{+1,5}_{-1,0}$ $Gx: +1,0^{+1,5}_{-1,0}$

$Jy: -1,0^{+1,0}_{-1,5}$ $Jx: +1,0^{+1,5}_{-1,0}$

$Hy: -1,0^{+1,0}_{-1,5}$ $Hx: -1,0^{+1,0}_{-1,5}$

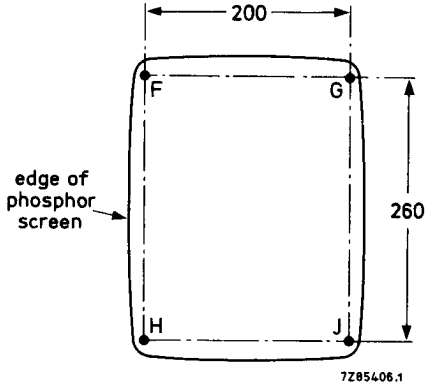


Fig. 4.

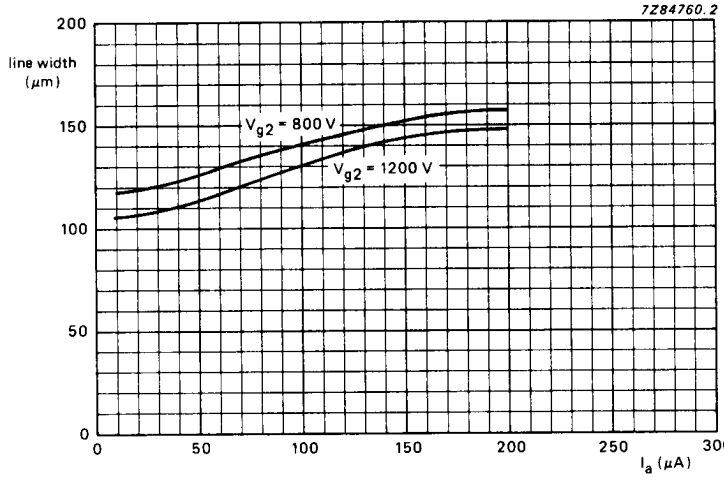


Fig. 5 Resolution.

CENTRING CORRECTION *

The eccentricity of the CRT and the deflection unit can be corrected by two independently movable centring magnets, which are magnetized diametrically (see Fig. 2). By turning the magnets with respect to each other the resulting field strength is varied. The direction of the resulting magnetic field is adjusted by turning the magnets simultaneously. The magnets must be adjusted so that the curvature of the horizontal and vertical axes disappears; in general the picture will be centred at the same time, otherwise this should be corrected electronically.

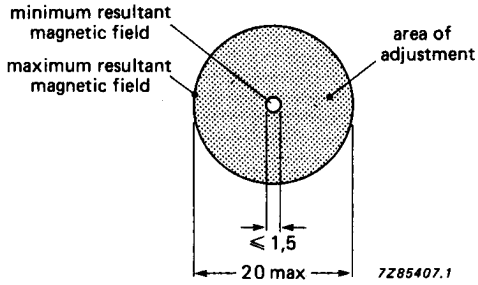


Fig. 6.

ASTIGMATISM CORRECTION *

The astigmatism of the undeflected beam can be corrected by two independently movable quadripole magnets, which are placed next to the centring magnets (see Fig. 2). By turning the quadripole magnets with respect to each other the resulting four-pole field strength varies. The direction of the resulting four-pole field is adjusted by turning the quadripole magnets simultaneously. The astigmatism of the undeflected beam is examined during a slow variation of the focusing voltage; the beam is free of astigmatism when the size, and not the shape, of the beam changes when the focusing voltage is varied around its optimum (Figs 7 and 8).

Fig. 7 Beam with astigmatism.

Fig. 8 Beam free of astigmatism.

a. Focusing voltage < optimum value.
b. Focusing voltage at optimum value.
c. Focusing voltage > optimum value.

* See "Precautions for use" overleaf.

PRECAUTIONS FOR USE

To avoid possible deterioration of the astigmatism correction quality of the assembly, the recommendations listed below should be adhered to:*

- To avoid changing the tube's internal magnetic correction, the coil must be at zero potential before being moved on the tube neck.
- If centring correction is necessary, adjust the coil dipole magnets so that the spot shift at the screen centre does not exceed 1 cm from its original position.
- For picture geometric distortion correction, an electrical correction is preferable to magnetic adjustment.
- When used in portrait format it may be necessary to adjust the position of the coil quadripole magnets, in order to achieve optimum astigmatism correction.
- When used in landscape format no adjustment for astigmatism correction is necessary as optimum astigmatism correction is set in the factory.

* The spot astigmatism correction quality is guaranteed for beam currents up to 250 μA, provided these recommendations are followed.