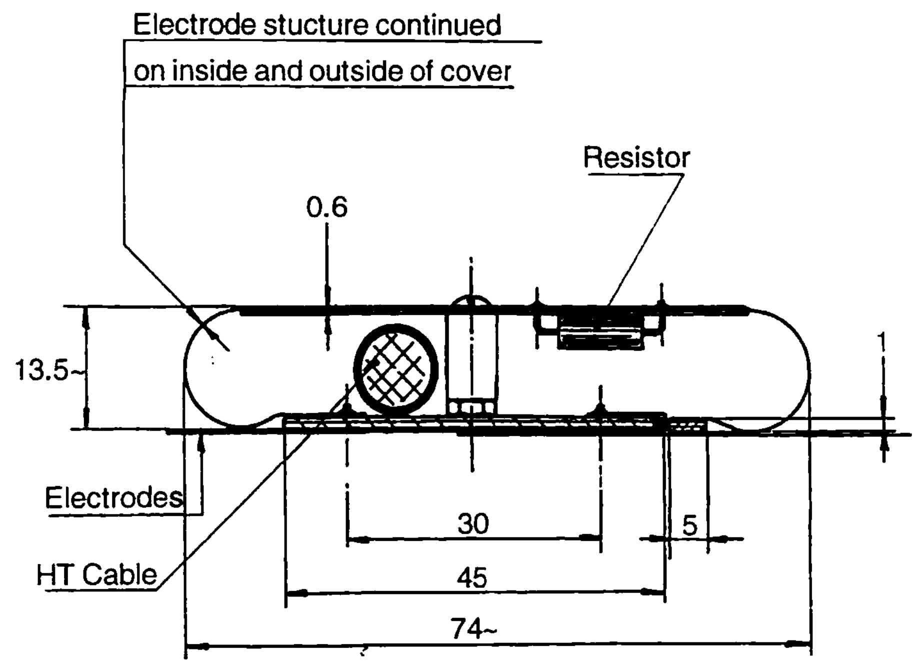

Fig. V.10 Cross-section through the resistor chain and its housing.

the fact that the voltage varies continually along the field cage, and the fact that the high-voltage cable itself is at the maximum voltage, the insulator around the cable (10 mm diameter polyethylene) is covered with a resistive sheath which is connected electrically to the field cage every five electrodes.

3.8 Central membrane

The central membrane is made from 25 µm Mylar coated on both sides with a conducting graphite paint. The Mylar sheet is reinforced at its outer and inner periphery by two rings of 0.3 mm thick Mylar. The whole sheet is stretched and its tension is supported by a 10×8 mm^2 Al ring. The structure resembles a bicycle wheel in its function, with the Mylar sheet taking the place of the spokes and the outer Al being the rim. The membrane is supported by a shallow U-section Al ring, glued onto the outer field cage; it is attached to this ring by means of clips, as shown in Fig. V.11.

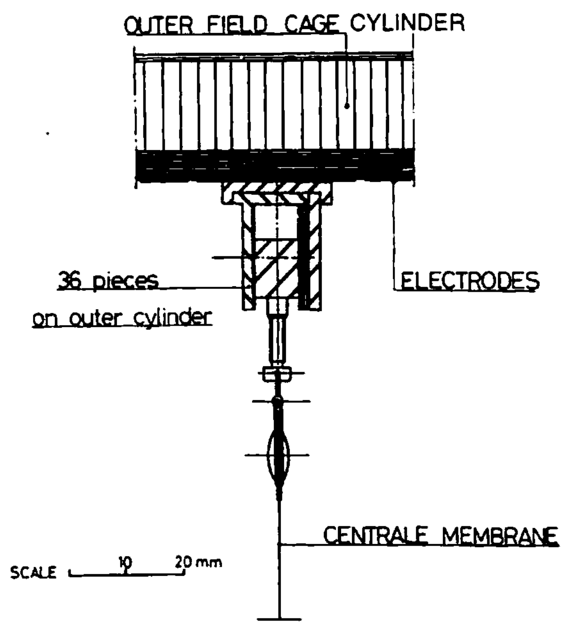

Fig. V. 11 Attachment of the central membrane to the outer field cage cylinder.

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3.9 High-voltage supply

The drift field of about 115 V/cm is generated by feeding high voltage from a power supply to the central membrane (Fig. V.12). Owing to the large resistances and capacitances involved (RC >> 1 s), rapid voltage changes could cause damage. This is avoided by limiting dV/dt to about 20 V/s by hardware. The power supply itself is protected against power failure by a battery converter with an autonomy of 30 min. In the case of a power cut, the high voltage can therefore still be ramped down.

The following quantities are monitored by the Slow Control:

Voltage of the central membrane:	–27 kV typically
Total current:	250 µA typically
Currents in the four resistor chains:	63 µA typically
Voltages at the end of the four chains (voltages of the skirts):	–67 V typically