

Experiment 9: The strain gauge

- Aircraft designers need to know the forces affecting different parts of an aircraft during flight. One way of obtaining this information is to attach a device called a strain gauge to the aircraft.

Fig. 4.1 illustrates a strain gauge.

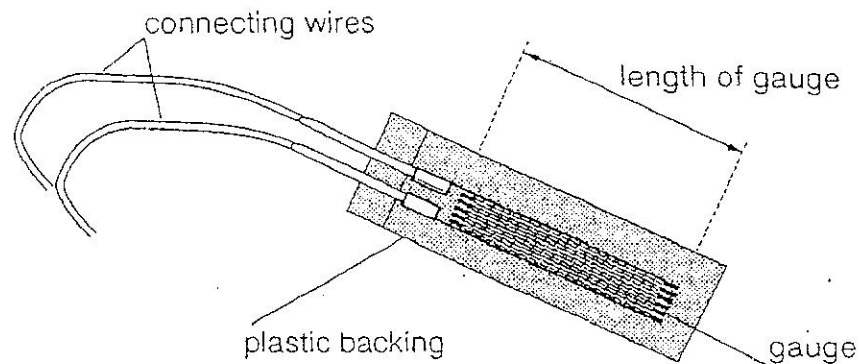


Fig. 4.1

One of the properties of a strain gauge is that its electrical resistance changes when its length changes.

Information relating to this strain gauge is given below.

The resistance of the gauge with no force applied is $350\ \Omega$.

If the length of the gauge increases by 1%, the resistance of the gauge increases by about $10\ \Omega$.

Design an experiment to calibrate the gauge in terms of the change of resistance produced by different applied forces. You should include diagrams where appropriate and state how the measurements would be made and used.