BLAST STUDIES ON THE EFFECT OF VEHICLE SUSPENSION IN TRUCK OVERTURNING

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A number of experiments have been carried out to determine the effect of nuclear blast on vehicles. This work is concerned with vehicle overturning. Analytical models have been developed to predict overturning given the characteristics of a particular vehicle. The first of these regards the vehicle as a rigid body pivoting about the line of contact of the downstream wheels with the ground. However, a number of mathematical models can be constructed to simulate the behavior of a given target. One or two are likely to be acceptable. In general these can only be identified empirically.

An experiment was therefore mounted in the AWRE Foulness Blast Tunnel in which a 0.75 tonne open truck was subjected to a series of blasts of increasing overpressure and its behavior recorded by high speed cine cameras. Analysis of the results enabled essential features in the vehicle overturning to be identified and a simple calculational model was constructed for a wide range of vehicles.