MODEL EXPERIMENTS FOR ANALYSING THE VULNERABILITY OF AN ARMOURED INFANTRY FIGHTING VEHICLE (AIFV)

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By means of dimensional analysis so-called pi terms can be found which describe the motion of a rigid body subjected to a blast loading of a one-kiloton nuclear explosion. from the Pi terms model laws can be obtained for a 1:15 scale model.

By experiments, conducted in a 1.5 m diameter blast simulator the motion of the model can be recorded, which should be similar to the original one during the experiment DICE THROW, where the one-kiloton nuclear explosion was simulated by 600 ton charge ANFO.

In the model a suspension system was adopted which was thought to have significant effect on the turn over characteristics. By assuming a specified mass ratio the model laws have been defined which applies to the suspension system as well.

From the experiments it can be concluded that the suspension system largely affects the response of the vehicle in preventing turn over, and absorbing a large amount of kinetic energy.