

TRUCK2V, A MODIFIED VERSION OF THE TRUCK COMPUTER CODE FOR OVERTURNING CALCULATION OF SEMI-TRAILERS EXPOSED TO BLAST WAVES

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The TRUCK computer code is intended for the overturning computation of wheeled or tracked vehicles, which are exposed to the effects of a shock wave created by nuclear weapon. The first generation of this program was developed in 1976 by Kaman Avidyne team.

In the 3.0 version, the TRUCK code will calculate the overturning of a single vehicle, composed of only one main body. This code has been modified in 1987 by a CEG team; the new version, named TRUCK 2V, will now compute the motion of wheeled or stabilized semi-trailers.

The first part of this presentation shows the code modifications. The main ones are the creation of a second vehicle, and the linking between the tractor - vehicle 1, and the trailer - vehicle 2. The applied loading and the motion are successively computed on both vehicles, at each time step.

The articulated linking is modeled with stiff spring-damping system. The second part presents a comparison between experimental and numerical results. A experimentation has been made in order to validate the new version TRUCK 2V. It consisted in the overturning tests of semi-trailer scaled models, exposed to a blast wave in a shock tube. The shots have been made in the 2.4 meter diameter shock tube of the CEG, using small explosive charges as generation means.