

# A MOOSE CRASH DUMMY FOR LS-DYNA

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## ABSTRACT

The vehicle to moose impact constitutes a serious traffic problem in the Nordic Countries. Thus, in addition to the conventional requirements on crashworthiness, a Swedish car is also supposed to protect the occupants in the case of a moose impact.

The Swedish National Road and Transport Research Institute (VTI) has developed a moose crash test dummy, which has shown to have a similar impact behaviour on the vehicle as a real moose. The main components of the test dummy are 36 rubber plates, but there are also various steel parts holding the pieces together. Due to the height of the moose, the main body will hit a normal size passenger car in the A-pillar and front window region. The legs will hit more frontal parts of the vehicle and make the moose body rotate. In a typical moose impact the A-pillars and the frontal roof are severely deformed into the passenger compartment.

A FE-element model of the moose crash test dummy has been developed for LS-DYNA. The FE-model closely replicates all components of the physical dummy. About 30.000 elements are used for the model, which has a critical time step of about 1.5 microsecond. The FE-model of the moose is complete and only the contact interfaces between the moose and the vehicle need to be defined. Simulations of passenger car to moose impacts have been conducted and the results are evaluated and compared to physical test data.

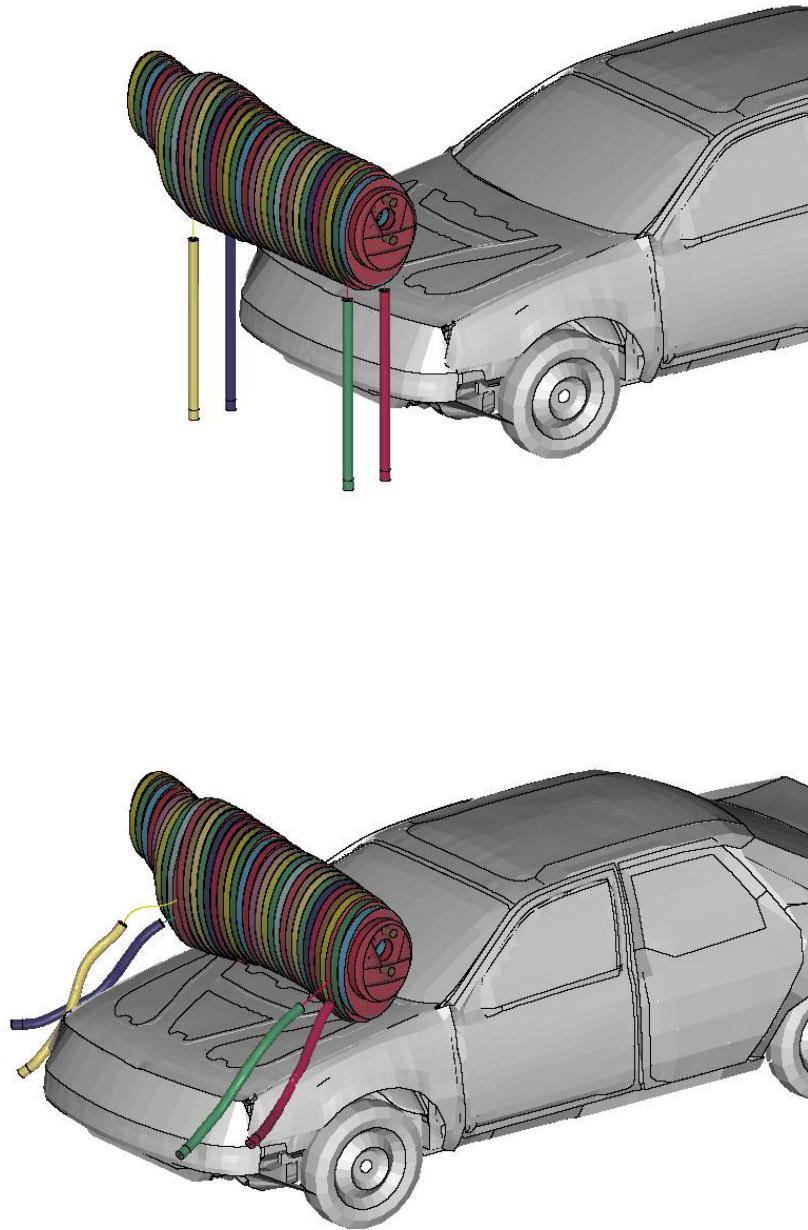


Figure 1. Car to moose impact. Initial state and after 67 ms