

Improved Underrun Protection for Commercial Vehicle

The idea:

A substantially improved design for rear underrun protection on commercial vehicles by collision energy absorption via deformation elements and gliding

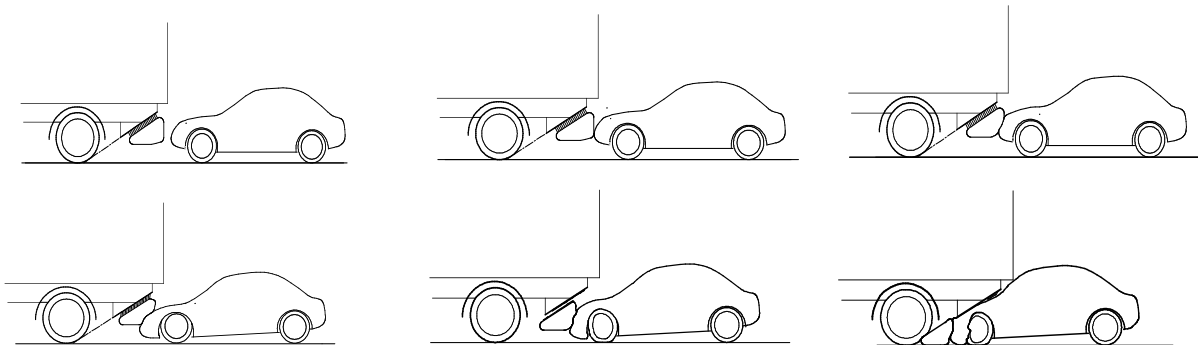
In the case of a collision between the front of a passenger car and the rear of a large truck, the truck absorbs an insufficient amount of the energy generated by the crash. Tests have shown that rear underrun protection systems currently required by UNECE standards for commercial vehicles are not adequately structured to avoid the risk of passenger fatality or severe injury in the case of a collision with a car. Such a conventional underrun protection system is typically a rigid structure, designed to withstand a specified load and which, if this load is exceeded, can collapse as shown in the picture on the right.



Source: General-Anzeiger 26.04.11
(Germany)

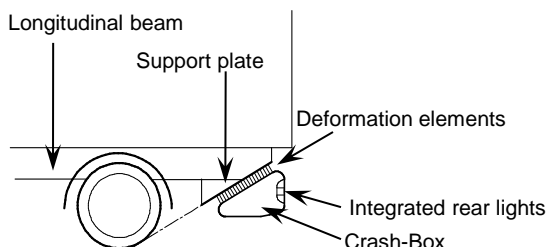
This proposal describes a solution: the reduction of deceleration loads by energy-absorbing structural measures through the deformation and gliding of a crash box, as shown in the figures below. Such an underrun protection system can be much more effective at preventing the fatality or serious injury of car passengers.

Functional principle for an improved truck underrun protection

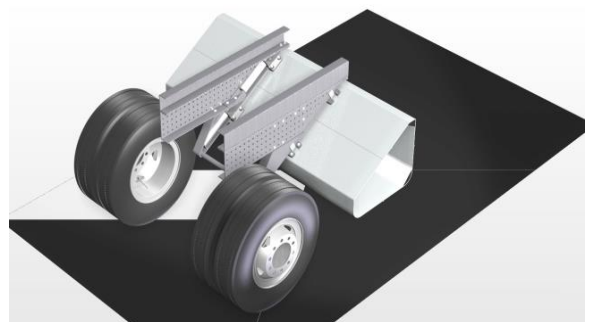


Energy absorbing underrun protection crash structures on commercial vehicles have to become standard, as they have been on passenger vehicles for decades.

Principal configuration of an underrun protection system



Design model



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