

UN Regulation No. 58 – Rear underrun protection devices – Information on the cost benefit analysis performed by Germany

Note: The text reproduced below was prepared by the expert from Germany to inform GRSG about the cost benefit study that was performed in Germany following the discussion during the 103rd session.

I. Information

At the 100th session of GRSG, Germany presented the official document ECE/TRANS/WP.29/GRSG/2011/19 to propose a significant improvement of the situation of rear underrun accidents by introducing more demanding requirements for rear underrun protection devices (RUP) on heavy goods vehicles (HGV). The target is to ensure a higher level of safety for passenger car occupants, who have a high risk to get severely or fatally injured in case of hitting the rear of a truck or trailer.

Following the discussions during the 100th session and experts meetings, Germany has proposed a revised proposal (document GRSG-102-26) to take most of the comments that were made into account. During the 102nd session of GRSG and a follow-up expert meeting, the discussion showed that some contracting parties would like to see further clarifications for the German proposal.

As a consequence Germany has announced at the 103rd session of GRSG the objective to perform a cost benefit study taking into account the current accident situation and the proposals to improve rear underrun protection devices. It was also indicated that the study would be shared with the experts in GRSG after finalisation.

The report of this study was finalised in March. During this session of GRSG, Germany gives a short summary of the study in section II of this document.

The report of the study will be sent to experts of GRSG after the 104th session of GRSG.

II. Summary of the study

UN Regulation No. 58 governs the design and installation of rear underrun protection devices on vehicles of categories N2, N3, O3 and O4. Nevertheless, rear-end collisions – especially those involving vehicles of category M1 – with the aforementioned categories of commercial vehicles are characterized by a high level of accident severity. Germany thus submitted a proposal to WP.29/GRSG suggesting that the regulation be amended. This would include, inter alia, increasing test forces and reducing ground clearance.

Using an injury risk model based on German national accident statistics, it is estimated that these measures could reduce the number of fatalities by 53 to 78 % and the number of seriously injured casualties by 27 to 49 % in such accident constellations, which is equivalent to 20 fatalities and 95 seriously injured casualties per year. In monetary terms, the benefit would be 35.7 million euros. The costs for the goods vehicles and trailers affected each year would be between 5 and 20

million euros, depending on how the costs are estimated. Thus, the benefit-cost ratio for the proposed measures is between 1.78 and 7.

Related to relevant accidents at EU 27 level based on a CARE database analysis, the benefit is estimated to be higher than in Germany by at least a factor of 9, whereas fleet-dependent costs would only exhibit a factor of 4. Thus, for the European commercial vehicle fleet and the accidents in which they are involved, it can be estimated that the effectiveness at EU 27 level would be at least as high as in Germany.

Against the background of the problems associated with HGV rear underrunning, the question arises as to whether passenger car emergency braking systems can, in the near future, represent an effective and efficient alternative for improving the situation of rear underrun accidents.

For Germany the benefit from introducing an ideal emergency braking system for all passenger cars would be around 842 million euros per year, while the costs for 3 million newly registered vehicles per year in Germany would be between 489 and 917 million euros. This produces a benefit-cost ratio of 0.9 to 1.7. By comparison, improving the Rear Underrun Protection Regulation would prevent 38 % (20 of 53) of the fatalities theoretically addressed by an emergency braking system but would only cause 2 % of the costs of passenger car emergency braking systems.

III. Outlook

Germany will prepare two documents for discussion at the 105th session of GRSG taking place in October 2014:

- The proposal for amendments to UN Regulation No. 58 will be submitted in due time as an official document.
- In addition, a justification document will be provided based on the cost benefit study that was undertaken.
