

## **Proposal for supplement 1 to the [09] Series of Amendments to UN Regulation No. 16 (Safety-belts) \***

### **Submitted by the expert from the Netherlands**

The text reproduced below was prepared by the expert from the Netherlands to determine the judgment phase of a dynamic seat belt test. The modifications to the existing text of the UN Regulation are marked in “bold black“ for new or strikethrough for deleted characters.

---

\* In accordance with the programme of work of the Inland Transport Committee for 2023 as outlined in proposed programme budget for 2023 (A/77/6 (Sect. 20), table 20.6), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

## I. Proposal

*Paragraph 6.4.1.3.2., amend to read:*

- “6.4.1.3.2. The forward displacement of the manikin shall be between 80 and 200 mm at pelvic level in the case of lap belts. In the case of other types of belts, the forward displacement shall be between 80 and 200 mm at pelvic level and between 100 and 300 mm at chest level. In the case of a harness belt, the minimum displacements specified above may be reduced by half. **These displacements shall be judged up to the point where the manikin contacts the seat back during its backward movement after impact.** These displacements are the displacements in relation to the measurement points shown in Annex 7, Figure 6 to this Regulation.”

## II. Justification

1. This proposal aims at defining the judgement phase of the dynamic seat belt component test on the sled. In case of a seat belt with a load limiter, it may occur that the chest displacement continues after the actual test phase due to the fact that the dummy is “hanging in the seat belt”. This may result in excessive chest displacement which is not the result of the dynamic test itself but due to low-speed movement of the upper body occurring during and after the rebound phase. UN R16 does not describe the max. duration of the dynamic test.
2. The method to determine the timing of the contact of the dummy with the seat back after impact is not defined (i.e. left to the discretion of the Technical Service performing the test) but could be derived from e.g. high-speed camera, contact sensors etc.
3. The proposal is to define the judgement phase up to the point where the manikin contacts the seat back during its backward movement after impact as the criterion of the judgment phase; research has shown that this will work for all types of seat belts and will include all dynamic phenomena e.g. submarining.

---