

**Comments and proposals on the draft regulation on the protection of the driver and the crew**

(ECE/TRANS/WP.29/GRSG/2007/33)

Transmitted by the expert from Hungary

- A. The expert from Hungary supports – since a long time – the effort to prepare a regulation to protect the bus drivers and crew seated alongside the driver in case of frontal collision and accepts the German proposal as a starting point.
- B. The expert from Hungary thinks that before going into the detailed discussion, certain essential ideas should be agreed in GRSG. Therefore the comments and proposals below are not directly related to individual paragraphs of the draft but to the concept of the draft regulation. We just raise the questions that are just raised. The expert from Hungary is ready to present the evidences, arguments and statistical data to the discussion.

**1. The goal of the regulation**

The goal is "to protect the driver and crew seated alongside the driver in the case of frontal collision". The question is: what kind of frontal collision situations should be considered, which are the most dangerous for the drivers. It should not be written into the regulation, but it should be clear for GRSG when discussing, because the requirements, test methods depend on that.

It is proposed that not the full width (100% overlapping) frontal collision against a rigid object but a partial one should be considered

- partial means an offset impact load acting directly on the drivers (or crew) compartment,
- partial means an impact load limited in width, height, or acting under an angle, or pole like object, etc.,
- partial means that the main danger for the driver is the structural deformation of the driver's compartment, the intrusion of structural parts into the residual space,
- the impact load, energy, should be derived from the accident situations in which the driver should be protected.

**2. Scope of the regulation**

The driver (crew) is key person in relation to the safety of passengers. Therefore the scope should cover all bus categories

- the "low floor" does not determine exactly the driver's position. In case of low floor bus the floor height of the driver compartment could be 600-620 mm, while in case of very high floor (or double deck) tourist coach could be 320-340 mm,

- in Class I the drivers have at least the same (or higher) risk in partial frontal collision as in other classes,
- the 7,5 tonnes mass limit is not used for bus categorization and it does not have a special technical influence on the driver's position (driver's safety) in frontal collision.

### **3. Definitions**

The definitions are acceptable. The list could be completed after the discussion (e.g. group of vehicles, driver's compartment, "dangerous parts" which may intrude into the residual space, etc.).

### **4. Requirements**

Double requirements are needed after the test:

- no contact of the "dangerous parts" with the residual space,
- possibility for the driver to leave the driver's compartment (way of evacuation).

### **5. Residual space**

It should be a rather simple geometrical form, fixed to the driver's seat in a specified position and based on the former Spanish proposal

### **6. Test methods**

- It should be very carefully discussed and decided whether the complete vehicle (on its wheels) and/or the front part of the vehicle may be tested.
- The partial impact on the driver's compartment could be longitudinal or under angle (agreed by the manufacturer and Technical Service).
- The energy input (impact energy) should be reconsidered: may be smaller for M<sub>2</sub> and bigger for M<sub>3</sub> vehicles.
- The position of the impact plate should be related to the floor of the driver's compartment (the driver seat height is adjustable)
- The preparation of the vehicle, or front part of the vehicle to be tested shall be clearly specified. Precise requirements are needed for the anchorages because of their possible energy absorption.
- Documentation and evaluation of the test results should be précised.

### **7. Extension of approval**

It should be specified what kind of changes shall be considered when granting the extension of an approval (worst case application).

### **8. Superstructure**

The main rules, viewpoints of the description of the superstructure should be given (may be in an annex). It is important when specifying a group of vehicles (worst case) or when evaluating the extension of the approval.

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