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Working Party on General Safety Provisions

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Item 2.2.2. of the provisional agenda

BUSES AND COACHES

Regulation No. 107 (M_2 and M_3 vehicles)

Sleeper coaches

Sleeper coaches – general views on the subject from Denmark and rough ideas on how to proceed

Submitted by the expert from Denmark

The text reproduced below was prepared by the expert from Denmark and is aimed at ensuring sufficient protection of lying passengers in sleeper coaches in the case of fire, frontal collision or roll-over accidents. It is based on informal document No. GRSG-91-13, distributed during the ninety-first session of the Working Party on General Safety Provisions (GRSG) (ECE/TRANS/WP.29/GRSG/70, para. 14).

Note: This document is distributed to the Experts on General Safety Provisions only.

A. BACKGROUND

At its April 2006 session, GRSG had an exchange of views on sleeper coaches. This document outlines the possible ways of addressing the safety issues that were brought up during that session.

B. GENERAL VIEWS

1. If sleeper coaches disappear as an alternative to long-distance transport, e.g. when driving from Northern Europe to go skiing in the Alps, many people will choose to drive their own car instead. This will increase the injury risk by a factor of 10 or so since coaches are much safer than cars.

2. The optimal solution from a safety point of view would be a form of belt-type restraint system that could be used by passengers lying down in the horizontal position. Such a system would provide protection in the case of a collision and/or a roll-over accident.

However, Denmark has serious doubts on whether a more complicated and possibly less comfortable belt arrangement would be used by the passengers in practice. It is difficult enough to make the passengers in ordinary coaches to use seat belts.

C. ROUGH IDEAS ON HOW TO PROCEED

3. Safety in the event of a collision could be obtained by requiring a safety partition in the front of each berth. No biomechanical measurements are available but Denmark believes that the installation of safety partitions is clearly a better solution that non-installation of them.

4. Safety in the event of a roll-over accident could be achieved by requiring the side windows to be made from laminated glass in order to keep the passengers inside the coach.

5. Safety in the case of fire:
   (a) the gangway should be permitted to be more narrow (300 mm) than normally allowed when the seats are converted into sleeping berths in order to provide some extra space for sleeping passengers, but only under the condition that:
   (b) all windows next to the sleeping berths are either hinged or fitted with tear-off lists in order to make it possible for the passengers to use them as emergency exits.

6. Stability should be ensured by performing the 28-degrees static tilt-test required in Regulation No. 107, but with all berths in the sleeping position i.e. in the position that will give the highest centre of gravity of the coach and, therefore, where the coach is most prone to roll-over.

In Denmark's point of view, it is possible, based on the ideas outlined above, to obtain a satisfactory level of passive safety in a sleeper coach without a (belt-type) restraint system.

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