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Regulation No. 43 (Safety glazing)

Proposal for a Supplement to the 01 series of amendments to Regulation No. 43 (Safety glazing)

Submitted by the expert from Hungary*

The text reproduced below was prepared by the expert from Hungary, proposing to allow the use of thick glass panes for multiple glazed units. It is based on informal document GRSG-107-21.

* In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

I. Proposal

Annex 12,

Paragraphs 3. to 3.4.4., to be deleted.

Paragraph 4. (former), renumber as paragraph 3.

II. Justification

1. The requirement in Annex 12, paragraph 3.4.1. of the Regulation specifies that all glass panes in the multiple glazed units shall break as the result of head-form drop. On the other hand, bus and motor caravan manufacturers use in many cases 5 mm to 6 mm thick tempered glass panes in side and roof windows (because they want to protect the passengers from stones falling onto the roof glazing, from vandalism, from smaller accidents, or want to reduce vibration and noise, or increase strength of the superstructure, or in fulfilling other regulations or standards, etc.). However, thick glass panes do not break easily and such multiple glazed units cannot be approved as safety glazing.

2. These conflicting requirements force the manufacturers to adjust the tempering process to the minimum quality level (targeting just a bit more than forty fragments) because this is the only way to decrease the strength.

3. The headform test is very important in the case of windscreens and, therefore, is required for all kinds of windscreen but has significantly less importance in all other cases. Thus, it is not required for different kinds of non-windscreen glazing. However, it is required for multiple glazed units, which are never used as windscreens.

4. To demonstrate the problem, a bus can, for example, be constructed of the following three types:

- (a) Side windows made of tempered glass panes;
- (b) Side windows made of laminated glass panes;
- (c) Side windows made of multiple glazed units.

The headform test is not required in cases (a) and (b) but required in case (c). This means the use of up-to-date thermal insulating glass is a burden for the manufacturer as it results in an additional requirement for the same installation situation.

5. In general, the requirements should be based on the functionality of the glass in the vehicle (windshield, glazing in the driver's field of vision, emergency exit, other glazing, etc.) and not on the sort of the glazing (simple, multiple, laminated, etc.) as is the case in Regulation No. 43. An example: standard ANSI-SAE Z26.1-1996 prescribes penetration test (which can be considered as a simple substitute of head-form test) only for those multiple glazed units which can be used as windscreens and not for other glazings.

6. An actual case is, e.g., a multiple glazed unit made of a 4 mm thick and a 6 mm thick toughened glass pane with 10 mm gap which was recently tested. As a consequence of the headform drop, in four specimens both glass panes broke but in two specimens only one of the panes broke. The requirement is that both panes of all six specimens shall break, so the unit does not comply with Regulation No. 43, 01 series of amendments.