

UN Regulation No. 66 (UNIFORM TECHNICAL PRESCRIPTIONS CONCERNING THE APPROVAL OF LARGE PASSENGER VEHICLES WITH REGARD TO THE STRENGTH OF THEIR SUPERSTRUCTURE)

DRAFT Proposals on amendments to UN Regulation No. 66 (UNIFORM TECHNICAL PRESCRIPTIONS CONCERNING THE APPROVAL OF LARGE PASSENGER VEHICLES WITH REGARD TO THE STRENGTH OF THEIR SUPERSTRUCTURE)

Amendments to the current text of the UN Regulation are given in bold, deleting is marked by crossing out.

I. PROPOSAL

Add the following definition:

- "2.34 **"Emergency hatch" means an opening in the roof designed to be used by the passengers as an emergency exit only in case of emergency.**
- 2.35 **"Emergency exit" means an emergency door, an emergency window or an emergency hatch."**

Annex 5, Rollover Test as the Basic Approval Method, shall be amended as follows:

- "2.1 The vehicle to be tested ~~need not~~ **shall** be in a fully finished, "ready for operation" condition. ~~Generally, any alteration from the fully finished condition is acceptable if the basic features and behaviour of the superstructure are not influenced by it.~~ The test vehicle shall be the same as its fully finished version in respect of the following:
- 2.1.3 elements, which do not contribute to the strength of the superstructure and are too valuable to risk damage (e.g. drive chain, dashboard instrumentation, driver's seat, kitchen equipment, toilet equipment, etc.) can be replaced by additional elements equivalent in mass and method of installation **upon coordination with the technical service.** These additional elements must not have a reinforcing effect on the strength of superstructure;
- 2.1.4-3 fuel, battery acid and other combustible, explosive or corrosive materials may be substituted with other materials provided that the conditions of paragraph 2.1.1. are met.
- 2.1.5 4 In the case where occupant restraint devices are part of the vehicle type, a mass shall be attached to each seat fitted with an occupant restraint following one of these two methods, at the choice of the manufacturer:"

Add the following paragraphs:

- "2.2.4 **All emergency hatches and exits shall be closed. In case of an easy-breakable hatch, near it there shall be a device which is easily accessible for the vehicle occupants so that the hatch could be easily broken;**
- 2.2.5 **Fire extinguishers shall be located in the designated places and shall be attached in a standard manner."**

Add Supplement 1 to Annex 5:

**"Supplement 1
(to Annex 5)**

- 1 After the test, make sure that:**
- 1.1 **The emergency hatch has not jammed and its operational capability is intact. In case of opening the emergency hatch mechanically (without breaking it, in case of a glass hatch), the force applied in any of the directions shall not exceed 400 N.**

Note: **In case there is only one emergency hatch, the opening shall be checked from the outside. In case there are two hatches and more, the check shall be performed both from the inside and outside.**

- 1.2 **There is no damage of the seat attachments.**

- 1.3 **Based on the analysis of video materials obtained using the recording devices installed in the vehicle, make sure that there was no movement of injury risk items (fire extinguishers, devices for breaking an easy-breakable hatch, etc.) in the residual space."**

II. Justification

1. This UN Regulation No.66 specifies the requirements and methods for evaluation of the superstructure strength. According to UN Regulation No. 66, various test methods are allowed, but the complete vehicle test is assumed to be the basic method.
 2. We suggest performing additional checks in terms of passive safety during the actual (field) tests of the complete vehicle:
 - damage of the seat attachment. The seats tearing-off and movement are not covered by the current Regulation, as the seats are initially located inside the residual space and their movement shall not be evaluated;
 - ingress and movement of injury risk items in the life space. An impact of a fire extinguisher or other item on the occupant during the vehicle rollover may lead to severe consequences and even death.
 3. Emergency hatches are designed for evacuation of passengers in case of road accidents when the vehicle is one side up. The emergency hatch is often the only way to get out of the vehicle. Provided that the complete vehicle has already been damaged during the tests and is one side up as it would happen in case of a road accident, we consider it reasonable to check the possibility of opening the emergency hatches in it. This is because of the risks of the hatch jamming or hatch opening mechanism damaging after the vehicle rollover.
 4. The force to be applied to the emergency hatch opening mechanisms is given similarly to the one approved within the GRSP official working party according to UN Regulation No. 95 (E/ECE/324/Rev.1/Add.94/Rev.2/Amend.4 document) regarding the ability of a human to exert pressure on the door from the inside of the vehicle. This is because people of different age groups shall be able to open the emergency hatches.
 5. Having regard to the above, we suggest that Supplement 1 shall be added to Annex 5 with all the proposed additional checks included.
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