



Economic and Social Council

Distr.: General
30 July 2021

Original: English

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

Working Party on General Safety Provisions

122nd session

Geneva, 12–15 October 2021

Item 2 (a) of the provisional agenda

Amendments to regulations on buses and coaches:

UN Regulation No. 107 (M₂ and M₃ vehicles)

Proposal for Supplement 5 to the 07 series of amendments and Supplement 4 to the 08 series of amendments to UN Regulation No. 107

**Submitted by the expert from the Informal Working Group on the
behaviour of the general construction of M₂ and M₃ vehicles in a fire
event ***

The text reproduced below was prepared by the expert from the Informal Working Group on the behaviour of the general construction of M₂ and M₃ vehicles in a fire event (IWG on BMFE) to amend UN Regulation No. 107 to improve glass breaking devices efficiency. It is based on informal document GRSG-121-26. The modifications to the current text of the UN Regulations are marked in bold for new and strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2021 as outlined in proposed programme budget for 2021 (A/75/6 (Sect.20), para 20.51), 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

Annex 3, paragraph 7.6.8.2., amend to read:

- "7.6.8.2. Every emergency window shall either:
- 7.6.8.2.1. Be capable of being easily and instantaneously operated from inside and from outside the vehicle by means of a device recognized as satisfactory. This provision includes the possibility of using e.g. panes of laminated glass or plastic material, or
 - 7.6.8.2.2. Be made of ~~readily breakable safety~~ **toughened**-glass. This latter provision precludes the possibility of using panes of laminated glass or of plastic material. **An easy-to-operate device for breaking the glass shall be provided permanently fixed adjacent to or on each emergency window, readily available to persons inside the vehicle., to ensure that each window can be broken. The glass pane or glass panes shall break after a single-positive action of any person operating the device so that the emergency window can easily be removed. The technical service shall verify by testing the operation of the device."**

Annex 3, paragraph 7.6.8.2.2., insert new paragraphs 7.6.8.2.2.1. to 7.6.8.2.2.4. to read:

- 7.6.8.2.2.1. To ensure a good visibility of the device for breaking the glass it shall be positioned in the upper third of the height of the window surface, shall be marked in red and supplemented by a safety sign.**
- 7.6.8.2.2.2. The device shall be equipped with a protective cover or designed to prevent unintended operation and requiring an additional action to unlock of any person operating the device. If a protective cover is used, the device for breaking the glass shall remain visible by passengers.**
- 7.6.8.2.2.3. In case the implementation of the device is not technically compatible with the positional requirements above, the device can be located adjacent or affixed on to each emergency window. However, at the time of the Type Approval, the manufacturer shall demonstrate to the satisfaction of the Technical Service the following points:**
 - (a) Analysis conducted to determine the location of the device
 - (b) Definition of the measures put in place to prevent unintended use**These evidences shall be verified by the Technical Service during the approval process.**
- 7.6.8.2.2.4. The inner surface of each emergency window may be fitted with a plastic film to enable the person to remove the window pane or panes with his hands. The plastic film shall be cut at the outer edge of the emergency window and following the patterns as shown in Annex 4, Figure 32. In case of fitting a plastic film to the emergency exit, it shall be compatible with the device for breaking the glass and shall not reduce its efficiency. In addition, the characteristics of the approved glazing shall remain unchanged. ~~The device for breaking the glass for the emergency windows at the rear of the vehicle shall be positioned either centrally above or below the emergency window or, alternatively, a device shall be positioned adjacent to each end of the window."~~**

Annex 3, paragraph 7.6.9.5., amend to read:

- "7.6.9.5. Escape hatches shall be capable of being easily opened or removed from the inside and from the outside. However, this requirement shall not be construed as precluding the possibility of locking the escape hatch for the purpose of securing the vehicle when unattended, provided that the escape hatch can always be opened or removed from the inside by the use of the normal opening or removal mechanism. In the case of a ~~readily breakable~~ **toughened glass**

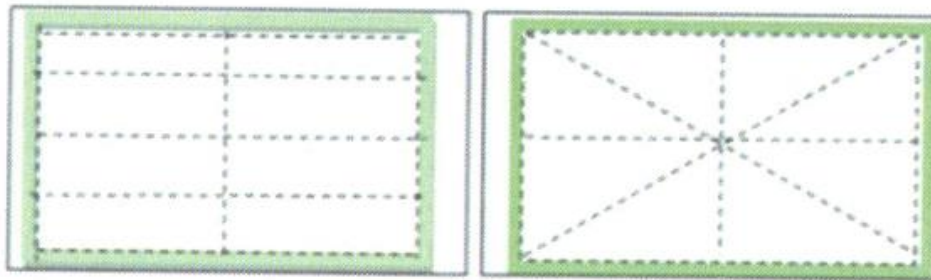
hatch, a device shall be ~~provided~~ **permanently fixed** adjacent to **or on** the hatch, readily available to persons inside the vehicle. **The glass pane or glass panes shall break after a single positive action of a person operating the device so that the hatch can easily be removed. The technical service shall verify by testing the operation of the device.**

- 7.6.9.5.1. **To ensure a good visibility of the device for breaking the glass, it shall be marked in red and supplemented by a safety sign.**
- 7.6.9.5.2. **The device shall be equipped with a protective cover or designed to prevent unintended operation and requiring an additional action to unlock by any person operating the device. If a protective cover is used, the device for breaking the glass shall remain visible by passengers.**
- 7.6.9.5.3. **The inner surface of each escape hatch may be fitted with a plastic film to enable the person to remove the window pane or panes with his hands. The plastic film shall be cut at the outer edge of the escape hatch and following the patterns as shown in Annex 4, Figure 32. In case of fitting a plastic film to the escape hatch, it shall be compatible with the device for breaking the glass and shall not reduce its efficiency. In addition, the characteristics of the approved glazing shall remain unchanged."**

Annex 4, after Figure 31 insert:

**"Figure 32
Patterns for cutting plastic film on emergency window or escape hatch**

(See Annex 3, paragraphs 7.6.8.2.2.4. and 7.6.9.5.3.)



II. Justification

1. Experts agreed during GRSG 119th session to extend BMFE IWG activities to consider the specific purpose of the device for glass breaking efficiency.
2. After experts' discussions, this efficiency could be improved based on three main principles:
 - Better location;
 - Better visibility;
 - Easier to use.
3. The considerations included in this proposal are the following ones:
 - Avoidance of non-intentional activation;
 - Non design restrictive specifications;
 - Simple action to break all layers and reliability;
 - Force adapted to all passengers looking for evacuation;
 - Definition of adapted location;
 - Glass ejection facilitation to be considered after breaking.

4. The current proposal drafts the introduction of these concerns and discussions are still ongoing within the group to define the best approach regarding the current implemented devices.
