

Proposal for the 10 series of amendment to UN Regulation No. 107 (General construction M₂ & M₃)

Submitted by the experts of the Informal Working Group on Behaviour of M₂ and M₃ vehicles in case of Fire Event*

The text reproduced below was prepared by the Informal Working Group (IWG) on Behaviour of M₂ and M₃ vehicles in case of Fire Event (BMFE) in charge to evaluate and develop the opportunity for regulatory amendment(s) aimed at increasing the safety of M₂ and M₃ vehicles in case of fire by improving their general construction with regard to evacuation time. This proposal amends the working document referenced ECE/TRANS/WP.29/GRSG/2021/17e. The modifications to the current proposal ECE/TRANS/WP.29/GRSG/2021/17e are marked in red and strikethrough characters.

I. Proposal

Insert new paragraphs 10.25. to 10.28., to read:

- “10.30. As from the official date of entry into force of the 10 series of amendments, no Contracting Party applying this Regulation shall refuse to grant or refuse to accept type-approvals under this Regulation as amended by the 10 series of amendments.**
- 10.31. As from 1 September [2024], Contracting Parties applying this Regulation shall not be obliged to accept type-approvals to the preceding series of amendments, first issued after 1 September [2024].**
- 10.32. Until 1 September [2026], Contracting Parties applying this Regulation shall accept type-approvals to the preceding series of amendments, first issued before 1 September [2024].**
- 10.33. As from 1 September [2026], Contracting Parties applying this Regulation shall not be obliged to accept type-approvals issued to the preceding series of amendments to this Regulation.**
- 10.34. Notwithstanding paragraphs 10.31. and 10.33., Contracting Parties applying this Regulation shall continue to accept type approvals granted to the 06, 07, 08 ~~08~~ and 09 series of amendments to vehicles which are not affected by the 10 series of amendments.”**

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 pane(s)**. This latter provision precludes the possibility of using panes of laminated glass or of plastic material. **An easy-to-operate device shall ensure that each glass pane can be broken and removed within 20 seconds by a single person from**
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~~inside the passenger compartment. 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. and by measuring the time from the first action to operate the device until a free opening of the emergency window corresponding to the required dimensions specified in paragraph 7.6.3.1.3 is achieved.~~

The device shall meet the following requirements."

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. The device shall be fixed adjacent to or on the emergency window and positioned in the upper third of the height of the window surface. In case of an emergency window at the rear of the vehicle the device shall be fixed centrally adjacent to or on the window or, alternatively, positioned adjacent to or on both sides of the window.

In case the implementation of the device is not technically compatible with the positional requirements above, the device shall be located adjacent to or affixed on each emergency window. However, 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.

~~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 clearly visible for any passenger in its direct vicinity. It shall be marked in red and supplemented by a safety sign.

7.6.8.2.2.3 The device shall be readily available at all times. In case of electronic devices such device shall be operational in the event of a failure of the vehicle's power supply, and its operational status shall be easily verifiable at the driver's seat position. The device shall be designed to prevent misuse. At least one of the following mitigating measures at the manufacturer's choice shall be available. The device shall

- (a) be permanently fixed adjacent to or on each emergency window; or**
- (b) engage a warning signal being audible or visible at the driver's seating position, when the device is temporarily removed from its designated location.**

7.6.8.2.2.4. The device shall be equipped with a protective cover or designed to prevent unintended operation and shall requireing an one additional action to unlock of-by any person operating the device. If a protective cover is used, the device for breaking the glass shall remain visible by passengers.

~~7.6.8.2.2.3. 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.~~

- 7.6.8.2.2.4.5. The inner surfaces 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 a patterns as e.g. 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 hatch made of or with toughened glass pane(s) hatch, an easy-to-operate device shall ensure that the each glass pane(s) can be broken and removed within 20 sec by a single person from inside the passenger compartment. 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 and by measuring the time from the first action to operate the device until a free opening of the escape hatch corresponding to the required dimensions specified in paragraph 7.6.3.1.5 is achieved.

The device shall meet the following requirements.

- 7.6.9.5.1. The device shall be clearly visible for any passenger in its direct vicinity. 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 readily available at all times. In case of electronic devices such device shall be operational in the event of a failure of the vehicle's power supply, and its operational status shall be easily verifiable at the driver's seat position. The device shall be designed to prevent misuse. At least one of the following mitigating measures at the manufacturer's choice shall be available. The device shall
- (a) be permanently fixed adjacent to or on each escape hatch; or
 - (b) engage a warning signal being audible or visible at the driver's seating position, when the device is temporarily removed from its designated location.
- 7.6.9.5.2.3. The device shall be equipped with a protective cover or designed to prevent unintended operation and shall requireing an one additional action to unlock of-by any person operating the device. If a protective cover is used, the device for breaking the glass shall remain visible by passengers.

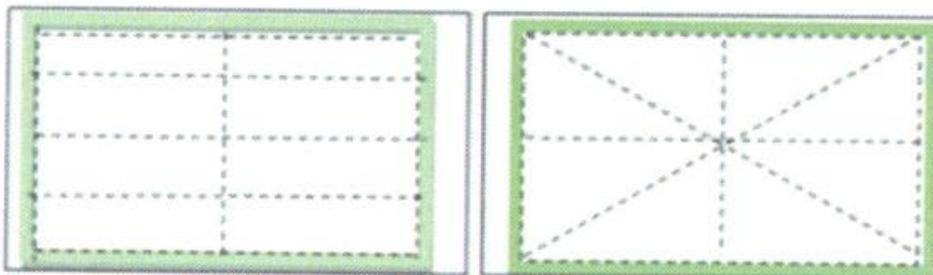
- 7.6.9.5.3.4.** The ~~inner~~ surfaces of each escape hatch may be fitted with a plastic film to enable the person to remove the window pane or panes ~~with his hands~~. The plastic film shall be cut at the outer edge of the emergency window and following the ~~a~~ patterns as e.g. shown in Annex 4, 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."

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 **covering the 3 principles** 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.~~

§ 7.6.8.2.2. (emergency window) / § 7.6.9.5. (escape hatch) :

Non design restrictive with a simple action to break all layers, covering all main passenger profiles.

§ 7.6.8.2.2.1. (emergency window) :

Adapted location preserving easy access and contributing to avoid non intentional operation.

§ 7.6.8.2.2.2. (emergency window) / § 7.6.9.5.1. (escape hatch) :

Adapted level of visibility with understandable description on how to proceed.

§ 7.6.8.2.2.3. (emergency window) / § 7.6.9.5.2. (escape hatch) :

Device continuous available taking care of misuse prevention.

The target is to have a device permanently coupled to the vehicle even during device use or, alternatively, unambiguous alert given to the driver when this is no longer the case. A non-permanent attachment system (e.g. clamp, clip, etc.) cannot be considered as meeting the requirement of point (a).

§ 7.6.8.2.2.4. (emergency window) / § 7.6.9.5.3. (escape hatch) :

Reinforcement of unintended operation avoidance.

The target is to ensure the device can't be enabled accidentally by mainly non reversible system (e.g. sewing, plastic breakable cover, locking system, etc ...). The means used to permanently couple the device to the vehicle and protect it against unintentional manipulation are separate processes.

§ 7.6.8.2.2.5. (emergency window) / § 7.6.9.5.4. (escape hatch) :

Glass ejection facilitation opportunity 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.~~
