

**Suggestion for amendment of UN Regulation No. 107
(M2 and M3 vehicles)**

I Proposal

Annex 3, paragraph 7.5.7 amend to read :

“ 7.5.7 Fire event

7.5.7.1 In the case of vehicles of Classes II, III and B, having the engine located to the rear of the driver's compartment, in the event of activation of an alarm system:

- the emergency lighting system according to paragraph 7.8.3. shall automatically activate and,
- **the flashing light of the emergency control shall automatically activate to indicate to the driver that the emergency control according to paragraph 7.6.13 have to be engaged.**

Annex 3, paragraph 7.6.8.2.2. 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 recognised 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 glass. This latter provision precludes the possibility of using panes of laminated glass or of plastic material. A **manual** device shall be provided adjacent to each emergency window, readily available to persons inside the vehicle, to ensure that each window can be broken. 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.

In addition to the manual device, each emergency window must be equipped with an electronic breaking device in accordance with the provisions defined in Appendix [14] allowing the breaking of the safety glass pane.

All electronic breaking devices shall be set by the driver in accordance with the provisions of paragraphs 7.5.7.1 or 7.6.13. The setting of the electronic breaking devices by the driver shall allow their triggering by the passengers. The setting of electronic breaking devices shall be indicated to the passengers *via* a flashing light.

Annex 3, paragraph 7.6.9.2. amend to read :

“

7.6.9. Technical requirements for escape hatches.

7.6.9.1. Every escape hatch shall operate so as not to obstruct the clear passage from inside or outside the vehicle.

7.6.9.2. Roof escape hatches shall be ejectable, hinged or made of readily-breakable safety glass.

In case of safety glass hatch, each one is equipped with an electronic breaking device according to the provisions defined in the appendix [14] in order to break the safety glass hatch.

The control device is common with the one provided for in point 7.6.8.2.2

Floor hatches shall be either hinged or ejectable and shall be fitted with an audible warning device to warn the driver when it is not securely closed. The floor escape hatch lock, and not the movement of the hatch itself, shall actuate this device. Floor escape hatches shall be proofed against unintentional operation. However this requirement shall not apply if the floor hatch is locked automatically when the vehicle is moving at a speed exceeding 5km/h.”

Annex 3, insert a new paragraph 7.6.13

7.6.13 Emergency control

7.5.7.1 Vehicles of Classes II, III and B shall be equipped with an emergency control located near the driver and clearly identified. After a single positive action of the driver, the emergency control shall activate :

- **the emergency lighting system according to paragraph 7.8.3., if not already activated**
- **the hazard flashers, if not already activated**
- **the opening of all power-operated doors situated on the side of the vehicle that is nearer of the side of the road corresponding to the direction of traffic for which the vehicle is designed.**
- **the setting of electronic breaking devices of the emergency windows and escape hatches according to paragraphs 7.6.8.2 and 7.6.9.2 respectively.**
- **an alarm system in all passenger compartments, if not already activated**

This is applicable when the vehicle is stationary or driving at a speed less than or equal to 3 km/h. In order to avoid an involuntary activation, this dual movement control device shall not close the doors if they are already opened or are being opened. More generally, safety systems already engaged shall not be neutralised by this emergency control.

The emergency control shall flash in case of fire according to paragraph 7.5.7.1

The technical requirements applicable to electronic breaking devices of emergency windows and escape hatches and their installation rules are defined in annex [XX].

II Justifications

The purpose of this proposal is to address requirements dealing with emergency cases in general, either for fire events or all others emergency cases not covered by fire events (i.e collision, roadway departure, vehicle blocked in a dangerous place).

In case of fire events, the generation of smoke is generally very important and rapid smoke extraction must be ensured in order to facilitate passengers evacuation. A rapid evacuation is also important in other emergency cases mentioned above.

First of all, a proposal for changes Regulation n°107 has been validated by the group related to the implementation of measures in case of fire events. Electronic breaking devices are not taken into account whereas they significantly improve passengers evacuation. Thus, it is proposed to add them in paragraph 7.5.7.1.

Moreover, others cases have to be taken into account (i.e collision, roadway departure, vehicle blocked in a dangerous place). It is important that the driver, by a simple action, activates a number of safety systems in order to facilitate a rapid passengers evacuation. That is the reason why it is proposed to make the installation of an emergency control mandatory inside vehicles. The analysis of the situation by the driver leads to the activation or not of the emergency control. The emergency control is qualified as dual movement control device to avoid all involuntary activation. (This type of control device already exists in UNECE regulation n°105 paragraph 5.1.1.8.2).

As in case of fire events, the emergency control has to activate the emergency lighting system, the hazard flashers, the opening of all power-operated doors situated on the side of the vehicle that is nearer of the side of the road, the setting of electronic breaking devices of the emergency windows and escape hatches and an alarm system. Indeed, it is important to expand these security systems to all emergency cases.

In both cases, add the setting of electronic breaking devices is relevant. These devices are not actually address in the regulation 107. The manual use of hammers by the passengers can be difficult, especially in night traffic conditions or when the cabin is darkened due to the release of smoke. In addition, the stress of the incident or accident can greatly reduce the reaction time of passengers to grab hammers and break windows.

Every second gained in passengers evacuation counts and various tests have demonstrated this.

For this reason, it is proposed to make the installation of electronic breaking devices for breaking emergency glass safety windows mandatory. The current manual devices are not deleted (see amendment to the annex 3 §7.6.8.2.2.).

This device must also be installed on the escape hatches fitted with safety glass. Many public transport accidents show vehicles overturned to the side and for which the roof hatches were not used for evacuation (see amendment to the annex 3 §7.6.9.2.).

To avoid an involuntary and malicious use of the electronic devices, the setting of these electronic devices is done by the driver. Once the setting done, a flashing light on each devices (located on emergency windows and escape hatches) indicates to passengers that systems are active and operational. Passengers will be able to manually break one, two or all emergency windows and escape hatches thanks to a dedicated push button on each glass. It appears easier and more rapid for a passenger in stress situation following a critical situation to push a button instead of finding and grabbing a hammer and then break the windows or escape hatches manually.

In order to guarantee the proper functioning and the efficiency of the electronic breaking device, a new annex [XX] will be created to indicate the technical rules applicable to this electronic breaking device as well as the installation rules.

These new obligations shall apply after the introduction of the annex [XX].

In practice, the articulation of both emergency cases is explained on the picture below (in red, the amendments proposals of R107) :

In case of fire event, the activation of the alarm system activates the emergency lighting system and a flashing light of the emergency control. The flashing light alerts the driver that he has to push the emergency control to activate all others safety systems. Once the emergency control pushed, all power-operated doors, situated on the side of the vehicle that is nearer of the side of the road corresponding to the direction of traffic for which the vehicle is designed, open. All electronic breaking devices of the emergency windows and escape hatches set and lead to the flashing of each devices located on emergency windows and escape hatches. A manual push by a passenger on the button allow the breaking of the emergency windows or escape hatches. Passengers will then evacuate more rapidly by getting off the vehicle either by the opened doors or by emergency windows and escape hatches broken.

In others emergency cases, after an analysis of the situation, the driver can push the emergency control. Once the emergency control pushed, all safety systems activate.

- 1) the emergency lighting system and an alarm system to alert passengers. Indeed, it is necessary that passengers rapidly understand the critical situation in where they are in order to react as fast as possible to evacuate.*
- 2) the hazard flashers to alert road users that the vehicle is in critical situation*
- 3) but also the opening of power-operated doors and the setting of electronic breaking devices of the emergency windows and escape hatches allowing a rapid evacuation of passengers as described above in case of fire event.*

The emergency control is a rapid mean to facilitate simultaneously information and evacuation of passengers. It is available at a speed less than 3 km/h.

As indicated in the proposal, the emergency control must not cancel safety systems already activated as it could be the case for the alarm system in case of fire.

