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#### Working Party on General Safety Provisions

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Item 4 of the provisional agenda

#### Regulation No. 43 (Safety glazing)

### **Proposal for Supplement 3 to the 01 series of amendments to Regulation No. 43 (Safety glazing)**

#### **Submitted by the experts from France<sup>\*</sup>**

The text reproduced below was prepared by the experts of the Informal Group on the introduction of Plastic Glazing for windscreens and laminated plastic panes other than windscreens into UN Regulation No. 43 (GRSG/IGPG) in order to clarify the requirements of Annex 21 (provisions on the installation of safety glazing on vehicles). The modifications to the current text of UN Regulation No. 43 are marked in bold for new or strikethrough for deleted characters.

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<sup>\*</sup> 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.

GE.14-20869



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## I. Proposal

*Insert new paragraphs 2.14. and 2.15., to read:*

**"2.14. "Exterior forward-facing glazing" means any glazing other than a windscreen installed in the front of the vehicle body, representing a part of the vehicle exterior.**

**2.15. "Interior glazing" means any glazing installed in a vehicle passenger compartment (e.g. partitions, separating windows, etc.)."**

*Paragraphs 2.14 to 2.36. (former), renumber as paragraphs 2.16. to 2.38., and amend references to these paragraphs accordingly.*

*Paragraphs 5.5. to 5.5.10., amend to read:*

"5.5. The following additional symbols shall be affixed near the above approval mark:

5.5.1. In the case of a windscreen:

- I for toughened glass
- II for ordinary laminated glass
- III for treated laminated glass
- IV for glass-plastics glazing

5.5.2. V in the case of safety glazing having a regular light transmittance less than 70 per cent.

5.5.3. VI in the case of multiple-glazed unit

5.5.4. VII in the case of uniformly-toughened glass glazing which can be used as windscreens for slow-moving vehicles which, by construction, cannot exceed 40 km/h.

5.5.5. VIII In the case of rigid plastic glazing. In addition the appropriate application will be signified by:

- /A for **exterior or interior** forward facing panes
- /B for **other panes where there is a risk of head impact**~~side, rear and roof glazings~~
- /C for **other panes where there is no risk of head impact**~~in locations where there is little or no chance of head impact~~

In addition, for plastic glazing which has been submitted to the abrasion resistance tests described in Annex 3, paragraph 4., the following markings shall also be applied as appropriate:

/L for glazing ~~with a light scatter not exceeding 2 per cent after 1,000 cycles on the outer surface and 4 per cent after 100 cycles on the inner surface (see according to Annexes 14 and 16, paragraph 6.1.3.1.)~~

/M for glazing ~~with a light scatter not exceeding 10 per cent after 500 cycles on the outer surface and 4 per cent after 100 cycles on the~~

- ~~inner surface (see according to Annexes 14 and 16, paragraph 6.1.3.2.)~~
- 5.5.6. IX in the case of flexible-plastic glazing
- 5.5.7. X in the case of a rigid plastic multiple-glazed unit. In addition, the appropriate application will be signified by:
- /A for **exterior or interior** forward facing panes
- /B for **other panes where there is a risk of head impact** ~~side, rear and roof glazings~~
- /C for **other panes where there is no risk of head impact** ~~in locations where there is little or no chance of head impact~~
- For plastic glazing which has been submitted to the abrasion resistance test described in Annex 3, paragraph 4., the following markings shall also be applied as appropriate:
- /L for glazing ~~with a light scatter not exceeding 2 per cent after 1,000 cycles on the outer surface and 4 per cent after 100 cycles on the inner surface (see according to Annex 16, paragraph 6.1.3.1.)~~
- /M for glazing ~~with a light scatter not exceeding 10 per cent after 500 cycles on the outer surface and 4 per cent after 100 cycles on the inner surface (see according to Annex 16, paragraph 6.1.3.2.).~~
- 5.5.8. XI in the case of a laminated-glass panes.
- 5.5.9. XII in the case of glass-plastic panes
- 5.5.10. /P in the case of a safety glazing made of glass, with a layer of plastics material on its inner face."

*Annex 21*, amend to read:

## "Provisions regarding the installation of safety glazing on vehicles

### 1. Scope

This annex sets out provisions regarding the installation of safety glazing in vehicles of categories M, N and O<sup>1</sup> in order to ensure a high level of safety for the occupants and, in particular, to provide the driver with a high degree of visibility in all traffic conditions, not only forwards but also rearwards and laterally.

It does not apply to armoured vehicles as defined hereunder in paragraph 2.3.

### 2. Definitions

For the purpose of this annex,

<sup>1</sup> As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3) (TRANS/WP.29/78/Rev. 2, para. 2).

- 2.1. "Vehicle" means any motor vehicle and its trailer, intended for use on the road, having at least four wheels and a maximum design speed exceeding 25 km/h, with the exception of vehicles which run on rails and all mobile machinery;
- 2.2. "Category of vehicles" means a set of vehicles entering into the relevant category of the classification adopted in Annex 7 to the Consolidated Resolution on the Construction of Vehicles (R.E.3)<sup>1</sup>;
- 2.3. "Special purpose vehicle", "motor caravan", "armoured vehicle", "ambulance", "hearse", "convertible", are respectively defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3)<sup>1</sup>.
- 2.4. "Double-deck vehicle" is defined in paragraph 2.1.2. of Regulation No. 107.
- 2.5. "Normal condition of use of a vehicle" means:
  - 2.5.1. For a motor vehicle, when the vehicle is ready to move with its propulsion system in the running position and its movable components in the normal position(s) as defined in paragraph 2.8.;
  - 2.5.2. For a trailer, when the trailer is coupled to a towing vehicle in the conditions prescribed in paragraph 2.5.1. and its movable components in the normal position(s) as defined in paragraph 2.8.
- 2.6. "Park condition of a vehicle" means:
  - 2.6.1. For a motor vehicle, when the vehicle is at standstill and its propulsion system is not in the running position and its movable components in the normal position(s) as defined in paragraph 2.8.;
  - 2.6.2. For a trailer, when the trailer is coupled to a towing vehicle in the condition described in paragraph 2.6.1. and its movable components in the normal position(s) as defined in paragraph 2.8.
- 2.7. "Movable components" of a vehicle means those body panels or other vehicle parts the position(s) of which can be changed by tilting, rotating or sliding without the use of tools. They do not include tiltable driver cabs of trucks.
- 2.8. "Normal position of use of a movable component" means the position(s) of a movable component specified by the vehicle manufacturer for the normal condition of use and the park condition of the vehicle.
3. General provisions applicable to vehicles of categories M, N and O
  - 3.1. Safety glazing shall be fitted in such a way that, despite the stresses to which the vehicle is submitted under normal operating conditions of use as defined in paragraphs 2.5., 2.5.1. and 2.5.2., it remains in position and continues to afford visibility and safety to the occupants of the vehicle seated and/or in standing positions as defined by the vehicle manufacturer;
  - 3.2. Safety glazing shall bear the appropriate component type-approval mark specified in paragraph 5.4. of this Regulation, followed when required, by one of the additional symbols provided for in paragraph 5.5.
  - 3.3. Exemptions

In the case of plastic safety panes, the provisions related to abrasion resistance as referred to in paragraph 4.2.3.2. of this annex do not apply for the locations of vehicles and panes as listed below:

- (a) **Motorhomes, ambulances and hearses for panes not requisite for the driver's forward and rearward field of vision;**
- (b) **Trailers, including caravans;**
- (c) **Sunroofs and glazing located in the roof of a vehicle;**
- (d) **All glazing of the upper deck of a double-deck vehicle;**
- (e) **Partitions and separating windows not requisite for the driver's forward and rearward field of vision.**

**For these cases, no abrasion test and symbol /L or /M is required.**

- 4. Specific provisions applicable to vehicles of categories M and N<sup>1</sup>
- 4.1. Windscreens
  - 4.1.1. The regular light transmittance shall not be less than 70 per cent.
  - 4.1.2. The windscreen shall be type approved for the vehicle type for which it is intended to be fitted.
  - 4.1.3. The windscreen shall be correctly fitted with reference to the vehicle driver's "R" point.
  - 4.1.4. Vehicles having a maximum design speed greater than 40 km/h may not be fitted with a toughened windscreen.
  - 4.1.5 Plastic safety windscreens shall bear an additional symbol /A/L as defined in paragraphs 5.5.5. and 5.5.7. of this Regulation.**
- 4.2. Safety glazing other than windscreens ~~and partition glazing~~
  - 4.2.1. Safety glazing requisite for the driver's forwards field of vision
    - 4.2.1.1. The safety glazing through which the driver's forwards field of vision as defined in paragraph ~~2.23.1.~~ **2.25.1.** of this Regulation is obtained, shall have a regular light transmittance of at least 70 per cent.
    - 4.2.1.2. Plastic safety glazing shall bear an additional symbol /B/L **or /C/L**, as defined in paragraphs 5.5.5. and 5.5.7. of this Regulation.
  - 4.2.2. Safety glazing requisite for the driver's rearward vision
    - 4.2.2.1. The safety glazing defined in paragraph ~~2.23.2.~~ **2.25.2** of this Regulation shall have a light transmittance of at least 70 per cent, but where two exterior rear view mirrors are fitted, the glazing is allowed to have a light transmittance below 70 per cent, provided that it shall bear the additional symbol V specified in paragraph 5.5.2. of this Regulation.
    - 4.2.2.2. Plastic safety glazing shall bear an additional symbol /A/L, /A/M, /B/L, /B/M, /C/L **or /C/M**, as defined in paragraphs 5.5.5. and 5.5.7. of this Regulation. **However, a Class M plastic safety glazing is allowed only in the case where the vehicle is fitted with two exterior rear-view mirrors.**  
~~As an alternative, the rear glazing in the folding roof of a convertible vehicle may bear the additional symbol /B/M.~~  
 The rear glazing in the folding roof of a convertible vehicle may be made of a flexible plastic pane.
  - 4.2.3. Other safety glazing, **exterior forward-facing glazing and interior glazing**

- 4.2.3.1. The safety glazing not covered by the definitions of paragraphs ~~2.23.1.~~ **2.25.1.** and ~~2.23.2.~~ **2.25.2** of this Regulation, **the exterior-forward facing glazing and interior glazing** shall bear the additional symbol V specified in paragraph 5.5.2. of this Regulation, if the light transmittance is below 70 per cent.
- 4.2.3.2. Plastic safety **panes** shall bear one of the additional symbols **/A/L, /A/M, /B/L, /B/M, /C/L or /C/M** defined in paragraphs 5.5.5., ~~5.5.6.~~ and 5.5.7. of this Regulation. However, when the vehicle is intended for conveying passengers, ~~glazings~~ **panes** with the additional symbols /C/L or /C/M are not allowed at locations where there is a risk of head impact.
- 4.2.4. ~~Exemptions~~
- ~~In the case of plastic safety glazings, the provisions related to abrasion resistance as referred in paragraphs 4.2.2.2. and 4.2.3.2. of this annex do not apply for the vehicles and glazing locations listed below:~~
- ~~(a) Ambulances~~
  - ~~(b) Hearses~~
  - ~~(c) Trailers, including caravans~~
  - ~~(d) Sunroofs and glazings located in the roof of a vehicle~~
  - ~~(e) All glazings of the upper deck of a double deck vehicle~~
  - ~~No abrasion test/symbol is required.~~
- 4.3. Particular requirements **for upper deck of a double-deck vehicle**
- 4.3.1. **The front exterior forward-facing glazing of the upper deck of a double-deck vehicle** ~~Any forward facing glazing other than a windscreen~~ shall be constituted either by laminated glass or a plastic pane bearing the additional symbol /A, as defined in paragraphs 5.5.5. and 5.5.7. of this Regulation.
- 4.3.2. Paragraph 4.3.1. is not applicable to vehicles having a maximum design speed lower than 40 km/h. **However, the requirement on plastic panes classified /A is mandatory."**

## II. Justification

1. This document was prepared by GRSG/IGPG and reflects the results of its work performed as an additional task to those described in the Terms of Reference.
2. The informal group was of the opinion that Annexes 14 and 21 of the Regulation need to be updated. However, the experts found it relevant to address this task in a two-step approach, i.e. limiting the first step to improvement of Annex 21.
3. The proposed amendments aim at:
  - (a) Clarifying which requirements address interior or exterior panes, with the addition of new definitions (paragraphs 2.14. and 2.15.);
  - (b) Simplifying the references to the marking provisions (paragraphs 5.5.5. and 5.5.7. of Annex 21);
  - (c) Discriminating glazing from panes;

- (d) Clarifying the meaning of normal conditions of use with wording inspired from UN Regulation No. 48 on the installation of lighting devices (paragraphs 2.5., 2.6., 2.7. and 2.8. of Annex 21);
  - (e) Clarifying the conditions for interior safety glazing, together with the necessary exemption (paragraph 3 of Annex 21);
  - (f) Limiting some particular requirements to double-deck vehicles (paragraph 4.3. of Annex 21).
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