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**Economic Commission for Europe****Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on Passive Safety****Fifty-ninth session**

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Item 9 of the provisional agenda

**Regulation No. 16 (Safety-belts)****Proposal for Supplement 8 to the 06 series of amendments to Regulation No. 16 (Safety-belts)****Submitted by the expert from the European Association of Automotive Suppliers \***

The text reproduced below was prepared by the expert of the European Association of Automotive Suppliers (CLEPA) in cooperation with the experts from France, Germany, Japan, the Netherlands and the International Organization of Motor Vehicle Manufacturers (OICA) and aims to clarify the provisions for dynamic testing of rear seat system, advanced restraint system approval and transitional provisions. It supersedes ECE/TRANS/WP.29/GRSP/2015/18 and informal document GRSP-58-35 distributed at the fifty-eighth session of the Working Party on Passive Safety (GRSP) (ECE/TRANS/WP.29/GRSP/58 para. 27). The modifications to the current text of UN Regulation No. 16 are marked in bold for new or strikethrough for deleted characters.

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\* In accordance with the programme of work of the Inland Transport Committee for 2014–2018 (ECE/TRANS/240, para. 105 and ECE/TRANS/2014/26, 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.

## I. Proposal

*Paragraph 2.8, amend to read:*

"2.8. "Airbag assembly" means a device ... of the passenger compartment. **Any such described deployed structure shall not be considered as a rigid part.**"

*Paragraph 5.3.4.2.2.6., amend to read:*

"5.3.4.2.2.6. If the safety-belt is approved following the provisions of paragraphs 6.4.1.3.3. **and 6.4.1.3.4.** of this Regulation, it shall be marked with the word "AIRBAG" in a rectangle."

*Insert new paragraph 6.4.1.3.4., to read:*

**"6.4.1.3.4. In case of a seating position, other than the outboard front seating positions, which is protected with an airbag in front of it, the displacement of the chest reference point may exceed that specified in paragraph 6.4.1.3.2. above if its speed at this value does not exceed 24 km/h in tests performed with the airbag in a vehicle related environment, reflecting the vehicle coordinates of the airbag mounting and attachment points."**

*Paragraph 6.4.1.4.1., amend to read:*

"6.4.1.4.1. The movement of the chest reference point may exceed that specified in Paragraph 6.4.1.3.2. above if it can be shown either by calculation or a further test that no part of the torso or the head of the manikin used in the dynamic test would have come into contact with any forward rigid part of the vehicle other than: ~~the chest with the steering assembly, if the latter meets the requirements of Regulation No. 12 and provided contact does not occur at a speed higher than 24 km/h. For this assessment the seat shall be considered to be in the position specified in paragraph 7.7.1.5. below.~~"

*Insert new paragraphs 6.4.1.4.1.1. and 6.4.1.4.1.2., to read:*

**"6.4.1.4.1.1. In the case of the driver, contact of the chest with the steering assembly would be allowed, if the latter meets the requirements of Regulation No. 12 and provided contact does not occur at a speed higher than 24 km/h. For this assessment the seat shall be considered to be in the positions specified in paragraph 7.7.1.5. below.**

**6.4.1.4.1.2. In the case of any other occupant, a contact of the head or of the chest with any rigid part of the vehicle in front of the manikin would not be allowed. Additionally contact of the manikin's head with its knees is not allowed.**

**For this assessment the seat of the tested manikin and, if applicable, the seat in front of the manikin shall be considered to be in the positions specified in paragraph 7.7.1.6. below."**

*Paragraph 7.7.1.5., amend to read:*

"7.7.1.5. For the assessment of the requirements in paragraphs 6.4.1.4.1. **and 6.4.1.4.1.1.** the seat shall be **positioned** in its most forward driving ~~or travelling~~ position appropriate to the dimensions of the manikin."

*Insert new paragraphs 7.7.1.6. to 7.7.1.7., to read:*

- "7.7.1.6. For the assessment of the requirements in paragraphs 6.4.1.4.1. and 6.4.1.4.1.2. the seat adjustment shall be:**
- 7.7.1.6.1. For front passenger seats: the occupant in the front shall be in its most forward travelling position according to the dimensions of the manikin. The positions of the seats shall be stated in the report.**
- 7.7.1.6.2. For rear seats: For any testing position of rear seated occupants, the position of the tested seating position, shall be considered as positioned to the seats R-Point. If the seat back is adjustable, the seat back angle should be adjusted using the 3-D H Point machine with its torso angle as close as possible to 10°.**
- The seating position in front of the tested seating position shall be adjusted to the middle position of travel and height or in the nearest locking position thereto. If the seat back of this seat is adjustable, the seat back angle should be adjusted using the 3-D H Point machine with its torso angle as close as possible to 10°.**
- This may be proven by a contour on CAD or drawing of the in-vehicle situation.**
- 7.7.1.7. Alternatively to paragraphs 7.7.1.5. and 7.7.1.6., in the case where those devices cannot be tested on the test trolley, the manufacturer may demonstrate by a conventional frontal impact test at 50 km/h in conformity with the procedure ISO 3560:2013 that the device complies with the requirements of the Regulation."**

*Paragraphs 7.7.1.6. and 7.7.1.7. (former), renumber as paragraphs 7.7.1.8. and 7.7.1.9.*

*Paragraph 7.10.1., amend to read:*

- "7.10.1. The test report shall record the results of all the tests in paragraph 7. above and in particular:**
- (a) ...**
- ...**
- (i) For any restrain system other than the driver the contour of the contact should be evaluated versus the movement of the manikin in the sled by the technical service in this report.**
- If by virtue ..."**

*Annex 1B, item 12, footnote 4, amend to read:*

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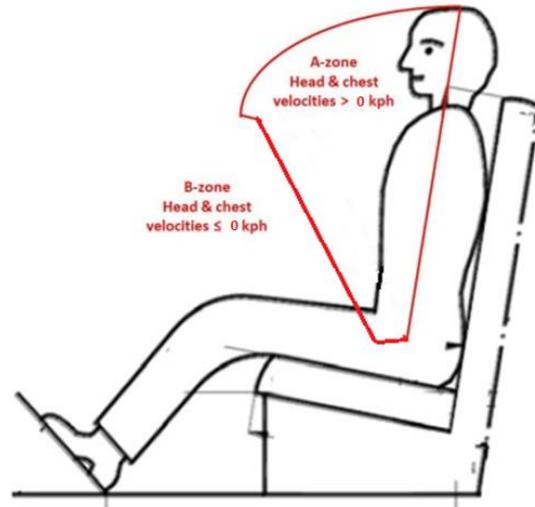
<sup>4</sup> "If a safety-belt is approved following the provisions of paragraph 6.4.1.3.3. of this Regulation, this safety-belt shall only be installed in an outboard front seating position protected by an airbag in front of it, under the condition that the vehicle concerned is approved to Regulation No. 94, 01 series of amendments or its later version in force.

**If a safety-belt is approved following the provisions of paragraph 6.4.1.3.4. of this Regulation, this safety-belt shall only be installed in a seating position protected by an airbag in front of it."**

Annex 1B, insert new item 12.1., to read:

"12.1. In case a restraint system has been granted/refused/extended/withdrawn<sup>2</sup>, those can be used for particular types of vehicles compatible with the following dimensional conditions: no interior part in a quoted A-zone as shown below (Figure 2):

Figure 2



"

Annex 2, last example, amend to read:

" The safety-belt bearing this type approval mark is a three-point belt ("A") fitted with an energy absorber ("e"), approved as meeting the specific requirements of paragraph 6.4.1.3.3. **or 6.4.1.3.4.** of this Regulation, and with a multiple-sensitivity ("m") type 4 ("r4") retractor, in respect of which type approval was granted in the Netherlands ("E 4") under the approval number 062439. The first two digits indicate that the Regulation already incorporated the 06 series of amendments at the time of the approval. This safety-belt has to be fitted to a vehicle equipped with an airbag in the given seating position."

Annex 14,

Paragraph 2.2.3., amend to read:

"2.2.3. Results

Test results shall meet the requirements set out in paragraph 6.4.1.3.1. of this Regulation.

The forward displacement of the manikin may be controlled with regard to paragraph 6.4.1.3.2. of this Regulation (or 6.4.1.4. where applicable) during a test performed ~~with conditioning according to paragraph 1.6.1. of this annex~~ by means of a simplified adapted method.

**A simplified, adapted method could be, e.g., the use of a reference chest speed measured at 300 mm forward displacement carried out in a**

<sup>2</sup> Strike out what does not apply.

**physical test without an airbag or additional restraint system components, to be considered in the conformity control plan."**

*Paragraph 2.2.3.1.*, amend to read:

"2.2.3.1. In the case of approval following paragraph 6.4.1.3.3. **or 6.4.1.3.4.** of this Regulation and paragraph 1.6.1. of this annex, it is only specified that no part of the belt shall be destructed or disengaged, and that a speed of 24 km/h of the chest reference point at 300 mm displacement shall not be exceeded."

## **II. Justification**

The proposed amendments to UN Regulation No. 16 are based on the following arguments:

- (a) Alignment of requirements for front and rear seatbelt type component approval;
  - (b) Specify the setup of dynamic testing in case of belt assembly or restraint system;
  - (c) Enable the installation of advanced restraint systems through a clear type approval process also for rear seated occupants;
  - (d) Define a minimum technical standard for limiting manikin movement in the component type approval process and conformity of production process;
  - (e) Indicate a simplified adapted method to provide a common understanding for all parties involved such as technical services or manufacturers;
  - (f) Clarify the role of inflatable protective structures, without rigid parts, as part of the restraint system. Discussions to clarify this aspect were held with technical services;
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