

The text reproduced below was prepared by the expert from European Association of Automotive Suppliers (CLEPA) to clarify dynamic testing, rear seat system, advanced restraint system approval and transitional provisions. The modifications to the text of the UN Regulation are marked in bold for new or strikethrough for deleted characters.

This informal document supersedes ECE/TRANS/WP29/GRSP/2014/27

I. Proposal

Paragraph 2.8, amend to read:

"2.8. "Airbag assembly" means a device installed to supplement safety-belts and restraint systems in power-driven vehicles, i.e. system which, in the event of a severe impact affecting the vehicle automatically deploys a flexible structure intended to limit, by compression of the gas contained within it, the gravity of the contacts of one or more parts of the body of an occupant of the vehicle with the interior of the passenger compartment. **Any as such described deployed structure shall not be considered as rigid part.**"

Paragraphs 6.4.1.3.2. and 6.4.1.3.3., amend to read:

- "6.4.1.3.2. The forward displacement of the manikin shall be between 80 and 200 mm at pelvic level in the case of lap belts. In the case of other types of belts, the forward displacement shall be between 80 and 200 mm at pelvic level and between 100 and 300 mm at chest level. In the case of a harness belt, the minimum displacements specified above may be reduced by half. These displacements are the displacements in relation to the measurement points shown in Annex 7, Figure 6 to this Regulation.
- 6.4.1.3.3. In the case of a safety-belt intended to be used in ~~an outboard front~~ a seating position protected by 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."

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.
- 6.4.1.4.1.1. In case of the driver a 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 the assessment of the requirements in paragraph 6.4.1.4.1 and 6.4.1.4.1.1 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 case of any other occupant a contact with any rigid part of the vehicle in front of the dummy would be allowed, if the latter meets depending on the contact the requirements of Regulation No. 21 or Regulation No. 17 provided contact does not occur at a speed higher than 24 km/h and no contact of the manikins head with its knees takes place.**

For the assessment of the requirements in paragraph 6.4.1.4.1. and 6.4.1.4.1.2 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."

Paragraphs 7.7.1.5. to 7.7.1.7., amend to read:

"7.7.1.5. For the assessment of the requirements in paragraph 6.4.1.4.1. **and 6.4.1.4.1.1** the seat shall be regarded in its most forward driving or travelling position appropriate to the dimensions of the manikin.
In case of an alternative, conventional frontal impact test, mentioned in 7.7.1.1 above, the seat back angle of the tested seat shall be adjusted at 10°, measured with the 3-D machine following the "Procedure for Determining the "H" Point and the actual Torso Angle for Seating Positions in Motor Vehicles" under Annex 4 to Regulation No. 14.

7.7.1.6. For the assessment of the requirements in paragraph 6.4.1.4.1. and 6.4.1.4.1.2. the seat of a front seated occupant shall be regarded in its most forward driving or travelling position appropriate to the dimensions of the manikin.

In case of an alternative, conventional frontal impact test, mentioned in 7.7.1.1 above, the seat back angle of the tested seat shall be adjusted at 10°, measured with the 3-D machine following the "Procedure for Determining the "H" Point and the actual Torso Angle for Seating Positions in Motor Vehicles" under Annex 4 to Regulation No. 14.

For any testing position of rear seated occupants, the position of the tested seat, if adjustable shall be regarded in its rearmost and lowest position.

Any contour of a seat in front of a tested seating position shall be regarded to the seats R-Point position and its seat back angle to 10°, derived from the 3-D H Point machine.

In case the manikin geometry limits the R-Point position, the front seat may be adjusted by a step by step forward movement of the seat unless no geometrical limitation exists.

7.7.1.7. All the seats of any group of seats shall be tested simultaneously."

Paragraph 7.7.1.7., renumber as paragraph 7.7.1.8.:

"7.7.1.8. The dynamic tests of the harness belt system shall be carried out without the crotch strap (assembly), if there is any."

Paragraph 15.3.3., amend to read:

"15.3.3. Even after the date ... continue to accept them, and Contracting Parties may continue to grant extensions of **components and separate technical units** approvals to the **04** or 05 series of amendments."

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. 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 in a test without an airbag, carried out by the technical service in charge of the conformity of production and to be considered in the control of conformity control plan."

II. Justification

The proposed draft for amending Regulation No. 16 is motivated by the following arguments:

1. Alignment of requirement for front and rear seated occupants;
 2. Detail the test setup of dynamic testing in case of the belt assembly or of the restraint system;
 3. Enable the installation of advanced restraint systems by the certainty of a clear type approval process also for rear seated occupants;
 4. Define a minimum technical standard for the limitation of seat belt loads;
 5. Clarify the role of inflatable protective structures to be part of the restraint system and no rigid parts. Discussions on this took place with technical services;
 6. Indicate on a simplified adapted method to derive a common understanding for all parties involved such as technical services or manufacturers.
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