

## **Proposal for the 10 series of amendments to UN Regulation No. 17 (Strength of seats)**

The text reproduced below was prepared by the expert from CLEPA aimed to amend the proposal of 10 series of amendments to UN Regulation No. 17 from Japan ECE/TRANS/WP.29/GRSP/2019/27. This document updates formal document ECE/TRANS/WP.29/GRSP/2019/9 from Clepa. The modifications to the text of the UN Regulation are marked in bold for new or strikethrough for deleted characters.

### **I. Proposal**

*Paragraph 2.29.*, amend to read:

2.29. "Side bolster" means ~~adjustable~~ seat elements on the sides of the seat cushion and / or of the seat back to allow lateral retention of the occupant.

*Paragraph 5.2.7.*, amend to read:

"5.2.7. After the tests, the displacement systems intended for permitting or facilitating the access of occupants shall be in working order; they shall be capable, at least once, of being unlocked and shall permit the displacement of the seat or the part of the seat for which they are intended.

Any other displacement systems, as well as adjustment systems and their locking systems are not required to be in working order.

In the case of seats provided with head restraints, the strength of the seat-back and of its locking devices is deemed to meet the requirements set out in paragraph 6.2. when, after testing in accordance with paragraph Annex 5 below, no breakage of the seat or seat-back has occurred: otherwise, it shall be shown that the seat is capable of meeting the test requirements set out in paragraph 6.2. below.

In the case of seats (benches) with more places to sit than head restraints and in case the manufacturer chooses not to apply 53 daNm during the test of paragraph ~~2.4-3.1.~~ of Annex 5, the seat back strength test of para. 6.2 has to be performed in addition to the test of para. ~~2.4-3.1.~~ of Annex 5."

*Paragraph 5.6.4.*, amend to read:

"5.6.4. Gaps within head restraint

If a head restraint has any gap greater than 60 mm, when measured in accordance with Annex 8, the maximum rearward displacement of the head form shall be less than 102 mm when the head restraint is tested at that gap in accordance with Annex 5.

**In the case of head restraints integral with the seat-back, the area to be considered is:**

**Above a plane perpendicular to the reference line at 540 mm from the R-point and between two vertical longitudinal planes passing at 85 mm on either side of the reference line."**

*Paragraph 5.8.3., amend to read:*

5.8.3. All rear head restraints and any front centre head restraint may be adjusted to a position at which its height does not comply with the requirements of paragraphs 5.6.2.2., 5.6.2.4. or 5.6.2.6. of this Regulation. However, in any such position, the head restraint shall also meet one additional requirement from a set of several alternative test requirements.

The set of alternative test requirements may be, at the choice of the manufacturer, either paragraph 5.8.4.1. or paragraph 5.8.4.2. or paragraph 5.8.4.3. or paragraph 5.8.4.4. **or paragraph 5.8.4.5.** of this Regulation.

*Paragraph 5.8.4.2., amend to read:*

"5.8.4.2. In all rear **outboard, rear centre** and front centre designated seating positions equipped with head restraints, the head restraint shall, when tested in accordance with Annex 15, be capable of manually rotating either forward or rearward by not less than 60 degrees from any position of adjustment intended for occupant use in which its minimum height is not less than that specified in paragraph 5.6.2. of this Regulation. **A head restraint rotated by minimum 60° forward or rearward, is considered to be placed in a non-use position even if the head restraint height in such a position would be greater than that specified in paragraph 5.6.2."**

*Paragraph 5.8.4.5., amend to read:*

"5.8.4.5. The presence of a non-use position of a head restraint shall be marked with a label, in the form of a pictogram which may include explanatory text. The label shall either provide an indication when the head restraint is in a non-use position or provide information to enable an occupant to determine whether the head restraint is in a non-use position. The label shall be durably affixed and located such that it is clearly visible by an occupant when entering the vehicle to the designated seating position. **The number of labels is not requested to exceed the number of head restraints with non-use positions.** Examples of possible designs of pictograms are shown in Figure 1."

*Paragraph 5.11., amend to read:*

5.11. The strength of the seat-back and of its locking devices is deemed to meet the requirements set out in paragraph 6.2. below when, after testing in accordance with paragraph 5.7.3. ~~below~~ **above**, no breakage of the seat or seat-back has occurred; otherwise, it shall be shown that the seat is capable of meeting the test requirements set out in paragraph 6.2. below without breakage.

*Paragraph 6.4.4., amend to read:*

"6.4.4. To demonstrate compliance with paragraphs 5.6. through 5.8. of this Regulation, ~~with~~ any adjustable lumbar support **and any adjustable side bolster adjustment is** adjusted to its most rearward nominal design position. If the seat cushion adjusts independently of the seat back, position the seat cushion such that the lowest H-point position is achieved with respect to the

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seat back. These conditions, however, may be superseded by the detailed test procedures described in the Annexes."

*Paragraph 6.9., amend to read:*

"6.9. Equivalent test methods

If a test method other than those specified in paragraphs 6.2., 6.3., ~~6.4.~~ above ~~and or in Annex 5, Annex 6 or Annex 12~~ is used, its equivalence shall be ~~proved~~ **proven.**"

*Paragraphs 13.13.1.to 13.13.3., amend to read:*

"13.13.1. As from [1 September **2022,**] Contracting Parties applying this UN Regulation shall not be obliged to accept UN type approvals to the preceding series of amendments that were first issued on or after [1 September **2022.**]

13.13.2. Until [1 September **2025,**] Contracting Parties applying this UN Regulation shall accept UN type-approvals to the preceding series of amendments that were first issued before [1 September **2022.**]

13.13.3. As from [1 September **2025,**] Contracting Parties applying this Regulation shall not be obliged to accept type-approvals issued to the preceding series of amendments to this Regulation **for front head restraints.**"

*Annex 4, paragraph 2., amend to read:*

2. Procedure for width measurement

2.1. The seat shall be adjusted such that its **design** H-point coincides with the R-point; if the seat back is adjustable, it is set at the design seat back angle; both these adjustments shall be in accordance with the requirements of paragraph 2.1. of Annex 11.

*Annex 6, paragraph 1.4.2., amend to read*

1.4.2. Tests on the head restraint **from the rear**

The head restraint shall be fitted and adjusted as indicated in paragraph 1.1. of this annex. Impacts shall be performed on points selected by the test laboratory in area 1 as defined in paragraph 6.8.1.1. of this Regulation, and possibly in area 2 as defined in paragraph 6.8.1.2. of this Regulation, on surfaces exhibiting radii of curvature less than 5 mm.

~~The headform shall strike the test point at a speed of 24.1 ± 0.5 km/h; this speed shall be achieved either by the mere energy of propulsion or by using an additional impelling device.~~

1.4.2.1. For the rear face, the direction of impact from the rear towards the front shall be in a longitudinal plane at an angle of 45° from the vertical.

~~1.4.2.2. For the front face, the direction of impact from the front towards the rear shall be horizontal in a longitudinal plane.~~

*Annex 6, paragraph 1.4.2.3 renumbered to 1.4.2.2.*

1.4.2.32 The front and rear zones are respectively bounded by the horizontal plane tangential to the top of the head restraint as determined in paragraph 6.5. of this Regulation.

1.4.3. The headform shall strike the test item at a speed of 24.1 km/h: this speed shall be achieved either by the mere energy of propulsion or by using an additional impelling device.

Annex 8, paragraph 2., amend to read:

2. Gap measurement using a sphere
- 2.1. The seat shall be adjusted such that its **design** H-point coincides with the R-point; if the seat back is adjustable, it is set at the design seat back angle; both these adjustments shall be in accordance with the requirements of paragraph 2.1. of Annex ~~10~~ **11**.

Annex 8, paragraph 2.3., amend to read:

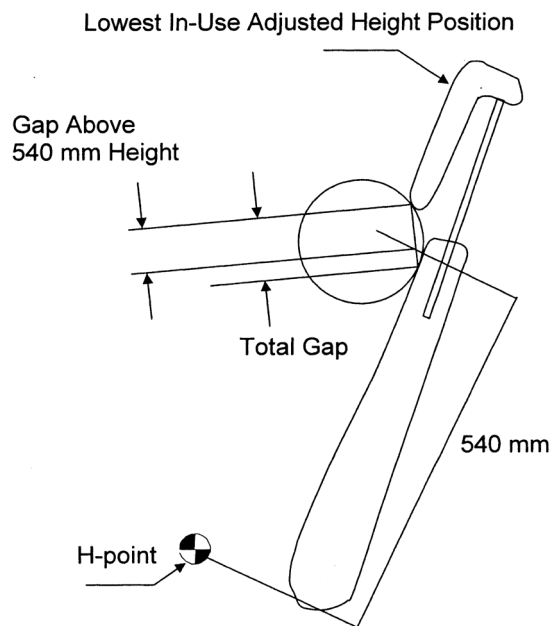
- "2.3. The area of measurement is anywhere between two vertical longitudinal planes passing at 85 mm on either side of the torso line and above ~~the top of the seat back~~ **a height greater than 540 mm.**"

Annex 8, paragraph 2.5., amend to read:

- "2.5. Determine the gap dimension by measuring the straight line distance between the inner edges of the two furthest contact points, as shown in Figures 8-1, ~~and 8-2 and 8-3.~~"

Annex 8, insert new Figure 8-3, to read:

**"Figure 8-3  
Portion of gap above 540mm**



Annex 8, paragraph 3.3., amend to read:

- "3.3. The gap shall be measured **in the longitudinal plane through the R-point** as the perpendicular distance between two parallel planes, described as follows (see Figure 8-~~34~~):
  - (a) each plane shall be perpendicular to the design torso line;
  - (b) one of the planes shall be tangent to the bottom of the head restraint;
  - (c) the other plane shall be tangent to the top of the seat back."

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*Annex 8, Figure 8-3 (former), renumber as Figure 8-4*

*Annex 10, paragraph 2.1., amend to read:*

2.1. Relationship between the H-point and the R-point

The seat is adjusted such that its **design** H-point coincides with the R-point; if the seat back is adjustable, it is at the seat back inclination corresponding to the design torso angle; the relationship between the **actual** H-point and the R-point shall be in accordance with the requirements of paragraph ~~2.2.~~ **2.1.1.** of Annex 11.

If, elsewhere during head restraint testing, the **actual** H-point and actual torso angle have been found in accordance with paragraph ~~2.2.1.~~ **2.1.1.** of Annex 11, the check on the relationship does not need to be repeated for the height measurement test procedure of this Annex.

Alternative:

If, elsewhere during head restraint testing, the **actual** H-point and/or actual torso angle have not been found in accordance with Annex 11 paragraph ~~2.2.1.~~ **2.1.1.**, but consequently paragraph ~~2.2.3.~~ **2.1.3.** or paragraph ~~2.2.4.~~ **2.1.4.** of Annex 11 have been applied, then the check on the relationship shall not be repeated for the height measurement.

*Annex 11, paragraph 2.1.1., amend to read :*

2.1.1. Relationship between the H-point and the R-point

When the seat is positioned in accordance to the manufacturer's specifications, following the procedure of Annex 3, the **actual** H-point, as defined by its coordinates, shall lie within a square of 50 mm side length with horizontal and vertical sides whose diagonals intersect at the R-point, and the actual torso angle is within 5 ° of the design torso angle.

*Annex 11, paragraph 2.3., amend to read :*

- 2.3. Adjust the front head restraint so that its ~~top~~ point IP is at any height between and inclusive of 720 mm and 830 mm of paragraph of ~~5.6.6.2.~~ **5.6.2.1.** of this Regulation, measured as described in Annex 10. If the lowest position of adjustment is above 830 mm, adjust the head restraint to that lowest position of adjustment.

*Annex 13, insert a new paragraph 2.10., to read:*

- "2.10. Alternatively, when the manufacturer demonstrates that the difference of the reference positions of the cylinder measured in paragraphs 2.3 and 2.6 of this Annex is smaller than the value required by paragraph 5.7.4. of the Regulation, then the test result will also comply to paragraph 5.7.4. of the Regulation. In this case measurements of paragraphs 2.4. and 2.7. do not need to be recorded."**

*Annex 14, paragraph 3.1.4.1, amend to read:*

- 3.1.4.1. The seat shall be set as specified by the manufacturer, with regard to both the design position of the seat back (see paragraph 2.21. of this Regulation) and the position of the seat itself. This position shall be the one where the **design** H-point coincides with R50 point.

*Annex 14, paragraph 3.1.6.1, amend to read:*

- 3.1.6.1. Using the 3D-H measuring machine, check that the **design** H-point coincides with the R50 point, in accordance with the following requirements.

The procedure set out in Annex 3 shall be used to verify the H-point relationship to the R50 point specified by the manufacturer.

The relative positions of the R-point and the H-point relationship shall be considered satisfactory for the seating position in question if the **actual** "H"-point, lies within a square of 50 mm side length with horizontal and vertical sides ~~£~~ whose diagonals intersect at the R50 point, and the **actual** torso angle is within 5° of the design torso angle.

## II. Justification

1. When the experts from CLEPA started to apply the draft 10 series of amendments to UN Regulation No. 17, they experienced different ways to apply the proposed amendments which made it necessary to add some clarifications.
2. Several changes only treat the difference of design H-point and measured H-point and references to the respective measurement procedures of Annex 10 and Annex 11.
3. In addition, the gap measurement procedure by the sphere was modified in the Federal Motor Vehicle Safety Standard 202a to consider only gaps in the area over 540 mm. This proposal adds the proposed area where the gap is considered for the sphere method.
4. The alternative 5.8.4.5. which is the label alternative for non-use positions shall be allowed on rear head restraints and front center head restraints.
5. Concerning the new paragraph 2.10 to Annex7 Height Retention Test. The aim of this paragraph is to facilitate the test for the laboratories which can more easily measure the displacement on the top of the head restraint. As the displacement of the head restraint on the top of the head restraint is greater than on the bottom of the head restraint, any head restraint fulfilling the displacement requirement of 25mm already on the top of the head.