

Proposal for 10 series of amendments to Regulation No. 17 (Strength of seat)

The text reproduced below was prepared by the expert from CLEPA aimed to amend the proposal of 10 series of amendments of document proposed by Japan and the European Commission in their proposal ECE/TRANS/WP.29/GRSP/2018/34. The modifications to the text of the UN Regulation are marked in bold for new or strikethrough for deleted characters.

I. Proposal

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 ~~6.4.4.1.~~ **of Annex 5**, the seat back strength test of para. 6.2 has to be performed in addition to the test of para. ~~6.4.4.1.~~ **of Annex 5**.

Paragraph 5.5.1.2., amend to read:

5.5.1.2. Parts of the front and rear faces of head restraints situated in area 2, as defined in paragraph 6.8.1.2. below, shall be so padded as to prevent any direct contact of the head with the components of the structure and shall meet the requirements of paragraph 5.2.4. above applicable to the rear parts of seats situated in area 2. ~~For the case that~~ **When paragraph 5.2.4.2. is used for front faces of head restraints, the energy dissipation test shall be realized conducted according to Annex 12.** In the case of head restraints integrated with the seat back, the front face of the head restraint is considered as the area located above a plane perpendicular to the reference line at 540 mm from the R point and between two vertical longitudinal planes at 85 mm on either side of the reference line.

Paragraph 5.6.2.3., amend to read:

5.6.2.3. Exception

If the interior surface of the vehicle roofline, including the headliner, physically prevents a head restraint, located in the front designated seating position, from attaining the height required by paragraphs 5.6.2.1. and or 5.6.2.2. of this Regulation as applicable, the gap between the head restraint and the interior surface of the roofline, including the headliner, when measured in accordance with Annex 10 paragraph 2.3.3.1., shall not exceed 50 mm when the head restraint is adjusted to its highest position intended for occupant use. However, in no instance shall the height of a head restraint located in a front ~~outboard~~-designated seating position be less than 700 mm when the head restraint is adjusted to its lowest position intended for occupant use.

Paragraph 5.6.7., amend to read:

5.6.7. [The height of intended front contact surface area of an **non-integrated** head restraint determined by distance of IP to the tangent of head restraint lower (see Figure 10-6. Annex 10) shall be not less than 100mm, when measured on parallel to torso reference line.]

Paragraph 5.8.4.2., amend to read:

5.8.4.2. In all rear **outboard, rear center** 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 degrees 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. **It is sufficient that the label is visible from one of the two sides where the occupant may enter the vehicle.** Examples of possible designs of pictograms are shown in Figure 1.

Paragraph 5.10., amend to read:

5.10. If the head restraint is adjustable, it shall not be possible to raise it beyond the maximum operational height, or remove it, except by deliberate action on the part of the user distinct from any act necessary for its **upward** adjustment.

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

Delete paragraph 6.6.3.

- ~~6.6.3. The width of the head restraint shall if necessary also be determined in the plane perpendicular to the reference line 635 mm above the R point of the seat, this distance being measured along the reference line.~~

Paragraph 6.8.1.3.1, amend to read :

- 6.8.1.3.1. Area 3 is defined as the part of the back of the seat or the bench seats situated above the horizontal planes ~~through the R point of the seat, but~~ **defined in paragraph 5.2.4.1.3. above**, excluding parts situated in area 1 and area 2.

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 2.1., amend to read:

- 2.1. The seat shall be adjusted such that its 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.
- The head restraint shall be adjusted to its highest and most rearward position relative to the seat back.**

Annex 5, paragraphs 2.3. and 2.4., amend to read :

- 2.3. Establish the displaced torso reference line 'r1' by creating a rearward moment of 373 ± 7.5 Nm about the R-point by applying a force to the seat back through the back pan at the rate of **[2.5 Nm/second to 37.3 Nm/second]**. The initial location on the back pan of the moment generating force vector has a height of $290 \text{ mm} \pm 13 \text{ mm}$. Apply the force vector normal to the torso reference line and maintain it within 2 degrees of a vertical plane parallel to the vehicle longitudinal centreline. Constrain the back pan to rotate about the R-point. Rotate the force vector direction with the back pan. **In the case of simultaneous testing of bench seats, the rear ward moment shall be applied to all seating positions of the bench simultaneously, irrespective of this position being equipped with or without head restraint.**
- 2.4. Maintain the position of the back pan as established in paragraph 2.3. of this Annex. Using a 165 ± 2 mm diameter spherical headform establish the headform initial reference position by applying, perpendicular to the displaced torso line, a rearward initial load at the seat centreline at a height 65 ± 3 mm below the effective top of the head restraint that will produce a 373 ± 7.5 Nm moment about the R-point. Maintain this moment for at least 5 seconds and then record the rearward displacement of the headform with the load applied. **In the case of simultaneous testing of bench seats, the force shall be applied to all head restraints as present on the bench seats simultaneously.**

Annex 5, paragraph 3.4., amend to read :

- 3.4. Establish the displaced torso line by creating a posterior moment of 373 ± 7.5 Nm about the R-point by applying a force to the seat back through the back pan at the rate between **[2.5 Nm/second and 37.3 Nm/second]**. The initial location on the back pan of the moment generating force vector has a height of $290 \text{ mm} \pm 13 \text{ mm}$. Apply the force vector normal to the torso line and maintain it within 2 degrees of a vertical plane parallel to the vehicle longitudinal centreline. Constrain the back pan to rotate about the R-point. Rotate the force vector direction with the back pan.

Annex 5, paragraph 3.7. and 3.8., amend to read :

- 3.7. Increase the initial load at the rate of **[2.5 Nm/second to 37.3 Nm/second]** until a 373 ± 7.5 Nm moment about the R-point is produced. Maintain the load level producing that moment for not less than 5 seconds and then measure the rearward displacement of the headform relative to the displaced torso line.
- 3.8. Reduce the load at the **rate of [2.5 Nm/second to 37.3 Nm/second]** until 0 Nm. Wait **not more than 40 2** minutes. Re-load to 37 ± 0.7 Nm about the R-point. While maintaining the load level producing that moment, measure the rearward displacement of the headform position with respect to its initial reference position.

Annex 5, paragraph 4.1., amend to read :

- 4.1. Increase the load specified in paragraph 3.8. of this annex at a rate **between [5 N/second and 200 N/second]** to $890 \text{ N} \pm 5 \text{ N}$ and maintain the applied load

for not less than 5 seconds without any breakage of the seat or head restraint.
At the request of the manufacturer the load of paragraph 2.3. of Annex 5 is increased simultaneously to 530 Nm [\pm 7.5 Nm] for seating positions without head restraints only to allow simultaneous compliance with paragraphs 5.11. and 6.2.

Annex 10, paragraph 2.3., amend to read :

2.3. Height measurement

All measurements shall be taken in the median longitudinal plane of the ~~designated~~ seating position.

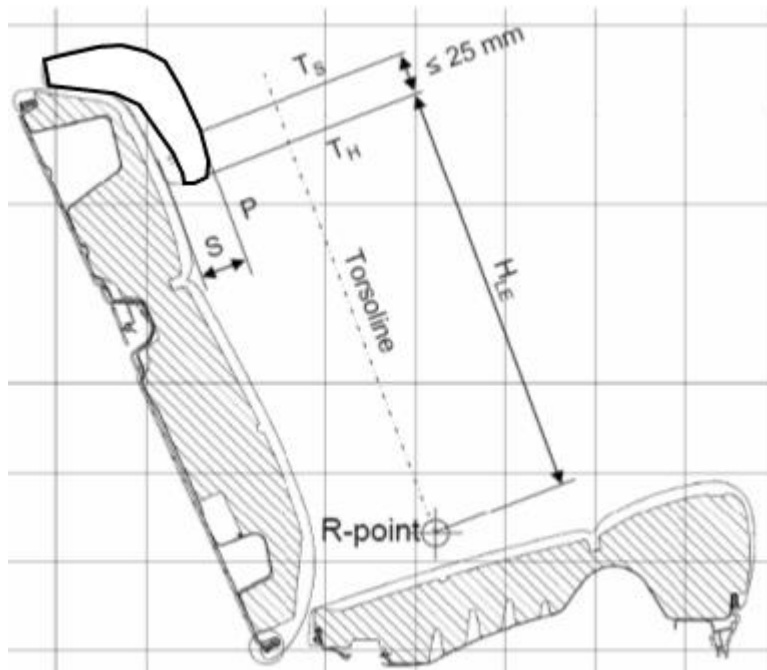
Annex 12, paragraph 3.1.1., amend to read :

- 3.1.1. Use an impactor with a semispherical headform of a 165 ± 2 mm diameter. The headform and associated base have a combined mass such that at a speed of ~~not more than~~ 24.1 km/h at the time of impact an energy of $152 \pm [6]$ Joule will be reached.

Annex 13, insert a new paragraph 2.10 :

- 2.10. Alternatively, when the manufacturer demonstrates that the difference of the reference positions of the cylinder measured in 2.3 and 2.6 of this Annex is smaller than the value required by 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 2.4. and 2.7. do not need to be recorded.**

Annex 15, figure 15-1., amend to read :



II. Justification

This document clarifies the way to apply and to understand GTR7 phase 2 static alternative provisions which have been detected being not fully clear. This document proposes also modifications to the allowed range of tolerances to backset retention and energy dissipations test. Whereas the allowable force application speed rate for backset retention is too high to guarantee comparable results between laboratories, the energy tolerance for the energy dissipation test is too tight for any actual known test equipment.
