

ECE/TRANS/WP.29/GRSP/2020/8

Alignment of GTR No. 7 head restraints With UNR No. 17

July 2020

Background

History of alignment GTR No. 7 and UNR No. 17

- ✓ At the 58th GRSP in December 2015, an informal document for draft amendment of UNR17 (GRSP-58-28Rev.1) was submitted, which was the first amendment to transpose GTR7 Phase 2 into UNR17.
- ✓ At the 64th GRSP in December 2018, a working document for draft amendment of UNR17 (GRSP/2018/34) was submitted. GRSP agreed to hand over the discussion to the next IWG.
- ✓ The UNR17 Drafting Meeting was held on 29th August at European Commission and a WebEx meeting on 9th September for following the result of the 64th session of GRSP,
- ✓ The final draft of GTR7 Phase 2 was submitted to this 66th session of GRSP, that was agreed to voting 181st session of WP 29 (AC.3).(At the 181st session of WP.29, AC.3 agreed to postpone deliberations under this agenda item to its fifty-ninth session of AC.3.)

*It is the second working document for alignment with GTR No. 7 Phase 2.

We have been to parallel consideration to GTR7 and UNR17..

Background

History of alignment GTR No. 7 and UNR No. 17

- ✓ At the 66th session of GRSP in December 2019, a working document (GRSP/2019/27*) to transpose GTR7 Phase 2 into UNR17 , and other three informal documents (GRSP-66-24, GRSP-66-26, GRSP-66-27) was submitted.
- ✓ Following the 66th session of GRSP, UNR17 Drafting Meeting was held on 31st January by WebEx, thanks to the European Commission. The experts from industry and ministries participated to this drafting meeting.
The five documents were consolidated into a final proposal , except GRSP-66-26, a proposal to remove of paragraph 13.13.4. (Square bracket)
- ✓ The final draft 10 series of UNR17 was submitted to the 67th session of GRSP. Hopefully it will be agreed and adopted.

Consolidation of the proposals

“ECE/TRANS/WP.29/GRSP/2020/8” consists of the five documents

Document No.	Submitted from	Summary
GRSP/2019/7	CLEPA	Included in GRSP/2019/27 except injury criteria. CLEPA withdrew this document.
GRSP/2019/9	CLEPA	Replaced to GRSP-66-27.
GRSP/2019/16	Germany	Proposal to correction of definition of integrated head restraint paragraph 2.12.1 and detachable head restraint paragraph 2.12.2 for 08 and 09 series of UNR17 to avoid the misinterpretation. And to addition of paragraph 5.5.6 for 10 series of UNR17, for align of GTR7 ph2.
GRSP/2019/27	EC on behalf of the drafting task force	Proposal to transpose final GTR7 ph2 amendment to UNR17. (2 nd working document of proposal amendment of UNR17)
GRSP-66-24	Japan	Proposal to editorial correction of paragraph 5.6.3. And to clarify that paragraph 6.4.2 simultaneously loading conducted is aimed for displacement test.(not for height retention test)
GRSP-66-26	Japan, the Netherland, and EC.	Proposal to remove transitional provisions paragraph 13.13.4 from working document GRSP/2019/27. Add []
GRSP-66-27	CLEPA	To clarify static test. According to the manufacturers experience (FMVSS 202a test etc...). And proposal date of transitional provisions.

Draft UNR17

Basic concept of transposing GTR7 into UNR17

While maintaining the current technical requirements of UNR17, new requirements of GTR7 Phase 2 are introduced.

The exception of GTR7 Phase 2 does not apply.

	GTR7 Phase 2	UNR17 10 series
Front outboard height of head restraint	(a) not less than <u>830mm</u> in at least one position of head restraint adjustment; and... Footnote A contracting party may opt for a lower value in its domestic legislation if it decides that such value is appropriate.	(a) not less than 830mm in at least one position of head restraint adjustment; and... Eliminate footnote (no exception)

Draft UNR17

Basic concept of transposing GTR7 into UNR17

The alternative of GTR7 for dynamic performance and static performance requirements does not apply to UNR17.

	GTR7 Phase 2	UNR17 series 10
Dynamic performance	Based on the determination by each Contracting Party or regional economic integration organization, either a Hybrid III 50th percentile male dummy or a BioRID II 50th percentile male dummy shall be used to determine compliance.	Use the evaluation of cervical injury value only for a BioRID II 50th percentile male dummy. Eliminate HY-3 requirement (No alternative choice)
Static performance	In the case of head restraints with an adjustable back-set, the head restraint shall conform to the displacement and back-set retention requirement , based on the determination of each Contracting Party or regional economic integration organization, and the manufacturer may be allowed to apply the displacement requirements .	Shall conform to the displacement requirements only. Eliminate back-set retention requirement (No alternative choice)

Draft UNR17

Additional contents from GTR7 to UNR17

Clarification of static test procedure according to the manufacturers experience (reference to FMVSS 202a latest procedure).

- **Procedure of gap measurement within Head Restraint**

GTR7 Phase 2	UNR17 series 10
<p>5.1.3. Gaps within head restraint If a head restraint has any gap greater than 60 mm when measured in accordance with Annex 3, 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.</p>	<p>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."</p>

Draft UNR17

GTR7 Phase 2

Annex 3

2. Gap Measurement using a Sphere

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.

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 3-1 and 3-2.

UNR17 series 10

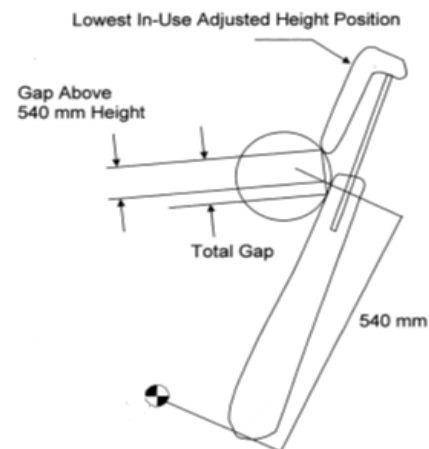
Annex 8

2. Gap Measurement using a Sphere

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 **at a height greater than 540 mm.**

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, 8-2 and **8.3.**

Figure 8-3 Portion of gap above 540mm



Draft UNR17

Additional contents from GTR7 to UNR17

Clarification of static test procedure according to the manufacturers experience (reference to FMVSS 202a latest procedure).

- **Procedure of height retention test.**

GTR7 Phase 2	UNR17 series 10
Annex 7 Height Retention Test Procedure	Annex 13 Height Retention Test Procedure 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.

Draft UNR17

Revised definition from 08/09 series to 10.

Clarification of the definition of “Head restraint”

UNR17 series 08/09	UNR17 series 10
<p>2.12. "<i>Head restraint</i>" means a device whose purpose is to limit the rearward displacement of an adult occupant's head in relation to his torso in order to reduce the danger of injury to the cervical vertebrae in the event of an accident;</p>	<p>2.13. "<i>Head restraint</i>" means at any designated seating position, a device that limits rearward displacement of a seated occupant's head relative to the occupant's torso and that has a height equal to or greater than 700 mm at any point between two vertical longitudinal planes passing at 85 mm on either side of the torso line, in any position of backset and height adjustment, as measured in accordance with Annex 10."</p> <p>(Same as that of GTR7 paragraph 3.4.)</p>

Draft UNR17

Revised definition from 08/09 series to 10.

Clarification of the definitions of “integrated head restraint” and “detachable head restraint”.

UNR17 series 08/09	UNR17 series 10
<p>"2.12.1. "Integrated head restraint" means a head restraint formed by the upper part of the seat-back. Head restraints meeting the definitions of paragraphs 2.12.2. or 2.12.3. below but which can only be detached from the seat or the vehicle structure by the use of tools or by partial or complete removal of the seat covering, meet the present definition;“</p> <p>"2.12.2. "<i>Detachable head restraint</i>" means a head restraint consisting of a component separable from the seat designed for insertion and positive retention in the seat-back structure.</p>	<p>"2.13.1. "<i>Integrated head restraint</i>" means a head restraint formed by the upper part of the seat-back.</p> <p>2.13.2. "<i>Detachable head restraint</i>" means a head restraint consisting of a component separable from the seat designed for insertion and positive retention in the seat-back structure. A detachable head restraint, which can only be detached from the seat by the use of tools and/or after partial or complete</p>

Draft UNR17

Requirement of draft amendment of UNR17 series 10

Update height of head restraint for UNR17 series 10.

		UNR17 series 08/09	UNR17 series 10
Height of head restraint (more than)	Measurement procedure	H-point method	R-point method
	Highest position (front)	800mm	830mm (outboard)
	Highest position (other)	750mm	
	Lowest position (front)	700mm	720mm
	Lowest position (other)		720mm
			700mm (RR CTR)

Draft UNR17

Requirement of draft amendment of UNR17 series 10

The manufacturer can select either the static requirement or BioRID II dynamic requirement for the front outboard seat.

			UNR17 series 08/09	UNR17 series 10	
Static	Back-set	Use the R point as a reference point for measurement. (No use HRMD)		less than 45mm	
	Height retention	Application of initial load of $50 \pm 1\text{N}$ to 500N , reduction to $50 \pm 1\text{N}$ after 5 seconds		Not to be displaced more than 25mm	
	Displacement	Application of a $373 \pm 7.5\text{Nm}$ moment about the R-point	Not be displaced more than 102mm	Not to be displaced more than 102mm	
Dynamic	BioRID II	Test pulse: $\Delta v 17.6\text{km/h}$ Use design torso angle between 20- 30 degrees. At the manufacturer's request, seats having a design torso angle between 15-20 degrees may be tested at a 20 degrees or the closest locking position.		NIC	$25 \text{ m}^2/\text{s}^2$
				Upper Neck	Fx: $\pm 360 \text{ N}$
					My: $\pm 30 \text{ Nm}$
				Lower Neck	Fx: Monitor
My: $\pm 30 \text{ Nm}$					

Draft UNR17

Requirement of draft amendment of UNR17 series 10

Clarification of Non-Use Position.

		UNR17 series 08/09	UNR17 series 10
Non-use position	Front seat	Automatic return to the position of use when the seat is occupied.	Not approved for driver's seat. Automatic return for the passenger seat can be approved.
	Other seat	Provided that such position is clearly recognizable to the occupant as not being included for the use of the head restraint.	Automatic return
	Rotation of not less than 60°		
	Not comfortable due to gap		
	Not comfortable due to big difference of torso angle		
	Information label		

Draft UNR17

Transitional provisions to UNR17 series 10

“GRSP-66-26” proposal to remove paragraph 13.13.4. to clarify type approval work.

13.13.	As from the official date of entry into force of the 10 series of amendments, no Contracting Party applying this UN Regulation shall refuse to grant or refuse to accept UN type approvals under this UN Regulation as amended by the 10 series of amendments.
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.
[13.13.4	Notwithstanding paragraph 13.13.3., Contracting Parties applying the UN Regulation shall continue to accept UN type approvals to the preceding series of amendments to the UN Regulation, for vehicles which are not affected by the changes introduced by the 10 series of amendments.]
13.13.5.	Contracting Parties applying this UN Regulation shall not refuse to grant UN type approvals according to any preceding series of amendments to this UN Regulation or extensions thereof."

Draft UNR17

Transitional provisions to UNR17 series 10

Justification : “GRSP-66-26” proposal to remove paragraph 13.13.4.

The experts of Japan, NL and the EC would like to delete paragraph 13.3.4. due to the fact that it becomes very difficult to judge whether an approval according to the preceding series of amendments is still valid. For category M1 vehicle types, update to ECE R17.10 always applies, because these vehicles are always fitted with head restraints, at least on the front outboard seats. (unless of course, you have an M1 vehicle type with only a front centre seat not equipped with a head restraint, but I guess this is a very theoretical example...)

For the other vehicle categories, you would have to go dig into the approval to verify whether there are any seats equipped with head restraints and if so, whether they are approved based upon the requirements in ECE R17 or those of ECE R25.04.

This is all very complicated and therefore it seems reasonable to have the approvals updated regardless. Also, because there are not many vehicle types with driver seats without head restraints or head restraints approved to ECE R25.04 these days.

Deletion of paragraph 13.13.4. would be a small additional burden and cost for manufacturers that have an existing ECE R17 approval which is not affected by the changes of ECE R17.10, but a simplification for all Contracting Parties that are signatory to ECE R17.10.

Thank you.

Head Restraint Working Group, Passive Safety Subcommittee, JASIC
(Japan Automobile Standards Internationalization Center)