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## Economic Commission for Europe

### Inland Transport Committee

### World Forum for Harmonization of Vehicle Regulations

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Item 17.7 of the provisional agenda

#### **Progress on the development of new UN GTRs and of amendments to established UN GTRs:**

**UN GTR No. 6 (Safety glazing), 7 (Head restraints) and 14 (Pole side impact)**

## **Authorization to develop amendments to UN GTRs Nos. 6, 7 and 14 to remove reference of three Dimensional H point machine**

### **Submitted by the representative of the Netherlands\***

The text reproduced below was submitted by the representative of the Netherlands to adapt the UN Global Technical Regulations (UN GTRs) No. 6, 7 and 14 to the technical progress with the aim to remove references to the three-Dimensional "H"-point machine and to accommodate its drawings and specifications into the Mutual Resolution No. 1. It was adopted by the Executive Committee (AC.3) of the 1998 Agreement at its March 2024 session (ECE/TRANS/WP.29/1177, para. 161). It is based on ECE/TRANS/WP.29/2024/32. This authorization is transmitted to the Working Party on Passive Safety (GRSP). This document shall be appended to the UN GTR in accordance with the provisions of paragraphs 6.3.4.2., 6.3.7. and 6.4. of the 1998 Agreement.

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\* In accordance with the programme of work of the Inland Transport Committee for 2024 as outlined in proposed programme budget for 2024 (A/78/6 (Sect. 20), table 20.5), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



## I. Objective

1. The objective of this proposal is to develop, in the framework of the 1998 Agreement, an amendment to UN Global Technical Regulations (GTRs) Nos. 6 (Safety glazing), 7 (Head restraints) and 14 (Pole side impact) with the aim to remove references to the three-Dimensional "H"-point machine and to accommodate its drawings and specifications into the Mutual Resolution No. 1 of the 1958 and the 1998 Agreements.

## II. Background

2. The three Dimensional (3-D) "H" point machine is used in several UN Regulations and GTRs to verify the Seat Reference Point (SRP, R-point) and Torso Angle of a seat or to set the H-point and Torso Angle in order to e.g. install a dummy (ATD) in a certain position. Depending on the moment in time those Regulations were developed, the measurement procedure, the setting and the version of the 3-D "H"-point machine that shall be used, is not consistent in these Regulations and sometimes refers to versions of the 3-D "H"-point machine that no longer exist or can be calibrated according to the referenced protocol.

3. Finally, the expert of the Netherlands proposes a new Addendum 6 on provisions for the specifications and calibration procedure of the 3-D "H"-point machine and the procedure for determining the "H"-point and the actual torso angle for seating positions in motor vehicles, to be used in all referenced UN Regulations and GTRs, into MR.1.

## III. Proposal for amendments

### A. Statement of Technical Rationale and Justification

#### (a) Background

4. The current UN Regulations and GTRs refer to either ISO 6549:1980, or ISO 6549:1999, ISO 6549 without further reference to a version, or different revisions of R.E.3 (UN Regulations) for the 3-D "H"-point Machine.

5. The current UN Regulations and GTRs include either a measurement procedure in the Regulation itself for determining the H-point and Torso Angle or refer to the ISO standard, R.E.3. or do not include a specific measurement procedure.

6. the current UN Regulations and GTRs often do not include clear instructions on how to set the lower leg and thigh of the 3-D "H"-point machine when carrying out the H-point measurement.

7. Several calibration procedures of the 3-D "H" point machine exist.

#### (b) Concerns:

- (i) unclarity with regard to the version of the 3-D "H" point machine which shall be used;
- (ii) reference to an old specification of 3-D "H"-point machine that has not been available on the market for many years;
- (iii) difference between common practice and outdated procedures and specifications;
- (iv) unclarity with regard to the allowable tolerances in the calibration of the 3-D "H" point machine.

#### (c) Justification of the proposal

8. Addendum 6 to MR.1 will include specifications and a calibration procedure of the 3-D "H"-point machine and the procedure for determining the "H"-point and the actual torso angle for seating positions in motor vehicles.

9. Proposal to include a reference to M.R.1 in the GTRs 6, 7 and 14, replacing the current inconsistent and incomplete references to the specifications and measurement procedure of the 3-D "H"-point machine.

## B. Proposed amendments

10. Below is a global overview of the proposed amendments.

### (a) UN GTR No. 6 (Safety glazing):

*Paragraph 3.13.2., amend to read:*

"3.13.2. "H" Point means the pivot centre of the torso and thigh of the 3-D "H" point machine installed in the vehicle seat. The 3-D "H" point machine corresponds to that described in Addendum 6 to M.R.1. The coordinates of the "H" point are determined in relation to the fiducial marks defined by the vehicle manufacturer, according to the three-dimensional system corresponding to Addendum 6 to M.R.1."

### (b) UN GTR No. 7 (Head restraints):

*Throughout the entire document, replace:*

"Annex 10", "Annex 11" and "Annex 12"

by

"Addendum 6 to M.R.1."

*Delete:* Annexes 10, 11, 12.

### (c) UN GTR No. 14 (Pole side impact):

*Chapter 12 paragraphs 106. to 108., currently read:*

"106. The "procedure for manikin H-point and actual torso angle determination" has been adapted from the procedures for H-point and actual torso angle determination used in GTR No. 7, and Regulations No. 94 and No. 95. The seat back angle adjustment requirements have been aligned with the requirements of the ISO/DIS 17949:2012 draft standard.

107. The H-point manikin (3-D H Machine) specified for the determination of the manikin H-point and actual torso angle is the device specified and used in SAE J826 1995. This machine corresponds to the 3-D H Machine used in GTR No. 7 and to that described in ISO 6549: 1999.

108. Some preliminary consideration was given to incorporating the specifications, including more detailed tolerances, of the 3-D H machine in an Addendum of the Mutual Resolution (on test tools). However, it was decided that the specification of improved 3-D H Machine tolerances was not within the terms of reference of the informal working group, and would be relevant to other GTRs, as well as a number of Regulations."

New section "I" to be created including new paragraph 156 explaining the background of the new references to Addendum 6 to M.R.1.

*Throughout the entire document, replace:*

"Annex 3"

by

"Addendum 6 to M.R.1."

*Delete:* Annex 3