



# Economic and Social Council

Distr.: General  
22 September 2015

Original: English

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## Economic Commission for Europe

### Inland Transport Committee

### World Forum for Harmonization of Vehicle Regulations

#### Working Party on Passive Safety

#### Fifty-eighth session

Geneva, 8-11 December 2015

Item 11 of the provisional agenda

#### Regulation No. 17 (Strength of seats)

## **Proposal for Supplement 4 to the 08 series of amendments to Regulation No. 17 (Strength of seats)**

### **Submitted by the expert from the Netherlands \***

The text reproduced below was prepared by the expert from the Netherlands, allowing a more forward displacement of the restrained occupants in the fitment of new safety-belts equipped with load limiter devices. It is based on ECE/TRANS/WP.29/GRSP/2015/14, distributed during the fifty-seventh session of the Working Party on Passive Safety (GRSP). The modifications to the current text of the UN Regulation are marked in bold for new or strikethrough for deleted characters.

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\* In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

## I. Proposal

*Paragraph 5.2.3., amend to read:*

"5.2.3. The rear parts of seats **including parts mounted on the seats**, situated in area 1, **as defined in paragraph 6.8.1.1. below, as well as area 2, as defined in paragraph 6.8.1.2.,** shall pass the energy dissipation test in accordance with the requirements of Annex 6 to this Regulation."

*Paragraph 5.2.3.2., amend to read:*

"5.2.3.2. The requirements of paragraph ~~5.1.3.~~ **5.2.3.** shall not apply to rearmost seats ~~;~~ **and** to back-to-back seats ~~or to seats that comply with the provisions of Regulation No. 21 "Uniform Provisions concerning the Approval of Vehicles with regard" (E/ECE/324 E/ECE/TRANS/505/Rev.1/Add.20/Rev.2, as last amended).~~"

*Paragraph 5.2.4., amend to read:*

"5.2.4. The surface of the rear parts of seats shall exhibit no dangerous roughness or sharp edges likely to increase the risk of severity of injury to the occupants. This requirement is considered as satisfied if the surface of the rear parts of seats tested in the conditions specified in paragraph 6.1. below exhibit radii of curvature not less than:

2.5 mm in area 1 **and area 2,**  
~~5.0 mm in area 2,~~  
3.2 mm in area 3.

These areas are defined in paragraph 6.8.1. below."

*Paragraph 5.2.4.1.2., amend to read:*

"5.2.4.1.2. Rearmost seats ~~;~~ **and** to back-to-back seats ~~or to seats that comply with the provisions of Regulation No. 21 "Uniform Provisions concerning the Approval of Vehicles with regard to their Interior Fittings" (E/ECE/324 E/ECE/TRANS/505/Rev.1/ Add.20/Rev.2, as last amended);~~"

*Paragraph 5.2.4.2., should be deleted*

*Paragraph 5.4.2., amend to read:*

"5.4.2. A head restraint shall be mounted on every outboard front seat in every vehicle of category M<sub>2</sub> with a maximum mass not exceeding 3500 kg and of category N<sub>1</sub>; head restraints mounted in such vehicles shall comply with the requirements of Regulation No. 25, **in its latest as amended** ~~by the 03- series of amendments.~~"

*Paragraph 5.5.2., amend to read:*

"5.5.2. Parts of the front ~~and rear faces~~ of the head restraints situated in area 1, as defined in paragraph 6.8.1.1.3. ~~below~~ shall pass the energy ~~absorption~~ **dissipation** test. **The rear of the head restraints including parts mounted thereon, situated in area 1, as defined in paragraph 6.8.1.1., as well as area 2, as defined in paragraph 6.8.1.2., shall pass the energy dissipation test.**"

*Paragraph 5.5.5., shall be deleted*

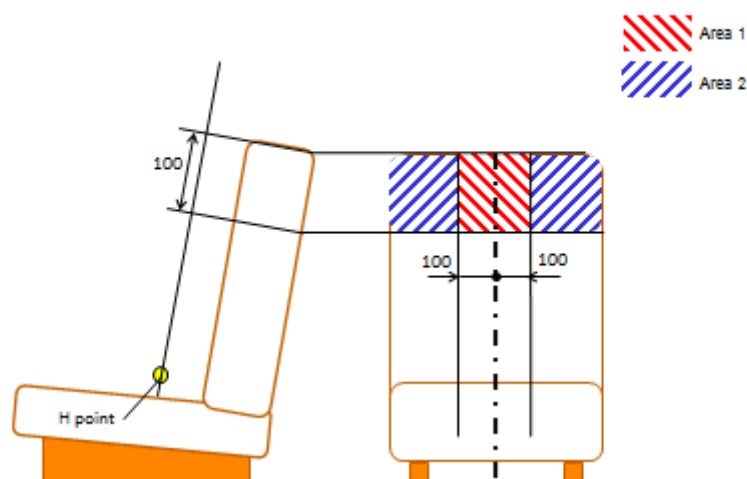
## II. Justification

1. Recent vehicle safety developments (i.e. Euro NCAP) to improve restraint systems enforce the fitting of load limiters on safety-belts with lower threshold values that give less thorax compression but give also more forward displacement of the occupants.
2. Thus far, the provisions of UN Regulation No. 16 (para. 6.4.1.4.1.) only allow contact of the chest of the dummy driver with the steering assembly, provided that this contact fulfils certain energy dissipation test requirements and contact does not occur at a speed higher than 24 km/h.
3. However, similar draft requirements are in preparation for safety-belts fitted on other seating positions.
4. To cope with greater forward displacement of the occupants, UN Regulation No. 17 should provide requirements with improved energy dissipation criteria for those areas of the rear of seats where the head of the rear occupant is to be impacted.
5. **Only** Area 1 of the rear of the seat is always subject to energy dissipation criteria. So far Area 2 is exempted from the energy dissipation criteria as long as sharp edges have radii larger than 5.0 mm, however this radii requirement concerns only prevention of cuttings and will not be effective in prevention of brain injury!
6. Area 1 is rather small and assumes that in case of collisions, occupants are thrown only forward and also assumes that seating positions behind each other are in alignment. By involving Area 2 (energy dissipation) the consequences of more forward displacement in real accidents will be better covered.

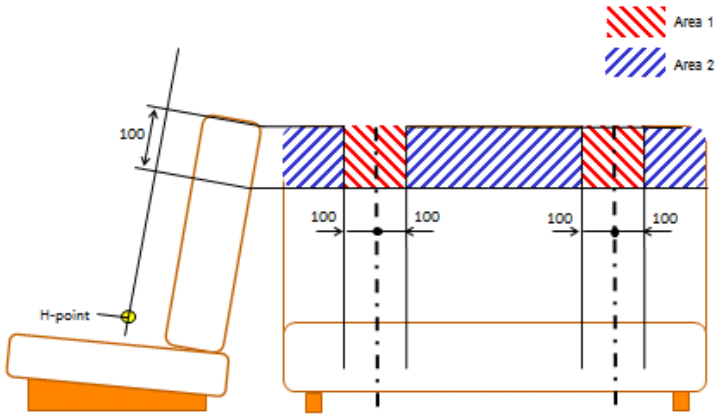
Figures of Area 1 and Area 2 for different seat configurations are indicated below for clarification.

7. The proposed amendment in paragraph 5.2.3.2. to change paragraph 5.1.3. into paragraph 5.2.3. is an editorial correction. Furthermore, the deletion of the reference to UN Regulation No. 21 will address test requirements of that type of seats (included parts mounted on seats!) exclusively to UN Regulation No. 17, designed to seat test.

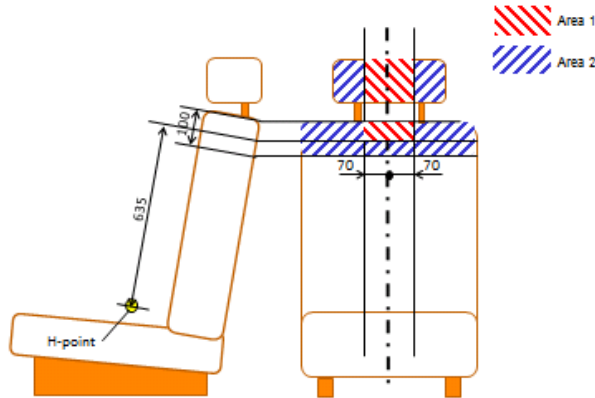
### **Reg.17, par. 6.8.1.1.1.(Area 1) + par. 6.8.1.2.1.(Area 2): In the case of separate seats without head restraints**



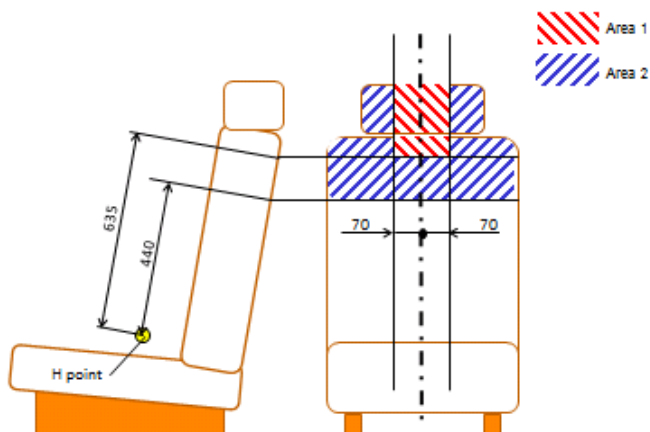
**Reg.17, par. 6.8.1.1.2. (Area 1) + par. 6.8.1.2.1. (Area 2):  
In the case of bench seats without head restraints**



**Reg.17, par. 6.8.1.1.3. (Area 1) + par. 6.8.1.2.1. (Area 2):  
In the case of seats with head restraints**



**Reg.17, par. 6.8.1.1.3.(Area 1) + par. 6.8.1.2.2.(Area 2):  
In the case of seats with integrated head restraints**



Source of seat drawings: tass international (*tmo automotive safety solutions*) – Helmond