

*Remarks to the proposal for draft 01 series of amendments to regulation 66 (document  
TRANS/WP.29/GRSG/2003/25*

*(Transmitted by the expert from the Netherlands)*

- 2.12. “Individual occupant mass” ( $M_{mi}$ ) means the mass of an individual occupant. The value of this mass is ~~defined in UN-ECE Reg36 as~~ 68kg.

Justification: A statement that in regulation 36 the mass of an occupant is defined as 68 kg is just an indication where this value comes from, but doesn’t oblige to use that value.

### **3. APPLICATION FOR APPROVAL**

- 3.1. The application for approval of a vehicle type with regard to the strength of its superstructure shall be submitted by the vehicle manufacturer or by his duly accredited representative to the Administrative Department ~~which granted the type approval.~~

Justification: The administrative Department cannot grant an approval before he has received an application for approval.

- 3.2.1.4. The total effective vehicle mass, and the associated axle loads. ~~For this calculation, the applicant shall utilise the formula stated in paragraph 2.11 of this Regulation.~~

Justification: The reference to paragraph 2.11 is erroneous; paragraph 2.16 (that is meant as reference) doesn’t contain anymore a formula. The calculation of the total effective vehicle mass is sufficient prescribed in the definition of paragraph 2.16.

- 6.1.1. agree that the modifications made are unlikely to have an appreciable effect and that in any case the ~~new~~ vehicle type still complies with the requirements of this Regulation ~~and constitutes part of a group of vehicle types together with the approved vehicle type~~; or

Justification: in case of a modification the type approval will be extended but no new type approval is granted. The last part concerning a “group of vehicle types” is confusing and should be either clarified or deleted.

### **ANNEX 3**

- 2.6.1. The reference to paragraph 2.5.2. should be a reference to 2.6.2

### **ANNEX 4 VIEW-POINTS TO THE STRUCTURAL DESCRIPTION OF THE SUPERSTRUCTURE**

- 1.5. ~~When a new variant is developed from an approved vehicle type, but no changes are made in the superstructure, its elements and their joints, the body-work of the new variant is assumed to have the same strength as the approved vehicle type.~~

Justification: This should be concluded on the basis of paragraph 6 of this regulation concerning modification and extension of an approval

## **ANNEX 5 ROLLOVER TEST ON FULL-SCALE VEHICLE AS THE BASIC APPROVAL METHOD**

- 3.3. For inside observation high-speed photography, video, deformable templates, electrical contact sensors or other suitable means shall be used to determine that the requirements of para 5.1 in the main text of this Regulation has been met. This shall be verified at any places of the passenger, **driver's and crew** compartment where the residual space seems to be endangered, the exact positions being at the direction of the technical service. At least two positions, nominally at the front and rear of the passenger compartment shall be used.

Justification: According §2.13 of this regulation the definition of residual space also includes the driver's compartment and (if available) the crew compartment.

## **ANNEX 6 ROLLOVER TEST USING BODY SECTIONS**

- 3.1.1. in an artificial body section (see para. ~~2.27~~ **2.25** of the main text of this Regulation) the ratio of the mass of any one bay to any other bay shall not exceed 2;

## **ANNEX 7 QUASI- STATIC LOADING TEST OF BODY SECTIONS**

- 4.3. The body section passes the loading test , if:

$$E_{BS} \geq E_{min} \quad E_{BS} \geq E_{min}$$

In this case, all the ..... in the subsequent superstructure.

Justification: Having regard paragraph 4.2 of this Annex the test should also be passed if the absorbed energy is equal to the minimum required energy.

## **ANNEX 8 QUASI-STATIC CALCULATION BASED ON TESTING OF COMPONENTS**

~~2.1.4. the contour of elements which are not part of the superstructure but which can intrude into the residual space after deformation, shall be included in the computer model.~~

~~2.1.5. the contour of the residual space shall be included in the model in the location where its integrity is to be checked during the calculation~~

Justification: **These points are not needed in the computer model but they can be taken into account during evaluation on a geometrical basis in the postprocessing work.**

- 3.3. The vehicle type shall be approved if  ~~$E_a \geq E_T$~~  if  $E_a \geq E_T$

### **ANNEX 8 APPENDIX 1**

#### **CHARACTERISTICS OF PLASTIC HINGES**

- 2.3. The PH characteristics to be utilised in the calculation shall contain the M-φ curve in the measured range so that the numerical values of the main parameters listed below shall be easily determined and checked.

$M_0$  = maximum bending moment (Nm)

$\phi_0$  = angle of rotation (rad) associated with the maximum bending moment

$\phi_m$  = angle of rotation (rad) associated with the end of the measured range

$M_m$  = bending moment (Nm) at  $\phi_m$

$tg\beta$  = elastic or semi-elastic stiffness of the PH (Nm/rad)

~~If the fracture or the rapid hardening is within the measured range of PH, the following additional parameters shall be also accessible;~~

~~$\varphi_f$  = angle of rotation (rad) at which the fracture is initiated, and the bending moment begins to decrease~~

~~$M_f$  = bending moment (Nm) at  $\varphi_f$~~

~~$\varphi_h$  = angle of rotation (rad) at which rapid hardening starts, and the hinge stiffness exceeds the initial elastic (semi-elastic) stiffness~~

~~$M_h$  = bending moment (Nm) at  $\varphi_h$~~

Justification: We are of the opinion that these definitions don't contribute to the calculation. In fact the whole measured curve as it is is used in the calculation, which makes it unnecessary to define additional parameters.

### 3. Dynamic Characteristics

3.2. by using a dynamic factor  $K_d$  to transform the quasi-static PH characteristics. This transformation means that,

the values of the quasi-static bending moment may be increased by  $K_d$ , and, the value of  $\varphi_m$  (and if it exists:  $\varphi_f$  or  $\varphi_h$ ) shall be decreased by  $K_d$  (see Fig. A.8.A.2.).

For steel structural elements  $K_d = 1,2$  may be used without laboratory test.

Justification: It is very unusual to scale the angle as well in applying a dynamic factor. Normally only the bending moment is scaled up.