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Item 3(c) of the provisional agenda

Regulations Nos. 13 and 13-H (Braking) – Clarifications

Proposal for amendments to Regulation No. 13 (Heavy vehicle braking)

Submitted by the experts from Hungary and the Netherlands *

The text reproduced below was prepared by the experts from Hungary and the Netherlands to introduce corrections in the text of Regulation No. 13. The modifications to the existing text of the Regulation are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2014–2018 (ECE/TRANS/240, para. 105 and ECE/TRANS/2014/26, 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 2.2.18., amend to read:

"s': effective (useful) travel of control in millimetres, determined as required by paragraph 9.4.10.4. of this Annex"

Paragraph 10.4.2.3., amend to read:

"In hydraulic braking systems: $s' = s - s''$."

Annex 12,

Appendix 4,

Paragraph 5.8.3., amend to read:

"

$$\frac{s'}{2 s_B^* \cdot n \cdot F_{RZ} \cdot i'_g} = \dots\dots\dots$$

(shall not be less than: i_h / F_{HZ})

(shall not be greater than travel of master cylinder actuator as specified in paragraph 8.2. of Appendix 2 to this Annex)"

Paragraph 5.7.6., amend to read:

"Braking torque when the trailer moves rearward including rolling resistance

$$n \cdot M_r \cdot 0.08 \cdot g \cdot G_A \cdot R = \dots\dots\dots \text{Nm}$$

(shall not be greater than: $0.08 \cdot g \cdot G_A \cdot R \cdot n \cdot M_r$)"

Paragraph 5.8.6., amend to read:

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$$n \cdot M_r \cdot 0.08 \cdot g \cdot G_A \cdot R = \dots\dots\dots \text{Nm}$$

(shall not be greater than: $0.08 \cdot g \cdot G_A \cdot R \cdot n \cdot M_r$)"

II. Justification

The document introduces corrections:

- (a) First correction: it is necessary to follow the renumbering of paragraphs 9. to 10. because of the inserting of paragraph 8;
- (b) Second correction: it corresponds to a typing mistake in revision 8;
- (c) Third correction:

The corresponding requirement in main part of Annex 12 contains also i_h .

10.4.3.2. in hydraulic-transmission inertia braking systems:

$$\frac{i_h}{F_{HZ}} \leq \frac{s'}{2 s_B^* \cdot n F_{RZ} \cdot i'_g}$$

and this is adequate formula of fluid volume balance after rearranging the equation:

$2 s_B \cdot n F_{RZ} \cdot i'_g \leq \frac{F_{HZ} \bullet s'}{i_h}$, it means that needed fluid volume of all wheel

brakes should not be greater than the fluid volume supported by the master cylinder.

(d) Fourth correction:

$n \cdot M_r$ is the generated braking torque by all the wheel brakes when the trailer moves rearward and it shall not be greater than $0.08 \cdot g_A \cdot R$ (paragraph 3.4. of Annex 12).
