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Economic Commission for Europe**Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****One-hundred-and-fifty-first session**

Geneva, 22 – 25 June 2010

Item 4.2.2 of the provisional agenda

**1958 Agreement - Consideration of draft
amendments to existing Regulations****Proposal for Supplement 5 to the 11 series of amendments to
Regulation No. 13 (Heavy vehicles braking)****Submitted by the Working Party on Brakes and Running Gear ***

The text reproduced below was adopted by the Working Party on Brakes and Running Gear (GRRF) at its sixty-seventh session in order to remove secondary coupling requirements from the Regulation, to update the requirements on trailers, to lower the maximum test speed, to clarify the requirements for electric control transmission and to exempt some special purpose vehicles from electronic stability function requirements. It is based on ECE/TRANS/WP.29/GRRF/2009/12, not amended, informal document GRRF-67-06-Rev.1 as reproduced in Annex III to the report, on ECE/TRANS/WP.29/GRRF/2010/5 as amended by paragraph 8 of the report, ECE/TRANS/WP.29/GRRF/2010/7 as amended by paragraph 9 of the report, on ECE/TRANS/WP.29/GRRF/2010/13 as amended by paragraph 12 of the report, on ECE/TRANS/WP.29/GRRF/2010/16 not amended, and on informal document GRRF-67-11 as reproduced in para. 15 of the report (ECE/TRANS/WP.29/GRRF/67, paras. 6, 7, 8, 9, 12, 13, and 15). It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Administrative Committee (AC.1) for consideration.

* In accordance with the programme of work of the Inland Transport Committee for 2006–2010 (ECE/TRANS/166/Add.1, 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.

Paragraph 5.1.2.23., amend to read:

“5.1.2.23. Power driven vehicles authorized to tow a trailer equipped with an anti-lock system shall also be equipped with a special electrical connector, conforming to ISO7638:2003 7/, for the electric control transmission.”

Paragraph 5.2.1.29.2., amend to read:

“5.2.1.29.2. Power-driven vehicles equipped with an electric control line and/or authorized to tow a trailer equipped with an electric control transmission, shall be capable of providing a separate yellow warning signal to indicate a defect within the electric control transmission of the braking equipment of the trailer. The signal shall be activated from the trailer via pin 5 of the electric connector conforming to ISO 7638:2003 ⁹/ and in all cases the signal transmitted by the trailer shall be displayed without significant delay or modification by the towing vehicle. This warning signal shall not light up when coupled to a trailer without an electric control line and/or electric control transmission or when no trailer is coupled. This function shall be automatic.”

Paragraph 5.2.1.32., footnote 12/, amend to read:

“12/ Off-road vehicles, special purpose vehicles (e.g. mobile plant using non standard vehicle chassis, mobile cranes, hydro-static driven vehicles in which the hydraulic drive system is also used for braking and auxiliary functions, N₂ vehicles which have all of the following features : a gross vehicle mass between 3.5 and 7.5 tonnes, a non-standard low-frame chassis, more than 2 axles and hydraulic transmission), Class I and Class A buses of categories M₂ and M₃, articulated buses and coaches, N₂ tractors for semi-trailer with a gross vehicle mass (GVM) between 3.5 and 7.5 tonnes, shall be excluded from this requirement.”

Paragraph 5.2.2.9., amend to read:

“5.2.2.9. The braking systems shall be such that the trailer is stopped automatically if the coupling separates while the trailer is in motion.”

Annex 3, paragraph 1.2.9., amend to read:

“1.2.9. For vehicles as described in paragraph 1.2.8., fitted with an electric regenerative braking system of category A, behaviour tests defined in paragraph 1.4.3.1. of this annex shall be carried out on a track with a low adhesion coefficient (as defined in paragraph 5.2.2. of Annex 13). However, the maximum test speed shall not exceed the maximum test speed specified in paragraph 5.3.1. of Annex 13 for a low adhesion surface and the relevant vehicle category.”

Annex 4

Paragraph 1.5.2.1., amend to read:

“1.5.2.1. The service brakes of categories O₂ and O₃ (when the O₃ trailer has not passed alternatively the Type-III test according to paragraph 1.7 of this annex) shall be tested...”

Paragraph 1.7., amend to read:

“1.7. Type-III test (fade test for laden vehicles of category O₄ or alternatively of category O₃)”

Paragraphs 3.1.2.4. and 3.1.2.5., amend to read:

“3.1.2.4. In addition, the vehicles shall undergo the Type-I test or alternatively a Type-III test in the case of an O₃ trailer.

3.1.2.5. In the Type-I or the Type-III test of a semi-trailer, the mass braked by the latter's axle(s) must correspond to the maximum axle load(s) (not including the king pin load).”

Annex 8

Add a new paragraph 2.8., to read:

“2.8. Trailers which utilise the service braking system energy reserves to fulfil the requirements for the automatic brake as defined in paragraph 3.3 of Annex 4 shall also fulfil one of the following requirements when the trailer is uncoupled from the towing vehicle and the trailer park brake control is in the released position (spring brakes not applied):

(a) When the energy reserves of the service braking system reduce to a pressure no lower than 280 kPa the pressure in the spring brake compression chamber shall reduce to 0 kPa to fully apply the spring brakes. This requirement shall be verified with a constant service braking system energy reserve pressure of 280 kPa.

(b) A reduction in the pressure within the service braking system energy reserve results in a corresponding reduction in the pressure in the spring compression chamber.”

Annex 11, Appendix 3, paragraphs 2.3.1. and 2.3.2., amend to read:

“2.3.1. In the case of vehicles of categories O₂ and O₃ where the O₃ trailer has been subject to the Type I test:

2.3.2. In the case of vehicles of categories O₃ and O₄ where the O₃ trailer has been subject to the Type III test:”

Annex 12

Insert new paragraphs 2.3.10. to 2.3.12., to read:

“2. SYMBOLS AND DEFINITIONS

2.3.10. s_{cf} : Rear cable or rod travel at compensator when brakes operate in orward direction ¹

2.3.11. s_{cr} : Rear cable or rod travel at compensator when brakes operate in rearward direction ¹

2.3.12. s_{cd} : Differential travel at compensator when only one brake operates in the forward direction and the other in the reverse direction ¹

Where: $s_{cd} = s_{cr} - s_{cf}$ (see figure 5A Appendix 1)”

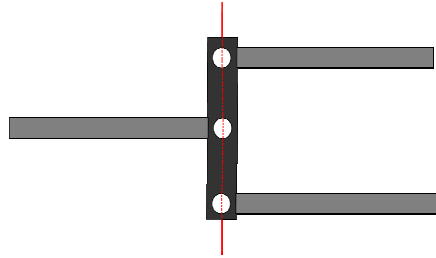
¹ Paragraphs 2.3.10., 2.3.11. and 2.3.12. only apply to the parking brake differential travel calculation method

Amend paragraph 3.1., to read:

“3.1. this part shall be as short as possible. The control rods and cables shall not contact the trailer frame or other surfaces that may affect the application or release of the brake.”

Insert new paragraphs 8. to 8.1.2., to read:

- “8. SIMULATED GRADIENT PARKING BRAKE FORCE DIFFERENTIAL
- 8.1. Calculation method
- 8.1.1. The pivot points in the compensator shall lie in a straight line with the park brake at the rest position.



All compensator pivots to be in-line

Alternative arrangements can be used, if they provide equal tension in both rear cables, even when there are differences in travel between the rear cables.

- 8.1.2. Drawing details are to be provided to demonstrate that the compensator articulation is sufficient to ensure equal cable tension is applied to each of the rear cables. The compensator needs to have sufficient distance across the width to facilitate the differential travels left to right. The jaws of the yokes also need to be deep enough relative to their width to make sure that they do not prevent articulation when the compensator is at an angle.

Differential travel at compensator (s_{cd}) shall be derived from:

$$s_{cd} \geq 1.2 \cdot (S_{cr} - S_c')$$

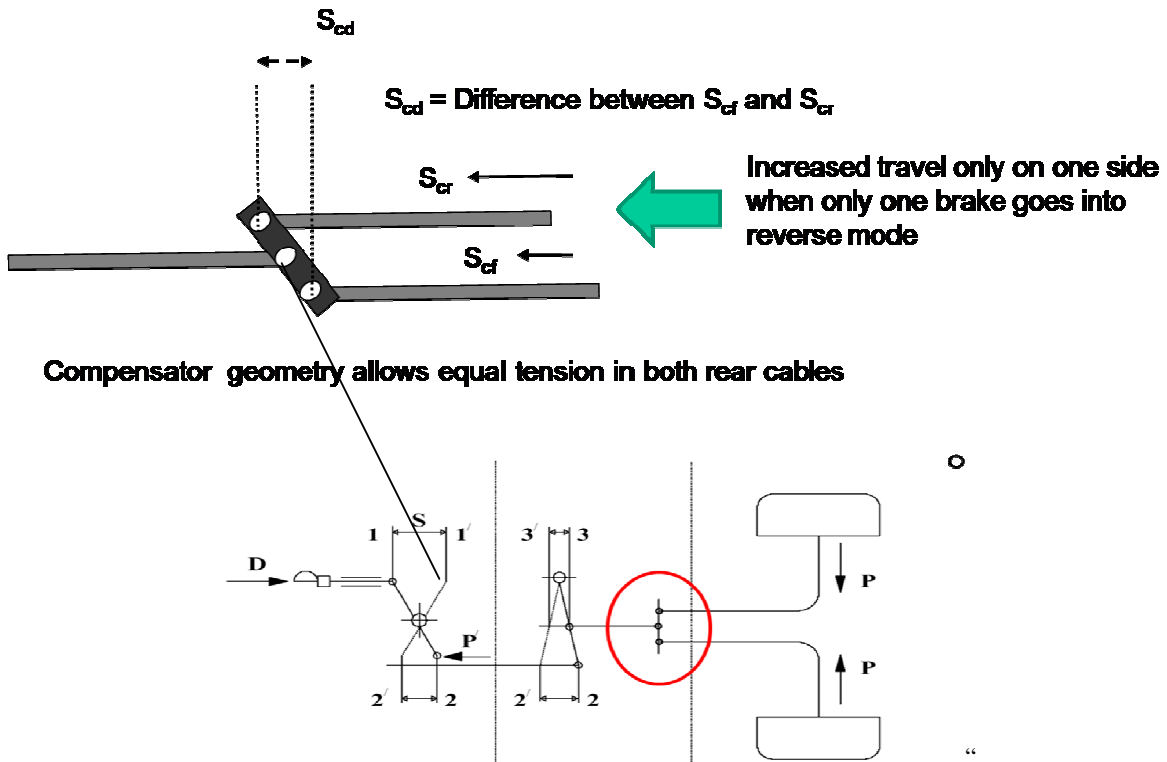
Where:

$S_c' = S'/i_H$ (travel at compensator - forward operation) and $S_c = 2 \cdot S_B/i_g$
 $S_{cr} = S_r/i_H$ (travel at compensator - rearward operation)”

Paragraphs 8. to 10. (former), renumber as paragraphs 9. to 11.

Annex 12, Appendix 1, insert a new figure 5A, to read:

“Figure 5A: MECHANICAL-TRANSMISSION BRAKING SYSTEM
(See paragraph 2.3. of this annex)



Annex 12, Appendix 4

Insert new paragraphs 6. to 6.1.3., to read:

- “6. Differential travel at park brake compensator
- 6.1.1. Maximum permissible compensator travel (forward) s_{cf} = mm
- 6.1.2. Maximum permissible compensator travel (rearward) s_{cr} = mm
- 6.1.3. Maximum permissible differential compensator travel s_{cd} = mm”

Paragraph 6. (former), renumber as paragraph 7. and amend to read:

- “7. The inertia braking system described above complies/does not comply 1/ with the requirements of paragraphs 3. to 10. of this annex.

Signature Date

Paragraphs 7.(former) and 8., renumber as paragraph 8 and 9.

Annex 13, paragraph 4.1., amend to read (including footnote 2/):

- “4.1. Failures within the electric control transmission of the anti-lock braking system 2/ that affects the system with respect to the functional and performance requirements in this annex, shall be signalled to the driver by a specific optical warning signal. The yellow warning signal specified in paragraph 5.2.1.29.1.2. shall be used for this purpose.

2/ Until uniform test procedures have been agreed, the manufacturer shall provide the Technical Service with an analysis of potential failures within the control transmission and their effects. This information shall be subject to discussion and agreement between the Technical Service and the vehicle manufacturer.”
