United Nations ECE/TRANS/WP.29/GRRF/2011/33

Economic and Social Council

Distr.: General
4 July 2011

Original: English
English and French only

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

Working Party on Brakes and Running Gear

Seventy-first session
Geneva, 13–15 September 2011
Item 3(b) of the provisional agenda
Regulations Nos. 13 and 13-H (Braking) - Trailer braking

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

Submitted by the experts from the European Association of Automotive Suppliers *

The text reproduced below was prepared by the experts from the European Association of Automotive Suppliers (CLEPA) to allow trailer manufacturers to equip their semi-trailers so as to achieve a higher deceleration. 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 2010–2014 (ECE/TRANS/208, para. 106 and ECE/TRANS/2010/8, 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

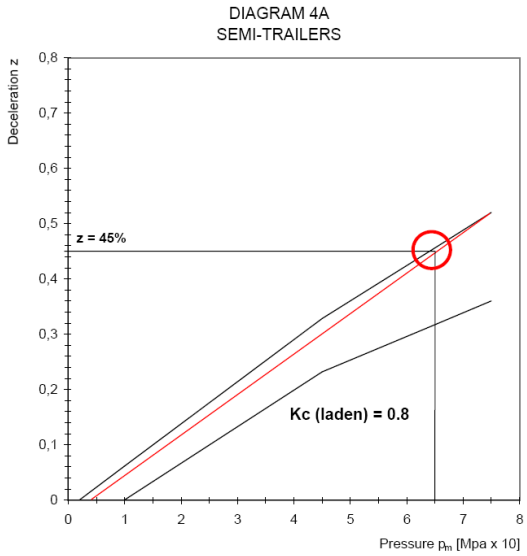
Annex 10, paragraph 4.1.2., amend to read:

"4.1.2. ~~If the requirements of paragraph 4.1.1. of this annex cannot be satisfied in conjunction with the requirements of paragraph 3.1.2.1. of Annex 4 to this Regulation for semi-trailers with a K_c factor less than 0.80, then the semi-trailer shall meet the minimum~~ **The provision of paragraph 4.1.1. does not have to be fulfilled, if a semi-trailer with a K_c factor less than 0.95 meets at least the** braking performance specified in paragraph 3.1.2.1. of Annex 4 to this Regulation. ~~and be fitted with an anti-lock system complying with Annex 13 to this Regulation, except the compatibility requirement in paragraph 1 of that annex~~."

II. Justification

1. The compatibility limits of semi-trailers are set by the modification of diagram 4A in Annex 10 using the correction factors K_c (laden) and K_v (unladen) determined from diagram 4B in Annex 10. The correction factors K_c and K_v take into account the king-pin to axle group distance, the imposed loads on both, and the centre of gravity height.

2. The K_c value is especially significant for high and short semi-trailers. In an extreme case of K_c = 0.80, the limit can restrict the maximum deceleration (z) to 45 per cent, which is the minimum required by paragraph 3.1.2.1. of Annex 4. A higher level of deceleration would result in the upper boundary being crossed:



3. In the case of Kc-factors <0.8, the upper limit (paragraph 4.1.2.) can be exceeded. By amending the <0.80 limit to <0.95, a higher maximum deceleration is allowed.

4. Historically, maintaining semi-trailer stability under braking was more important than achieving high levels of deceleration. Locking of the brakes on semi-trailer axles results in rear of the trailer swinging-out ("trailer swing"). The introduction of towing vehicle-trailer "compatibility" requirements under Annex 10 began to regulate the relative performance of both parts of a combination, and the subsequent introduction of the

correction factors K_c and K_v further refined the "compatibility". The availability of ABS meant that it was then possible to define a <0.80 limit with the proviso that ABS was fitted.

5. Today, on O_3 and O_4 vehicles, ABS is required and a vehicle stability function will soon be required. Therefore, wheel locking and a loss of stability is no longer an issue with higher levels of deceleration and the specific ABS requirement in paragraph 4.1.2. can be deleted.