AGREEMENT

CONCERNING THE ADOPTION OF UNIFORM TECHNICAL PRESCRIPTIONS FOR WHEELED VEHICLES, EQUIPMENT AND PARTS WHICH CAN BE FITTED AND/OR BE USED ON WHEELED VEHICLES AND THE CONDITIONS FOR RECIPROCAL RECOGNITION OF APPROVALS GRANTED ON THE BASIS OF THESE PRESCRIPTIONS */

(Revision 2, including the amendments which entered into force on 16 October 1995)

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Addendum 77: Regulation No. 78

Revision 1 - Amendment 1

Supplement 1 to the 03 series of amendments - Date of entry into force: 26 February 2009

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES OF CATEGORIES L_1, L_2, L_3, L_4 AND L_5 WITH REGARD TO BRAKING

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*/   Former title of the Agreement:

Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958.

Annex 3

Paragraph 1.1.3.(b), amend to read:

"(b)   The method specified in Appendix 1 to this annex."

Add a new Appendix 1, to read:

"Annex 3 - Appendix 1

ALTERNATIVE METHOD FOR THE DETERMINATION OF
PEAK BRAKING COEFFICIENT (PBC)
(see paragraph 1.1.3. to this annex)

1.1.   General:
   (a)   The test is to establish a PBC for the vehicle type when being braked on the test surfaces described in Annex 3, paragraphs 1.1.1. and 1.1.2.
   (b)   The test comprises a number of stops with varying brake control forces. Both wheels shall be braked simultaneously up to the point reached before wheel lock, in order to achieve the maximum vehicle deceleration rate on the given test surface.
   (c)   The maximum vehicle deceleration rate is the highest value recorded during all the test stops.
   (d)   The Peak Braking Coefficient (PBC) is calculated from the test stop that generates the maximum vehicle deceleration rate, as follows:

$$PBC = \frac{0.566}{t}$$

   where:
   t   =   time taken for the vehicle speed to reduce from 40 km/h to 20 km/h in seconds.

   Note: For vehicles unable to achieve a test speed of 50 km/h, PBC shall be measured as follows:

$$PBC = \frac{0.566}{t}$$

   where:
   t   =   time taken, in seconds, for the speed of the vehicle to reduce from 0.8 Vmax to (0.8 Vmax - 20), where Vmax is measured in km/h.

   (e)   The value of PBC shall be rounded to three decimal places.

1.2.   Vehicle condition:
(a)   The test is applicable to vehicle categories L_1 and L_3.
(b)   The anti-lock system shall be either disconnected or inoperative, between 40 km/h and 20 km/h.
(c)   Lightly loaded.
(d)   Engine disconnected.

1.3.   Test conditions and procedure:
(a)   Initial brake temperature: $\geq 55\ °C$ and $\leq 100\ °C$.
(b)   Test speed: 60 km/h or 0.9 Vmax, whichever is lower.
(c)   Brake application:
Simultaneous actuation of both service brake system controls, if so equipped, or of the single service brake system control in the case of a service brake system that operates on all wheels.
For vehicles equipped with a single service brake system control, it may be necessary to modify the brake system if one of the wheels is not approaching maximum deceleration.
(d)   Brake actuation force:
The control force that achieves the maximum vehicle deceleration rate as defined in paragraph 1.1.(c).
The application of the control force must be constant during braking.
(e)   Number of stops: until the vehicle meets its maximum deceleration rate.
(f)   For each stop, accelerate the vehicle to the test speed and then actuate the brake control(s) under the conditions specified in this paragraph."