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Item 7(b) of the provisional agenda
Tyres – Regulation No. 117

Proposal for amendments to Regulation No. 117 (Tyres, rolling resistance, rolling noise and wet grip)

Submitted by the experts from the European Tyre and Rim Technical Organisation*

The text reproduced below was prepared by the experts from the European Tyre and Rim Technical Organisation (ETRTO) in order to correct inconsistencies in time measurement accuracy in Annex 6. This document refers to the document ECE/TRANS/505/Rev.2/Add.116/Rev.2. The modifications to the existing text of the Regulation are 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 6

Appendix 1

Paragraph 4., amend to read:

"4. Control accuracy

…

(d) Time control accuracy

Time +/- **0.02 s for the ISO 28580 force, torque, deceleration and power method and +/- 0.5 ms for the deceleration method for which the deceleration j is determined in exact dω/dt form…**"

Paragraph 5., amend to read:

"5. Instrumentation accuracy

The instrumentation used for readout and recording of test data shall be accurate within the tolerances stated below:

Parameter	*Load Index ≤ 121*	*Load Index > 121*
Tyre load	±10 N or ±0.5 % [(a)]	±30 N or ±0.5 % [(a)]
Inflation pressure	±1 kPa	±1.5 kPa
Spindle force	±0.5 N or +0.5 % [(a)]	±1.0 N or +0.5 % [(a)]
Torque input	±0.5 Nm or +0.5 % [(a)]	±1.0 Nm or +0.5 % [(a)]
Distance	±1 mm	±1 mm
Electrical power	±10 W	±20 W
Temperature	±0.2 °C	
Surface speed	±0.1 km/h	
Time	±0.01 s [(b)]	
Angular velocity	±0.1 %	

(a) Whichever is greater.

(b) **For the ISO 28580 force, torque, deceleration and power method +/- 0.25 ms for the deceleration method for which the deceleration j is determined in exact dω/dt form**"

II. Justification

1. The informal document GRB-53-11e proposed the following amendment to ECE/TRANS/505/Rev.2/Add.116/Rev.2.

"Annex 6, Test procedure for measuring rolling resistance.

Appendix 1,

Paragraph 4, item (d), replace time measurement accuracy norm, to read:

"(d) time: +/- ~~0.02 s~~ **0.5 ms**"

2. This amendment was adopted and reproduced in the following document: ECE/TRANS/505/Rev.2/Add.116/Rev.2/Amend.1.

3. Later on it was observed that this change leads to an inconsistency in time measurement accuracy:

(a) Control accuracy: +/- 0.5 ms (Annex 6, Appendix 1, paragraph 4, item d)

(b) Instrumentation accuracy: +/- 0.01 s (Annex 6, Appendix 1, paragraph 5)

4. For technical reasons, the instrumentation accuracy has to be smaller as compared to the control accuracy.

5. To correct this, ETRTO proposes to apply the amendment proposed in GRB-53-11 only for the new deceleration method and keep the previous definition for the other methods included in ISO 28580.

6. For the new deceleration method, the more stringent time accuracy is required due to the limited sampling frequency of only 1 measurement per drum or tyre revolution. For the other methods, the time accuracy as defined in ISO 28580 already proved efficient and does not need to be changed.