



Economic and Social Council

Distr.: General
16 June 2022

Original: English

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

Working Party on Noise and Tyres

Seventy-sixth session

Geneva, 5–7 September 2022

Item 4 (c) of the provisional agenda

Tyres: Regulation No. 117 (Tyre rolling resistance, rolling noise and wet grip)

Proposal for a Supplement to the 02 series of amendments to UN Regulation No. 117

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) with the aim to amend UN Regulation No. 117. 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 2022 as outlined in proposed programme budget for 2022 (A/76/6 (Sect.20), para 20.76), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



I. Proposal

Annex 5, part (B), paragraph 2.1.2.1., amend to read:

"2.1.2.1. Fit the test tyres on rims specified by a recognized tyre and rim standards organization as listed in Appendix 4 to Annex 6 to this Regulation. Ensure proper bead seating by the use of a suitable lubricant. Excessive use of lubricant should be avoided to prevent slipping of the tyre on the wheel rim.

Check the test tyres for the specified inflation pressure at ambient temperature (cold), just prior to testing. For the purpose of this standard the testing tyre cold inflation pressure P_t shall be calculated as follows:

$$\cancel{P_t = P_r \times \left(\frac{Q_t}{Q_r}\right)^{1.25}} \quad P_t = P_r \cdot \left(\frac{Q_t}{Q_r}\right)^{1.25}$$

Where:

P_r = Inflation pressure corresponding to the ~~the~~ indication of the inflation pressure marked on the sidewall as required by paragraph 4.1. of this Regulation.

Q_t = The static test load of the tyre

Q_r = The maximum mass associated with the load capacity index of the tyre"

Annex 7, paragraph 3.1.4.2., amend to read:

"3.1.4.2. For class C2 tyres, the vehicle load shall be such that the resulting loads on the tyres are between 60 per cent and 100 per cent of the load corresponding to the tyre load **capacity** index.

The static tyre load on the same axle should not differ by more than 10 per cent.

The inflation pressure is calculated to run at constant deflection:

For a vertical load higher or equal to 75 per cent of the load capacity of the tyre, a constant deflection is applied, hence the test inflation pressure ~~" P_t "~~ shall be calculated as follows:

$$\cancel{P_t = P_r \left(\frac{Q_t}{Q_r}\right)^{1.25}} \quad P_t = P_r \cdot \left(\frac{Q_t}{Q_r}\right)^{1.25}$$

~~Q_r~~ is the maximum load associated to the load capacity index of the tyre written on the sidewall

~~P_r is the reference pressure corresponding to the maximum load capacity Q_r~~

P_r is the inflation pressure corresponding to the indication of the inflation pressure marked on the sidewall as required by paragraph 4.1. of this Regulation

~~Q_t~~ is the static test load of the tyre

For a vertical load lower than 75 per cent of the load capacity of the tyre, a constant inflation pressure is applied, hence the test inflation pressure ~~P_t~~ shall be calculated as follows:

$$\cancel{P_t = P_r (0.75)^{1.25} = (0.7) P_r} \quad P_t = P_r \times (0.75)^{1.25} = 0.7 P_t$$

~~P_r~~ is the reference pressure corresponding to the maximum load capacity ~~Q_r~~ .

Check the tyre pressure just prior to testing at ambient temperature."

Annex 8, paragraph 2.4.2.2., amend to read:

"2.4.2.2. This adjusted mean fully developed deceleration $d_{m,adj}(R)$ of the reference tyre is calculated in accordance with Table 3, where $d_{m,ave}(R_i)$ and $d_{m,ave}(R_f)$ are the arithmetic means of the mean fully developed decelerations in the initial and in the final braking test of the reference tyre within a braking test cycle.

Table 3

Calculation of the adjusted mean fully developed deceleration $d_{m,adj}(R)$ of the reference tyre

If the number and the sequence of candidate tyres within one braking test cycle is	and the candidate tyre to be qualified is	the corresponding adjusted mean fully developed deceleration $d_{m,adj}(R)$ of the reference tyre is calculated as follows
1 R1 – T1 – R2 – Ri – T1 – Rf	T1 – T1	$d_{m,adj}(R) = 1/2 \cdot [d_{m,ave}(R_i) + d_{m,ave}(R_f)]$
2 R1 – T1 – T2 – R2 – Ri – T1 – T2 – Rf	T1 – T1	$d_{m,adj}(R) = 2/3 \cdot d_{m,ave}(R_i) + 1/3 \cdot d_{m,ave}(R_f)$
	T2 – T2	$d_{m,adj}(R) = 1/3 \cdot d_{m,ave}(R_i) + 2/3 \cdot d_{m,ave}(R_f)$

Annex 8,

Second occurrence of paragraph 2.4.2.2., renumber to 2.4.2.3.

Second occurrence of paragraph 2.4.4.4., renumber as 2.4.4.5.

Paragraph 2.4.4.5. (former), renumber as 2.4.4.6.

Paragraph 2.4.5.2.1., amend to read:

"2.4.5.2.1. In a first series of three non-consecutive braking test cycles, using the procedure described in paragraph 2.1.3.2. to ~~2.4.4.5.~~ **2.4.4.6.** of this Annex in which the control tyre shall be treated as a candidate tyre, the ice grip index $G_{I,1}(C)$ of the control tyre relative to the reference tyre shall be established. In a second series of three non-consecutive braking test cycles, in which the control tyre serves as reference tyre, the ice grip index $G_{I,2}(T)$ of the candidate tyre relative to the control tyre shall be established."

II. Justification

The aim of this proposal is to correct editorial mistakes in ECE/TRANS/WP.29/GRBP/2021/17 that were not corrected by informal document GRBP-74-31-Rev.1.