Proposal for amendments to the 02 series of amendments to Regulation No. 30 (Pneumatic Tyres for Motor Vehicles and their Trailers)

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) amending the tyre dimensional requirements of UN Regulation No. 30. 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 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, 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

After Paragraph 2.20., insert the new Paragraph 2.20.1.:

"2.20.1. The values of the nominal rim diameters for code-designated rims expressed in millimetres are shown below:

<table>
<thead>
<tr>
<th>Nominal rim diameter code (&quot;d&quot;) symbol</th>
<th>Value of the &quot;d&quot; symbol expressed in mm</th>
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<td>30</td>
<td>762</td>
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</tbody>
</table>

Paragraph 6.1.1.1., amend to read:

6.1.1.1. The section width shall be calculated by the following formula:

\[ S = S_1 + K (A - A_1), \]

where:

- \( S \) is the "section width" expressed in mm rounded to the nearest millimetre and measured on the measuring rim;
- \( S_1 \) is the "nominal section width" (in mm) as shown on the side wall of the tyre in the designation of the tyre as prescribed;
- \( A \) is the width (expressed in mm) of the measuring rim, as shown by the manufacturer in the descriptive note; \(^5\)

\(^5\) When the conventional number is given by codes, the value in mm is obtained by multiplying such number by 25.4.
A₁ is the width (expressed in mm) of the theoretical rim.

A₁ shall be taken to equal S₁ multiplied by the factor x, as specified by the manufacturer, and K shall be taken to equal 0.4."

Paragraph 6.1.2.1., amend to read:

"6.1.2.1. The outer diameter of a tyre shall be obtained by means of the following formula:

\[ D = d + 2H \]

where:

\[ D \] is the outer diameter expressed in millimetres;

\[ d \] is the conventional number nominal rim diameter defined in paragraph 217.1.3., 220. above, expressed in millimetres;

\[ S₁ \] is the nominal section width in millimetres;

\[ Ra \] is the nominal aspect ratio;

\[ H \] is the nominal section height rounded to the nearest millimetre in millimetres and is equal to \[ H = S₁ \times 0.01 \times Ra \], where

\[ S₁ \] is the nominal section width in millimetres;

\[ Ra \] is the nominal aspect ratio;

all as shown on the sidewall of the tyre in the tyre-size designation in conformity with the requirements of paragraph 3.4. above."

Amend paragraph 6.1.4.:

"6.1.4. Tyre section-width specifications"

to read:

"6.1.4. Tyre section width specifications"

Paragraph 6.1.4.2., amend to read:

"6.1.4.2. It may exceed that value by the following percentages, whereby the limits shall be rounded to the nearest mm;"

Paragraph 6.1.5., amend to read:

"6.1.5. Tyre outer diameter specifications

The outer diameter of a tyre must not be outside the values \[ D_{\text{min}} \] and \[ D_{\text{max}} \] obtained from the following formulae:

\[ D_{\text{min}} = d + 2 \times H_{\text{min}} \times (2H \times a) \]
\[ D_{\text{max}} = d + 2 \times H_{\text{max}} \times (2H \times b) \]

where:

\[ H_{\text{min}} = H \times a \] rounded to the nearest mm
\[ H_{\text{max}} = H \times b \] rounded to the nearest mm

and"
Paragraph 6.1.5.1., amend to read:

"6.1.5.1. For sizes listed in Annex 5 and for tyres identified by the "tyre to rim fitment configuration" (see paragraph 3.1.11.) symbol "A" or "U", the nominal section height H is equal to:

\[ H = 0.5 \times (D - d) \text{, rounded to the nearest mm} \] – for references see paragraph 6.1.2.1."

Paragraph 6.1.5.3., amend to read:

"6.1.5.3. Coefficients "a" and "b" are respectively:

6.1.5.3.1. Coefficient "a" = 0.97

6.1.5.3.2. Coefficient "b" Radial, Run flat tyre Diagonal and Bias Belted

for ordinary (road type) normal tyres 1.04 1.08
for special-use tyres 1.06 1.09"

Paragraph 6.1.5.4., amend to read:

"6.1.5.4. For snow tyres the outer diameter (D_{\text{max}}) shall not exceed the following value

\[ D_{\text{max,snow}} = 1.01 \times D_{\text{max}} \text{, rounded to the nearest mm} \] where \( D_{\text{max}} \) is the maximum outer diameter established in conformity with the above may be exceeded by 1 per cent."

II. Justification

1. The current rules for calculating the dimensional limits are not consistent among the UN Regulations for tyres and within the Regulations themselves. Hence they lead to uncertainty about the correct calculation. For example, the design section widths in Annex 5 are calculated according to the rules of ISO 4000-1, whereas rounding is not defined in section 6. The nominal rim diameters used in Regulation No. 30 are different from those used in Regulation No. 54, even if the same rims are used.

2. The current proposal aims at unifying the calculation rules to those used in ISO 4000-1 and all major tyre standards, e.g. ETRTO, Tyre & Rim Association (T&RA), Japan Automobile Tyre Manufacturers Association (JATMA). This will also facilitate the work of the type approval authorities that still often refer to these standards.

3. Supplement 17 of this regulation introduced Special Use tyres. The proposal for amendment of paragraph 6.1.5.3. aims to introduce a higher tolerance on the overall diameter of those tyres because they have to have a larger tread depth compared to Normal tyres. It is proposed to use the same tolerances as in GTR No. 16 and Regulation No. 54.