Proposal for Supplement 15 to Regulation No. 106 (Agricultural tyres)

Submitted by the Working Party on Brakes and Running Gear*

The text reproduced below was adopted by the Working Party on Brakes and Running Gear (GRRF) at its eighty-third session (ECE/TRANS/WP.29/GRRF/83, para. 39). It is based on ECE/TRANS/WP.29/GRRF/2017/5 as amended by Annex VI to the report, and ECE/TRANS/WP.29/GRRF/2016/39. It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Administrative Committee (AC.1) for consideration at their June 2017 sessions.

* In accordance with the programme of work of the Inland Transport Committee for 2016–2017 (ECE/TRANS/254, para. 159 and ECE/TRANS/2016/28/Add.1, cluster 3.1), 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.
Supplement 15 to Regulation No. 106 (Agricultural tyres)

_Paragraph 1., amend to read:_

"1. **Scope**

This Regulation covers new pneumatic tyres *designed primarily, ….*

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* For the purpose of this Regulation "tyres" means "pneumatic tyres".*

_Paragraph 2.1., amend to read:_

2.1. "**Type of agricultural tyre**" means tyres which do not differ in such essential characteristics as:

(a) The manufacturer’s name;
(b) Tyre-size designation;
(c) Category of use:
   (i) Tractor - steering wheel;
   (ii) Tractor - drive wheel - standard tread;
   (iii) Tractor - drive wheel - special tread;
   (iv) Implement - traction;
   (v) Implement - trailer;
   (vi) Implement - mixed applications;
   (vii) Forestry machines – standard tread;
   (viii) Forestry machines – special tread;
   (ix) Construction applications (IND).
(d) Structure (diagonal or (bias-ply), bias-belted, radial-ply);
(e) Speed category symbol;
(f) Load capacity index;
(g) Tyre cross-section."

_Insert a new paragraph 2.2. to read:_

"2.2. "**Manufacturer**" means the person or body who is responsible to the Type Approval Authority (TAA) for all aspects of the type-approval and for ensuring the conformity of production."

_Insert a new paragraph 2.3. to read:_

"2.3. "**Brand name/trademark**" means the identification of the brand or trademark as defined by the tyre manufacturer and marked on the sidewall(s) of the tyre. The brand name/trademark may be the same as that of the manufacturer."

_Insert a new paragraph 2.4. to read:_

"2.4. "**Trade description/commercial name**" means an identification of a range of tyres as given by the tyre manufacturer. It may coincide with the brand name/trademark."
Paragraph 2.16., amend the table by adding diameter code 'd' 28.5 as follows:

<table>
<thead>
<tr>
<th>&quot;d&quot; symbol expressed by codes</th>
<th>Value to be used for the calculation in paras. 6.2.1. and 6.4 (mm)</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>30.5</td>
<td>775</td>
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</tbody>
</table>

Paragraph 2.15.8., amend to read:

"2.18.8. The letters "IF" before the nominal section width in case of "Improved Flexion Tyre"."

Insert a new paragraph 2.18.9., to read:

"2.18.9. The letters "VF" before the nominal section width in case of "Very High Flexion Tyre".

Renumber paragraphs 2.15.9. to 2.42. as paragraphs 2.18.10. to 2.45. and in the new paragraph 2.23.1., replace "pneumatic tyre" by "tyre".

Paragraph 2.25. (former 2.22.), amend to read:

"2.25. "Implement tyre" means a tyre designed primarily for agricultural machines or interchangeable towed equipments (vehicles in category S) or for agricultural trailers (vehicles in category R); however it may also equip either front steering wheels and drive wheels of agricultural and forestry tractors (vehicles in category T), but it is not suitable for sustained high torque services;"

Paragraph 2.26. (former 2.23.), amend to read:

"2.26. "Traction tyre" means a tyre designed primarily for the equipment of driven axles agricultural machinery, excluding sustained high torque services. The tread pattern of the tyre generally consists of blocks, lugs or cleats. The type of application is identified with the symbol: "

Paragraph 2.27. (former 2.24.), amend to read:

"2.27. "Trailer tyre" means a tyre designed for the equipment of non-driven (trailed) axles of interchangeable towed equipments, agricultural machinery or trailers;"

Paragraph 2.28. (former 2.25.), amend to read:

"2.28. "Mixed applications tyre" means a tyre designed to be fitted to either driven and non-driven axles of interchangeable towed equipments, agricultural machinery or trailers;"

Paragraph 3.1., amend to read:

"3.1. Tyres submitted for approval shall bear on both sidewalls the following markings:

..."
3.1.1. The manufacturer's name or the brand name/trademark;"

*Insert a new paragraph 3.1.2.* to read:

"3.1.2. The trade description/commercial name (see paragraph 2.4. of this Regulation). However, the trade description is not required when it coincides with the brand name/trademark."

*Paragraph 3.1.2.*, renumber and amend to read:

"3.1.3. The tyre-size designation;"

*Renumber paragraphs 3.1.3. to 3.1.3.3.* as paragraphs 3.1.4. to 3.1.4.3.

*Paragraph 3.1.4.*, renumber and amend to read:

"3.1.5. The "service description""

*Renumber paragraph 3.1.4.1.* as paragraph 3.1.5.1.

*Paragraph 3.1.4.2.*, renumber and amend to read:

"3.1.5.2. In the case of implement tyre for mixed applications, two service descriptions one for "trailer" applications and the other for "traction" applications, each supplemented with the relevant symbol (see paragraphs 2.26. and 2.27. above) as follows:" 

*Renumber paragraphs 3.1.5. and 3.1.6.* as paragraphs 3.1.6. to 3.1.7.

*Paragraph 3.1.7.*, renumber and amend to read:

"3.1.8. The inscriptions "F-1" or "F-2" or "F-3" in the case of a tractor steering wheel tyre that is not already marked as per paragraph 2.18.6. above; "

*Renumber paragraphs 3.1.8. to 3.1.8.2.* as paragraphs 3.1.9. to 3.1.9.2.

*Paragraph 3.1.9.*, renumber and amend to read:

"3.1.10. The inscription "IMPLEMENT" in the case of an implement tyre that is not already marked as per paragraph 2.18.5. above;"

Delete paragraph 3.1.12.

*Renumber paragraphs 3.1.10. to 3.1.11.* as paragraphs 3.1.11. to 3.1.12.

*Paragraph 3.1.13.*, amend to read:

"3.1.13. The inscription "R-4" in the case of a construction application tyre, identified in Annex 5, Table 9, that is not already marked as per paragraph 2.18.12. above. "

Delete paragraph 3.1.13.

*Insert a new paragraph 3.2.* to read:

"3.2. Tyres submitted for approval shall bear on one sidewall only the following markings: "

*Paragraph 3.3.*, renumber and amend to read (delete the reference to footnote 2):

"3.2.1. The date of manufacture in the form of a group of four digits, the first two showing the week and the last two the year of manufacture"

*Paragraph 3.4.*, renumber and amend to read:

"3.2.2. The type approval mark, the model of which is given in Annex 2."

*Paragraphs 3.5. to 3.5.2.*, shall be deleted
Paragraph 3.5.3., renumber and amend to read:

"3.3. All markings shall be clearly and legibly moulded and produced as part of the process during manufacture. The use of branding or other methods of marking after completion of the original manufacturing process is not permitted."

Renumber paragraph 3.6. as paragraph 3.4.

Paragraphs 4.1. to 4.1.2.2., amend to read:

"4.1. The application for approval of a type of tyre for agricultural and forestry services with regard to this Regulation shall be submitted by the tyre manufacturer or by his duly accredited representative. It shall specify:

4.1.1. The tyre-size designation;
4.1.2. The manufacturer's name;
4.1.2.1. The brand name(s)/trademark(s);
4.1.2.2. The trade description(s)/commercial name(s)."

In paragraph 5.1. replace "pneumatic tyre" by "tyre".

Paragraph 5.2., amend to read:

"5.2. An approval number shall be assigned to each type approved. Its first two digits (at present 00, for the Regulation in its original form) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party shall not assign the same number to another type of tyre covered by this Regulation."

In paragraphs 5.3. and 5.4., replace "pneumatic tyre" by "tyre".

Paragraph 6.1.1., amend to read:

"6.1.1. The section width shall be obtained by means of the following formula:

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

Where:

- \( S \) is the "section width" rounded to the nearest millimetre related to the measuring rim;
- \( S_1 \) is "the nominal section width" in mm, as shown on the sidewall of the tyre in the tyre designation as prescribed;
- \( A \) is the width (expressed in mm) of the measuring rim, as shown by the manufacturer in the descriptive note;
- \( A_1 \) is the width of the theoretical rim; it is taken to equal \( S_1 \) multiplied by the factor \( X \) as specified by the tyre manufacturer; and \( K \) is taken to equal 0.4."

Paragraph 6.2.1., amend to read:

"6.2.1. Except as provided by paragraph 6.2.2., the outer diameter of a tyre is calculated by the following formula:

\[ D = d + 2 H \]

Where:
D is the outer diameter expressed in mm;
D is the conventional number denoting the nominal rim diameter expressed in mm (see paragraph 2.16.);
H is the nominal section height rounded to the nearest millimetre and is equal to:

\[ H = 0.01 \times R_a \times S_1 \]

Where:

Ra is the nominal aspect ratio;
S1 is the "nominal section width" in mm.

All as shown on the sidewall of the tyre in the tyre-size designation in conformity with the requirements of paragraph 2.15.”

Paragraph 6.3.2., amend to read:

"6.3.2. The overall width of a tyre may not exceed the section width determined pursuant to paragraph 6.1. by more than the following:

Radial construction: +5 per cent
Diagonal (bias) construction: +8 per cent

Calculated value to be rounded to the nearest mm”

Paragraph 6.4.1., amend to read:

"6.4.1. The outer diameter of a tyre must not be outside the values D min and D max obtained from the following formulae:

\[ D_{\text{min}} = d + 2 \times H_{\text{min}} \]
\[ D_{\text{max}} = d + 2 \times H_{\text{max}} \]

Where

Hmin = H \times a , rounded to the nearest mm
Hmax = H \times b , rounded to the nearest mm

"H” and "d” are as defined in paragraph 6.2.1.
Coefficients "a” and "b” are specified in paragraph 6.4.2.”

In paragraphs 8.1., 9.1. and 10., replace "pneumatic tyre" by "tyre”.

Paragraphs 11.1. to 11.3., amend to read:

"11.1. The Contracting Parties to the 1958 Agreement which apply this Regulation shall communicate to the United Nations Secretariat the names and addresses of the Technical Services responsible for conducting approval tests and, where applicable, of the approved test laboratories and of the Type Approval Authorities which grant approval and to which forms certifying approval, or extension of approval, or refusal of approval or withdrawal of approval or production definitively discontinued, issued in other countries, are to be sent.

11.2. The Contracting Parties to the 1958 Agreement which apply this Regulation may designate laboratories of tyre manufacturers as approved test laboratories.
11.3. Where a Contracting Party to the 1958 Agreement applies paragraph 11.2 above, it may, if it so desires, be represented at the tests by one or more persons of its choice."

Annex 1

"Communication

……

of a type of tyre for agricultural vehicles pursuant to Regulation No. 106"

Item 1. amend to read:

"1. Manufacturer's name and address: ................................................................. "

Item 2. amend to read:

"2. Tyre type designation3 .................................................................
2.1. Brand-name(s)/trademark(s): .................................................................
2.2. Trade description(s)/ Commercial name(s): ............................................"

Delete item 3.

Renumber items 4. to 5.2. as items 3. to 4.2.

Items 5.3., renumber and amend to read:

"4.3. Structure: diagonal or bias-ply/bias belted/radial2"

Renumber paragraphs 5.4 to 14. as paragraphs 4.4. to 13.

Insert Footnote 3, to read:

"3 A list of brand name(s)/trademark(s) or Trade description(s)/ Commercial name(s) may be annexed to this communication."

Annex 2, amend to read:

"…

The above approval mark affixed to a tyre shows that the type of tyre concerned has been approved in the Netherlands (E 4) pursuant to Regulation No. 106 under approval number 002439.

…"

Annex 5, table 4, amend to read:

"Drive wheel tyres for agricultural tractors - Low section series

<table>
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<th>Tyre size designation (1)</th>
<th>Theoretical rim width code (A1)</th>
<th>Nominal section width (S1) (mm)</th>
<th>Overall diameter (D) (mm)</th>
<th>Nominal rim diameter (d)(mm)</th>
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<td>Nominal section width (S1) (mm)</td>
<td>Overall diameter (D) (mm)</td>
<td>Nominal rim diameter (d) (mm)</td>
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<td>IF / VF</td>
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</tbody>
</table>

(1) "Improved flexion tyres" are identified by means of the letters "IF" added in front of the size designation (e.g. IF480/70R38) ; "Very high flexion tyres" are identified by means of the letters "VF" added in front of the size designation (e.g. VF480/70R38) – see paragraphs 2.18.8. and 2.18.9. of this Regulation.

Annex 5, Table 7, add the following entries:

<table>
<thead>
<tr>
<th>Tyre size designation</th>
<th>Theoretical rim width code (A1)</th>
<th>Nominal section width (S1) (mm)</th>
<th>Overall diameter (D) (mm)</th>
<th>Nominal rim diameter (d) (mm)</th>
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Annex 5, Table 9, add the following entry:

"...

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Annex 11

In the pictogram, the unit, amend to read:

"250 kPa MAX"