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**World Forum for Harmonization of Vehicle Regulations**

Working Party on Noise and Tyres

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Item 5 (g) of the provisional agenda

**Tyres: Draft UN Regulation on studded tyres****Proposal for a draft new UN Regulation on the uniform provisions concerning the approval of studded tyres with regard to their snow performance****Submitted by the Task Force on Studded Tyres\***

The text reproduced below was prepared by the Task Force on Studded Tyres (TF ST) with the aim to create a new UN Regulation on uniform provisions concerning the approval of studded tyres with regard to their snow performance, to be distinguished from studdable tyres regulated by UN Regulation No. 117, following a mandate given by the Working Party on Noise and Tyres (GRBP) at its seventy-first session (ECE/TRANS/WP.29/GRBP/69).

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\* In accordance with the programme of work of the Inland Transport Committee for 2021 as outlined in proposed programme budget for 2021 (A/75/6 (Sect.20), para 20.51), 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

### **UN Regulation No. [xxx] on uniform provisions concerning the approval of studded tyres with regard to their snow performance**

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## 1. Scope

- 1.1. This Regulation applies to new studded pneumatic tyres<sup>1</sup> of Classes C1, C2 and C3 with regard to their snow performance.
- It does not, however, apply to:
- 1.1.1. Tyres of category of use "temporary use tyres" as declared in UN Regulation No. 30 for Class C1 tyres;
- 1.1.2. Tyres having a nominal rim diameter code  $\leq 10$  (or  $\leq 254$  mm) or  $\geq 25$  (or  $\geq 635$  mm);
- 1.1.3. Tyres designed for competitions;
- 1.1.4. Tyres intended to be fitted to road vehicles of categories other than M, N and O;<sup>2</sup>
- 1.1.5. Tyres with a speed rating less than 80 km/h (speed symbol F);
- 1.1.6. Tyres designed only to be fitted to vehicles registered for the first time before 1 October 1990;
- 1.1.7. Tyres of category of use "Normal" as declared in UN Regulation No. 30 for Class C1 tyres or in UN Regulation No. 54 for Class C2 or C3 tyres;
- 1.1.8. Studdable tyres.
- 1.2. Notwithstanding the provisions of this Regulation a Contracting Party may permanently, temporarily or conditionally prohibit the use of, or impose additional requirements for, studded tyres.

## 2. Definitions

For the purpose of this Regulation, in addition to the definitions contained in UN Regulations Nos. 30, 54 and, with respect to the snow performance, in UN Regulation No. 117, the following definitions apply.

- 2.1. "*Type of studded tyre*" means tyres which do not differ in such essential characteristics as:
- (a) The manufacturer's name;
  - (b) The tyre class;
  - (c) The tyre structure;
  - (d) The category of use: snow or special;
  - (e) The tread pattern (see section 3.2.1. of this Regulation);
  - (f) The list of stud models.<sup>3</sup>
- 2.2. "*Tyre class*" means one of the following groupings:
- 2.2.1. *Class C1 tyres*: Tyres approved according to UN Regulation No. 30;
- 2.2.2. *Class C2 tyres*: Tyres approved according to UN Regulation No. 54 and identified by a load capacity index in single formation lower or equal to 121 and a speed category symbol higher or equal to "N";
- 2.2.3. *Class C3 tyres*: Tyres approved according to UN Regulation No. 54 and identified by:

<sup>1</sup> For the purpose of this Regulation "tyres" means "pneumatic tyres".

<sup>2</sup> As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3).

<sup>3</sup> Changing the list of stud models can be made as an extension of the type approval certificate.

- (a) A load capacity index in single formation higher or equal to 122; or
  - (b) A load capacity index in single formation lower or equal to 121 and a speed category symbol lower or equal to "M".
- 2.3. "*Tyres designed for competition*" means tyres intended to be fitted to vehicles involved in motor sport competition and not intended for non-competitive on-road use.
- 2.4. "*Tyre for use in severe snow conditions*" means a tyre whose tread pattern, tread compound or structure is specifically designed to be used in severe snow conditions and that fulfils the requirements of paragraph 6.1. of this Regulation.
- 2.5. "*Studded tyre*" means a tyre that is designed to be equipped and always used with studs to improve traction properties on ice surfaces.
- 2.6. "*Studdable tyre*" means a tyre that is designed to be able to be equipped with studs and to be used with or without studs.
- 2.7. "*Stud*" means an additional device(s) inserted into or onto the tyre tread to improve traction properties on ice surfaces.
- 2.8. "*Stud model*" means studs that do not differ in their shape, main dimensions and mass.
- 2.9. "*Main dimensions of stud*" means the maximum height of the stud, maximum width of the stud body and maximum width of the stud bottom flange.

### **3. Application for approval**

- 3.1. The application for approval of a type of studded tyre with regard to this Regulation shall be submitted by the tyre manufacturer or by his duly accredited representative. It shall specify:
- 3.1.1. The performance characteristics to be assessed for the type of studded tyre; "snow performance level";
  - 3.1.2. Manufacturer's name and address;
  - 3.1.3. If applicable, name and address of manufacturer's representative;
  - 3.1.4. Tyre class (Class C1, C2 or C3);
  - 3.1.5. Category of use (snow or special);
  - 3.1.6. Tyre structure;
  - 3.1.7. Brand name(s)/trademark(s), trade description(s)/commercial name(s);
  - 3.1.8. A list of tyre size designations covered by this application and specifying for each brand name/trademark and/or each trade description/commercial name the applicable tyre size designations and service descriptions, adding in case of Class C1 tyres whether "reinforced" (or "extra load") or not.
  - 3.1.9. The list of stud models.
- 3.2. The application for approval shall be accompanied by:
- 3.2.1. Details of the major features, with respect to the effects on the snow performance of the tyres, including the tread pattern, included in the designated range of tyre sizes. This may be by means of descriptions supplemented by technical data, drawings, photographs and Computer Tomography (CT), and must be sufficient to allow the Type Approval Authority or Technical Service to determine whether any subsequent changes to the major features will adversely affect the tyre performance. The effects of changes to minor details of tyre construction on tyre performances will be evident and determined during checks on conformity of production;

- 3.2.1.1. Drawings of the stud models.
- 3.2.2. Drawings or photographs of the tyre side wall, showing the information given in paragraph 3.1.8. above and the approval marking referred to in paragraph 4., shall be submitted once the production has been established, but no later than one year after the date of granting of type approval.
- 3.2.3. In the case of applications relating to special use tyres, a copy of the mould drawing of the tread pattern shall be supplied in order to allow verification of the void-to-fill ratio.
- 3.3. At the request of the Type Approval Authority, the applicant shall submit samples of tyres for the test or copies of test reports from the Technical Services, communicated as given in paragraph 11. of this Regulation.
- 3.4. With regard to the application, testing may be confined to a representative tyre size of the type of studded tyre, at the discretion of the Type Approval Authority.

## 4. Markings

- 4.1. All tyres constituting the type of studded tyre shall be marked as prescribed by either UN Regulations Nos. 30 or 54, as applicable.
- 4.2. In particular tyres meeting the requirements of paragraph 6. below, shall bear:<sup>4</sup>
  - 4.2.1. The Snow Grip Marking (also referred to as "Alpine" symbol or "3-peak-mountain with snowflake" symbol).

Figure 1:  
**Pictogram definition of " Snow Grip Marking (Alpine Symbol)"**



Minimum 15 mm base and 15 mm height.  
Above drawing not to scale.

- 4.3. Tyres shall provide adequate space for the approval mark as shown in Annex 2 to this Regulation.
  - 4.3.1. In case the approval of a type of studded tyre pursuant to this Regulation has been granted by the same Type Approval Authority than that granting the approval pursuant to UN Regulations Nos. 30 or 54, the approval marks can be combined using sign "+" which indicates that its approval is complemented by an approval pursuant to this Regulation, as described in Annex 2, Appendix 2 of this Regulation.
  - 4.3.2. Studded tyres approved according to this Regulation shall also bear the mark as shown in Annex 3 to this Regulation and/or the word "STUDED" at least 4 mm in height.
- 4.4. The markings referred to in paragraphs 4.2. and 4.3.2. and the approval mark prescribed in paragraph 5.4 of this Regulation shall be clearly legible, indelible and raised above or sunk below the tyre surface.
  - 4.4.1. The markings shall be situated in the lower area of the tyre on at least one of its side walls. However, in the case of tyres identified by the tyre to rim fitment

<sup>4</sup> Some of these requirements may be specified separately in UN Regulation No. 30 or 54.

configuration symbol "A" or "U", the marking may be located anywhere on the outside side wall of the tyre.

## 5. Approval

- 5.1. If the representative tyre size of the type of studded tyre submitted for approval pursuant to this Regulation meets the requirements of paragraphs 6. and 7. below, approval of that type of studded tyre shall be granted.
- 5.2. An approval number according to Schedule 4 to the Revision 3 of the 1958 Agreement shall be assigned to the type of studded tyre approved. The same Contracting Party may not assign the same number to another type of studded tyre.
  - 5.2.1. Instead of granting the original type approval number pursuant to UN Regulation No. [xxx], upon the request of the manufacturer, the Type Approval Authority may grant the type approval number, which had been granted before to that type of studded tyre pursuant to UN Regulations Nos. 30 or 54 with the subsequent extension number.
- 5.3. Notice of approval or extension of approval or refusal of approval of a type of studded tyre pursuant to this Regulation shall be communicated to the Parties to the Agreement, which apply this Regulation by means of a form conforming to the model in Annex 1 to the Regulation.
  - 5.3.1. With reference to paragraph 5.2.1. above, tyre manufacturers are entitled to submit an application for extension of type approval to the requirements of other UN Regulations relevant to the tyre type. In that case, a copy of the relevant type approval communication(s), as issued by the relevant Type Approval Authority, shall be attached to the application for extension of approval. All applications for extension of approval(s) shall only be granted by the Type Approval Authority which issued the original approval for the tyre.
    - 5.3.1.1. When extension of approval is granted to incorporate into the communication form (see Annex 1 to this Regulation) certification(s) of conformity to other UN Regulations, (all) the specific type approval number(s) and the Regulation itself shall be added to item 9. of Annex 1 "Communication form".
- 5.4. In the space referred to in paragraph 4.3. and in accordance with the requirements of paragraph 4.4. above there shall be affixed to every tyre size, conforming to the type of studded tyre approved under this Regulation, an international approval mark consisting of:
  - 5.4.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval;<sup>5</sup> and
  - 5.4.2. The part of the approval number specified in paragraph 3 Section 3 of Schedule 4 to the Revision 3 of the 1958 Agreement, which shall be placed close to the circle prescribed in paragraph 5.4.1. above either above or below the "E" or to the left or right of that letter.
- 5.5. If the tyre conforms to type approvals under one or more other UN Regulations annexed to the Agreement in the country which has granted approval under this Regulation, the symbol prescribed in paragraph 5.4.1. above need not be repeated. In such a case the additional numbers and symbols of all the UN Regulations under which approval has been granted in the country which has

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<sup>5</sup> The distinguishing numbers of the Contracting Parties to the 1958 Agreement are reproduced in Annex 3 to the Consolidated Resolution on the Construction of Vehicles (R.E.3), document ECE/TRANS/WP.29/78/Rev. 4, Annex 3 - [www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html](http://www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html)

granted approval under this Regulation shall be placed adjacent to the symbol prescribed in paragraph 5.4.1. above.

- 5.6. Annex 2 to this Regulation gives examples of arrangements of approval marks.

## **6. Specifications**

- 6.1. The studded tyre shall meet the performance requirements of paragraph 6.4. of UN Regulation No. 117, when tested according to Annex 7 to UN Regulation No. 117 without studs.

## **7. Modifications of the type of studded tyre and extension of approval**

- 7.1. Every modification of the type of studded tyre, which may influence the performance characteristics approved in accordance with this Regulation, shall be notified to the Type Approval Authority which approved the type of studded tyre. That Authority may either:
- 7.1.1. Consider that the modifications are unlikely to have any appreciable adverse effect on the performance characteristics approved and that the tyre will comply with the requirements of this Regulation; or
- 7.1.2. Require further samples to be submitted for test or further test reports from the designated Technical Service.
- 7.2. Confirmation or refusal of approval, specifying the modifications, shall be communicated by the procedure given in paragraph 5.3. of this Regulation to the Parties to the Agreement which apply this Regulation.
- 7.3. The Type Approval Authority granting the extension of approval shall assign a series number for such an extension which shall be shown on the communication form.

## **8. Conformity of production**

The conformity of production procedures shall comply with those set out in the Agreement, Schedule 1 (E/ECE/324-E/ECE/TRANS/505/Rev.3) with the following requirements:

- 8.1. Any studded tyre approved under this Regulation shall be so manufactured as to conform to the performance characteristics of the type of studded tyre approved and satisfy the requirements of paragraph 6. above;
- 8.2. The authority which has granted type approval may at any time verify the conformity control methods applied in each production facility. For each production facility, the normal frequency of these verifications shall be at least once every two years.
- 8.3. Verification tests with regard to approvals shall be carried out using the same method (see Annex 7 of UN Regulation No. 117) as that adopted for original approval as declared in item 8 of the communication form.
- 8.4. Production shall be deemed to conform to the requirements of this Regulation if the levels measured comply with the limits prescribed in section 6. of this Regulation.

## **9. Penalties for non-conformity of production**

- 9.1. The approval granted in respect of a type of studded tyre pursuant to this Regulation may be withdrawn if the requirements laid down in paragraph 8. above are not complied with, or if any studded tyre of the type of studded tyre does not meet the limits given in paragraph 8.4. above.
- 9.2. If a Party to the Agreement, which applies this Regulation, withdraws an approval, it has previously granted, it shall forthwith notify the other Contracting Parties applying this Regulation by means of a copy of the approval form conforming to the model in Annex 1 to this Regulation.

## **10. Production definitively discontinued**

If the holder of an approval completely ceases to manufacture a type of studded tyre approved in accordance with this Regulation, he shall so inform the Type Approval Authority, which granted the approval. Upon receiving the relevant communication that Authority shall inform thereof the other Parties to the 1958 Agreement applying this Regulation by means of a communication form conforming to the model in Annex 1 to this Regulation.

## **11. Names and addresses of Technical Services responsible for conducting approval tests of Type Approval Authorities**

- 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

(Maximum format: A4 (210 x 297 mm))



Issued by: Name of administration:

.....  
 .....  
 .....

- Concerning:<sup>2</sup>
- Approval granted
  - Approval extended
  - Approval refused
  - Approval withdrawn
  - Production definitively discontinued

of a type of studded tyre pursuant to UN Regulation No. [xxx]

Approval No.<sup>3</sup>.....

1. Manufacturer's name and address: .....
2. If applicable, name and address of manufacturer's representative: .....
3. "Tyre class" of the type of studded tyre: .....
4. "Category of use" of the type of studded tyre: .....
5. Tyre structure: .....
6. Tyre type designation:
- 6.1. Brand name(s)/trademark(s) of the type of studded tyre
- 6.2. Trade description(s)/Commercial name(s) of the type of studded tyre:
7. Technical Service and, where applicable, test laboratory approved for purposes of approval or of verification of conformity tests: .....
8. Snow grip level of the representative tyre size, as per item 7. of the test report in the appendix 2 or 3, as applicable, to Annex 7 of UN Regulation No. 117:..... (Snow grip index) using the brake on snow method<sup>2</sup>, spin traction method<sup>2</sup> or acceleration method<sup>2</sup> to confirm the classification as tyre for use in severe snow conditions.
9. Number of report issued by the Technical Service: .....
10. Date of report issued by that Service: .....
11. Reason(s) of extension (if applicable): .....
12. Any remarks:.....
13. Place: .....
14. Date: .....
15. Signature: .....

<sup>1</sup> Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).

<sup>2</sup> Strike out what does not apply.

<sup>3</sup> According to Schedule 4 to Revision 3 of the 1958 Agreement.

- 16. Annexed to this communication are: .....
- 16.1. A list of documents in the approval file deposited at the Type Approval Authorities having delivered the approval and which can be obtained upon request.
- 16.2. A list of tyre size designations: Specify for each brand name/trademark and/or each trade description/Commercial name the list of tyre size designations and service descriptions, adding in case of Class C1 tyres whether "reinforced" (or "extra load") or not.
- 16.3. A list of stud models.

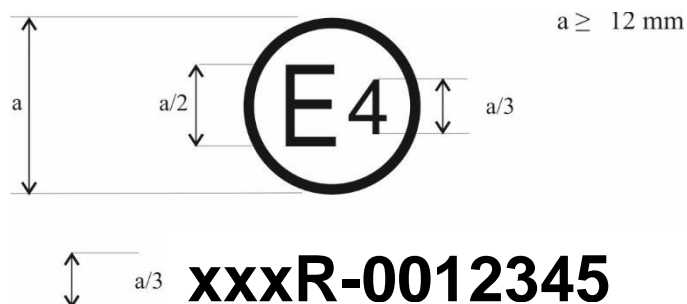
## Annex 2

### Arrangements of the approval mark

(See paragraphs 5.4. and 5.5. of this Regulation)

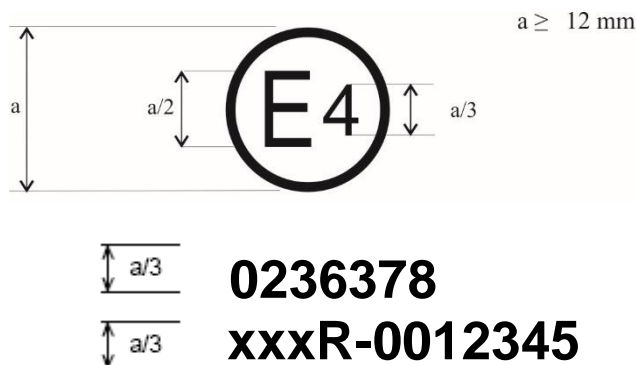
Approval pursuant to UN Regulation No. [xxx]

Example 1



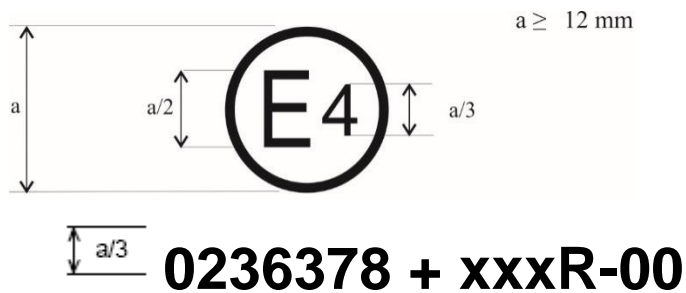
The above approval mark, affixed to a tyre shows that a tyre concerned has been approved in the Netherlands (E 4) pursuant to UN Regulation No. [xxx], under approval number 0012345. The first two digits of the approval number (00) indicate that the approval was granted according to the requirements 00 series of amendments to this Regulation.

Example 2

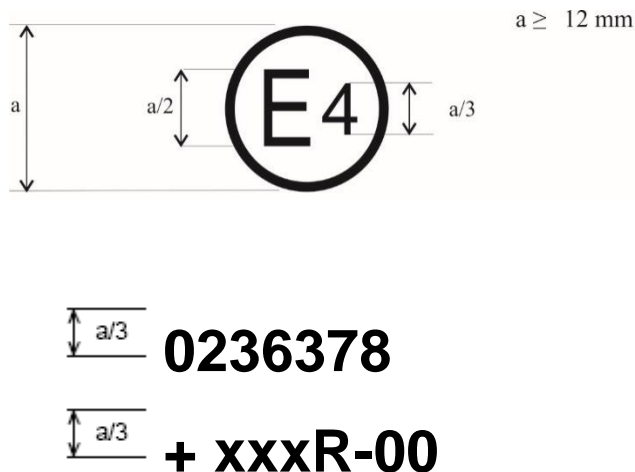


The above approval mark (according to paragraph 5.5. of this Regulation) shows that the tyre concerned has been approved in the Netherlands (E 4) pursuant to UN Regulations Nos. 30 and [xxx]. The first two digits of the approval numbers indicate that, at the dates when the respective approvals were granted, Regulation No. 30 included the 02 series of amendments while Regulation No. [xxx] was in its original form.

Example 3



Example 4



The above examples of the approval mark show that the tyre concerned has been initially approved in the Netherlands (E 4) pursuant to UN Regulation No. 30 under approval number 0236378. It is also marked by "+ xxxR-00", which indicates that its approval is complemented by an approval pursuant to UN Regulation No. [xxx] in its original form. The first two digits (02) of the approval number pursuant to UN Regulation No. 30 indicate that the approval was granted pursuant to the 02 series of amendments of this Regulation. The addition (+) sign indicates that the approval granted pursuant to UN Regulation No. 30 has been complemented by an approval granted pursuant to UN Regulation No. [xxx].

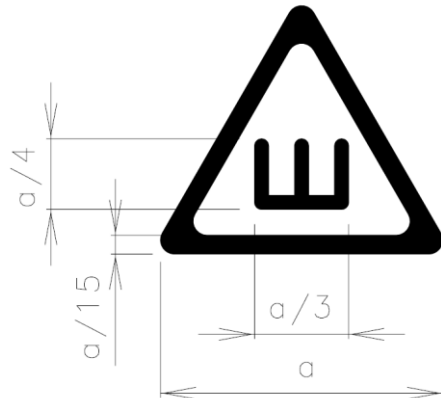
## Annex 3

### Marking of a studded tyre

(See paragraphs 4.3.2. and 4.4. of this Regulation)

Approval pursuant to UN Regulation No. [xxx]

Marking of a Studded Tyre (Cyrillic letter “sha” (Unicode 0428) inside a triangle).



$a \geq 15 \text{ mm}$ .

The above mark, in this orientation, show that the tyre concerned has been approved according to this Regulation.

## II. Justification

1. At its seventy-first session in January 2020, GRBP decided to establish TF ST, as was suggested by the Group of Interested Experts on Snow Tyres. The objective of TF ST was to draft a new UN Regulation for studded tyres with regard to snow grip, as studded tyres are out of the scope of UN Regulation No. 117.

2. Regarding subparagraph 8.3. of this proposal for a new UN Regulation, TF ST wish to point out the need for clarification of terminology regarding the terms “procedure” and “method”. In this context, the Task Force preferred to refer to “method” as an indication that the verification tests should be made following the same “method” (e.g. braking method, spin traction method, etc.) whereas the term “procedure” would not allow such technological development as foreseen in the future replacement of the Standard Reference Test Tyre SRTT14 with SRTT16.

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