

9 February 2024

Agreement

Concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations*

(Revision 3, including the amendments which entered into force on 14 September 2017)

Addendum 53 – UN Regulation No. 54

Revision 3 - Amendment 8

Supplement 26 to the original version of the Regulation – Date of entry into force:
5 January 2024

Uniform provisions concerning the approval of pneumatic tyres for commercial vehicles and their trailers

This document is meant purely as documentation tool. The authentic and legal binding texts is:
ECE/TRANS/WP.29/2023/73.



UNITED NATIONS

* Former titles of the Agreement:

Agreement concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958 (original version);
Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, done at Geneva on 5 October 1995 (Revision 2).

Paragraph 1., amend to read:

"1. Scope

This Regulation covers new pneumatic tyres* designed primarily for vehicles of categories M₂, M₃, N, O₃ and O₄^{1,2}. However, it does not apply to tyre types identified by nominal speed category symbols corresponding to speeds below eighty (80) km/h."

Paragraph 2.5.2., amend to read:

"2.5.2. "Snow tyre" means a tyre whose tread pattern, tread compound or construction is primarily designed to achieve in mud and/or snow conditions a performance better than that of a normal tyre with regard to its ability to initiate and control vehicle motion;"

Paragraph 2.20.4.1., amend to read:

"2.20.4.1. The values of the "d" symbols expressed in millimetres are shown below:

<i>Nominal rim diameter code ("d" symbol)</i>	<i>Value of the "d" symbol expressed in mm</i>
8	203
9	229
10	254
11	279
12	305
13	330
14	356
15	381
16	406
17	432
18	457
19	483
20	508
21	533
22	559
24	610
25	635
26	660
28	711
30	762
32	813
34	864
36	914
38	965
40	1016
42	1067

¹ As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.) (ECE/TRANS/WP.29/78/Rev.6).

² This Regulation defines requirements for tyres as a component. It does not limit their installation on any categories of vehicles.

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

<i>Nominal rim diameter code ("d" symbol)</i>	<i>Value of the "d" symbol expressed in mm</i>
14.5	368
16.5	419
17.5	445
19.5	495
20.5	521
22.5	572
24.5	622
26.5	673
28.5	724
30.5	775

"

Paragraph 2.31.2., amend to read:

"2.31.2. The speed categories are as shown in the table below³:

<i>Speed category symbol</i>	<i>Corresponding speed (km/h)</i>
E	70
F	80
G	90
J	100
K	110
L	120
M	130
N	140
P	150
Q	160
R	170
S	180
T	190
U	200
H	210

"

Add a new paragraph 2.36., to read:

"2.36. "Additional service description" means an additional service description, marked within a circle, to identify a special type of service (load-capacity index or indices and speed category symbol) to which the tyre type is also allowed to operate in addition to the applicable load variation with speed (see Annex 8)."

Add a new paragraph 4.1.6.1., to read:

"4.1.6.1 The speed category symbol E can be used only for the additional service description."

Paragraph 6.2.5., amend to read:

³ For consistency, the symbols and speeds shown in this table are the same as those for passenger cars (as in UN Regulation No. 30). They should not be taken to indicate the speeds at which commercial vehicles fitted with such tyres may be operated on the roads.

"6.2.5. Where application is made for the approval of a type of tyre which has an additional service description, the endurance test prescribed in paragraph 6.2.1. above shall also be carried out on a second tyre of the same type at the additional load/speed combination and the applicable inflation pressure. At option of the tyre manufacturer, one test at the highest load index, the highest speed symbol and the lowest test inflation pressure indicated may be submitted."

Add a new paragraph 6.2.5.1., to read:

"6.2.5.1. Tyres marked with an additional service description for which the load-capacity represents a difference in load not greater than 2 per cent with respect to a load/speed combination applicable to the nominal speed category symbol (see Annex 8) can be exempted from performing an additional load/speed test, provided that the speed category of the additional service description differs from the speed category of the nominal service description and that there is no second test inflation pressure marked for the additional service description."

Paragraph 6.3.1., amend to read:

"6.3.1. In order to be classified as a "special use tyre" a tyre shall have a block tread pattern in which the blocks* are larger and more widely spaced than for normal tyres and have the following characteristics:

For C2 tyres: a tread depth \geq 11 mm and void to fill ratio \geq 35 per cent

For C3 tyres: a tread depth \geq 16 mm and void to fill ratio \geq 35 per cent

* blocks may be shaped as lugs and cleats"

Annex 6, paragraph 4., amend to read:

"4. The overall width is measured at six equally-spaced points, account being taken of the thickness of the protective ribs or bands. The highest measurement so obtained is taken as the overall width."

Annex 7, paragraph 2.1., amend to read:

"2.1. Mount the tyre-and-wheel assembly on the test axle and press it against the outer face of a smooth power-driven test drum of at least 1.70 m \pm 1 per cent in diameter having a surface at least as wide as the tyre tread."

Annex 7, Appendix 1, amend to read:

"Annex 7 - Appendix 1

Endurance-test programme

Load-capacity index	Tyre speed category symbol	Test-drum speed		Load placed on the wheel as a percentage of the load corresponding to the load-capacity index		
		Radial-ply km/h	Diagonal (bias-ply) km/h	7 h	16 h	24 h
122 or more	E	32	32	66 %	84 %	101 %
	F	32	32			
	G	40	32			
	J	48	40			
	K	56	48			
	L	64	—			
	M	72	—			

Load-capacity index	Tyre speed category symbol	Test-drum speed		Load placed on the wheel as a percentage of the load corresponding to the load-capacity index		
		Radial-ply km/h	Diagonal (bias-ply) km/h	7 h	16 h	24 h
		N	80	—		
121 or less	E	32	32			
	F	32	32			
	G	40	40			
	J	48	48			
	K	56	56			
	L	64	56	70 %	88 %	106 %
				4 h	6 h	24 h
	M	80	64			
	N	88	—	75 %	97 %	114 %
	P	96	—			

Notes:

- (1) "Special-use" tyres (see paragraph 2.1. (c) of this Regulation) should be tested at a speed equal to 85 per cent of the speed prescribed for equivalent normal tyres.
- (2) Tyres with load index 122 or more, speed category symbols N or P and the additional marking "LT", or "C", referred to in paragraph 3.1.14. of this regulation, shall be tested with the same programme as specified in the above table for tyres with load index 121 or less.
- (3) In case of a test drum diameter larger than 1,700 mm ± 1 per cent, the above "percentage of test load" shall be increased as follows:

$$F_1 = K \cdot F_2$$

Where:

$$K = \sqrt{\frac{(R_1/R_2) \cdot (R_2 + r_T)}{(R_1 + r_T)}}$$

R_1 is the diameter of test drum, in millimetres

R_2 is the diameter of the reference test drum of 1,700 mm

r_T is the tyre outer diameter (see paragraph 6.1.5 of this Regulation), in millimetres

F_1 is the percentage of load to be applied for the test drum

F_2 is the percentage of load, as per above table, to be applied for reference test drum of 1,700 mm

Example:

$K = 1$ for a test drum diameter of 1,700 mm;

In case of a test drum diameter of 3,000 mm and a tyre diameter of 1,500 mm:

$$K = \sqrt{\frac{(3000/1700) \cdot (1700 + 1500)}{(3000 + 1500)}} = 1.12$$

"