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**1958 Agreement – Consideration of draft amendments
to existing Regulations submitted by GRRF**

Proposal for Supplement 21 to the 01 series of amendments to Regulation No. 54 (Tyres for commercial vehicles and their trailers)

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 eightieth session (ECE/TRANS/WP.29/GRRF/80, para. 37) and its eighty-first session (ECE/TRANS/WP.29/GRRF/81, paras. 31-35). It is based on ECE/TRANS/WP.29/GRRF/2015/26 and ECE/TRANS/WP.29/GRRF/2015/28 as well as ECE/TRANS/WP.29/GRRF/2016/12, ECE/TRANS/WP.29/GRRF/2016/13, ECE/TRANS/WP.29/GRRF/2016/16 as amended by para. 34 of the session report and ECE/TRANS/WP.29/GRRF/2016/17. 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 2016 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 21 to the 01 series of amendments to Regulation No. 54 (Tyres for commercial vehicles and their trailers)

Paragraph 1., amend to read (footnotes remain unchanged):

"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 speed category symbols corresponding to speeds below eighty (80) km/h.

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

Paragraph 2.1., amend to read:

"2.1. "Type of 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 (normal tyre, snow tyre, special use tyre);
- (d) Structure (diagonal (bias-ply, radial);
- (e) Speed category symbol;
- (f) Load-capacity indexes;
- (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."

Renumber paragraphs 2.2. to 2.31. as 2.5. to 2.34. and in these renumbered paragraphs, replace "pneumatic tyre" by "tyre".

Paragraph 2.17.1.3.1., amend to read:

"2.17.1.3.1. 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
14.5	368
16.5	419
17.5	445
19.5	495
20.5	521
22.5	572
24.5	622
26	660
28	711
30	762

"

Paragraph 3.1., amend to read:

"3.1. Tyres submitted for approval shall bear on both side walls in the case of symmetrical tyres and at least on the outer side wall in the case of asymmetrical tyres:

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

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. "

Renumber paragraphs 3.1.2. to 3.1.15. as 3.1.3. to 3.1.16.

Paragraph 3.1.5., amend to read:

"3.1.5. The inscription M+S or M.S or M&S if the tyre is classified in the category of use "snow tyre" or if the tyre is classified in the category of use "special use tyre" when declared by the tyre manufacturer at paragraph 4.1.3. as complying also with the definition given in paragraph 2.2.2."

Paragraph 3.1.10., amend to read:

"3.1.10. An indication, by the "PSI" index, of the inflation pressure to be adopted for the load/speed endurance tests, as explained in Annex 7, Appendix 2. However, this indication, which it is permissible to restrict to one sidewall, shall not be mandatory, on any tyre submitted for approval, until two years after the date of entry into force of this Regulation.⁵

For tyres first approved after 1 January 2018, the inflation pressure for the dimension measurement and for the load/speed endurance test, pursuant to paragraph 4.1.12. of this Regulation, shall be indicated in kilopascals, replacing the "PSI" index.

It is allowed to use kPa marking instead of PSI for tyres first type approved before 1 January 2018."

Paragraph 3.1.12., amend to read:

"3.1.12. The inscription "MPT" (or alternatively "ML" or "ET") and /or "POR" if the tyre is classified in the category of use "special use tyre". In addition, they may also bear the inscription M+S or M.S or M&S.

"ET" means Extra Tread, "ML" stands for Mining and Logging, "MPT" means Multi-Purpose Truck and "POR" means Professional Off Road⁶;"

Paragraph 4.1., amend to read:

"4.1. The application for approval of a type of tyre 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 as defined in paragraph 2.19. of this Regulation;

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)."

Paragraph 4.1.3., amend to read:

"4.1.3. Category of use (normal tyre, snow tyre, special use tyre);

4.1.3.1. For the tyres belonging to the category of use "special use tyre" those which may bear the inscription M+S or M.S or M&S."

Paragraph 4.1.6., amend to read:

"4.1.6. The load-capacity indexes;"

Paragraph 4.1.12., amend to read:

"4.1.12. The inflation pressure for the dimension measurement and for the load/speed endurance test pressure;"

Replace in paragraphs 5.1., 5.2., 5.3., 5.4., 6.1.3., 6.2.1., 6.2.4., 6.2., 5., 9.1. and 10. "pneumatic tyre" by "tyre"

Paragraph 6.1.1.1., amend to read:

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

$$S = S1 + K (A - A1),$$

Where:

S is the "section width" rounded to the nearest millimetre and measured on the measuring rim;

S1 is "the nominal section width" in millimetres, as shown on the sidewall of the tyre in the tyre designation as prescribed;

A is the width of the measuring rim in millimetres, as shown by the manufacturer in the descriptive note; and

A1 is the width of the theoretical rim in millimetres.

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 defined in paragraph 2.17.1.3. above, expressed in millimetres;

H is the nominal section height rounded to the nearest millimetre and is equal to

$$H = S1 \cdot 0.01 Ra, \text{ where}$$

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."

Paragraph 6.1.4.2., amend to read:

"6.1.4.2. It may exceed that value by 4 per cent in case of radial-ply tyres and by 8 per cent in the case of diagonal (bias-ply) tyres. However, for tyres with nominal section width exceeding 305 mm intended for dual mounting (twinning), the value determined pursuant to paragraph 6.1.1. above shall not be exceeded by more than 2 per cent for radial-ply tyres with nominal aspect ratio higher than 60, or 4 per cent for diagonal (bias-ply) tyres. The respective limits shall be rounded to the nearest millimetre (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_{\min} and D_{\max} obtained from the following formulae:

$$D_{\min} = d + 2 \cdot H_{\min}$$

$$D_{\max} = d + 2 \cdot H_{\max}$$

Where:

$$H_{\min} = H \cdot a \quad \text{rounded to the nearest mm}$$

$$H_{\max} = H \cdot b \quad \text{rounded to the nearest mm}$$

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", the nominal section height H is equal to:

$H = 0.5 (D-d)$, rounded to the nearest mm - for references see paragraph 6.1.2.1."

Paragraph 6.1.5.3.3., amend to read:

"6.1.5.3.3. For snow tyres the outer diameter shall not exceed the following value

$D_{max,snow} = 1.01 \cdot D_{max}$ rounded to the nearest mm

where D_{max} is the maximum outer diameter established in conformity with the above.

For tyres of the category of use "snow tyre" the outer diameter (D_{max}) established in conformity with the above may be exceeded by one per cent."

Paragraph 11., 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, amend to read:

"Communication

...

...

of a type of tyre for motor vehicles pursuant to Regulation No. 54."

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)/....."

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

Delete item 3.

Renumber items 4. to 14. into 3. to 13.

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) under approval number 002439. The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No. 54 in its original form....."

Annex 3, amend to read:

".....

1. These markings define a tyre:

....."

Annex 3, figure, amend to read:



(*). PSI marking instead of kPa is allowed for tyres first type approved before 1 January 2018. "

Annex 5, part II, table B, add the following entries:

"Table B

Tyres for light commercial vehicles (high flotation tyres)

Diagonal and radial

Tyre-size designation ¹	Measuring rim width code	Nominal rim diameter <i>d</i> (mm)	Outer diameter <i>D</i> (mm) ²		Section width <i>S</i> (mm) ³
			Normal	Snow	
9-15LT	8.00	381	744	755	254
10-15LT	8.00	381	773	783	264
11-15LT	8.00	381	777	788	279
24x7.50-13LT	6.00	330	597	604	191
27x8.50-14LT	7.00	356	674	680	218

Tyre-size designation ¹	Measuring rim width code	Nominal rim diameter <i>d</i> (mm)	Outer diameter <i>D</i> (mm) ²		Section width <i>S</i> (mm) ³
			Normal	Snow	
28x8.50-15LT	7.00	381	699	705	218
29x9.50-15LT	7.50	381	724	731	240
30x9.50-15LT	7.50	381	750	756	240
31x10.50-15LT	8.50	381	775	781	268
31x11.50-15LT	9.00	381	775	781	290
31x12.50R15LT	10.00	381	775	781	318
31x13.50-15LT	11.00	381	775	781	345
31x15.50-15LT	12.00	381	775	781	390
32x11.50-15LT	9.00	381	801	807	290
33x9.50 R15LT	7.50	381	826	832	240
33x10.50R15LT	8.50	381	826	832	268
33x10.50R17LT	8.50	432	826	832	268
33x10.50R18LT	8.50	457	826	832	268
33x11.50R18LT	9.00	457	826	832	290
33x12.50-15LT	10.00	381	826	832	318
33x12.50R17LT	10.00	432	826	832	318
33x12.50R18LT	10.00	457	826	832	318
33x12.50R20LT	10.00	508	826	832	318
33x12.50R22LT	10.00	559	826	832	318
33x13.50R15LT	11.00	381	826	832	345
33x15.50R15LT	12.00	381	826	832	390
34x10.50R17LT	8.50	432	851	858	268
34x12.50R18LT	10.00	457	851	858	318
35x11.50R18LT	9.00	457	877	883	290
35x11.50R20LT	9.00	508	877	883	290
35x12.50-15LT	10.00	381	877	883	318
35x12.50R17LT	10.00	432	877	883	318
35x12.50R18LT	10.00	457	877	883	318
35x12.50R20LT	10.00	508	877	883	318
35x12.50R22LT	10.00	559	877	883	318
35x13.50R15LT	11.00	381	877	883	345
35x13.50R18LT	11.00	457	877	883	345
35x13.50R20LT	11.00	508	877	883	345
35x14.50R15LT	12.00	381	877	883	372
36x13.50R18LT	11.00	457	902	908	345
36x14.50R15LT	12.00	381	902	908	372
36x14.50R17LT	12.00	432	902	908	372
36x14.50R18LT	12.00	457	902	908	372
36x15.50R15LT	12.00	381	902	908	390
37x11.50R20LT	9.00	508	928	934	290
37x12.50-15LT	10.00	381	928	934	318

Tyre-size designation ¹	Measuring rim width code	Nominal rim diameter <i>d</i> (mm)	Outer diameter <i>D</i> (mm) ²		Section width <i>S</i> (mm) ³
			Normal	Snow	
37x12.50 R17LT	10.00	432	928	934	318
37x12.50R18LT	10.00	457	928	934	318
37x12.50R20LT	10.00	508	928	934	318
37x12.50R22LT	10.00	559	928	934	318
37x13.50R15LT	11.00	381	928	934	345
37x13.50R17LT	11.00	432	928	934	345
37x13.50R18LT	11.00	457	928	934	345
37x13.50R20LT	11.00	508	928	934	345
37x13.50R22LT	11.00	559	928	934	345
37x13.50R24LT	11.00	610	928	934	345
37x14.50-15LT	12.00	381	928	934	372
38x13.50R17LT	11.00	432	953	959	345
38x13.50R20LT	11.00	508	953	959	345
38x13.50R22LT	11.00	559	953	959	345
38x13.50R24LT	11.00	610	953	959	345
38x14.50R17LT	12.00	432	953	959	372
38x14.50R18LT	12.00	457	953	959	372
38x14.50R20LT	12.00	508	953	959	372
38x15.50R15LT	12.00	381	953	959	390
38x15.50R17LT	12.00	432	953	959	390
38x15.50R18LT	12.00	457	953	959	390
38x15.50R20LT	12.00	508	953	959	390
39x13.50R17LT	11.00	432	978	985	345
40x13.50R17LT	11.00	432	1004	1010	345
40x13.50R20LT	11.00	508	1004	1010	345
40x14.50R17LT	12.00	432	1004	1010	372
40x14.50R18LT	12.00	457	1004	1010	372
40x14.50R20LT	12.00	508	1004	1010	372
40x15.50R20LT	12.00	508	1004	1010	390
40x15.50R22LT	12.00	559	1004	1010	390
40x15.50R24LT	12.00	610	1004	1010	390
42x14.50R17LT	12.00	432	1055	1061	372
42x14.50R20LT	12.00	508	1055	1061	372
8.00-16.5LT	6.00	419	720	730	203
8.75-16.5LT	6.75	419	748	759	222
9.50-16.5LT	6.75	419	776	787	241
10-16.5LT	8.25	419	762	773	264
12-16.5LT	9.75	419	818	831	307
30x9.50-16.5LT	7.50	419	750	761	240

Tyre-size designation ¹	Measuring rim width code	Nominal rim diameter <i>d</i> (mm)	Outer diameter <i>D</i> (mm) ²		Section width <i>S</i> (mm) ³
			Normal	Snow	
31x10.50-16.5LT	8.25	419	775	787	266
33x12.50-16.5LT	9.75	419	826	838	315
35x12.50 R16.5LT	10.00	419	877	883	318
37x12.50-16.5LT	9.75	419	928	939	315
37x14.50-16.5LT	11.25	419	928	939	365

¹ Tyres in Radial construction are identified by the letter "R" in place of "-" (e.g. 24x7.50 R 13LT).

² Coefficient 'b' for the calculation of D_{max} : 1.07.

³ Overall width may exceed this value up to +7 per cent."

Annex 6, title, amend to read:

"Method of dimension measurement for measuring tyres"

Paragraph 1., amend to read:

"1. The tyre is mounted on the measuring rim specified by the manufacturer pursuant to paragraph 4.1.11. of this Regulation and is inflated to the pressure specified by the manufacturer pursuant to paragraph 4.1.12. of this Regulation."

Annex 7,

Paragraph 1.3., amend to read:

"1.3. Inflate the tyre to the pressure corresponding to the pressure specified by the manufacturer pursuant to paragraph 4.1.12. of this regulation"

Appendix 1, amend to read:

"Endurance-test programme"

Load index	Tyre speed category symbol	Test-drum speed		Load placed on the wheel as a percentage of the load corresponding to the load index		
		Radial-ply <i>km.h⁻¹</i>	Diagonal (bias-ply) <i>km.h⁻¹</i>	7 h.	16 h.	24 h.
122 or more	F	32	32	66 %	84 %	101 %
	G	40	32			
	J	48	40			
	K	56	48			
	L	64	-			
	M	72	-			
121 or less	F	32	32	66 %	84 %	101 %
	G	40	40			
	J	48	48			
	K	56	56			

Load index	Tyre speed category symbol	Test-drum speed		Load placed on the wheel as a percentage of the load corresponding to the load index		
		Radial-ply km.h ⁻¹	Diagonal (bias-ply) km.h ⁻¹	7 h.	16 h.	24 h.
	L	64	56	<u>70 %</u> <u>4 h.</u>	<u>88 %</u> <u>6 h.</u>	106 %
	M	80	64	75 %	97 %	114 %
	N	88	-	75 %	97 %	114 %
	P	96	-	75 %	97 %	114 %

Notes:

- (1) "Special-use" tyres (see paragraph 2.1.3. 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 3.1.13. of this regulation, shall be tested with the same programme as specified in the above table for tyres with load index 121 or less.

Annex 9, amend to read:

- "...
- 1. Manufacturer's name:
 - 2. Manufacturer's tyre type designation:
 - 2.1. Brand name(s)/trademark(s):
 - 2.2. Trade description(s)/ Commercial name(s)/
 - 3. Tyre Size designation:
- ..."

