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World Forum for Harmonization of Vehicle Regulations**Working Party on Noise and Tyres****Seventieth session**

Geneva, 11-13 September 2019

Item 6 (a) of the provisional agenda

Tyres: UN Regulation No. 106 (Tyres for agricultural vehicles)**Proposal for amendment to UN Regulation No. 106****Submitted by the expert from the European Tyre and Rim Technical Organisation (ETRTO) ***

The text reproduced below was prepared by the experts from the European Tyre and Rim Technical Organisation (ETRTO). The modifications to the existing text of the UN Regulation are marked in bold for new or strikethrough for deleted characters if not specified differently.

* In accordance with the programme of work of the Inland Transport Committee for 2018–2019 (ECE/TRANS/274, para. 123 and ECE/TRANS/2018/21/Add.1, Cluster 3), 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.

GE.19-10277(E)



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Please recycle The recycling symbol, consisting of three chasing arrows forming a triangle.



I. Proposal

Insert a new paragraph 2.18.13. and a new footnote 2, to read:

“2.18.13. The letters ‘LS’ after the nominal rim diameter marking in case of tyres for forestry machines²

...

²**This marking shall only be mandatory for tyre types approved to this Regulation after the entry into force of Supplement XX to the Regulation.”**

Subsequent footnotes, renumber accordingly.

Paragraphs 3.1.9. and 3.1.9.1., amend to read:

“3.1.9. The inscription ~~“LS-3”, “LS-2”, “LS-3” or “LS-4”~~. 3.1.9.1. ‘LS-3’ identifies special tread tyres in the case of log-skidder tyres for forestry machines.”

Annex 1, item 4.1., amend to read:

“4.1. ~~Size of tyre~~The tyre size designation”

Insert a new item 4.8, to read:

“4.8. Inflation pressure (kPa/bar²)”

Annex 3,

Part C, amend the example to read:

"...

250/70 R 20	IMP	↓ — b — ↑	@ 240 kPa	↓ — c — ↑
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..."

Part D, amend the example to read:

"...

600/55 – 26.5	↓ — LSb — ↑	LS-2	↓ — b — ↑	154 A8	↓ — b — ↑	@ 240 kPa	↓ — c — ↑
TUBELESS	↓ — c — ↑	2506	↓ — c — ↑	LS-3	↓ — c — ↑		

...

These markings define a tyre for forestry machines **as per paragraph 2.18.13.:**

- (a) Having a nominal section width of 600;
- (b) Having a nominal aspect ratio of 55;

- (c) Of diagonal ply structure (-);
- (d) Having a nominal rim diameter of 673 mm for which the code is 26.5;
- (e) Having an ~~intermediate~~ **special** tread ("LS-23");
- (f) Having a load capacity of 3750 kg, corresponding to load index 154 in Annex 4;
- (g) Classified in the speed category A8 (reference speed 40 km/h);
- (h) For fitting without an inner tube ("tubeless");
- (i) Manufactured during the twenty-fifth week of the year 2006 (see paragraph 3.2. of this Regulation);
- (j) Requiring to be inflated to 240 kPa for measurements and tyre resistance to burst.

The positioning and order of the markings constituting the tyre designation are as follows:

- (a) The size designation, comprising the nominal section width, the nominal aspect ratio, the type of structure symbol (~~where applicable~~) and the nominal rim diameter **and the suffix LS**, must be grouped as shown in the above example: 600/55 – 26.5 **LS**;

..."

Annex 6, paragraph 1, amend to read:

- "1. The tyre shall be mounted on the measuring rim specified by the manufacturer **pursuant to paragraph 4.1.10. of this Regulation** and is inflated to a pressure specified by the manufacturer **pursuant to paragraph 4.1.12. of this Regulation.**"

Annex 7, Part A, table and the below text, amend to read:

"...

Part A: Drive wheel tyres for agricultural tractors

Applicable to tyres classified with categories of use: "Tractor drive wheel" (see paragraph 2.23. of this Regulation)

Variation of load carrying capacity (per cent)

Speed (km/h)	Speed category symbol								(2)	(3)
	Standard tyres				IF tyres		VF tyres			
	A2	A6 (1)	A8 (1)	D (1)	A8 (1)	D (1)	A8 (1)	D (1)		
10	0	+40	+50	+50	+27	+27	+10	+10	+ 58	+ 56
15	-6	+30	+34	+34	+15	+15	+5	+5	+ 32	+ 44
20	-11	+20	+23	+23	+8	+8	+4	+4	+ 26	+ 33
25	-16	+7	+11	+18,5	+6	+6	+3	+3	+ 19	+ 22
30	-20	0	+7	+15	+4	+4	+2	+2	+ 12	+ 11
35	-24	-5	+3	+12	+2	+2	+1	+1	+ 10	+ 6

40	-27	-10	0	+9,5	0	0	0	0	+ 6	0
45	-	-	-4	+7	-4	0	-4	0	+ 2	-
50	-	-	-9	+5	-9	0	-9	0	0	-
55	-	-	-	+3	-	0		0	-	-
60	-	-	-	+1,5	-	0		0	-	-
65	-	-	-	0	-	0		0	-	-
70	-	-	-	-9	-	-9		-9	-	-

The above load/speed variations apply when the tyre is not subjected to sustained high torque service.

- (1) For field applications with sustained high torque service the values shown in the line **30 km/h apply.**
- ~~(1) These load/speed variations apply to IF and VF Tyres.~~
- (2) These percentages apply only in case of tyres listed in Annex 5, Table 7, with nominal rim diameter (d) 381mm and above, marked with speed symbol "B".
- (3) These percentages apply only in case of diagonal tyres listed in Annex 5, Table 2 'Drive wheel tyres for agricultural tractors - Normal section sizes' with nominal section width (S1) 211 mm and above (i.e. section width code 8.3 and above) marked with speed symbol "A8".

II. Justification

1. Table A in Annex 7 is amended to include the load variation with speed for IF and VF tyres to reflect the state of the art.
2. The new paragraph 2.18.13 and the amendment to paragraph 3.1.9. and Annex 3, part D are aimed to avoid contradiction in the Regulation.
3. In paragraph 1 of Annex 6 "Test method for measuring tyre dimensions", reference is made to paragraphs 4.1.10. and 4.1.12. for the measuring rim and inflated pressure, similarly to what is already done for the same test parameters in the Annex 9 "Load/speed test procedure".
4. The example in Annex 3, part C is corrected by introducing the dimension "b" for the tyre size designation.
5. Paragraph 3.1.16. of Supplement 17 requires that the inflation pressure to be used for measurements and tyre resistance to burst and, if applicable, load/speed test should be marked on the tyre sidewalls as shown in the examples of Annex 3. That inflation pressure is clearly related to the other tyre characteristics such as the load index and the speed symbol. However, in Annex 1 (Communication form) under item 4 (Summarized description) only the following tyre characteristics are listed: 4.2. "Category of use", 4.3. "Structure: diagonal or bias-ply/bias belted/radial", 4.4. "Speed category symbol", 4.5. "Load-capacity index", 4.5.1. "For traction (implement only)", 4.5.2. "For trailer (implement only)", 4.6. "Whether the tyre is to be fitted with or without an inner tube" and 4.7. "The supplementary service description, if applicable."