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REGULATION No. 106 (Pneumatic tyres for agricultural vehicles)

Proposal for draft amendments to Regulation No. 106

Submitted by the experts from the European Tyre and Rim Technical Organisation (ETRTO)

The text reproduced below was prepared by the experts from ETRTO to amend Annex 5 of Regulation No. 106 with a view to specifying some dimensional data for code designated tyre size designations as well as additional tyre sizes, to cover tyre versions and types, existing on the market, that were omitted when compiling tables in Annex 5. The proposal also aims at deleting some sizes from Annex 5, table 7, as those tyres are generally classified 'All Terrain Vehicle' tyres, not specifically for equipment of agricultural and forestry machines, that have a speed symbol F (80 km/h) exceeding the scope of the Regulation. The modifications to the existing text of the Regulation are marked in **bold** characters or as strikethrough.

A. PROPOSAL

Annex 5

Table 5 (1 of 2), insert a new column for "Overall diameter (D)" identified by (*), and add in the new column the relevant values for the following tyre size designations:

"Table 5 (1 of 2) Agricultural Implement Tyres – Normal section Sizes

Tyre size designation	Theoretical rim width code (A1)	Nominal section width (S1)	Overall diameter (D)		Nominal rim diameter (d)
				(*)	
		(mm)	(mm)		(mm)
4.00 – 8 IMP	3	112	418	425	203
4.00 – 9 IMP	3	112	443	460	229
4.00 – 12 IMP	3	112	519	536	305
4.00 – 15 IMP	3	112	595	612	381
4.00 – 18 IMP	3	112	672	688	457
4.50 – 19 IMP	3	124	720	733	483
4.80 – 8 IMP	3,75	121	423	449	203
5.0 – 10 IMP	4	145	505	517	254
5.00 – 15 IMP	3	130	639	655	381
5.50 – 16 IMP	4	150	685	703	406
5.90 – 15 IMP	4	150	665	681	381
6.00 - 9 IMP	4,5	169	543	556	229
6.00 – 16 IMP	4	158	712	729	406
6.50 – 16 IMP	4,5	173	735	754	406
6.70 – 15 IMP	4,5	182	733	720	381
7.00- 12 IMP	5	187	667	685	305
7.50 – 10 IMP	6	214	634	649	254
7.50 – 16 IMP	5,5	202	785	801	406
7.50 – 18 IMP	5,5	202	836	852	457
7.50 – 20 IMP	5,5	202	887	903	508
7.50 – 24 IMP	5,5	202	989	1013	610
7.60 – 15 IMP	5,5	193	734	751	381
13.50 – 16.1 IMP	11	353	1021	1043	409

"

Table 5 (1 of 2), insert the following new tyre size designations:

"

Tyre size designation	Theoretical rim width code (A1)	Nominal section width (S1) (mm)	Overall diameter (D)		Nominal rim diameter (d) (mm)
				(*)	
			(mm)		
4.10/3.50-4 IMP	2.10	89	272		101
190-8 IMP	5.50	182	430		203

After table 5 (1 of 2), add the following notes to read:

- "Notes:**
- 1. The suffix "IMP" may be replaced by the wording "IMPLEMENT" on the tyre sidewall.**
 - 2. Tyres of radial structure are identified by means of the letter "R" in place of "-" (e.g. 7.5 L R 15).**
 - 3. Overall diameters (D) in column (*) apply to tyres marked with classification code 'I-3' – see Annex 10."**

Table 6 (1 of 2), insert a new column for "Overall diameter (D)" identified by (*), and add in the new column the relevant values for the following tyre size designations:

"Table 6 (1 of 2) Agricultural Implement Tyres – Low Section Sizes

Tyre size designation	Theoretical rim width code (A1)	Nominal section width (S1) (mm)	Overall diameter (D)		Nominal rim diameter (d) (mm)
				(*)	
			(mm)		
8.5L – 14 IMP	6	216	721	735	356
9.5L – 14 IMP	7	241	741	757	356
9.5L – 15 IMP	7	241	767	782	381
11L – 14 IMP	8	279	752	770	356
11L – 15 IMP	8	279	777	796	381
11L – 16 IMP	8	279	803	821	406
12.5L – 15 IMP	10	318	823	845	381
12.5L – 16 IMP	10	318	848	870	406
16.5L – 16.1 IMP	14	419	1024	1046	409

Table 6 (2 of 2), insert a new column for "Overall diameter (D)" identified by (*), and add in the new column the relevant values for the following tyre size designations:

"Table 6 (2 of 2) Agricultural Implement Tyres – Low Section Sizes

Tyre size designation	Theoretical rim width code (A1)	Nominal section width (S1) (mm)	Overall diameter (D)		Nominal rim diameter (d) (mm)
				(*)	
6.5/80 – 12 IMP	5	163	569	588	305
6.5/80 – 15 IMP	5	163	645	663	381
9.0/75 – 16 IMP	7	226	749	770	406
10.0/80 – 12 IMP	9	264	710	730	305
11.0/65 - 12 IMP	9	281	670	692	305
10.0/75 - 15.3 IMP	9	264	760	780	389
11.5/80 – 15.3	9	290	845	867	389
10.5/80 – 18 IMP	9	274	885	907	457
12.0/75 - 18 IMP	9	299	915	937	457
12.5/80 - 18 IMP	9	308	965	987	457
14.5/80 - 18 IMP	12	372	1060	1082	457
15.0/55 - 17 IMP	13	391	850	872	432
15.5/80 - 24 IMP	13	394	1240	1262	610
16.0/70 - 20 IMP	14	418	1075	1097	508
16.5/85 - 24 IMP	13	417	1322	1344	610
16.5/85 - 28 IMP	13	417	1423	1445	711

After table 6 (2 of 2), add the following note 3. to read:

"3. Overall diameters (D) in column (*) apply to tyres marked with classification code 'I-3' – see Annex 10)."

Table 7 (1 of 2), insert the following new tyre size designations:

Tyre size designation	Theoretical rim width code (A1)	Nominal section width (S1)	Overall diameter (D)	Nominal rim diameter (d)
		(mm)	(mm)	(mm)
13x6.00-6	5	154	330	152
14x4.50-6	3,5	113	356	152
18x7.50-8	6	191	457	203
19x9.50-8	7,5	240	483	203
20x8.00-8	6,5	204	508	203
20x9.00-8	7	227	508	203
21x7.00-10	5,5	177	533	254
23x9.50-12	7	235	577	305

24x12.00-12	9,5	304	610	305
25x8.00-12	6,5	203	635	305
25x10.00-12	8	254	635	305
25x11.00-12	9	279	635	305

Table 7 (2 of 2), add the following new tyre size designations:

Tyre size designation	Theoretical rim width code (A1)	Nominal section width (S1)	Overall diameter (D)	Nominal rim diameter (d)
		(mm)	(mm)	(mm)
DH73x50.00-32	44	1270	1880	813

After table 6 (2 of 2), add the following note 3. to read:

- "4. Coefficient b for the calculation of the Overall diameter Dmax:
 (a) 1.12 for tyres with Nominal rim Diameter (d) less than 380 mm;
 (b) 1.10 for tyres with Nominal rim Diameter (d) 381 mm and above."

Table 7 (1 of 2), for the tyre size designation AT21x7-10, AT22x9-8, AT23x7-10, AT23x8-11, AT24x8-11, AT24x9-11, AT24x10-11, AT25x8-12, AT25x11-9 and AT25x11-10, the whole row should be deleted.

B. JUSTIFICATION

Annex 5 of Regulation 106 lists theoretical rim, outer diameter and nominal section width of tyres of certain size designations for which calculations of dimensions as per paragraphs 6.1.1. and 6.2.1. are not applicable. In fact, sizes listed in Annex 5 are subject to the specific requirements of paragraphs 6.1.2., 6.2.2. and 6.4.1.1.

Additional overall diameters for selected sizes requested for addition in tables 5 and 6 reflect existing standards for implement tyres having 'traction tread' (classification code I-3 as per Annex 10) and mainly conform to data published for many years in the Tire and Rim Association Inc. (T&RA) - Year Book and in the European Tyre and Rim Technical Organisation (ETRTO) Standards Manual, but which were inadvertently omitted when the tables were first approved. Consequently, it is proposed to specify the additional marking 'I-3' as per the new footnote 3 to identify those sizes characterized by a larger overall diameter.

Ad hoc coefficients b for the calculation of max overall diameter for sizes listed in table 7 (as proposed with additional footnote 4) reflect standard data for "agricultural high flotation tyres", having a nominal rim diameter (d) 381 mm and above, and for "utility vehicle and lawn and garden tractor tyres", having a nominal rim diameter (d) lower than 380 mm, published since

many years in the Tire and Rim Association Inc. (T&RA) - Year Book, but which were inadvertently omitted when the tables were first approved.

Additional tyre size designations in table 5 reflect data published in the Scandinavian Tire and Rim Organisation (STRO) Data Book and additional tyre size designations in table 7 reflect data published in the Tire and Rim Association Inc. (T&RA) - Year Book

The tyre size designations to be deleted from table 7 in actual facts cannot be classified as tyres for agricultural machinery as they are generally known as tyres for "All Terrain Vehicles" (hence the prefix AT in the tyre size designation) and allowed for speeds in excess of 80 km/h in conformity with the speed category symbol "F (80 km/h)", marked in the service description.

Speed category symbol "F" is outside of the scope of Regulation No. 106, which, at the present time, considers only tyres designed for agricultural and forestry machines classified with speed category symbol not exceeding "D (65 km/h)".
