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Item 8(c) of the provisional agenda

TYRES

Regulation No. 106 (Pneumatic tyres for agricultural vehicles)

Proposal for draft amendments to Regulation No. 106

Submitted by the expert from the European Tyre and Rim Technical Organisation^{*/}

The text reproduced below was prepared by the expert from the European Tyre and Rim Technical Organization (ETRTO), to amend Regulation No. 106 with regard to tyre size designations as well as additional tyre sizes, and to cover tyre versions and types, existing on the market, that were omitted when compiling tables in Annex 5. It is based on ECE/TRANS/WP.29/GRRF/2007/21 and Corr.1, taking into account some comments received. The modifications to the existing text of the Regulation are marked in **bold** characters.

^{*/} In accordance with the programme of work of the Inland Transport Committee for 2006-2010 (ECE/TRANS/166/Add.1, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance performance of vehicles. The present document is submitted in conformity with that mandate.

A. PROPOSAL

Insert a new paragraph 3.1.8.2., to read:

"3.1.8.2. The inscription 'I-3' for implement tyres with traction tread as identified in Annex 5, tables 5 and 6."

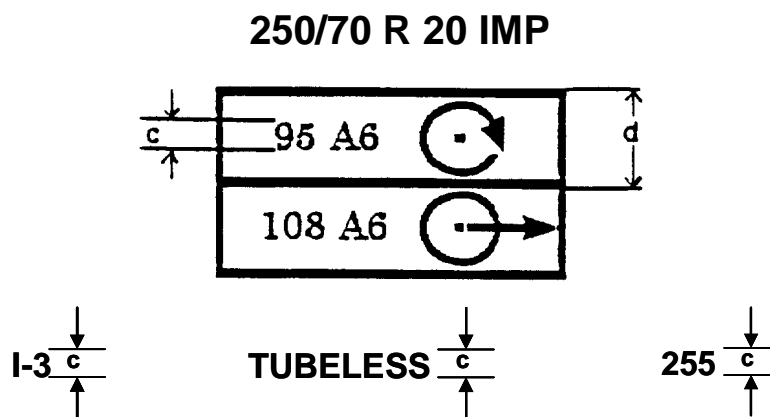
Insert a new paragraph 6.4.3., to read:

"6.4.3. However, for the types of tyre for which the size designation is given in the first column of the tables in Annex 5, the allowed percentages are those given in the relevant tables, if any."

Annex 3, part C, amend to read:

"PART C: IMPLEMENT TYRES

Example of the markings to be borne by types of tyres complying with this Regulation



MINIMUM HEIGHTS OF MARKINGS (mm)

.....

- (c) the symbol "TUBELESS", **I-3** if any, the optional word "RADIAL", the optional word "IMPLEMENT" and the date of manufacture may be at a distance from the size designation."

Annex 5

Table 5, the title, amend to read:

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

Table 5, 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)
4.10/3.50-4 IMP	2.10	89	272	101
190-8 IMP	5.50	182	430	203

"

Table 5, 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 Agricultural Implement Tyres – Normal section Sizes

Tyre size designation	Theoretical rim width code (A1)	Nominal section width (S1) (mm)	Overall diameter (D)		Nominal rim diameter (d) (mm)
				(*)	
			(mm)		
4.00 – 8 IMP	3	112	418	425	203
4.00 – 9 IMP	3	112	443	460	229
4.0 – 10 IMP	3	114	455	465	254
4.00 – 10 IMP	3	114	465	475	254
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 – 12 IMP	4	145	567	580	305
5.00 – 14 IMP	4	145	618	631	356
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	704	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

"

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 paragraph 3.1.8.2."**

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

After table 6 (1 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 paragraph 3.1.8.2."**

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)
				(*)	
			(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 paragraph 3.1.8.2."**

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 (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.

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 7 (2 of 2), add the following note 4. 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."**

B. JUSTIFICATION

This document consolidates previous documents ECE/TRANS/WP.29/GRRF/2007/21 and ECE/TRANS/WP.29/GRRF/2007/21/Corr.1, and takes into account the verbal comments expressed by experts at the last meeting in February 2008 and the written comments sent by the expert from the United Kingdom.

Additional paragraphs 3.1.8.2. (note that a request for new paragraph 3.1.8.1. was already added through ECE/TRANS/WP.29/GRRF/2007/20) and 6.4.3. are based on comments by the expert from the United Kingdom.

Annex 5 of Regulation No. 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., 6.3.1., 6.3.3., 6.4.1.1. and now 6.4.3.

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 note 3 to identify those sizes characterized by a larger overall diameter. And additionally that marking is made compulsory by the new paragraph 3.1.8.1.

Ad hoc coefficients 'b' for the calculation of max overall diameter for sizes listed in table 7 (as proposed by additional note 4) reflect standard data for "agricultural high flotation tyres", having a nominal rim diameter (d) 381 mm (rim code 15) and above, and for "utility vehicle and lawn and garden tractor tyres", having a nominal rim diameter (d) lower than 380 mm (rim code 14 and below), 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.

Addition of ad hoc coefficients follows the same approach already adopted by Regulation No. 106 in Annex 5, table 2, note 3 and in paragraph 6.3.3. Moreover the same procedure is widely used in Regulation No. 54 (see Annex 5 part II) and Regulation No. 75 (see Annex 5, tables 2, 3 and 4).

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.

AT tyres have never been regulated by Regulation No. 106 or type approved to Regulation No. 106 as the speed symbol "F" of those tyres, available in the world market, is outside of the scope of Regulation No. 106, that is restricted to tyres designed for agricultural and forestry machines and classified with a speed category symbol not exceeding "D" (65 km/h).

The best place to consider AT sizes, depending on the type of vehicles they are generally fitted on (e.g. L₆ and L₇ vehicles), would be the Regulation No. 75. However, at present some type approval authorities have already type approved some of those tyres, double marked with a metric designation, following the prescriptions of either Regulation No. 30 or Regulation No. 54.
