



**Economic and
Social Council**

Distr.
GENERAL

ECE/TRANS/WP.29/GRRF/2007/20/Rev.1
4 July 2008

Original: ENGLISH
ENGLISH AND FRENCH ONLY

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

World Forum for Harmonization of Vehicle Regulations

Working Party on Brakes and Running Gear

Sixty-fourth session

Geneva, 16-19 September 2008

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) in order to amend the provisions of Regulation No. 106, inserting a new marking and, under "categories of use", a definition for forestry tyres. The modifications to the existing text of the Regulation are marked in **bold** characters or as strikethrough.

^{*/} 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

Paragraph 2.1.3., amend to read:

- "2.1.3. category of use:
- (a) Tractor - Steering wheel;
 - (b) Tractor - Drive wheel - standard tread;
 - (c) Tractor - Drive wheel - special tread;
 - (d) Implement - traction;
 - (e) Implement - trailer;
 - (f) Implement - mixed applications;
 - (g) **Forestry machines – standard tread;**
 - (h) **Forestry machines – special tread."**

Paragraph 2.20., amend to read:

"2.20. driven axles of agricultural ~~and forestry~~ tractors"

Insert a new paragraphs 2.41., to read:

- "**2.41. Forestry tyre: means a tyre designed to be fitted to machines or equipments used in forestry applications suitable for high torque (HT) service at low load (e.g. skidders) or low torque (LT) service at high load (e.g. forwarders, harvesters and forestry trailers).**"
- 2.41.1. high torque(HT) in forestry service: means applications where tyres are subjected to high and sustained torque (e.g. for the equipment of skidders);**
- 2.41.2. low torque (LT) in forestry service: means applications where tyres are not subjected to high and sustained torque (e.g. for the equipment of forwarders, harvesters and forestry trailers."**

Paragraph 3.1.8., amend to read:

"3.1.8. the inscriptions 'LS-1', 'LS-2', 'LS-3' or 'LS-4' in the case of ~~tractor drive wheel tyres to be fitted to driven axles of forestry tractors~~ tyres **for forestry machines."**

Insert a new paragraph 3.1.8.1., to read:

"3.1.8.1. 'LS-3' identifies special tread tyres."

Paragraph 6.4.2., the table, amend "Drive wheels - normal" to read "**Tractor drive wheels and forestry machines - normal**", and " Drive wheels - special" to read "**Tractor drive wheels and forestry machines – special**".

Annex 3

Part A, the title, amend to read:

"PART A: DRIVE WHEEL TYRES FOR AGRICULTURAL AND ~~FORESTRY~~ TRACTORS"

Add a new part D, to read:

"PART D: TYRES FOR FORESTRY MACHINES

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

600/55 – 26.5	$\frac{\downarrow}{b}$	LS-2	$\frac{\downarrow}{b}$	154 A8	$\frac{\downarrow}{b}$
	↑		↑		↑
		$\frac{\downarrow}{c}$		$\frac{\downarrow}{c}$	
		↑		↑	
		TUBELESS		2506	

MINIMUM HEIGHTS OF MARKINGS: b: 9 mm c: 4 mm

These markings define a tyre for forestry machines (LS):

- (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 tread ("LS-2"),
- (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 the Regulation).

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, must be grouped as shown in the above example: 600/55 – 26.5;
- (b) the inscription 'LS', followed by the number 1, 2, 3 or 4 as appropriate, is placed after the size designation, as shown in the above example: LS-2;
- (c) the service description (load index and the speed category symbol) is placed near the size designation. It may either precede or follow it or be placed above or below it;
- (d) the symbols 'TUBELESS' and the date of production may be at a distance from the size designation."

Annex 5, table 4, for the tyre size designation 260/70R16, 260/70R18 and 260/70R20, the whole row should be deleted.

Annex 7

PART A, the title, amend to read:

"PART A: DRIVE WHEEL TYRES FOR AGRICULTURAL ~~AND FORESTRY~~ TRACTORS"

Add a new part D, to read:

"PART D: TYRES FOR FORESTRY MACHINES
Applicable to tyres classified with categories of use: "Forestry machines"
(see paragraph 2.41.)

Variation of load carrying capacity (per cent) for tyres marked with speed category symbol A8

Service Condition	Speed (km/h)	per cent
Forestry service –high torque	10	[0]
Forestry service –low torque	10	23
Road service	20	23
	30	7
	40	[0]

Note: the above mentioned service conditions for forestry service may also optionally be, although are not required, marked on the tyre sidewall, for user's reference, in the following form, given as an example:

600/55-26.5 LS-2 154 A8

HT 154 A2
LT 161 A2

Meaning:

- (a) when applied with high torque (HT) in forestry service (e.g. for the equipment of skidders) the maximum permissible load capacity is 3750 kg, corresponding to load index 154, at a reference speed of 10 km/h, corresponding to speed category A2
 - (b) when applied with low torque (LT) in forestry service (e.g. for the equipment of forwarders, harvesters and forestry trailers) the maximum permissible load capacity is 4625 kg, corresponding to load index 161, at a reference speed of 10 km/h, corresponding to speed category A2
- as per the variation of load carrying capacity percentages shown in the table above."

B. JUSTIFICATION

This document consolidates previous document ECE/TRANS/WP.29/GRRF/2007/20 taking into account some of the verbal comments expressed by experts at the last meeting in February 2008 and some written comments.

Tyres for forestry machines: In the past, it was customary for forestry applications to use agricultural drive wheel traction tyres. However, a new family of tyres has been developed for the use on forestry machines (forwarders, harvesters, skidders, etc.) to reduce tyre damages due to the specific field of application and following the development of specialized forestry equipments, since the first publication of UNECE Regulation No. 106. This amendment will permit the type approval of new type of tyres, at the present not specified in the Regulation.

The additional optional marking suggested in Annex 7, part D, is just an example, as it adds no information to the coefficients already published in the table above.

Moreover, this optional marking is not addressed to the final users, but could just be considered eventually as help/reminder to vehicle manufacturers in the selection of tyres when designing a given type of vehicle.

However, the vehicle manufacturers and the vehicle type approval authorities, knowing exactly the type of vehicle and the content of the regulation, already receive sufficient information from the table of load variation coefficients for the proper selection of the tyre size and version. They are used to receive sufficient information in case of all other types of vehicles (agricultural machineries, motorcycles or commercial vehicles), when used for the specific conditions depicted in the tables of Annex 7.

In fact the same tyre size, identified by the unique service description, having speed symbol A8, is capable of all the different performances when fitted to the appropriate vehicle and for the given type of service.

Once the final user selects for replacement, on a given vehicle, a tyre size marked with the correct service description (the one with speed symbol A8), the same as specified for the original equipment of the vehicle, he will need no additional information on tyre performances specific to the type of application/service in order to fit the correct equipment.

Deletion of tyre sizes dimensions from Annex 5, table 4: The dimensional data of the three sizes do not conform to those available on the market, which strictly follow specifications of paragraphs 6.1.1. and 6.2.1.
