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Working Party on Brakes and Running Gear (GRRF)  
(Fifty-sixth session, 20-22 September 2004,  
agenda item 6.7.)

PROPOSAL FOR DRAFT AMENDMENT TO REGULATION No. 64  
(Temporary use spare wheels/tyres)

Revision 3

Transmitted by the Expert from the United Kingdom

Note: The text reproduced below was prepared by the expert from the United Kingdom with assistance from other Governments and the tyre industry in order to simplify and clarify the existing requirements and to extend them to cover the case of vehicles fitted with run-flat tyres.

The following proposal is intended to require any vehicle that has a spare wheel and tyre unit that is different from the normal everyday road-going wheel and tyre unit or has a run-flat wheel and tyre unit, in the deflated condition, to be subject to approval in accordance with this Regulation. The document is essentially an amended and consolidated version of TRANS/WP.29/GRRF/2002/17, informal document No. 7 as presented at the fifty-second session of GRRF (TRANS/WP.29/GRRF/52 para. 40), TRANS/WP.29/GRRF/2002/17/Rev.1 and Informal document No.2 presented at the fifty-third session of GRRF and TRANS/WP.29/GRRF/2002/17/Rev.2 presented at the fifty fifth session of GRRF. It takes into account the results from a meeting held with ETRTO, Japan, Denmark and the United Kingdom.

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Note: This document is distributed to the Experts on Brakes and Running Gear only.

## A. PROPOSAL

The title, (in both instances where title is used), amend to read:

"UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES EQUIPPED WITH A TEMPORARY USE SPARE WHEEL AND TYRE UNIT AND/OR RUN FLAT TYRES "

Paragraph 1. (including the addition of a new footnote 1/), amend to read:

### "1. SCOPE

This Regulation applies to the approval of vehicles of category M1 and N1 1/ equipped with run flat tyres, a spare wheel and tyre unit, other than a "Standard spare unit" as defined in paragraph 2.7. of the Regulation, intended for temporary use in the event of damage to the wheel and tyre unit fitted to the vehicle for normal, long term, road use.

For the purposes of this Regulation, [spare wheel and tyre units fitted with a uni-directional tyre that, when fitted to the vehicle would be rotating in the opposite direction to that indicated on the tyre sidewall,] and spare wheel and tyre substitute units in the form of run-flat tyres in a totally deflated condition, are to be treated as being temporary use spare units as defined in paragraph 2.8. of the Regulation.

1/ As defined in annex 7 of the consolidated resolution of the Construction of Vehicles (R.E.3) (TRANS/WP.29/78/Rev.1/Amend.2)."

Paragraph 2.1., amend to read:

" ..... regard to its temporary use spare wheel and tyre unit."

Paragraph 2.2.2., amend to read:

"2.2.2. the characteristics of the temporary-use spare wheel and tyre unit,"

Insert a new paragraph 2.2.7., to read:

"2.2.7. wheel offset."

Paragraph 2.3., amend to read:

" ..... of a rim and a wheel disc;"

Insert new paragraphs 2.3.1. and 2.3.2., to read:

"2.3.1. "Wheel size designation" means a designation comprising at least the nominal rim diameter, the nominal rim width and the rim profile;

- 2.3.2. "Wheel offset" means the distance from the hub abutment face to the centre line of the rim."

Paragraph 2.4., amend to read:

- "2.4. "Tyre" means a pneumatic tyre, being a reinforced flexible envelope that is provided with, or forms in conjunction with the wheel on which it is mounted, a continuous, essentially toroidal, closed chamber containing a gas (usually air) or a gas and liquid, that is intended normally to be used at a pressure greater than atmospheric pressure. It may be a:"

Insert new paragraphs 2.4.1. to 2.4.4., to read:

- "2.4.1. "Normal tyre" being a tyre that is suitable for all normal, on-road, conditions of use
- 2.4.2. "Temporary use spare tyre" being a tyre that is specifically designed to be different from a normal tyre and intended only for temporary use under restricted driving conditions;
- 2.4.3. "Run flat tyre" being a tyre which is specifically designed to operate as a normal tyre in the inflated condition and is also capable of continued, but limited, use under restricted conditions following loss of inflation pressure (deflated);
- 2.4.3.1. "Self supporting tyre" means any technical solution (for example, reinforced sidewalls, etc.) allowing the pneumatic tyre, mounted on the appropriate wheel and in the absence of any supplementary component, to supply the vehicle with basic tyre functions at a speed of 80 km (50 mph) and specified distance when operating in flat tyre running mode.
- 2.4.3.2. "Internally supported run-flat system" means a tyre/wheel assembly which when operating in the deflated condition is supported by an assembly of functionally interdependent component(s), to supply the vehicle with the basic tyre functions at a speed of 80 km (50 mph) and specified distance when operating in the flat tyre running mode.
- 2.4.4. "Flat tyre running mode" state of tyre, while operating at an inflation pressure between 0 and 70 kPa.
- 2.4.5. "Basic tyre function" means the normal capability of an inflated tyre in supporting a given speed and transmitting the driving, the steering and the braking forces to the ground on which it runs."
- 2.4.6. "Uni-directional tyre" being a tyre designed to operate in a particular direction of rotation relative to normal forward travel of the vehicle."

Paragraphs 2.5. to 2.8., amend to read:

- "2.5. "Tyre size designation" means a combination of figures that uniquely identify the geometric size of the tyre, comprising the nominal section width, the nominal aspect

ratio and the nominal diameter. Precise definitions of these features may be found in Regulation No. 30.

- 2.6. "Tyre structure" means the technical characteristics of the tyre's carcass. This may be bias ply (diagonal or cross ply), bias-belted or radial ply as further defined in Regulation No. 30.
- 2.7. "Standard spare unit" means an assembly of a wheel and tyre identical in terms of wheel and tyre size designations, wheel offset and tyre structure to that fitted in the same axle position and to the particular model or version of the vehicle for normal operation. It includes the case of a wheel that is produced from a different material, for example, steel instead of aluminium alloy, that may use different wheel fixing nut or bolt designs but which is otherwise identical to the wheel intended for normal operation.
- 2.8. "Temporary use spare unit" means an assembly of any wheel and tyre that is not within that defined as a "Standard spare" in paragraph 2.7. It includes, for example:
- an assembly in which the tyre is a normal tyre as defined in paragraph 2.4.1. but where the size designation of the wheel or the tyre or both, differ from those of the wheel or tyre fitted in the same axle position for normal operation of the vehicle;
  - an assembly in which the tyre is a temporary use spare tyre as defined in paragraph 2.4.2.;
  - an assembly in which the wheel has a different offset from that of the wheel fitted in the same axle position for normal operation of the vehicle;
  - an assembly in which the tyre is of a different structure from that fitted in the same axle position for normal operation of the vehicle.
  - [an assembly in which the tyre is a uni-directional tyre which, when used in certain positions on the vehicle, results in the direction of rotation being opposite to that marked on the sidewall of the tyre;]
  - [a wheel and tyre unit as defined in paragraph 2.4.3. (which may be either a self supporting or an internally supported tyre) fitted to the vehicle for normal, long term road use, but used in an emergency in a totally deflated condition;]

Paragraphs 2.8.1. to 2.8.2.4., should be deleted.

Paragraph 2.11., amend to read:

Add a new paragraph 2.11. to read:

- "2.11. "Run-Flat [Warning] System" - A system which delivers [real time] information to the driver that a tyre is operating in the flat tyre running mode."

Paragraph 3.3., amend to read:

"..... shall be submitted to the type approval authority or the technical service ....." "

"Paragraph 4.4.1., the reference to footnote 1/ and footnote 1/, renumber as footnote 2/, and amend to read:

"2/ 1 for Germany, 2 for France, 3 for Italy, 4 for Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for the Czech Republic, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12 Austria, 13 for Luxembourg, 14 for Switzerland, 15 (vacant), 16 for Norway, 17 for Finland, 18 for Denmark, 19 for Romania, 20 for Poland, 21 for Portugal, 22 for the Russian Federation, 23 for Greece, 24 for Ireland, 25 for Croatia, 26 for Slovenia, 27 for Slovakia, 28 for Belarus, 29 for Estonia, 30 (vacant), 31 for Bosnia and Herzegovina, 32 for Latvia, 33 (vacant), 34 for Bulgaria, 35 (vacant), 36 for Lithuania, 37 for Turkey, 38 (vacant), 39 for Azerbaijan, 40 for The former Yugoslav Republic of Macedonia, 41 (vacant), 42 for the European Community (Approvals are granted by its member States using their respective ECE symbol), 43 for Japan, 44 (vacant), 45 for Australia, 46 for Ukraine, 47 for the Republic of South Africa, 48 for New Zealand, 49 for Cyprus and 50 for Malta. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify or accede to the Agreement Concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approval Granted on the Basis of these Prescriptions, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement."

Paragraph 5.1.1., amend to read (the reference to footnote 2/ and the corresponding footnote 2/ should be deleted):

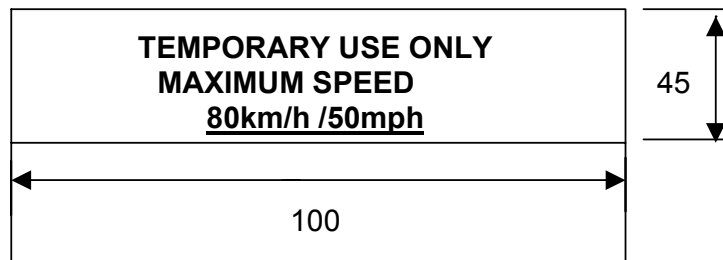
"5.1.1 Tyres intended for use as part of a temporary use spare unit as defined in paragraph 2.8, shall be approved in accordance with Regulations Nos. 30, 54 or 75 as amended."

Paragraph 5.1.4.1., amend to read (the diagram is not amended):

"5.1.4.1. An 80 km/h maximum speed warning symbol arranged in accordance with the diagram below, shall be permanently displayed on the outer face of the wheel in a prominent position.

In the case of vehicles intended to be sold in countries using imperial units of measurement, an additional warning symbol, identical to that described above, with the exception that the figure "80" shall be replaced by "50" and the wording "km/h" by "mph", shall be permanently displayed on the outer face of the wheel in a prominent position.

Alternatively a single warning symbol arranged in accordance with the diagram below, shall be permanently displayed on the outer face of the wheel in a prominent position.



Upper case letters shall be at least 5 mm high and the numbers "80" and "50" shall be at least 20 mm high with the elements that make up each character of the number at least 3 mm line thickness. Lower case text shall be at least have a line height of 5 mm. All text shall be enclosed in a border and be on a background of contrasting colour.

The requirements of this paragraph shall not apply to a temporary use spare wheel and tyre unit that includes or comprises [either] a run-flat tyre, [or a uni-directional]."

Paragraph 5.1.4.2., amend to read:

" ..... by this wheel cover.

The requirements of this paragraph shall not apply to a temporary use spare unit that includes or comprises [either] a run-flat tyre, or a uni-directional]".

Insert new paragraphs 5.1.5. to 5.1.6.3., to read:

- "5.1.5. Except in the case of a run-flat tyre or a run flat system, it is permitted to supply only one temporary use spare unit with the vehicle.
- 5.1.6. In the case of vehicles equipped with run-flat tyres the vehicle shall also be fitted with a run-flat [warning] system (defined in paragraph 2.11.) that warns the driver that an individual tyre, which is in contact with the road, is in flat tyre running mode.;
- 5.1.6.1. The failure indication shall be by means of an optical yellow warning signal and if a symbol is used or incorporated in the warning device, it shall be in accordance with ISO 2575:2000, reference K10, ISO/IEC Registration No. 7000-1434;
- 5.1.6.2. Any electrical failure or sensor anomaly that affects the pressure monitoring system, including failure of the electrical source, supply or transmission of the output signal, shall be indicated to the driver by operation of the warning signal referred to in paragraph 5.1.6.1.;
- 5.1.6.3. The warning signal shall operate when the ignition circuit of the vehicle is energized or the vehicle speed exceeds [5 km/h] and it shall be verified that none of the defects referred to in paragraphs 5.1.6. and 5.1.6.2. are present before extinguishing the signal."

Paragraph 6.1.2., amend to read:

"6.1.2. An instruction to drive with caution and at no more than the permitted maximum speed of 80 km/h (or 50 mph) when the temporary-use unit ..... as possible. It shall be made clear that this instruction also applies to a run-flat tyre being used in its deflated condition except that in the latter case the maximum speed limit shall be [~~80~~] km/h ([~~50~~] mph) for a maximum distance in [km or miles] to which the tyre is approved."

Paragraph 6.1.3., amend to read:

" .... fitted at the same time. This requirement shall also apply to the use of run-flat tyres, in a deflated condition [and to uni-directional tyres operating in the incorrect direction of rotation]."

Paragraph 6.1.5., amend to read:

"6.1.5. For vehicles equipped with a temporary use spare unit stored in a deflated condition, a description of the procedure for .... "

Paragraph 6.2., amend to read:

"6.2. If the vehicle is equipped with a temporary use spare unit stored in a deflated condition, a device must be provided ....."

Paragraph 6.3., amend to read:

" .....shall be displayed in a prominent place on the vehicle."

Paragraph 8.1., amend to read:

"8.1. The Conformity of Production procedures shall comply with those set out in Appendix 2 of the Agreement (E/ECE/324 – E/ECE/TRANS/505/Rev.2), with the following requirements:"

Paragraph 8.2., amend to read:

"8.2. The type approval authority or technical service which has granted type approval, may at any time verify the conformity of production in each production facility. The normal frequency of these verifications shall be at least once per year."

Paragraphs 8.3. to 8.4.5., should be deleted.

Paragraph 9.1., amend to read:

" ..... laid down in paragraph 8. are not complied with."

Annex 1, item 9.3., amend to read:

"9.3. Details of temporary use spare unit, including wheel and tyre size designations and marking, tyre load and speed capability, run-flat tyre [or uni-directional tyre] including the maximum distance wheel offset (where different from standard unit)."

Annex 3, paragraph 1.5., amend to read:

"1.5. Except in the case of a run-flat tyre, the tyres shall be inflated to the pressures recommended by the vehicle manufacturer for the vehicle type and loading condition. A run-flat tyre shall be tested in the fully deflated condition."

Annex 3, paragraph 2.3., amend to read (including the addition of two new paragraphs 2.3.1. and 2.3.2.):

"2.3. The braking performance shall correspond to the provisions given in Regulation No. 13 for categories M1 and N1 vehicles for the Type O cold test with the engine disconnected:

2.3.1. In the case of M1 category vehicles;

the stopping distance achieved using a maximum force of 500 N applied to the foot control, shall not exceed 50.7 m and;

the mean fully developed deceleration (mfdd) given by the following formula shall be not less than  $5.8 \text{ ms}^{-2}$ :

$$\text{Mfdd} = v^2/41.14 \text{ s}$$

where "v" is the initial speed at which braking commences and "s" is the distance covered during braking between 0.8 v and 0.1 v

2.3.2. In the case of N1 category vehicles:

the stopping distance achieved using a maximum force of 700N applied to the foot control shall not exceed 61.2 m and;

the mean fully developed deceleration (mfdd) given by the following formula shall be not less than  $5.0 \text{ ms}^{-2}$ :

$$\text{Mfdd} = v^2/41.14 \text{ s}$$

where v is the initial speed at which braking commences and s is the distance covered during braking between 0.8 v and 0.1 v"

\* \* \*



## **B. JUSTIFICATION**

The United Kingdom wishes to put forward proposals for amendments to this Regulation to simplify and clarify the existing requirements and to extend them to cover the case of vehicles fitted with run-flat tyres.

The proposals are intended to require any vehicle that has a spare wheel and tyre unit that is different from the normal everyday road-going wheel and tyre unit or has a run-flat tyre and wheel unit in the deflated condition, to be subject to approval in accordance with this Regulation. In addition, as this is a Regulation dealing with the fitting of tyres to vehicles, it is appropriate to include requirements for the installation of a run-flat warning or indicating system to alert the driver to a deflated run-flat tyre. The Scope of the Regulation has been expanded to allow the use of temporary use spare wheel and tyre units on N1 category vehicles that are equipped with tyres approved to Regulation No. 30.

In particular, the present wording of paragraph 5.1.4.1. has led to confusion and, in some cases, has been interpreted, in conjunction with paragraph 5.1.3., that the maximum speed limit for one form of temporary use spare wheel and tyre unit is related to the speed rating of the tyre used. The proposed wording should make it clear that the maximum speed limit is 80 km/h regardless of the speed capability of the tyre fitted to a temporary use spare wheel and tyre unit.

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