

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

Further Revision to ECE/TRANS/WP29/GRRF/2002/17/Rev.5

Transmitted by the expert from the United Kingdom

A. PROPOSAL

Page 1 Contents (Annexes)

New Annex 3 'Test for RUN-FLAT WARNING SYSTEM' to be inserted and existing Annex 3 to be renumbered Annex 4

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.~~4~~9. 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, 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.~~4~~10. 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)."

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

*/ The present document has previously been circulated under the symbol TRANS/WP.29/GRRF/2002/17/Rev.4.

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" or "Self supporting tyre" describes a pneumatic tyre structure provided with any technical solutions (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 the basic tyre functions, at least, at a speed of 80km/h (50mph) and a distance of 80km when operating in flat tyre running mode.

- 2.4.4. "Run flat system" or "Extended mobility system" describes an assembly of specified functionally dependant components, including a tyre, which together provide the specified performance granting the vehicle with the basic tyre functions, at least, at a speed of 80 km/h (50 mph) and a distance of 80 km when operating in flat tyre running mode.

Paragraphs 2.5. to 2.7., amend to read:

- 2.5. "Flat tyre running mode" describes the state of tyre, essentially maintaining its structural integrity, while operating at an inflation pressure between 0 and 70 kPa.
- 2.6. "Basic tyre function" means the normal capability of an inflated tyre in supporting a given load up to a given speed and transmitting the driving, the steering and the braking forces to the ground on which it runs.
- ~~2.7. "Uni-directional tyre" being a tyre designed to [offer enhanced performance] [operate] in a particular direction of rotation relative to normal forward travel of the vehicle."~~

Paragraphs 2.7., amend to read:

- "2.7. "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."

Paragraphs 2.8.1. to 2.8.2.4. should be deleted.

Insert new paragraphs 2.98 to 2.11.610.5, to read:

- "2.98. "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.
- ~~2.109.~~ "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.
- "~~2.110.~~ "Temporary use spare unit" means an assembly of any wheel and tyre that is not within that defined as a "Standard spare" in paragraph 2.10. Temporary use spare units may be of the following types:
- ~~2.110.1.~~ Type 1

An assembly in which the tyre is a temporary use spare tyre as defined in paragraph 2.4.2.;

~~2.4.10.2.~~ Type 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;

~~2.4.10.3.~~ Type 3

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;

~~[2.11.4. Type 4~~

~~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;]~~

~~[2.4.510.4.~~ Type 54

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;]

~~[2.4.610.5.~~ Type 65

An assembly in which a wheel and tyre unit as defined in paragraph 2.4.3. or 2.4.4. is fitted to the vehicle for normal, long term road use, but used in an emergency in a totally deflated condition;]"

Paragraphs 2.9. and 2.10. (former), renumber as paragraphs 2.4211. and 2.4312

Paragraph 2.11. (former), renumber as paragraph 2.143. and amend to read:

"2.143. "Run-Flat Warning System" - describes a system **which maybe a part of a Tyre Pressure Monitoring System and** which delivers 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, 50 for Malta and 51 for Republic of Korea. 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):

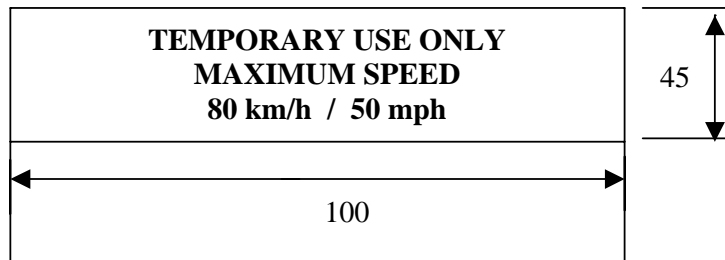
"5.1.1 Tyres intended for use as part of a temporary use spare unit as defined in paragraph 2.~~4~~10., shall be approved in accordance with Regulation No. 30 or 54"

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 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.

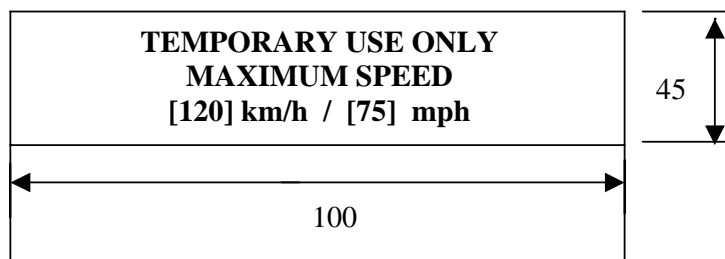
The requirements of this paragraph shall only apply to types 1, 2 and 3 temporary use spare unit as defined in paragraphs 2.4.10.1., 2.4.10.2. and 2.4.10.3."

Add a new paragraph 5.1.4.1.1. to read:

"5.1.4.1.1. An [120] 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 "[120]" shall be replaced by "[75]" 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 "120" and "75" 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 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 only apply to a type ~~54~~ temporary use spare unit as defined in paragraph 2.1.510.4. to be supplied for use on an M1 category vehicle.

Paragraph 5.1.4.2., amend to read:

"5.1.4.2. (REAR) AXLE. If it is possible to attach a wheel cover to the temporary use spare unit this information shall not be obscured by this wheel cover."

Insert new paragraphs 5.1.5. to 5.1.6.5., to read:

"5.1.5. Except in the case of a run-flat/self supporting tyres or run-flat/extended mobility 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/self supporting tyres or run-flat/extended mobility system the vehicle shall also be fitted with a run-flat [warning] system (defined in paragraph 2.1.13.) that warns the driver that an individual tyre, which is in contact with the road, is at least in flat tyre running mode.;

~~5.1.6.1. The failure indication shall be by means of an optical warning signal in accordance with UNECE Regulation No. 121. 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 be activated operate when the ignition circuit of the vehicle is energized (bulb check). The warning signal shall also be activated if any tyre is in the run-flat condition or the condition referred to in paragraph 5.1.6.2. is present. These conditions shall be detected within 10 minutes after the vehicle has been driven continuously at a speed greater than 40 km/h. The warning signal shall continue to be activated as long as any of these conditions exist and whenever the ignition is in the "On" ("Run") position or within 3 minutes of the start of vehicle motion or the vehicle speed exceeds [25 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."~~

"5.1.6.1. The warning indication symbol shall be in accordance with UNECE Regulation No. 121.

- 5.1.6.2. The warning signal shall be activated when the ignition (start) switch is in the “on” (run) position (bulb check).**
- 5.1.6.3. When any tyre is in the flat tyre running mode, it shall be indicated to the driver by operation of the warning signal referred to in paragraph 5.1.6.1.**
- 5.1.6.4. Electrical failure or sensor anomaly that affects the Run-Flat Warning 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.**
- 5.1.6.5. The operation of the warning signal specified in paragraphs 5.1.6.2. to 5.1.6.4. shall meet the requirements in Annex 3."**

Paragraph 5.2.1. amend the reference to "annex 3" to read "Annex 4".

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 (50 mph) when a type 1, 2 or 3 temporary-use spare unit as defined in paragraphs ~~2.4.10.1.~~, ~~2.4.10.2.~~ or ~~2.4.10.3.~~ is fitted, and to reinstall a standard unit as soon as possible. It shall be made clear that this instruction also applies to a type ~~6~~5 temporary-use spare unit as defined in paragraph ~~2.4.10.5.~~ being used in the flat tyre running mode."

Insert a new paragraph 6.1.2.1., to read:

"6.1.2.1. An instruction to drive with caution and at no more than the permitted maximum speed of [120] km/h ([75] mph), when a type 4 ~~or 5 temporary-use~~ spare unit as defined in paragraphs ~~2.8.10.4.~~ ~~and 2.8.5.~~ is fitted, and to reinstall a standard unit as soon as possible."

Paragraph 6.1.3., amend to read:

"6.1.3. fitted at the same time. This requirement shall only apply to a type 1, 2 and 3 temporary-use spare unit as defined in paragraphs ~~2.4.10.1.~~, ~~2.4.10.2.~~ and ~~2.4.10.3.~~"

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."

Insert a new Paragraphs 12., to read:

"12 TRANSITIONAL PROVISIONS

12.1. As from 24 months after the date of entry into force of the 01 series of amendments, Contracting Parties applying this Regulation with respect to the adhesion level of tyres in rolling conditions on wet surfaces shall grant approvals only if the tyre type to be approved meets the requirements of this Regulation as amended by the 01 series of amendments."

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)."

Insert a new Annex 3, to read:

"Annex 3

TEST FOR RUN-FLAT WARNING SYSTEM

1. Test Conditions

1.1. Ambient temperature

The ambient temperature shall be between 0 °C and 40 °C.

1.2. Test road surface

The test road surface shall be dry and smooth.

1.3. Test location

The test location shall be other than an environment susceptible to radio wave interference such as a strong electric field.

1.4. Condition of the test vehicle in a stationary state

The vehicle's tyres shall be shaded from direct sun when the vehicle is parked.

2. Test Method

2.1. Test procedures for detection of a tyre in the flat tyre running mode

2.1.1. The tyres are to be inflated ~~Inflate the tyres to~~ the pressure recommended by the vehicle manufacturer.

2.1.2. With the vehicle stationary and the ignition (start) switch in the "Lock" or "Off" position, turn the ignition (start) switch to the "On" ("Run") position or, where applicable, the appropriate key position. ~~for the lamp check~~. Confirm the activation of the warning signal.

2.1.3. Turn off the ignition and reduce the inflation pressure of any one of the tyres until the adjusted tyre inflation pressure is 70 kPa, which is the upper limit for the flat tyre running mode.

2.1.4. Commence the test within 5 minutes after reducing the inflation pressure ~~in~~ of the tyre ~~Start the test by turning on the ignition and~~ by driving the vehicle at the test speed between 40 and 100 km/h. For vehicles equipped with cruise control, ~~cruise control~~ this must not be engaged during testing.

2.1.5. The test is completed when either:

- the run flat warning system as described in 5.1.6.1. has activated or,
- a period of 20 minutes has elapsed, when determined in accordance with paragraph 2.3., from the time the test speed has been reached

the vehicle shall be brought to a halt and the ignition switched off.

2.1.6. If the warning signal as required in paragraph 2.1.5. above has activated, wait 5 minutes before turning the ignition on; the signal must reactivate and remain active as long as the ignition switch is in the “on” (“run”) position.

2.2. Test procedures for detecting a failure of the Run-Flat Warning System. ~~in the flat tyre running mode~~

2.2.1. ~~Stop the vehicle and~~ With the vehicle in the normal use condition, simulate a Run-Flat Warning System failure. This may be simulated by, for example, disconnecting connectors for wiring related to the power supply from the power source or wiring related to the input/output to/from the warning system control. ~~ECU controlling the warning system.~~

2.2.2. With a simulated fault introduced, ~~start the test by turning on the ignition and~~ drive the vehicle at the test speed of between 40 and 100 km/h.

2.2.3. When:

- the run flat warning system as described in 5.1.6.1. has activated or,
- a period of 20 minutes has elapsed, when determined in accordance with paragraph 2.3., from the time the test speed has been reached

the vehicle shall be brought to a halt and the ignition switched off.

2.2.4. If the warning signal as required in paragraph 2.2.3. above has activated, wait 5 minutes before turning the ignition on; the signal must reactivate and remain active as long as the ignition switch is in the “on” (“run”) position.

2.3. Calculation of time duration

The time to be taken for determination of the requirements of Paragraphs 2.1.5 and 2.2.3 shall be the total elapsed time while the vehicle is driven in the test speed range 40km/h to 100km/h.

The time shall be calculated over a continuous drive but it is not necessary that the vehicle maintains throughout the test a speed within the test speed range. Where the vehicle speed falls outside the test speed range, any time accumulated during such events shall not be considered as part of the total test time duration.

The type approval authority shall satisfy itself that the run flat warning system records the time within the test speed range on a cumulative basis and does not restart the time calculation if the vehicle falls outside the test speed range.

Annex 3 (former), renumber as Annex 4.

New Annex 4 (previously 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."

New Annex 4 (previously Annex 3), paragraph 2.3., amend to read (including the addition of three new paragraphs 2.3.1., 2.3.1.1. and 2.3.2.):

"2.3. The braking performance shall correspond to the test procedure 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 fitted with type(s) 1, 2, 3 and ~~6~~ temporary use spare units as defined in paragraphs ~~2.11.10.1., 2.11.10.2., 2.11.10.3. and 2.11.10.5.~~ and tested using a prescribed speed of 80 km/h;

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 ms^{-2} :

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

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.

2.3.1.1. In the case of M1 category vehicles fitted with type(s) ~~4 and 5 temporary use~~ spare units as defined in paragraphs ~~2.11.10.4. and 2.11.5.~~ tested using a prescribed speed of [120] km/h;

the stopping distance achieved using a maximum force of 500 N applied to the foot control, shall not exceed 108 m and;

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

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

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 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, [uni-directional] tyres and temporary use spare units which are fitted with a normal tyre, but have a different size designation to that which is normally fitted to the vehicle.

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 Regulations Nos. 30 and 54. It also makes proposals to allow certain types of temporary use spare units to be approved at a speed of [120] km/h.

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 for certain types of tyres fitted to temporary use spare wheel and tyre units and [120] km/h for some other types.
