

**Submission by the United Kingdom for amendments to Document  
TRANS/WP.29/GRRF/1998/19/Rev3 – Draft Regulation for Wheels**

As suggested by the Chairman during the meeting GRRF 50, the United Kingdom proposes the following amendments to the document presented by the Expert from Italy and which was the result of discussions principally between Italy and Germany.

1. **SCOPE – Amend second paragraph and add further paragraph to read:**

It does not apply to wheels used as original equipment by the vehicle manufacturer during the production of the vehicle or to vehicle manufacturer's replacement wheels.

It does not apply to "Special wheels", as defined in paragraph 2.5, where the wheel size or inset is different from that of the wheel used as original equipment by the vehicle manufacturer. Until this Regulation is amended to take account of such wheels they shall remain subject to national approval.

*To clarify current application for the Regulation*

**Amend paragraph 2.3 to read:**

2.3. "OE-wheels" means wheels which are fitted to the vehicle during the production of the vehicle.

**Amend paragraph 2.4 to read:**

2.4. "Replacement Wheels" means wheels which are intended to replace the OE wheels during the service life of the vehicle. Replacement wheels may be:

2.4.1 "Vehicle manufacturer's replacement wheels" being wheels supplied by the vehicle manufacturer that may or may not be OE wheels;

2.4.2 "Identical replacement wheels" being wheels which are manufactured using the same manufacturing equipment as that used for replacement wheels supplied by the vehicle manufacturer. They differ from replacement wheels supplied by the vehicle manufacturer only by the absence of vehicle manufacturer's trademarks and part number;

2.4.3 "Replica replacement wheels" being wheels which are replicas of vehicle manufacturer's replacement wheels but produced by an independent manufacturer. With regard to the design (basic contour, dimensions, inset, material type and so on) they fully correspond to vehicle manufacturer's replacement wheels.

2.5. "Special wheels" means wheels which are not vehicle manufacturer's replacement wheels and which do not fulfil the criteria for wheels described in paragraph 2.4.

**Delete paragraph 2.8**

*Paragraph 2.8 is unnecessary. Paragraphs 2.9, 2.10 and 2.11 should be renumbered 2.8, 2.9 and 2.10.*

**Amend paragraph 2.9 (g) to read:**

(g) Associação Latino Americana de Pneus e Aros (ALAPA)

*The present reference is out of date.*

**Amend footnote 7/ to read:**

7/ ALAPA -----

**Amend paragraph 6.4 to read:**

6.4 The wheels shall satisfy the following tests:

*Failure criteria are given in the tests themselves – “without showing any fault” is superfluous.*

**Amend paragraph 6.4.2.1 (c) to read:**

(c) Rolling test as in annex 7;

*Annex 7 does not give any details about material thinning during test – how does material thinning occur during this test? The remaining wording in paragraph 6.4.2.1 is unnecessary.*

**Add new paragraph 6.7 to read:**

6.7 Replica replacement wheels and Special wheels shall also satisfy the requirements of Part II of this Regulation.

*To allow for subsequent amendments to Part II*

**Amend Annex 8, Second column of Table in paragraph 3 to read:**

The test shall -----surface and if there is not any loss of inflation pressure within one minute of completing the test. Fractures ----- acceptable.

In the case of wheels with demountable rims or other components that can be dismantled, if threaded fastenings that are close to the spoke or ventilation holes fail the wheel is to be considered as having failed the test.

*To improve English and to allow the test to check loss of inflation pressure due to deformation of the wheel.*

**Amend heading of Annex 9 to read:**

ALTERNATING TORQUE TEST

*Editorial correction*

**Amend PART II to read:**

1 General requirements

1.1 Dimensions

The nominal rim diameter, nominal rim width and nominal inset shall be the same as the manufacturer's replacement wheel.

1.2 Application and fitting Information

The type approval authority shall be supplied with a copy of the following information which shall also be supplied to the consumer with the wheel.

1.2.1 Wheel characteristics:

ECE approval number, wheel type, size, International rim designation (for example, 5<sup>1/2</sup> J) and inset.

#### 1.2.2 Vehicle characteristics:

Vehicle manufacturer, vehicle model name and description, vehicle year or VIN range, tyre size designation to be fitted to the wheel;

#### 1.2.3 Additional characteristics:

Any particular requirements, special fittings and so on that are specified when using the manufacturer's replacement wheels or specific requirements for special wheels.

#### 1.2.4 Fitting instruction details:

Recommendations and safety precautions when fitting the wheel;

Use of any additional or substitute wheel fixing components, for example, longer wheel bolts or studs with alloy wheels;

Wheel fixing tightening torque; drawing attention to the importance of this aspect and the need to preferably use a calibrated torque wrench;

Instruction regarding the necessity to re-tighten the wheel fixing after 50 km of driving;

References to the use and mounting of hubcaps, if applicable;

### 2 Additional requirements

#### 2.1 Wheel calliper check

The design of the inner contour of the wheel (wheel calliper, see part I, paragraph 2.11., part II figure 1) must provide sufficient space for the brake, suspension and steering components.

In the case where the wheel calliper is outside of the vehicle manufacturer's replacement wheel calliper, no verification is necessary.

In the case where the calliper is inside the vehicle manufacturer's replacement wheel calliper, a check shall be carried out of the wheel operating clearance with respect to brake, suspension and steering components and general underbody components, taking into account the effect of wheel balance weights (see annex 1 to this Part, item 1, wheel calliper).

#### 2.2 Ventilation holes check

An approved wheel shall not reduce the brake efficiency in comparison with a manufacturer's replacement wheel. The heat transfer from the brakes into steel wheels is regarded as being more severe than that with light alloy wheels.

In the case where the vehicle manufacturer's replacement wheel is designed for a defined air circulation from the brake through the wheel ventilation holes (for example by "windmilling" effect) and where the area of the ventilation holes in a special wheel is smaller than the corresponding vehicle manufacturer's replacement wheel, a comparison test shall be carried out (see annex 1 to this Part, item 2, ventilation holes).

### 2.3 Wheel fixing

The use of vehicle manufacturer's replacement wheel fixing components is recommended. Any special wheel fixing components shall allow fitting of the special wheel without requiring any additional change. The basic number of wheel fixings, for example 4 holes, 5 holes and so on, shall not be changed. Wheel fixings shall not foul other components, for example, brake components. Regarding wheel bolts, nuts and studs, the length of thread engagement shall be the same as achieved by the vehicle manufacturer's replacement wheel and wheel fixings. The profile of the bolts/nuts shall be compatible with the profile of the location hole in the approved wheel. The material used for the wheel fixing components shall be at least equivalent to the vehicle manufacturer's replacement wheel fixing components.

In the case where wheel accessories are provided, any necessary special tools for mounting and demounting shall also be provided.

Where different wheel fixing components are supplied, they shall be detailed in the information required by paragraph 1.2 and any necessary special fitting tools shall be provided.

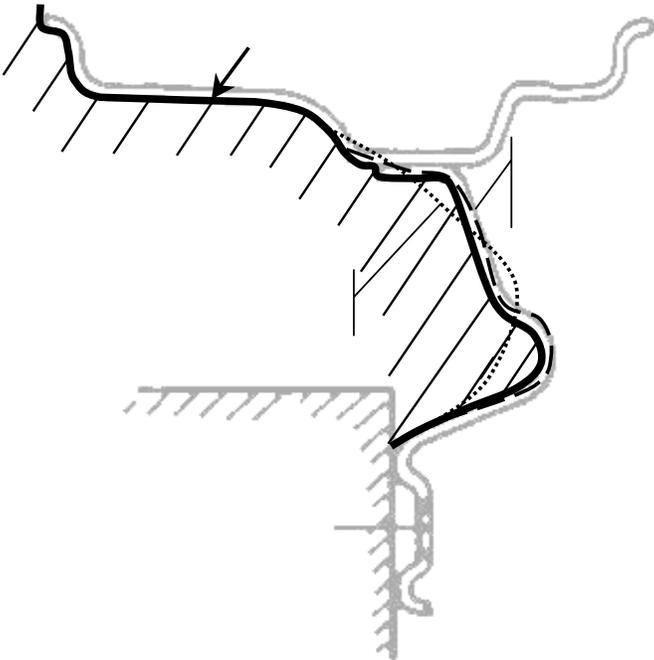
### 2.4 External projections

The approved wheel, when fitted to the vehicle together with any necessary wheel accessories, shall not create any danger. The requirements of Regulation ECE-R26 shall be respected.

### 2.5 Miscellaneous

The test report shall contain the details and results of the tests carried out. It shall confirm that the tested wheel meets the requirements of part II.

Figure 1:  
Wheel inner contour including examples of inside and outside situations.



**Delete Annex 1 to PART II and renumber Annex 2 as Annex 1 and amend to read:**

Annex 1

ADDITIONAL CHECKS

1. Wheel calliper (see paragraph 2.1 of this Part)

In the case where the wheel calliper is inside the vehicle manufacturer's replacement wheel calliper, there shall be sufficient clearance in under all conditions of steering and suspension travel which occur in normal driving. For that reason, tests shall be carried out in order to ensure that the wheel assembly has sufficient space in the wheel housing and does not contact any vehicle part component.

As a rule, the following criteria have to be fulfilled:

minimum clearance for brake components (worst case, for example with new brake linings):  
3 mm 1/),

minimum clearance for suspension components (e. g. upper and lower suspension arms):  
4 mm,

minimum clearance for steering components (e. g. track rod and steering joints ): 4 mm, and

minimum clearance between balance weights and vehicle components:2 mm

The check may be carried out statically or dynamically. If the various clearances on the vehicle manufacturer's replacement wheel are less than those given above, then these can be accepted.

2 Ventilation holes (see paragraph 2.2 of this Part)

Where a replica replacement wheel or a special wheel has ventilation holes with a smaller area than the vehicle manufacturer's replacement wheel, a comparison test shall be carried out to evaluate the brake efficiency. The test shall follow the requirements of ECE Regulation No.13, appendix 4, paragraph 1.5, Type I - Fade test procedure. The criterion is the brake temperature. The maximum temperature measured (disc, drum) using the vehicle manufacturer's replacement wheel must not be exceeded with the wheel to be approved. Any hubcaps normally fitted are to be taken into account.

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1/ Use of vehicle manufacturer brake component profiles and wheel calliper is recommended. However in-service monitoring is necessary because of possible change of brake parts and/or vehicle manufacturer's wheel calliper during the vehicle production run.