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Economic Commission for Europe**Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on General Safety Provisions****116th session**

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Item 16 of the provisional agenda

Consolidated Resolution on the construction of vehicles (R.E.3)**Proposal for amendments to the Consolidated Resolution on the construction of vehicles****Submitted by the expert from the International Motorcycle Manufacturers Association***

The text reproduced below was prepared by the expert from the International Motorcycle Manufacturers Association (IMMA) to amend the provisions of the Consolidated Resolution on the construction of vehicles (R.E.3) to allow the application of "twinned wheels" on all vehicles of category L. It is based on informal document GRSG-115-12, presented at the 115th session of the Working Party on General Safety Provisions (GRSG) (see report ECE/TRANS/WP.29/GRSG/94, para. 65). The modifications to the current text of R.E.3 are marked in bold characters.

* In accordance with the programme of work of the Inland Transport Committee for 2018–2019 (ECE/TRANS/274, para. 123 and ECE/TRANS/2018/21/Add.1, Cluster 3.1), the World Forum will develop, harmonize and update UN regulations to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

GE.19-00239(E)



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I. Proposal

Insert a new paragraph 1.11., to read:

- "1.11. "Twinned wheels" means two wheels positioned on the same axle, which are considered to be one wheel, whereby the distance between the centres of the areas of contact with the ground is equal to, or less than 460 mm. Twinned wheels can be applied on vehicles of category L."**

Paragraph 2.1.1., amend to read:

- "2.1.1. "Category L₁": A two-wheeled vehicle with an engine cylinder capacity in the case of a thermic engine not exceeding 50 cm³ and whatever the means of propulsion a maximum design speed not exceeding 50 km/h. In the case the vehicle is equipped with a "twinned wheels-" configuration, the full vehicle structure or part of the vehicle structure shall tilt when turning."**

Paragraph 2.1.3., amend to read:

- "2.1.3. "Category L₃": A two-wheeled vehicle with an engine cylinder capacity in the case of a thermic engine exceeding 50 cm³ or whatever the means of propulsion a maximum design speed exceeding 50 km/h. In the case the vehicle is equipped with a "twinned wheels-" configuration, the full vehicle structure or part of the vehicle structure shall tilt when turning."**

II. Justification

1. A new approach to the concept of twinned wheels was introduced by IMMA in ECE/TRANS/WP.29/GRSG/2015/30 (which was not concluded by GRSG), to allow the application of "twinned wheels" on all vehicles of category L.



2. The proposal aims to harmonize the definitions in R.E.3 with those used in:
 - (a) Europe (Whole Vehicle Type Approval, European Union Regulation No. 168/2013 article 3 – 72);
 - (b) Australia (ADR - PART B); and
 - (c) Japan (Road Transport Vehicle Act 2009.10.24).

Note: In the United States of America, the Piaggio MP3 meets the definition of "motorcycle" under United States Department of Transportation regulation ("motorcycle" means a motor vehicle with motive power having a seat or saddle for the use of the rider and designed to travel on not more than three

wheels in contact with the ground (49 CFR Part 571)) and under nearly every State law.

3. In certain countries which apply UN Regulations and not the "twinned wheels" definition under their regional or national framework referenced under point 2, where three-wheeled vehicles as the Piaggio MP3 and Yamaha Tricity are on sale, such vehicles may be classified only as an L₅ (three-wheeler). This would result in major changes in vehicle requirements and specifications (e.g. parking brake) hence the necessity to update R.E.3 with the definition of "twinned wheels" from a harmonization perspective.

4. As a result of this proposal, "twinned wheels" can apply to all L-vehicle categories. If "twinned wheels" are applied on L₁ and L₃ vehicles, it is specified that the vehicles shall incline when turning. For other L category vehicles, there is no tilting requirement.

5. Supporting information:

- (a) 2008-32-0061 (SAE) / 20084761 (JSAE) Comparison Between Experimental and Numerical Handling Tests for a Three-Wheeled Motorcycle. In this paper the handling behaviour of the three-wheeled motor scooter (Piaggio MP3) was investigated on the basis of experiments and simulations. The analyses of the results and previous experience confirmed that the analysed vehicle performs very much like an ordinary two-wheeler.
 - (b) Public comments on the amendment of the Road Transport Regulation in Japan: a total of 19 proficiency test officers and motorcycle police riders tested a vehicle equipped with "twinned wheels". They concluded that it is the same or close to two-wheeled motor vehicles.
 - (c) Piaggio introduced the MP3 in 2006 in the United States of America. This motor vehicle has two independently suspended front wheels with the centre of the tire contact patches of 420 mm (16.5 inches) apart and one rear wheel. The Motorcycle Safety Foundation concluded from its testing of the vehicle that the MP3 should be treated as a two-wheeled motorcycle.
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