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World Forum for Harmonization of Vehicle Regulations**Working Party on Pollution and Energy****Sixtieth session**

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Item 4 of the provisional agenda

Worldwide harmonized Motorcycle emission Test Cycle**Proposal for draft Amendment 2 to global technical regulation No. 2****Submitted by the expert from Germany ***

The text reproduced below was prepared by the expert from Germany in order to introduce performance requirements into the existing global technical regulation (gtr) No. 2 on the Worldwide harmonized Motorcycle emission Test Cycle (WMTC). This document is based on documents ECE/TRANS/WP.29/2009/132, distributed at the one-hundred-forty-ninth session of the World Forum for Harmonization of Vehicle Regulations (WP.29) and ECE/TRANS/WP.29/GRPE/2010/2, distributed at the fifty-ninth session of the Working Party on Pollution and Energy (GRPE). This consolidated document reflects subsequent comments received from the members of WP.29, GRPE and the informal group on WMTC (see report ECE/TRANS/WP.29/1083, para. 95). Modifications to the current text of the regulation are marked in bold characters.

* 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 the performance of vehicles. The present document is submitted in conformity with that mandate.

Part A (Statement of technical rationale and justification)

Paragraph 2., amend to read:

“2. Procedural Background

The work on the gtr started in 2000 ... was also approved as a gtr project by AC.3.

The gtr No. 2 was approved by AC.3 in June 2005. Amendment 1 to gtr No. 2 was approved by AC.3 in November 2007.

The draft text of Amendment 2 to gtr No. 2 regarding the introduction of performance requirements (limit values for pollutant emissions for vehicles fitted with gasoline engines) was approved by GRPE in June 2010, subject to final decisions concerning the format of the text by AC.3.”

Paragraphs 4(d) and 4(e), amend to read:

“(d) Performance Requirements

The principal emission limit values (paragraph 5.2. of the text of the regulation) represent the most stringent limits currently applied in national or regional legislation with the test procedures set out in this gtr. Vehicles complying with the principal emission limits contained in paragraph 5.2. are expected to also comply with the alternative requirements contained in paragraph 5.3.

Paragraph 5.3. contains alternative emission limits of stringency proposed by the Contracting Parties, as foreseen by articles 4.2 and 7.2 of the 1998 Agreement.

There can be several reasons for the introduction of alternative emission limits:

- (i) **Different environmental priorities for different gaseous pollutants, CO₂ and energy/fuel conservation, or cost-benefit situation;**
- (ii) **Diverse traffic situation or special vehicles (performance, classification);**
- (iii) **Separated or combined limits for HC and NO_x;**
- (iv) **Different reference fuels because of the market fuel situation.**

Contracting Parties may opt to accept these alternative performance requirements (paragraph 5.3.) in addition to the principal requirements (paragraph 5.2.).

When a Contracting Party transposes this global technical regulation in a manner that includes any of the specified alternative performance requirements, the national or regional legislation should ensure that a motorcycle that complies with the principal performance requirements in this global technical regulation will satisfy the national or regional legislation. This will give some planning reliability for manufacturers. Compliance with the principal or alternative performance requirements will be determined by the national or regional certification or type approval authority.

(e) Reference Fuel

The principal performance requirements introduced in paragraph 5.2. of this global technical regulation are based on the use of the reference fuel as specified in Annex 2 (A2.1.) of gtr No. 2. The use of this standardized reference fuel for determining compliance with the emission limits set out in paragraph 5.2. is considered as an ideal condition for ensuring the reproducibility of regulatory emission testing, and Contracting Parties are encouraged to use such fuel in their compliance testing.”

Insert a new paragraph 4(f), to read:

[Note: a statement needs to be inserted indicating that provisions concerning durability and useful life are, for the time being, out of the scope of gtr No. 2.]

Paragraph 5(b), amend to read:

“(b) Potential cost effectiveness

Specific cost effectiveness values for this gtr have not been calculated. **It is expected that each Contracting Party can develop such information with the transposition of this gtr into national or regional legislation. Specific cost effectiveness values can be quite different, depending on the national or regional environmental needs and market situation.** While there are no calculated cost per ton values here, the belief of the **informal group on WMTC is that there are clear benefits associated with Amendment 2 to gtr No. 2.**”

Part B (Text of the regulation)

Paragraphs 5., amend to read (including the insertion of footnotes ¹ and ²):

"5. Performance requirements **for vehicles fitted with gasoline engines**

5.1. Optional performance requirements

The principal requirements of performance are set out in paragraph 5.2. Contracting Parties may also accept compliance with one or more of the alternative performance requirements set out in paragraph 5.3.

5.2. The principal performance requirements ¹

The gaseous emissions for each class of vehicle defined in paragraph 6.3., obtained when tested in accordance with the cycles specified in paragraph 6.5.4.1., shall not exceed the values specified in Table 5 1.

Table 5-1

Limit values for gaseous emissions CO, HC and NO_x

Vehicle Class	CO		HC		NO _x	
	Class 1 and Class 2	Class 3	Class 1 and Class 2	Class 3	Class 1 and Class 2	Class 3
Limit values <i>L_A</i> in mg/km	2200	[2620]	450	270	160	210

¹ The limit values set out in Table 5-1 represent the most stringent national or regional emission limits applied by a Contracting Party at the time of adoption of the last amendments to this gtr. It is the intent that the gtr would be amended to update these limit values at such time that new more stringent standards are adopted through national or regional legislation, in order to represent those new limit values.

5.3. Alternative performance requirements ²

5.3.1. First alternative performance requirements

The gaseous emissions for each class of vehicle defined in paragraph 6.3., for the alternate performance requirements, obtained when tested in accordance with the cycles specified in paragraph 6.5.4.1., except that vehicles in Class 2.1 are to be tested by using the cycles prescribed for Class 1, shall not exceed the values specified in Table 5-2.

Table 5-2

Limit values for gaseous emissions CO, HC + NO_x

Vehicle Class	CO		HC + NO _x		
	Class 1 and Class 2.1	Class 2.2 and Class 3	Class 1 and Class 2.1	Class 2.2	Class 3
Limit values <i>L_B</i> in (mg/km)	1870	2620	1080	920	550

5.3.2. Second alternative performance requirements

The gaseous emissions for each class of vehicle defined in paragraph 6.3., obtained when tested in accordance with the cycles specified in paragraph 6.5.4.1., shall not exceed the values specified in Table 5 1.

Table 5-3

Limit values for gaseous emissions CO, HC, HC + NO_x

Vehicle Class	CO	HC	HC + NO _x
	All	Class 1 and Class 2	Class 3
Limit values <i>L_B</i> in (mg/km)	12000	1000	800

Paragraph 6.4., amend to read:

“6.4. Specification of the reference fuel

[The reference fuels, as specified in Annex 2, shall be used for testing vehicles for compliance with the principal emission limits set out in paragraph 5.2. For the purpose of the calculation mentioned in paragraph 8.1.1.5., for petrol the density measured at 15 °C will be used. Contracting Parties may specify different reference fuels to be used for testing vehicles for compliance with the alternative emission limits set out in paragraph 5.3.]”

² If necessary, at the request of a Contracting Party, further sub-paragraphs can be added to paragraph 5.3. in order to allow additional alternatives.