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Economic Commission for Europe**Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on Pollution and Energy****Seventy-third session**

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Item 3(a) of the provisional agenda

Light vehicles – Regulations Nos. 68 (Measurement of the maximum speed, including electric vehicles), 83**(Emissions of M₁ and N₁ vehicles), 101 (CO₂ emissions/fuel consumption) and 103 (Replacement pollution control devices)****Proposal for a new Supplement to the 06 and 07 series of amendments to Regulation No. 83 (Emissions of M₁ and N₁ vehicles)****Submitted by the expert from the European Commission***

The text reproduced below was prepared by the expert from the European Commission and is based on informal documents GRPE-72-14 and GRPE-72-15 (see report ECE/TRANS/WP.29/GRPE/72, paras. 20-21). The proposal is aimed at providing clarifications and correcting errors in the 06 and 07 series of amendments to Regulation No. 83. The modifications to the current text of the Regulation are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2014–2018 (ECE/TRANS/240, para. 105 and ECE/TRANS/2014/26, 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.



I. Proposals

A. A new Supplement to the 06 series of amendments

Paragraph 7.1.4.1., amend to read:

"7.1.4.1. Identical parameters for extending approval are:

~~(a)~~—~~Engine;~~

Engine:

~~(b)~~(a) Combustion process;

~~(c)~~—~~Periodically regenerating system (i.e. catalyst, particulate trap);~~

Periodically regenerating system (i.e. catalyst, particulate trap):

~~(d)~~(a) Construction (i.e. type of enclosure, type of precious metal, type of substrate, cell density);

~~(e)~~(b) Type and working principle;

~~(f)~~(c) Dosage and additive system;

~~(g)~~(d) Volume ± 10 per cent;

~~(h)~~(e) Location (temperature ± 50 °C at 120 km/h or 5 per cent difference of maximum temperature/pressure)."

Annex 4a, Appendix 3, paragraph 1.2.12.6., amend to read:

"1.2.12.6. The HFID shall be used with a constant flow (heat exchanger) system to ensure a representative sample, unless compensation for varying ~~CFV~~ or ~~CFE~~ **CVS volume** flow is made."

Annex 7, paragraph 7.5.2., amend to read:

"7.5.2. The inspector may test these vehicles by application of ~~paragraph 8.2.5. of this Regulation~~ **paragraph 7.1. of this annex.**"

Annex 11,

Paragraph 3.3.3.1., amend to read:

"3.3.3.1. The reduction in the efficiency of the catalytic converter with respect to emissions of ~~THC~~ **NMHC** and NO_x . Manufacturers may monitor the front catalyst alone or in combination with the next catalyst(s) downstream. Each monitored catalyst or catalyst combination shall be considered malfunctioning when the emissions exceed the NMHC or NO_x threshold limits provided for by paragraph 3.3.2. of this annex. By way of derogation the requirement of monitoring the reduction in the efficiency of the catalytic converter with respect to NO_x emissions shall only apply as from the dates set out in paragraph 12.1.4."

Paragraph 3.3.3.4., amend to read:

"3.3.3.4. If active on the selected fuel, other emission control system components or systems, or emission related power train components or systems which are connected to a computer, the failure of which may result in tailpipe emissions

exceeding the **OBD threshold** limits given in paragraph 3.3.2. **of this annex.**"

Paragraph 3.3.4.4., amend to read:

"3.3.4.4. Other emission control system components or systems, or emission-related power-train components or systems, which are connected to a computer, the failure of which may result in exhaust emissions exceeding the **OBD threshold** limits given in paragraph 3.3.2. **of this annex.** Examples of such systems or components are those for monitoring and control of air mass-flow, air volumetric flow (and temperature), boost pressure and inlet manifold pressure (and relevant sensors to enable these functions to be carried out)."

Paragraph 3.3.5., amend to read:

"3.3.5. Manufacturers may demonstrate to the Type Approval Authority that certain components or systems need not be monitored if, in the event of their total failure or removal, emissions do not exceed the ~~emission~~ **OBD threshold** limits given in paragraph 3.3.2. **of this annex.**"

B. A new Supplement to the 07 series of amendments

Paragraph 7.1.4.1., amend to read:

"7.1.4.1. Identical parameters for extending approval are:

~~(a)~~ ~~Engine;~~

Engine:

~~(b)~~(a) Combustion process;

~~(c)~~ ~~Periodically regenerating system (i.e. catalyst, particulate trap);~~

Periodically regenerating system (i.e. catalyst, particulate trap):

~~(d)~~(a) Construction (i.e. type of enclosure, type of precious metal, type of substrate, cell density);

~~(e)~~(b) Type and working principle;

~~(f)~~(c) Dosage and additive system;

~~(g)~~(d) Volume ± 10 per cent;

~~(h)~~(e) Location (temperature ± 50 °C at 120 km/h or 5 per cent difference of maximum temperature/pressure)."

Annex 2, Addendum, item 2.1.1., amend to read:

"2.1.1. For bi fuel vehicles, the type I table shall be repeated for both fuels. For flex fuel vehicles, when the ~~type I~~ **type I** test is to be performed on both fuels according to Table A of this Regulation and for vehicles running on LPG or NG/Biomethane, either mono fuel or bi fuel, the table shall be repeated for the different reference gases used in the test, and an additional table shall display the worst results obtained. When applicable, in accordance with paragraphs 3.1.4. and 3.1.5. of Annex 12 to this Regulation, it shall be shown if the results are measured or calculated."

Annex 4a, Appendix 3, paragraph 1.2.12.6., amend to read:

"1.2.12.6. The HFID shall be used with a constant flow (heat exchanger) system to ensure a representative sample, unless compensation for varying ~~CFV or CFO~~ **CVS volume** flow is made."

Annex 10, Type: Petrol (E10) table, amend to read:

"

...
Water content	% m/m % v/v	max 0.05 Appearance at -7 °C: clear and bright	EN 12937
Appearance at -7 °C		Clear and bright	
...

"

Annex 11,

Paragraph 3.3.3.1., amend to read:

"3.3.3.1. The reduction in the efficiency of the catalytic converter with respect to emissions of ~~THC~~ **NMHC** and NO_x. Manufacturers may monitor the front catalyst alone or in combination with the next catalyst(s) downstream. Each monitored catalyst or catalyst combination shall be considered malfunctioning when the emissions exceed the NMHC or NO_x threshold limits provided for by paragraph 3.3.2. of this annex."

Paragraph 3.3.3.4., amend to read:

"3.3.3.4. If active on the selected fuel, other emission control system components or systems, or emission related power train components or systems which are connected to a computer, the failure of which may result in tailpipe emissions exceeding the **OBD threshold** limits given in paragraph 3.3.2. of this annex."

Paragraph 3.3.4.4., amend to read:

"3.3.4.4. Other emission control system components or systems, or emission-related power-train components or systems, which are connected to a computer, the failure of which may result in exhaust emissions exceeding the **OBD threshold** limits given in paragraph 3.3.2. of this annex. Examples of such systems or components are those for monitoring and control of air mass-flow, air volumetric flow (and temperature), boost pressure and inlet manifold pressure (and relevant sensors to enable these functions to be carried out)."

Paragraphs 3.3.5. to 3.3.5.2., amend to read:

"3.3.5. Manufacturers may demonstrate to the Type Approval Authority that certain components or systems need not be monitored if, in the event of their total failure or removal, emissions do not exceed the ~~emission limits~~ **OBD threshold limits** given in paragraph 3.3.2. of this annex."

- 3.3.5.1. The following devices should however be monitored for total failure or removal (if removal would cause the applicable emission limits **in paragraph 5.3.1.4. of this Regulation** to be exceeded):
- (a) A particulate trap fitted to compression ignition engines as a separate unit or integrated into a combined emission control device;
 - (b) A NO_x after treatment system fitted to compression ignition engines as a separate unit or integrated into a combined emission control device;
 - (c) A Diesel Oxidation Catalyst (DOC) fitted to compression ignition engines as a separate unit or integrated into a combined emission control device.
- 3.3.5.2. The devices referred to in paragraph 3.3.5.1. **of this annex** shall also be monitored for any failure that would result in exceeding the applicable OBD threshold limits."

II. Justification

1. The amendment to the format of paragraph 7.1.4.1. is proposed to improve accuracy and to align it with the equivalent text of paragraph 2.1.1. of Annex 13. The terms "Engine" and "Periodically regenerating system" should both be sub-headings instead of being part of the list of elements as they currently are in paragraph 7.1.4.1.
2. The amendment to paragraph 2.1.1. of the Addendum to Annex 2 in the 07 series of amendments aims at correcting an error in the terminology.
3. The proposed amendment to paragraph 1.2.12.6. of Appendix 3 to Annex 4a corrects inaccurate terminology by replacing "CFV or CFO flow" by "CVS volume flow".
4. The amendment to paragraph 7.5.2. of Annex 7 aims at correcting a cross-referencing error that remains in the 06 series of amendments.
5. The table of Annex 10 for Petrol (E10) in the 07 series of amendments is proposed to be aligned with ECE/TRANS/WP.29/GRPE/2016/3 on amendments to Global Technical Regulation No. 15. The unit should be per cent v/v instead of per cent m/m. The appearance is a separate parameter, related to but not an "answer" to the "water content" category. A new row is therefore provided for "Appearance at -7 °C".
6. The amendment to paragraph 3.3.3.1. of Annex 11 aims at correcting an error. The reference should be to the emissions of Non-Methane Hydrocarbons (NMHC) instead of Total Hydrocarbons (THC), since limits in paragraph 3.3.2. of Annex 11 are provided for NMHC.
7. The amendment to paragraphs 3.3.3.4., 3.3.4.4. and 3.3.5. of Annex 11 replaces "limits" by "OBD threshold limits" to clarify that this is a reference to the OBD threshold limits and not to the emissions limits in Table 1 in paragraph 5.3.1.4. of the Regulation.
8. The addition of the wording "in paragraph 5.3.1.4. of this Regulation" in paragraph 3.3.5.1. of Annex 11 in the 07 series of amendments aims at clarifying that the emissions limits being referred to are those in Table 1 in paragraph 5.3.1.4. of the Regulation and not the OBD threshold limits in paragraph 3.3.2. of Annex 11.