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Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations**Working Party on Pollution and Energy****Eighty-ninth session**

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Item 5 of the provisional agenda

UN Regulations Nos. 24 (Visible pollutants, measurement of power of C.I. engines (Diesel smoke)), 85 (Measurement of the net power), 115 (LPG and CNG retrofit systems), 133 (Recyclability of motor vehicles) and 143 (Heavy Duty Dual-Fuel Engine Retrofit Systems (HDDF-ERS))**Proposal for a new Supplement to the 03 series of amendments to UN Regulation No. 24 (Visible pollutants, measurement of power of C.I. engines (Diesel smoke))****Submitted by the International Organization of Motor Vehicle Manufacturers ***

The text reproduced below was prepared by the experts from the International Organization of Motor Vehicle Manufacturers (OICA). This document is aimed to clarify the wording regarding the usage of the reference fuel required for emission testing and to permit performing test with same reference fuel used for emission testing and bring consistency with recently adopted amendments to Regulation No. 85. 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 2022 as outlined in proposed programme budget for 2023 (A/77/6 (Sect. 20), table 20.6), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



I. Proposal

Part I, paragraph 8.3.1., amend to read:

"8.3.1. An engine which has not been run in shall be subjected to the test under free acceleration prescribed in annex 5 to this Regulation.

The engine shall be deemed to conform to the approved type if the absorption coefficient determined does not exceed by more than 0.5m-1 the figure shown in the approval mark or document for that engine (see paragraph 8.1 above). On the request of the manufacturer, **the reference fuel** commercially available fuel may be used rather than **commercially available fuel** ~~the reference fuel.~~"

Annex 4, paragraph 3.2., amend to read:

"3.2. Fuel

The fuel shall be the reference fuel whose specifications are given in Annex 6 to this Regulation.

In the case that testing for ~~Engine Power~~ ~~emission of gaseous and particulate pollutants~~ according to UN Regulations Nos. 85 and/or **testing for emission of gaseous and particulate pollutants according to UN Regulation No. 49** is conducted at the same time as testing to this Regulation, at the request of the manufacturer the fuel for testing emission of gaseous and particulate pollutants may be used for testing to this Regulation."

Annex 5, add new Paragraph 1.5. to read:

"1.5. Fuel

The fuel used shall be the one available on the market. In any case of dispute, the fuel shall be the reference fuel whose specifications are given in Annex 6 to this Regulation."

Annex 10, Paragraph 9.1., amend to read:

"9.1. ~~The net power of the engine measured by the technical service may differ by ± 2 per cent from the net power specified by the manufacturer, with a tolerance of 1.5 per cent for the engine speed.~~

The net power indicated by the manufacturer shall be accepted if it does not differ by more than ± 2 per cent for maximum power and more than ± 4 per cent at the other measurement points on the curve with a tolerance of ± 2 per cent for engine speed, or within the engine speed range ($X1 \text{ min}^{-1} - 2 \text{ per cent}$) to ($X2 \text{ min}^{-1} + 2 \text{ per cent}$) ($X1 < X2$) from the values measured by the technical service on the engine submitted for testing."

II. Justification

1. The wording at the end of paragraph 8.3.1. should be reversed to reflect the new wording proposed in Annex 5.
2. Recent amendments have attempted to clarify the fuels which may be used for the various stages of approval but it has since been noticed that this clarity is still absent from Annex 5 (free acceleration test). This new paragraph therefore makes Annex 5 consistent with Annex 4.
3. An amendment was adopted at GRPE 86 in June 2022 to introduce the allowance of harmonised reference fuels. Sadly however the text contained a contradiction between the words "testing for emission of gaseous and particulate pollutants" and the references to "UN Regulations Nos. 85 and/or 49" as R 85 is not emissions legislation.
4. GRPE 87 discussed and adopted a similar amendment to Regulation 85 (GRPE-2022-08e as amended by GRPE-87-16e) in January 2023 and this proposal seeks to bring consistency.

5. Alignment with UN Regulation No. 85, i.e. ± 2 per cent at maximum power and ± 4 per cent at other measuring points. Supplement 8 considered this only for Annex 4 (TEST AT STEADY SPEEDS OVER THE FULL-LOAD CURVE) and not for Annex 10 ("ECE" METHOD OF MEASURING THE NET POWER OF C.I. ENGINES).
