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**Economic Commission for Europe****Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****158<sup>th</sup> session**

Geneva, 13-16 November 2012

Item 4.10.3 of the provisional agenda

**1958 Agreement – Consideration of draft amendments  
to existing Regulations submitted by GRPE****Proposal for Supplement 6 to Regulation No. 85  
(measurement of the net power)****Submitted by the Working Party on Pollution and Energy\***

The text reproduced below was adopted by the Working Party on Pollution and Energy (GRPE) at its sixty-fourth session to introduce amendments to Regulation No. 85 (ECE/TRANS/WP.29/GRPE/64, para. 62). It is based on GRPE-64-20, as reproduced in Annex IV to the report (ECE/TRANS/WP.29/GRPE/64/Add.1). It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Administrative Committee AC.1 for consideration.

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\* In accordance with the programme of work of the Inland Transport Committee for 2010–2014 (ECE/TRANS/208, para. 106 and ECE/TRANS/2010/8, 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.

*Paragraph 2*, add new definitions to read:

- "2.8. "Dual-fuel engine" means an engine system type approved according to Regulation No. 49 or mounted on a vehicle type approved with regards to its emissions according to Regulation No. 49 and that is designed to simultaneously operate with diesel fuel and a gaseous fuel, both fuels being metered separately, where the consumed amount of one of the fuels relative to the other one may vary depending on the operation;
- 2.9. "Dual-fuel vehicle" means a vehicle that is powered by a dual-fuel engine and that supplies the fuels used by the engine from separate on-board storage systems;
- 2.10. "Dual-fuel mode" means the normal operating mode of a dual-fuel engine during which the engine simultaneously uses diesel fuel and a gaseous fuel at some engine operating conditions;
- 2.11. "Diesel mode" means the normal operating mode of a dual-fuel engine during which the engine does not use any gaseous fuel for any engine operating condition.

*Paragraph 5.2.1.*, amend to read:

- "5.2.1. The net power test shall consist of a run at full throttle for positive ignition engines and at full-load for compression ignition engines and dual-fuel engines, the engine being equipped as specified in Table 1 of Annex 5 to this Regulation."

*Insert a new paragraph 5.2.1.1.*, to read:

- "5.2.1.1. In case of a dual-fuel engine that has a diesel mode, the test shall consist of a run on the dual-fuel mode and of a run on the diesel mode of that same engine."

*Paragraph 5.2.3.2.*, amend to read:

- "5.2.3.2. For positive ignition engines and dual-fuel engines fuelled with LPG:"

*Paragraph 5.2.3.3.*, amend to read:

- "5.2.3.3. For positive ignition engines and dual-fuel engines fuelled with natural gas:"

*Paragraph 5.2.3.4.*, amend to read:

- "5.2.3.4. For compression ignition engines and dual-fuel engines:"

*Paragraph 5.2.3.3.5. (former) renumber as 5.2.3.3.6.*

*Paragraph 5.2.3.3.4. (former) renumber as 5.2.3.3.5.*

*Insert a new paragraph 5.2.3.3.4.*, to read:

- "5.2.3.3.4. In the case of an engine labelled for one specific LNG fuel composition:

The fuel used shall be the fuel for which the engine is labelled or the reference fuel G20 specified in Annex 8 if the engine is labelled LNG20."

*Insert a new paragraph 5.2.3.6.*, to read:

- "5.2.3.6. Dual-fuel engines or vehicles that have a diesel mode are to be tested with the fuels appropriate to each mode, in accordance with the provisions set in paragraphs 5.2.3.1 to 5.2.3.5."

*Paragraph 5.4*, amend to read:

"5.4. Interpretation of Results

The net power and the maximum 30 minutes power for electric drive trains indicated by the manufacturer for the type of drive train shall be accepted if it does not differ by more than  $\pm 2$  per cent for maximum power and more than  $\pm 4$  per cent at the other measurement points on the curve with a tolerance of  $\pm 2$  per cent for engine or motor speed, or within the engine or motor speed range ( $X1 \text{ min}^{-1} + 2$  per cent) to ( $X2 \text{ min}^{-1} - 2$  per cent) ( $X1 < X2$ ) from the values measured by the technical service on the drive train submitted for testing.

In case of a dual-fuel engine, the net power indicated by the manufacturer shall be the one measured on the dual-fuel mode of that engine."

*Annex 1*,

*Insert a new item 1.3.*, to read (including the reference to footnote 1):

"1.3. Dual-fuel vehicle: YES/NO <sup>1</sup>"

*Insert a new item 1.3.1.*, to read (including the reference to footnote 1):

"1.3.1. Dual-fuel engine having a diesel mode: YES/NO <sup>1</sup>"

*Item 3.0.*, amend to read (including the reference to footnote 1):

"3.0. Fuel: diesel oil/petrol/LPG/CNG/LNG <sup>1</sup>"

*Insert a new item 3.0.1.*, to read:

"3.0.1. When applicable, the additional character(s) in the approval marking required by Regulation No. 49, the purpose of which is to distinguish the type of engine for which the approval has been granted (e.g. HLT)."

*Insert new items 3.4. to 3.4.2.*, to read (including the reference to footnote 1):

"3.4. Gas and dual-fuel engines

3.4.1. Self-adaptive fuelling: YES/NO <sup>1</sup>

3.4.2. In case of an engine without self-adaptive fuelling: specific gas composition / range of gases for which the engine is calibrated."

*Item 17.0.*, amend to read:

"17.0. ADDITIONAL INFORMATION ON TEST CONDITIONS (for positive ignition and dual-fuel engines only)"

*Insert a new item 17.5.*, to read (including the references to footnotes 1 and 2):

"17.5. Gas fuel used for the test: Reference fuel <sup>2</sup> / other <sup>1</sup>

17.5.1. If the gas fuel used for the test is a reference fuel, label of that gas:

17.5.2. If the gas fuel used for the test is not a reference fuel, composition of that gas: "

*Insert a new footnote 2, after item 17.5.*, to read:

"<sup>2</sup> As specified in Annex 8 of this Regulation."

*Annex 3a,*

*Item 11.2, add a new line at the end of the item, to read (including the reference to footnote 2):*

"Dual-fuel engine: YES with a diesel mode / YES without a diesel mode / NO <sup>2</sup>"

*Item 11.3. amend to read (including the reference to footnote 2):*

"11.3. Engine fuel requirements: leaded petrol / unleaded petrol / diesel fuel / CNG / LNG / LPG:<sup>2</sup>"

*Annex 3b,*

*Item 13.2., add a new line at the end of the item, to read (including the reference to footnote 2):*

" Dual-fuel engine: YES with a diesel mode / YES without a diesel mode / NO <sup>2</sup>"

*Item 13.3. amend to read (including the reference to footnote 2):*

"13.3. Engine fuel requirements: leaded petrol / unleaded petrol / diesel fuel / CNG / LNG / LPG: <sup>2</sup>"

*Annex 5 – Appendix,*

*Item 2.2. amend to read:*

"2.2. For positive-ignition engines and dual-fuel engines operating on gaseous fuel"

*Item 2.4. amend to read:*

"2.4. For compression-ignition engines and dual-fuel engines operating on diesel fuel"

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