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**Economic Commission for Europe****Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on General Safety Provisions****115th session**

Geneva, 9-12 October 2018

Item 9(b) of the provisional agenda

**Amendments to gas-fuelled vehicle regulations:****UN Regulation No. 110 (CNG and LNG vehicles)****Proposal for Supplement 2 to the 03 series of amendments to  
UN Regulation No. 110 (CNG and LNG vehicles)****Submitted by the expert from the Netherlands\***

The text reproduced below was prepared by the expert from the Netherlands to insert new requirements for vehicle gas systems to provide gaseous fuel to a generator that would provide electrical power to accessories or other systems on the vehicle. The proposal is similar to the already permitted use of the gas system to provide gaseous fuel to a refrigeration system on the vehicle (ECE/TRANS/WP.29/GRSG/2017/9). It is based on informal document GRSG-114-06-Rev.1, presented at the 114th session of the Working Party on General Safety Provisions (GRSG) (see report ECE/TRANS/WP.29/GRSG/93, para. 34). The modifications to the current text of UN Regulation No. 110 are marked in bold characters.

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\* 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, cluster 02.4), 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

*Paragraphs 18.1.7.1. and 18.1.7.2., amend to read:*

- "18.1.7.1. Notwithstanding the provisions of paragraph 18.1.7., vehicles may be fitted with **an extra engine for use on the vehicle (e.g. for cooling, heating etc.)** which is connected to the CNG and/or LNG system.
- 18.1.7.2. The **second engine** referred to in paragraph 18.1.7.1. shall be permitted if, in the view of the Technical Services responsible for conducting type approval, **second engine** is adequately protected and the required operation of the normal CNG and/or LNG system is not affected."

*Paragraph 18.5.1.3., amend to read:*

- "18.5.1.3. Notwithstanding the provisions of paragraph 18.5.1.2.
- (a) The automatic cylinder valve may stay in an open position during commanded stop phases; and
- (b) In the case where a fire alarm system is installed in the autonomous CNG and/or LNG heater compartment, the automatic valve(s) may be opened by a CNG/LNG electronic control unit to permit the warming of the engine. Any defect or failure of the system shall cause the automatic valve of the cylinder supplying the heating system to close; and
- (c) In the case where a fire alarm system is installed in the refrigeration system compartment of the cargo compartment, the automatic valve(s) may be opened by a CNG/LNG electronic control unit to permit the cooling of the cargo compartment. Any defect or failure of the system shall cause the automatic valve of the cylinder supplying the refrigeration system to close;  
**and**
- (d) **In the case where a fire alarm system is installed in the second engine compartment, the automatic valve(s) may be opened by an electronic control unit to permit the provision of electrical power. Any defect or failure of the system shall cause the automatic valve of the cylinder supplying the refrigeration system to close."**

*Annex 1A*

*Items 1.2.4.5.15. to 1.2.4.5.15.3., amend to read (footnote <sup>1</sup> remains unchanged):*

- "1.2.4.5.15. Connection to CNG/LNG system for **second engine** system: yes/no<sup>1</sup>
- 1.2.4.5.15.1. Make(s) of the **second engine** system: .....
- 1.2.4.5.15.2. Type(s) of the **second engine** system: .....
- 1.2.4.5.15.3. Description and drawings of installation of the **second engine** system:....."

*Annex 1B*

*Items 1.2.4.5.15. to 1.2.4.5.15.3., amend to read (footnote <sup>2</sup> remains unchanged):*

- "1.2.4.5.15. Connection to CNG/LNG system for the **second engine** system: yes/no<sup>2</sup>
- 1.2.4.5.15.1. Make(s): .....
- 1.2.4.5.15.2. Type(s): .....

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1.2.4.5.15.3. Description and drawings of installation: ..... "

*Items 1.2.4.5.15.4. to 1.2.4.5.15.6., shall be deleted.*

## **II. Justification**

1. The above-mentioned proposals are made upon the request of the LNG/CNG market.
  2. LNG is stored in vehicle fuel tanks at very low temperatures: between -162 °C to -130 °C is typical. Over time, if not used by driving the vehicle, the LNG can warm and the tanks vent to prevent over pressure, releasing gas to the atmosphere.
  3. This proposal is to allow the use of a generator to use some gas in these circumstances in order to reduce the tank pressure and to prevent or delay venting.
  4. The generator could also power other systems on the vehicle providing overnight power for the driver in sleeper cabs, or to maintain battery charge during high electrical power use with loading or lifting equipment, etc.
  5. By the above given requirements, the Netherlands proposes to make this technology available for the market.
  6. Upon the proposal by the United Kingdom of Great Britain and Northern Ireland during the 114th session of GRSG, the document is further simplified with the insertion of "second engine" to cover all external technology (e.g. heating system, cooling system, electrical generator or further engine).
  7. Upon the proposal by Japan, the description "for use on the vehicle" is added to prevent that, for instance, the second engine is used for energy supply to external use.
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