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Item 6(b) of the provisional agenda

Amendments to gas-fuelled vehicle regulations:

Regulation No. 110 (CNG and LNG vehicles)

Proposal for the 03 series of amendments to Regulation No. 110 (CNG and LNG vehicles)

Submitted by the expert from Germany*

The text reproduced below was prepared by the expert from Germany to propose a new series of amendments to UN Regulation No. 110 to improve the specifications for the installation and inspection of Compressed Natural Gas (CNG) cylinders or of Liquefied Natural Gas (LNG) tanks and their accessories. The modifications to the current text of UN Regulation No. 110 are marked in bold for new characters.

* In accordance with the programme of work of the Inland Transport Committee for 2016–2017 (ECE/TRANS/254, para. 159 and ECE/TRANS/2016/28/Add.1, cluster 3.1), 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.

GE.17-11939(E)



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I. Proposal

Insert a new paragraph 18.1.6.1., to read:

"18.1.6.1. Notwithstanding the provisions of paragraph 18.1.6., sufficient access to the CNG-cylinder/LNG-tank and their accessories shall be ensured for visual (periodical) inspection, without the necessity of disassembling any components or part of protective housing."

II. Justification

1. This proposal addresses the necessity of improving the requirements of the Regulation. It was already presented at the 112th session of GRSG based on informal document GRSG-112-33.

2. From 2012 various incidents occurred where Type-1 cylinders of compressed natural gas (CNG) vehicles (on vehicles of an original equipment manufacturer (OEM)) burst during refilling. Investigations resulted in corrosion effects as the reason for the burst. Another original equipment manufacturer addressed similar problems with Type-1 cylinders and, as a result of the incidents, recall-activities and exchange of cylinders was initiated. Corrosion effects (and other damage) appear in normal operation of the vehicles.

3. Paragraph 18.1.6. of UN Regulation No. 110 stipulates that "the CNG and/or LNG system shall be installed such that it has the best possible protection against damage, such as damage due to moving vehicle components, collision, grit or due to the loading or unloading of the vehicle or the shifting of those loads". This normally results in housing or other sorts of covering especially of the cylinders/tanks, conditions stimulating corrosion.

4. Furthermore, the provisions of paragraph 18.1.6. and its implementation conflict with the requirements of Annex 3a, paragraph 4.1.4. on "periodic re-qualification" of CNG-cylinders where visual inspection is required for detecting damage and deterioration.

5. Even though in UN Regulation No. 67 there is no explicit requirement for periodic re-qualification of containers as in UN Regulation No. 110, the corrosion effects in the market are similar compared to those of CNG-cylinders.

6. Paragraph 18.8.6. stipulates "Any joints shall be made in locations where access is possible for inspection." is also in potential conflict with the above-mentioned solutions. Though type-2/3 and especially 4 cylinders do not have these corrosion problems as type-1 cylinders, also here a visual inspection must be ensured because of potentially critical external damage.

7. The proposal aims to meet both the requirement of adequate protection and the guarantee of sufficient access to the cylinder and its accessories to allow regular visual inspection. The access can be realized e.g. by an inspection hatch in the housing.
