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**Economic Commission for Europe****Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on General Safety Provisions****113th session**

Geneva, 10-13 October 2017

Item 6(a) of the provisional agenda

**Amendments to gas-fuelled vehicle regulations:****Regulation No. 67 (LPG vehicles)****Proposal for the 02 series of amendments to Regulation No. 67  
(LPG vehicles)****Submitted by the expert from Germany\***

The text reproduced below was prepared by the expert from Germany and proposes a new series of amendments to UN Regulation No. 67 to improve the specifications for the Liquefied Petroleum Gas (LPG) multi-valve fitted to vehicles and those for the installation and inspection of LPG-containers and their accessories. The modifications to the current text of UN Regulation No. 67 are marked in bold for new characters.

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\* 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.17-11937(E)



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## I. Proposal

*Paragraphs 6.15.8. and 6.15.8.1., amend to read:*

- "6.15.8. Provisions regarding the pressure relief valve (discharge valve)
- 6.15.8.1. The pressure relief valve shall be mounted inside the container or on the container, in the area where the fuel is in gaseous state. **Any components connecting the pressure relief valve with the gaseous phase shall be made of metallic material.**"

*Paragraph 6.15.8.7., amend to read:*

- "6.15.8.7. The pressure relief device shall be mounted on the container in the gaseous zone. **Any components connecting the pressure relief device with the gaseous phase shall be made of metallic material.**"

*Insert new paragraph 17.1.6.1., to read:*

- "**17.1.6.1. Notwithstanding the provisions of paragraph 17.1.6., sufficient access to the LPG-container and its accessories shall be ensured for visual (periodical) inspection, without the necessity of disassembling any components or part of protective housing.**"

## II. Justification

*Ad paragraphs 6.15.8.1. and 6.15.8.7.:*

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 documents GRSG-112-31 and GRSG-112-32.
2. In 2014 in Germany, a LPG-vehicle took fire because of an accident. During the rescue operations, the LPG-container exploded, resulting in 10 partially serious injured fire fighters.
3. The analysis of the incident, carried out by the German Type Approval Authority (KBA), came to the conclusion that the hose connecting the PRV/PRD of the multivalve to the gaseous phase was damaged and hose-fragments blocked both PRV and PRD, so pressure could not be reduced in time. PRV and PRD were activated, but the fragments reduced the effective section of the relevant piping considerably and prevented the release of pressure.

*Ad paragraph 17.1.6.1.:*

4. 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 were initiated. Corrosion effects (and other damage) appear in normal operation not only on CNG vehicles, but also on LPG vehicles. Therefore, the modifications are also deemed to be included in UN Regulation No. 67.
5. Paragraph 17.1.6. of UN Regulation No. 67 stipulates that "The LPG-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.

6. 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.

7. Paragraph 17.8.7. stipulates "Any joints shall be made in locations where access is possible for inspection." is also in potential conflict with the above-mentioned solutions. 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.

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