

Proposal for amendments to UN Regulation No. 110 (CNG/LNG vehicles)

The text reproduced below was prepared by the experts from Germany. It proposes a new series of amendments to UN Regulation No. 110 to improve the specifications for installation and inspection of CNG-cylinders / LNG-tanks and their accessories. The modifications to the current text of UN Regulation No. 110 are marked in bold for new characters and strikethrough for deleted characters.

I. Proposal

Insert 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

With this Informal Document the expert from Germany wants to address the necessity to improve the requirements of the regulation and to invite other contracting parties to share their experience, aiming at preparing a working document for the next GRSG session.

From 2012 various incidents happened where type-1 cylinders of CNG-vehicles (OEM-vehicles) bursted while refilling.

Investigations resulted in corrosion effects as reason for the burst. Another OEM addressed similar problems with type-1 cylinders and as a result of the incidents, recall-activities and exchange of cylinders was initiated.

It appears that corrosion (and other damage) effects are not unlikely to happen in normal operation.

According to para. 18.1.6. of UN-R110, *"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 of especially the cylinders/tanks, conditions stimulating corrosion.

Additionally, the requirement of para. 18.1.6. and its implementation conflicts with the requirement of Annex 3a, para. 4.1.4. "periodic re-qualification" of CNG-cylinders where visual inspection is required for detecting damage and deterioration.

Also para. 18.8.6. *"Any joints shall be made in locations where access is possible for inspection."* is 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.

The proposal aims in meeting both the requirement of adequate protection, but also in guaranteeing 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.