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Regulation No. 110 (CNG vehicles)

Proposal for amendments to ECE/TRANS/WP.29/2013/101: draft Supplement 1 to the 01 series of amendments to Regulation No. 110 (CNG vehicles)

Submitted by the expert from the Netherlands*

The text reproduced below was prepared by expert from the Netherlands to clarify the type approval provisions proposed in ECE/TRANS/WP.29/2013/101 for vehicles equipped with Liquefied Natural Gas (LNG) propulsion systems. The modifications to the text of ECE/TRANS/WP.29/2013/101 are marked in bold characters.

* 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.

I. Proposal

Paragraphs 8.13.1. to 8.13.1.2., amend to read:

"8.13.1. The LNG tank shall be equipped at least with the following components, which may be either separate or combined (**special care shall be taken to prevent LNG trapping**):

8.13.1.1. Pressure relief valve;

8.13.1.2. Manual valve (**for fuel system maintenance**);"

Insert new paragraphs 8.13.1.3., to read:

"8.13.1.3. Automatic valve (for fuel shut off);"

Paragraph 8.13.1.3. (former), renumber as paragraph 8.13.1.4.

Paragraph 8.13.3., amend to read:

"8.13.3. The components mentioned in paragraphs 8.13.1.1. to 8.13.1.4. (above) shall be type approved pursuant to the provisions laid down in Annex 4 to this Regulation."

Insert new paragraphs 18.6.1. to 18.6.1.2., to read:

"18.6.1. Automatic valve

18.6.1.1. An automatic valve shall be installed in the fuel supply line, directly on every LNG tank (in a protected position).

18.6.1.2. The automatic valve shall be operated such that the fuel supply is cut off when the engine is switched off, irrespective of the position of the ignition switch, and shall remain closed while the engine is not running. A delay of 2 seconds is permitted for diagnostic."

Paragraphs 18.6.1. to 18.6.3. (former), renumber as paragraphs 18.6.2. to 18.6.4.

Paragraph 18.6.4. (former), renumber as paragraph 18.6.5. and amend to read:

"18.6.5. Manual fuel shut off valve

The manual fuel shut off valve shall be mounted directly on the LNG tank (in a protected position). It should be readily accessible. **The manual fuel shut off valve can be integrated into the automatic valve.**"

Paragraphs 18.6.5. to 18.6.7. (former), renumber as paragraphs 18.6.6. to 18.6.8.

II. Justification

1. For safety reasons, all LNG tanks are necessarily equipped with an automatic valve also required for Liquefied Petroleum Gas (LPG), Hydrogen (H₂) and Compressed Natural Gas (CNG). The proposed amendments are based on the existing requirements for CNG, H₂ and LPG:

(a) For CNG, the wording used is in paragraphs 17.5.1. to 17.5.1.2. of Regulation No. 110, 01 series of amendments.

(b) For H₂, the wording was based on items 1. to 4. of paragraph (a) of Annex I and on paragraph 6. of Annex VI to the Regulation (EC) No 79/2009 of the European Parliament and of the Council of 14 January 2009 on type-approval of hydrogen-powered motor vehicles, and amending Directive 2007/46/EC.

(c) For LPG, the wording is from paragraphs 17.6. to 17.6.1.3. of Revision 3 to Regulation No. 67.

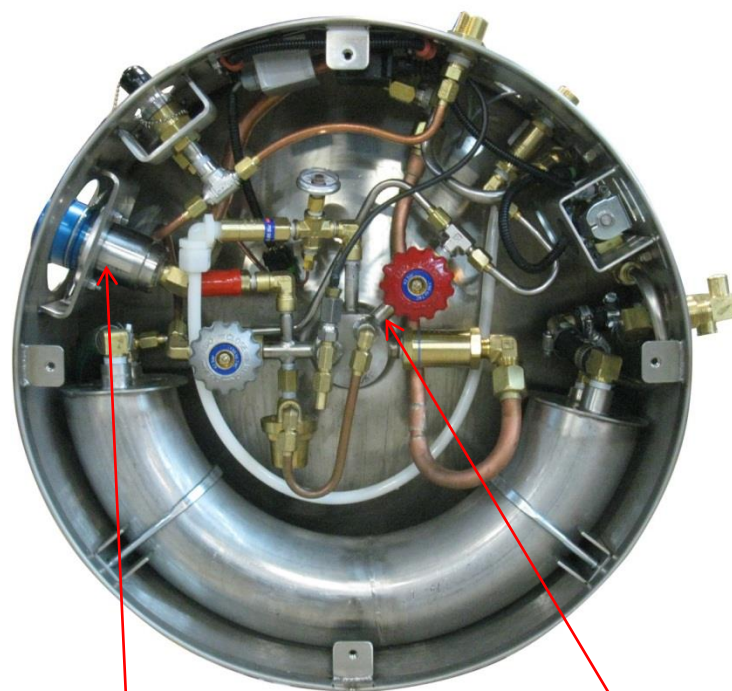
(d) Paragraph 4.7.5. of ISO/CD 12991 (version of September 2011).

(e) Paragraph 4.1.2. of AS/NZS 2739 – 2009.

2. For LNG equipment, special care shall be taken to prevent LNG trapping. This can happen in case the automatic valve and manual valve are placed in series without taking any precautions.

3. The inside of the protected area (mentioned between brackets) of the LNG tank is also tested during the bonfire test and the drop tests.

4. The wording automatic cylinder valve is changed into automatic valve as the storage of LNG is in a tank and not necessarily in a cylinder tank. The automatic valve is defined in paragraph 4.18. of draft Supplement 1 to the 01 series of amendments to Regulation No. 110 (ECE/TRANS/WP.29/2013/101).



Receptacle

LNG fuel supply line