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Regulation No. 110 (Specific components for CNG)

Proposal for draft 02 series of amendments to Regulation No. 110

Submitted by the expert from the Netherlands*

The text reproduced below was prepared by the expert from the Netherlands to regulate the direction of discharging the Compressed Natural Gas (CNG) container(s). It supersedes ECE/TRANS/WP.29/GRSG/2014/29. The modifications to the current text of Regulation No. 110 are marked in bold characters.

* In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, 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

Paragraph 7.2., amend to read:

"7.2. An approval number shall be assigned to each type of component or multifunctional component approved. Its first two digits (at present **02** corresponding to the **02** series of amendments) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party shall not assign the same alphanumeric code to another type of component."

Paragraph 18.5.2.1., amend to read:

"18.5.2.1. The pressure relief device (temperature triggered) shall be fitted to the CNG fuel container(s) in such a manner that can discharge into the gas-tight housing if that gas-tight housing fulfils the requirements of paragraph 18.5.5. below.

However, in case of vehicles of categories M and N where the container(s) is (are) fitted outside the vehicle and on the roof or top of the bodywork of the vehicle, the pressure relief device (temperature triggered) shall be fitted to the fuel container(s) in such a manner that it can discharge the CNG only in a vertical upward direction."

Paragraph 18.5.6.2., amend to read:

"18.5.6.2. The PRD (pressure triggered) shall be fitted to the fuel container(s) in such a manner that it can discharge into the gas-tight housing if that gas-tight housing fulfils the requirements of paragraph 18.5.5. above.

However, in case of vehicles of category M and N where the container(s) is (are) fitted outside the vehicle and on the roof or on the top of the bodywork of the vehicle, the pressure relief device (pressure triggered) shall be fitted to the fuel container(s) in such a manner that it can discharge the CNG only in a vertical upward direction."

Insert new paragraphs 24.8. to 24.13., to read:

"24.8. **As from the official date of entry into force of the 02 series of amendments to this Regulation, no Contracting Party applying this Regulation shall refuse to grant or refuse to accept type approval under this Regulation as amended by the 02 series of amendments.**

24.9. **As from [12] months after the date of entry into force of the 02 series of amendments to this Regulation, Contracting Parties applying this Regulation shall grant approvals only if the type of components to be approved meets the requirements of Part I of this Regulation as amended by the 02 series of amendments to this Regulation.**

24.10. **Type approvals of components other than fuel rail, as defined in paragraph 4.74., granted according to the original version of this Regulation or of components granted according the 01 series of amendments, shall remain valid and shall be accepted for the purpose of their installation on vehicles.**

24.11. **As from [18] months after the date of entry into force of the 02 series of amendments to this Regulation, Contracting Parties applying this Regulation shall grant approvals only if the vehicle type to be approved**

meets the requirements of Part II of this Regulation as amended by the 02 series of amendments to this Regulation.

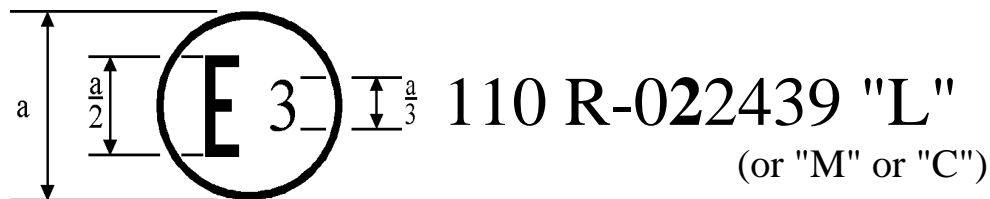
- 24.12. As from [24] months after the date of entry into force of the 02 series of amendments to this Regulation, Contracting Parties applying this Regulation may refuse to recognize approvals of a type of vehicle which have not been granted in accordance with Part II of this Regulation as amended by the 02 series of amendments to this Regulation.
- 24.13. Contracting Parties applying this Regulation shall not refuse to grant extensions of type approvals for existing types of component or vehicle types which have been issued according to this Regulation without taking into account the provisions of the 02 series of amendments to this Regulation."

Annex 2A, amend to read:

"Annex 2A

Arrangement of the CNG/LNG component type approval mark

(See paragraph 7.2. of this Regulation)



$a \geq 8 \text{ mm}$

The above approval mark affixed to the CNG and or LNG component shows that this component has been approved in Italy (E3), pursuant to Regulation No. 110 under approval number 022439. The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No. 110 as amended by the 02 series of amendments.

..."

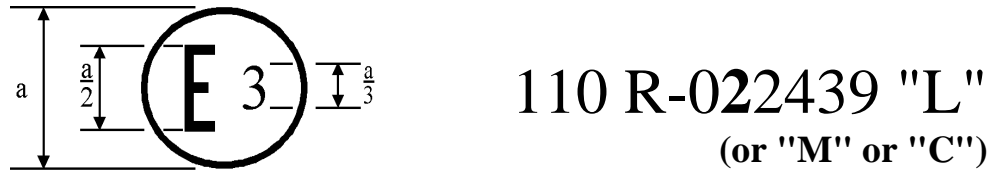
Annex 2C, amend to read:

"Annex 2C

Arrangement of approval marks

Model A

(See paragraph 17.2. of this Regulation)



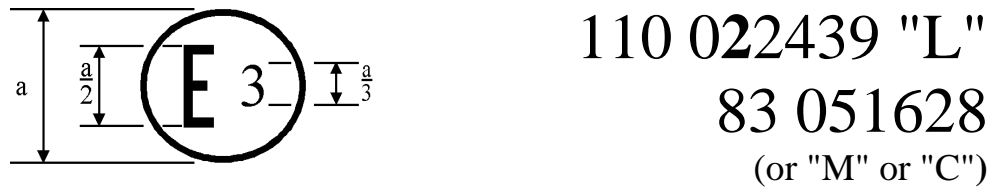
$a \geq 8 \text{ mm}$

The above approval mark affixed to a vehicle shows that the vehicle has, with regard to the installation of CNG/LNG system for the use of natural gas for propulsion, been approved in Italy (E3), pursuant to Regulation No. 110 under approval number 022439. The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No. 110 as amended by the 02 series of amendments.

...

Model B

(See paragraph 17.2. of this Regulation)



$a \geq 8 \text{ mm}$

The above approval mark affixed to a vehicle shows that the vehicle has, with regard to the installation of CNG/LNG system for the use of natural gas for propulsion, been approved in Italy (E3), pursuant to Regulation No. 110 under approval number 022439. The first two digits of the approval number indicate that at the date the approval was granted in accordance with the requirements of Regulation No. 110 as amended by the 02 series of amendments and that Regulation No. 83 included the 05 series of amendments.

..."

II. Justification

1. The existing provisions for buses and coaches focus on a rapid evacuation of the vehicle in case of an emergency. Nevertheless, a fire accident in the Netherlands showed that a serious risk still remains for the passengers of the vehicle, other road users and the area of the vehicle. In a fire event, the Thermally activated Pressure Relief Devices (TPRDs) provide a controlled release of the gas from the compressed natural gas storage containers, before the high temperatures weaken the containers and cause a hazardous rupture. TPRDs are designed to vent the entire contents of the container rapidly. In an accident, the pressure relief device of the roof mounted CNG containers can produce a horizontal jet flame during several minutes, which could have serious consequences for other road users and the area around the vehicle. The experts from the Netherlands consider it necessary to regulate the direction of discharge of all pressure relief devices (temperature and pressure triggered) of CNG containers fitted on the roof. Taking into account of the ongoing research conducted by the United States of America on this matter, the provisions on discharging the TPRDs for fitting positions other than the roof shall be stipulated in a separate amendment to this Regulation.

2. This proposal regulating the discharge direction of the CNG container(s) has to be considered as a new series of amendments, with consequent administrative amendments of paragraphs 7.2. and 24. as well as Annexes 2A and 2C (type approval mark).
