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Amendments to gas-fuelled vehicle regulations

UN Regulation No. 110 (CNG and LNG vehicles)

Proposal for Amendments to UN Regulation No. 110

Submitted by the expert from OICA *

The text reproduced below was prepared by the expert from OICA for adding provisions for excess flow valves (EFV) which can shut off fuel flow at the time of operation, to specific components. The modifications to the current text of the regulation are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2021 as outlined in proposed programme budget for 2021 (A/75/6 (Sect.20), para 20.51), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate

I. Proposal

Paragraph 4.21., amend to read:

"4.21. "Excess flow valve" (excess flow limiting device) means a device that automatically shuts off, or limits, the gas or liquid flow when the flow exceeds a set design value.

4.21.1. "Pressure-equalization type excess flow valve" means an excess flow valve which automatically resets when the excess flow condition is no longer present.

4.21.2. "Shut-off type excess flow valve" means an excess flow valve that stops flow when in the closed position, which has to be reset by manual operation."

Paragraph 18.5.3.1., amend to read:

"18.5.3.1. The excess flow limiting device shall be fitted in the CNG fuel container(s) and on each CNG accumulator ~~on the automatic cylinder valve valve.~~"

Insert a new paragraph 18.5.4.2., to read:

"18.5.4.2 If the excess flow valve installed in the container is of a shut-off type per paragraph 18.5.1.1., the covers of the manual valve shall be easily removable without the use of tools or other equipment so that the manual valve is accessible."

Annex 4A

Paragraph 5.4., amend to read:

"5.4. The **pressure-equalization type** excess flow valve shall be designed with a bypass to allow for equalization pressures.
The shut-off type excess flow valve shall have a function to reset actuation manually."

Paragraph 5.6., amend to read:

"5.6. When the **pressure-equalization type** excess flow valve is at cut-off position, the by-pass flow through the valve shall not exceed 0.05 normal m³/minute at a differential pressure of 10,000 kPa.
When the shut-off type excess flow valve is at cut-off position, the amount of leakage from the valve shall not exceed 2.5x10⁻⁷ normal m³/minute during operation."

Annex 5C

Insert a new paragraph 9., to read:

"9. A shut-off type excess flow valve shall have a capability of shutting off the fuel leakage exceeding the prescribed value, when applied by a differential pressure of 10,000 kPa in an activation state."

II. Justification

1. In the UN Regulation No.110, only the excess flow valve (EFV) for the pressure-equalization type is permitted. At the time of operation, the pressure-equalization type EFV does not completely shut off the fuel gas. In the UN Regulation No.110, the pressure-equalization type EFV plays a role of limiting the gas flow rate at the time of actuation. In the event of an accident such as fuel outflow, the automatic valve attached to the cylinder valve shuts completely off the fuel.

2. In this document, OICA proposes, as an alternative to the current pressure-equalization type EFV, an additional type of EFV which can shut off the fuel.

3. The actuation of such shut-off type EFV can be cancelled by operating the manual valve.