

Proposal for Supplement 5 to the 04 Series and for Supplement 2 to the 05 of Amendments to UN Regulation No. 110 (CNG and LNG vehicles)

Submitted by the experts of NGVA Europe

The text reproduced below was prepared by the experts from NGVA Europe to introduce a change of definition of working pressure for LNG, and introduce a value for that pressure in Annex 3B. The modifications to the current text of the regulation are marked in bold characters and strikethrough for deleted characters.

I. Proposal

Paragraphs 4.4., amend to read:

- “4.4. *“Working pressure”* means the maximum pressure to which a component is designed to be subjected to, **in normal operations**, and which is the basis for determining the strength of the component under consideration. For CNG cylinder, the settled pressure of 20 MPa at a uniform temperature of 15 °C. For LNG tank, the pressure of the LNG tank primary relief valve setting **of at least [1.58 MPa].**”

Annex 3B, Paragraph 2.2., amend to read:

- “2.2. Maximum pressure
- The maximum allowable working pressure (MAWP) shall be defined by the manufacturer and correspond to the nominal primary relief valve setting. The maximum allowable working pressure shall be **at least [1.58MPa]**~~less than 26MPa.~~”

II. Justification

The current text of UNECE Regulation no. 110 defines the working pressure for an LNG tank to be the primary relief valve setting (par. 4.4.), without stating a minimum setting of said relief valve. In Annex 3B, par. 2.2. it states that the maximum allowable working pressure shall be less than 26 MPa.

However:

1. The maximum pressure specified in Annex 3B par. 2.2. as 26 MPa is not relevant for LNG tanks (it can be of relevance only for CNG). Instead a minimum opening pressure of the primary relief valve should be stated.
2. Every type of on board tank currently have a primary relief valve that opens at 1.6 MPa but nowhere in standards or regulations is that pressure defined.
3. If a vehicle has an on board tank with a primary relief valve that opens at a lower pressure than the filling station is set to stop, the primary relief valve will open during refueling and this is an obvious safety risk.

Therefore it's important to state this minimum pressure for primary LNG relief valve.
