

**Economic and Social Council**Distr.: General
17 September 2024

Original: English

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations**Working Party on Passive Safety****Seventy-sixth session**

Geneva, 2–6 December 2024

Item 2 of the provisional agenda

UN Global Technical Regulation No. 13 (Hydrogen and Fuel Cells Vehicles)**Proposal for an Amendment to UN Global Technical Regulation No. 13 (Hydrogen and Fuel Cells Vehicles)****Submitted by the Task Force amending UN Regulation No. 134 (Hydrogen and Fuel Cells Vehicles) ***

The text reproduced below was prepared by the Task Force involving the experts from France, Japan, the Netherlands, the European Commission, the European Association of Automotive Suppliers (CLEPA) and the International Organization of Motor Vehicle Manufacturers (OICA) as well as related industry experts on transposing Amendment 1 to UN Global Technical Regulation No. 13, Phase 2 (GTR13-PH2) into the UN Regulation No. 134. The modifications to the existing text of the UN Regulation No. 134 are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2024 as outlined in proposed programme budget for 2024 (A/78/6 (Sect. 20), table 20.5), 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

Part 1, paragraph 51., amend to read:

"51. Requirements for Compressed Hydrogen Storage System (CHSS) and its primary closures are defined in paragraph 5.1. The provision in paragraph 5.1.(b) allows Contracting Parties to require that primary closure devices be mounted directly on the container. If needed, manufacturers can choose to locate additional TPRDs in alternative locations on the container. However, any additional TPRDs should be connected directly to the containers by using supply lines that have demonstrated mechanical integrity and durability as part of qualification tests for CHSS (~~paragraphs 5.1.1. and 5.1.2.~~) **(paragraphs 5.1.1. and 5.1.2. excluding the drop test).** "

Part 1, paragraph 81. (c) (i), amend to read:

"81. These assumptions include:

(c) Severe usage: exposure to physical impacts

- (i) Drop impact (para. 5.1.2.2.) – the risk is primarily an aftermarket risk during vehicle repair where a new storage system, or an older system removed during vehicle service, is dropped from a fork lift during handling. The test procedure requires drops from several angles from a maximum utility forklift height. The test is designed to demonstrate that containers **(without supply lines and valves)** have the capability to survive representative pre-installation drop impacts.

Note: Damage to supply lines or valves would be visible after a drop impact and, as a consequence, the devices would need to be replaced;"

Part 2, paragraph 3.8., amend to read:

"3.8. *"Compressed hydrogen storage system (CHSS)"* is a system designed to store compressed hydrogen fuel for a hydrogen-fuelled vehicle, composed of a container, container attachments (if any), **supply lines for additional Thermally activated Pressure Relief Device (TPRD) (if any)**, and all primary closure devices required to isolate the stored hydrogen from the remainder of the fuel system and the environment. "

Part 2, paragraph 6.2.3.2., amend to read:

"6.2.3.2. Drop (impact) test (unpressurized)

The container and its container attachments (if any) is drop tested without internal pressurization, ~~or~~ attached valves **or supply lines (if any)**. The surface onto which the test article is dropped shall be a smooth, horizontal concrete pad or other flooring type with equivalent hardness. No attempt shall be made to prevent the test article from bouncing or falling over during a drop test, but the test article shall be prevented from falling over during the vertical drop test.

... "

II. Justification

1. UN GTR No. 13, amendment 1 includes contradictory wording in Parts 1 and 2, which lead to different interpretations among the contracting parties.
 2. This proposal does not introduce new requirements but clarifies the rationale and test requirements for the mechanical integrity and durability tests for supply lines for additional TPRDs. Part 1 stipulates that supply lines for additional TPRDs need to show mechanical integrity following tests 5.1.1. and 5.1.2. in Part 2. The test procedure in 6.2.3.2. in Part 2 includes drop testing of the container and its container attachments without pressurization or attached valves.
 3. UN GTR No. 13, amendment 1, therefore, needs clarification regarding the test requirements in 6.2.3.2. in Part 2 and the exclusion of supply lines for additional TPRDs from the drop test.
 4. Damage to supply lines or valves would be visible after a drop impact and, as a consequence, the devices would need to be replaced.
 5. In the definition of section 3.8., it is clarified that the supply lines for additional TPRDs are part of the Compressed Hydrogen Storage System (CHSS).
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