

**Economic and Social Council**Distr.: General
15 September 2023

Original: English

Economic Commission for Europe

Inland Transport Committee

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

Geneva, 4–8 December 2023

Item 3 of the provisional agenda

**UN Global Technical Regulation No. 13
(Hydrogen and Fuel Cell Vehicles)****Proposal for Corrigendum 1 to Amendment 1 to
UN Global Technical Regulation No 13 (Hydrogen and Fuel
Cell Vehicles) *****Submitted by the expert of the Informal Working Group on UN Global
Technical Regulation No. 13, Phase 2**

The text reproduced below was prepared by the chair of Informal Working Group (IWG) on hydrogen and fuel cell vehicles (HFCV), UN Global Technical Regulation No. 13, Phase 2 (GTR13-PH2) and proposes to correct editorial errors to the text of Amendment 1 to UN Global Technical Regulation No 13. It is based on GRSP-73-26-Rev.1 distributed at the seventy-third session of the Working Party on Passive Safety (GRSP). The modifications to the existing text of the UN Global Technical Regulation No. 13 (ECE/TRANS/180/Add.13 and Amend.1) are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2023 as outlined in proposed programme budget for 2023 (A/77/6 (Sect. 20), table 20.6), 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

Section H, paragraph 2 title, amend to read:

"2. National Requirements ~~Complimentary~~—Complementary to UN GTR Requirements"

Section I, paragraph 190, amend to read:

"190. ... the requirements presented as optional requirements in this document (LHSS Section G of the preamble)—s could be adopted as requirements with appropriate modifications. "

Section O, Table 10, amend to read:

"Table 10
Optional Tolerances for Test Parameters

Paragraph	Test Parameter	Value	Optional Tolerance	Unit
...				
<i>Distance</i>				
6.2.3.2. (a) (i)	Horizontal drop height	1.8 m	±0.02	m
6.2.3.2.(b) (c) (a) (ii) (iii)	Vertical drop height	calculated drop height	±0.02	m
6.2.3.2. (d) (a) (iv)	45° angle centre of gravity height	≤ 1.8 m 1.8 m	±0.02 0.04	m
...				

Table 1 in paragraph 3.52., amend to read:

" Table 1
Compressed Hydrogen Density (g/l)

Temperature (°C)	Pressure (MPa)												
	1	10	20	30	35	40	50	60	65	70	75	80	87.5
-40	1.0	9.7	18.1	25.4	28.6	31.7	37.2	42.1	44.3	46.1	48.4	50.3	53.0
-30	1.0	9.4	17.5	24.5	27.7	30.6	36.0	40.8	43.0	45.1	47.1	49.0	51.7
-20	1.0	9.0	16.8	23.7	26.8	29.7	35.0	39.7	41.9	43.9	45.9	47.8	50.4
-10	0.9	8.7	16.2	22.9	25.9	28.7	33.9	38.6	40.7	42.8	44.7	46.6	49.2
0	0.9	8.4	15.7	22.2	25.1	27.9	33.0	37.6	39.7	41.7	43.6	45.5	48.1
10	0.9	8.1	15.2	21.5	24.4	27.1	32.1	36.6	38.7	40.7	42.6	44.4	47.0
15	0.8	7.9	14.9	21.2	24.0	26.7	31.7	36.1	38.2	40.2	42.1	43.9	46.5
20	0.8	7.8	14.7	20.8	23.7	26.3	31.2	35.7	37.7	39.7	41.6	43.4	46.0
30	0.8	7.6	14.3	20.3	23.0	25.6	30.4	34.8	36.8	38.8	40.6	42.4	45.0
40	0.8	7.3	13.9	19.7	22.4	24.9	29.7	34.0	36.0	37.9	39.7	41.5	44.0
50	0.7	7.1	13.5	19.2	21.8	24.3	28.9	33.2	35.2	37.1	38.9	40.6	43.1
60	0.7	6.9	13.1	18.7	21.2	23.7	28.3	32.4	34.4	36.3	38.1	39.8	42.3
70	0.7	6.7	12.7	18.2	20.7	23.1	27.6	31.7	33.6	35.5	37.3	39.0	41.4
80	0.7	6.5	12.4	17.7	20.2	22.6	27.0	31.0	32.9	34.7	36.5	38.2	40.6
85	0.7	6.4	12.2	17.5	20.0	22.3	26.7	30.7	32.6	34.4	36.1	37.8	40.2

Paragraph 6.2.3.2., amend to read:

"6.2.3.2. Drop (impact) test (unpressurized)

...

- (d) From a 45° angle from the vertical orientation with the shut-off valve interface location downward with its centre of gravity ~~≤ 1.8 m~~ **gravity at 1.8 m** above the ground. However, if the bottom is closer to the ground than 0.6 m, the drop angle shall be changed to maintain a minimum height of 0.6 m and a centre

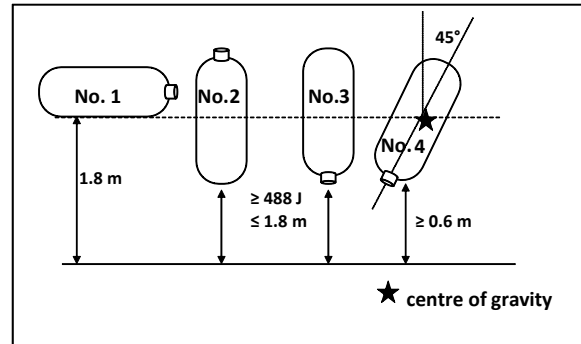
of gravity of ≤ 1.8 m **gravity at 1.8 m** above the ground. In case of non-axisymmetric container, the line passing the shut-off valve interface location end and its centre of gravity shall be 45° angled from vertical orientation and the shut-off valve interface location shall become the lowest.

..."

Figure 3 in paragraph 6.2.3.2., amend to read (correct the place of words in the drawing):

"Figure 3

Drop Orientations



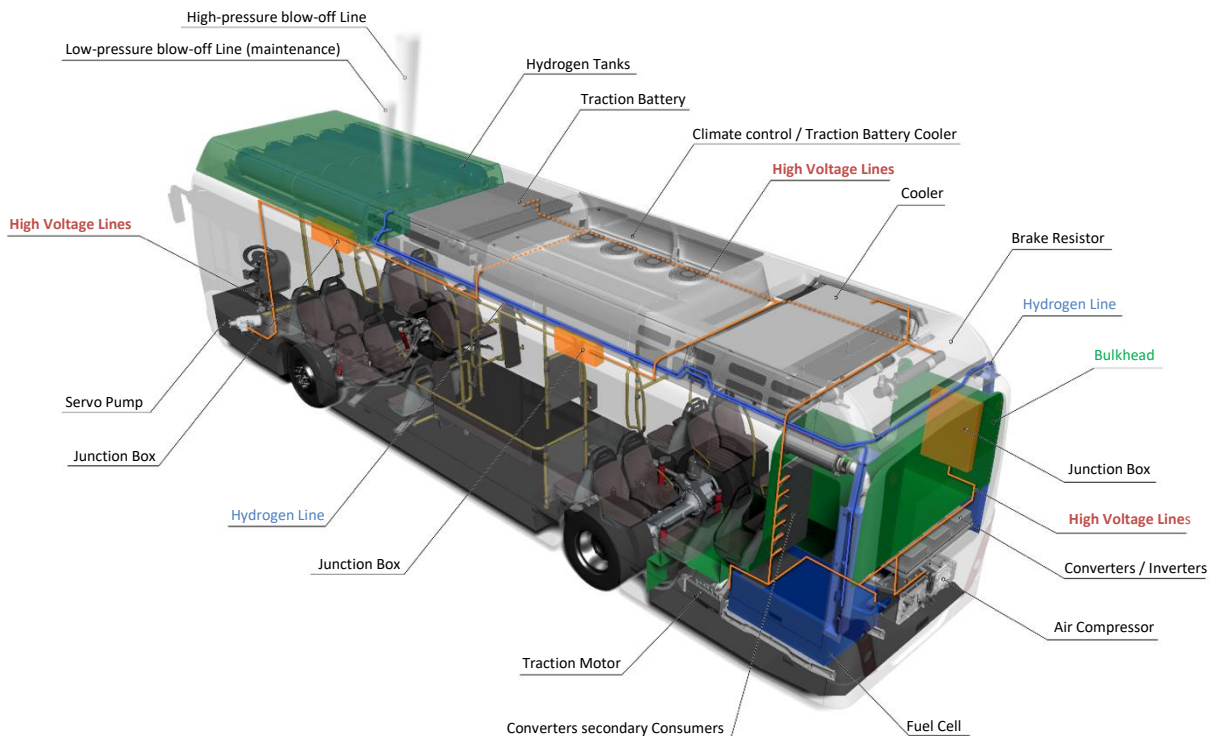
"

Paragraph 6.2.5.4.5.3., amend to read:

"6.2.5.4.5.3. The 60-second rolling averages of individual temperature readings in the localized fire zone (i.e. TB_{LOC} , TMF_{LOC} , TMR_{LOC} and TU_{LOC}) and the engulfing fire zone (i.e. TBR, TBC, TBL, TMRF, TMCF, ~~TMLFTML~~, TMRR, TMCR, TMLR, TUR, TUC and TUL) shall be ..."

"

Figure 3 (Example of a hydrogen fuel cell bus), three labels of “High Voltage Lines”, amend to read:



"

Table 1 (Results of Japanese Study), amend to read (such that 5,500 is actually deleted and not just crossed out):

Vehicle Type	Max svc. Life	Max lifetime miles travelled	Lifetime No. of fills		Ref: UN GTR13 Phase 2 Proposal
				("pressure test cycles")	
HD Commercial	15 yrs	--	--	--	11,000
	20 yrs	3,500,000 km	8,450		11,000
	25 yrs	4,000,000 km	9,750		11,000
LD Commercial	15 yrs	--	--	5,500	7,500 or 11,000
	20 yrs	2,100,000 km	6,560		11,000
	25 yrs	2,400,000 km	7,440		11,000

"

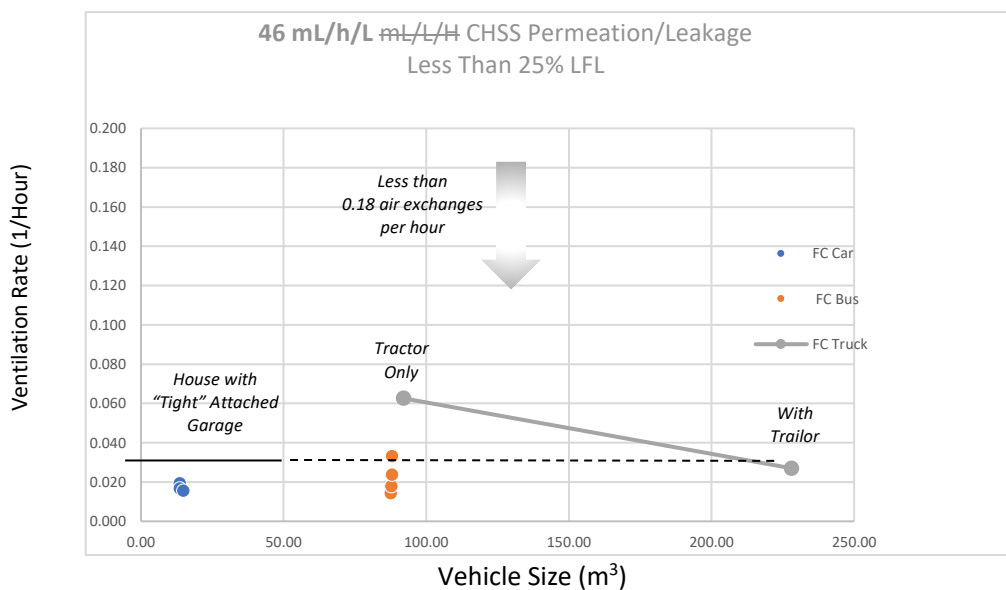
Paragraph 78.(a)(iv), amend to read:

"78. ...

(a) ...

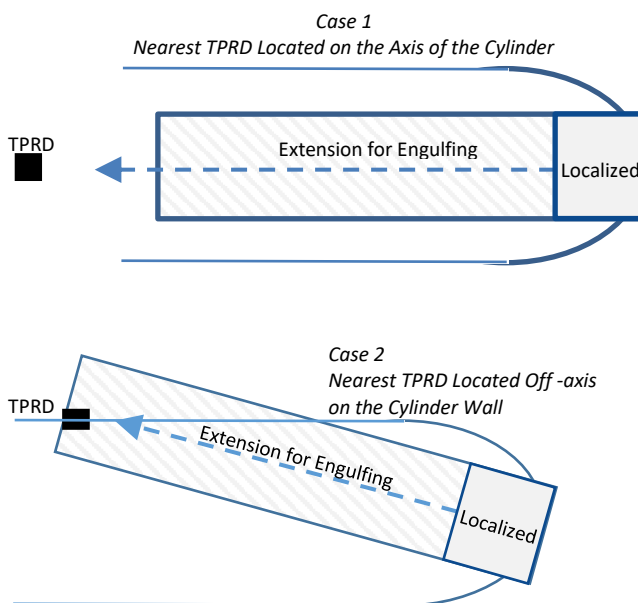
(iv) ... While it is difficult to get a single data-based fuelling interval value for hydrogen fuelled HDVs, an assumption of 400 km (250 mi.) can be a sufficiently conservative values; values;"

Figure 10, amend to read (such that x-axis label is consistent with the paragraph above it):



"

Figure 29 (Top View Showing Extension of the Engulfing Fire Zone Toward the Nearest TPRD on a Cylinder), amend to read:



"

Paragraph 3.28., amend to read:

"3.28. "Hydrogen-fuelled vehicle" indicates any motor vehicle that uses compressed gaseous or liquefied hydrogen... Hydrogen fuel for the vehicles is specified in ISO 14687:2019-2 and SAE J2719_202003."

Figure 2 (Verification Test for Expected On-Road Performance (Pneumatic/Hydraulic)), amend to read:

"Figure 2
Verification Test for Expected On-Road Performance (Pneumatic/Hydraulic)"