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UN Regulation No. 134 (Hydrogen and fuel cell vehicles)

Proposal for the 03 series of amendments to UN Regulation No. 134 (Hydrogen and fuel cell vehicles)

Submitted by the experts from the International Organization of Motor Vehicle Manufacturers (OICA) and the Task Force amending UN Regulation No. 134 (TF-R134)*

The text reproduced below was prepared by TF-R134, involving France, Japan, the Kingdom of the Netherlands, the European Commission, the European Association of Automotive Suppliers (CLEPA) and OICA, as well as related industry experts on transposing amendment 1 to UN Global Technical Regulation (GTR) No. 13, Phase 2 into a UN Regulation under the 1958 Agreement. It is a further development of GRSP-76-14-Rev.1 and GRSP-76-43 (see also paragraph 31 of ECE/TRANS/WP.29/GRSP/76). Amendments to UN Regulation No. 134, as amended in the seventy-sixth session of the Working Party on Passive Safety (see paragraph 30 and annex IX of ECE/TRANS/WP.29/GRSP/76), are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2025 as outlined in proposed programme budget for 2025 (A/79/6 (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

Paragraph 1., footnote 1, amend to read:

"[1] This Regulation does not cover the electrical safety of electric power train, the material compatibility and hydrogen embrittlement of the vehicle fuel system, and the post crash fuel system integrity in the event of rear impact.

This Regulation also does not cover supply lines for additional TPRDs made of materials other than metal until specific requirements for such materials have been defined."

Paragraph 2.3., amend to read:

"2.3. "*Compressed hydrogen storage system (CHSS)"* means a system designed to store compressed hydrogen fuel for a hydrogen-fuelled vehicle and 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."

Paragraph 2.5., amend to read:

"2.5. "Container Attachments" mean non-pressure bearing parts attached to the container that provide additional support and/or protection to the container and that may be only temporarily removed for maintenance and/or inspection only with the use of tools.

***Note*: The non-pressure bearing parts attached to the container that provide additional support or protection to additional TPRDs and supply lines are also considered as container attachments.**"

Paragraph 5., amend to read:

"5. Part I – Specifications of the Compressed Hydrogen Storage System

This part specifies the requirements for the compressed hydrogen storage system.

(a) The primary closure devices shall include the following functions, which may be combined:

(i) TPRD;

(ii) Check valve; and

(iii) Shut-off valve

(b) The primary closure devices shall be mounted directly on or within each container. **If needed, manufacturers may choose to locate additional TPRDs in alternative locations on the container. However, any high-pressure supply lines for such additional TPRDs shall have demonstrated mechanical integrity and durability as part of qualification tests for the container (verification tests for baseline metrics in paragraph 5.1., hydraulic sequential test in paragraph 5.2. excluding the drop test; see Annex 9 – Overview of applicability of component and system tests for supply lines for additional TPRDs).**

(c) The CHSS shall meet the performance test requirements **specified in paragraphs 5.1. to 5.5. and** summarized in Table 2. The corresponding test procedures are specified in Annex 3 ~~and Annex 4~~;

***Note*: The post-crash fuel system integrity requirements in paragraph 7.2. also apply to supply lines for additional TPRDs.**

…”

Paragraph 5.,Table 2, amend to read:

“Table 2

Overview of performance requirements

Requirement section	*Test article*
5.1. Verification tests for baseline metrics	Container or container plus container attachments, **and supply lines for additional TPRDs [4],** as applicable
5.2. Verification test for performance durability	Container or container plus container attachments **and supply lines for additional TPRDs [4],** as applicable
5.3. Verification test for expected on-road performance	CHSS
5.4. Verification test for service terminating performance in fire	CHSS
5.5. Verification test for closure durability	Primary closure devices

”

Paragraph 5.,Table 2, add footnote, to read:

“[4] For detailed requirements on supply lines for additional TPRDs see Annex 9 – Overview of applicability of component and system tests for supply lines for additional TPRDs.”

Paragraph 5.1.1., amend to read:

“5.1.1. Baseline initial burst pressure

Three (3) containers **(as well as supply lines for additional TPRDs (if any) through appropriate adaptors; the same shall apply under this paragraph and paragraphs 5.1.2. to 5.2.8., 5.3.1., 5.3.4. and 5.3.5.)** shall be hydraulically pressurized until burst in accordance with Annex 3, paragraph 2.1. The container attachments, if any, shall also be included in this test, unless the manufacturer can demonstrate that the container attachments do not affect the test results and are not affected by the test procedure. The manufacturer shall supply documentation (measurements and statistical analyses) that establish the midpoint burst pressure of new containers, BP*O*.

All containers tested shall have a burst pressure within ±10 per cent of BP*O* and greater than or equal to a minimum BPmin of 200 per cent NWP.

Containers having glass-fibre composite as a primary constituent shall have a minimum burst pressure greater than 350 per cent NWP.”

Paragraph 5.2., amend to read:

“5.2. Verification tests for performance durability (Hydraulic sequential tests)

One (1) container is tested in paragraph 5.2.

Unless otherwise specified, the tests in paragraph 5.2. shall be conducted on the container equipped with its container attachments (if any) **as well as supply lines for additional TPRDs (if any) through appropriate adaptors** that represent the CHSS without the primary closures. **At the discretion of the Technical Service and the Type Approval Authority, for such supply lines the worst-case approach may be applied, e.g., longest lines, largest diameter, smallest bend radius and highest number of fittings.**”

Paragraph 5.2.2., amend to read:

“5.2.2. Drop (impact) test

The container with its container attachments (if any) is dropped once in one of the impact orientations specified in Annex 3, paragraph 3.2. **This test does not apply to supply lines for additional TPRDs.**

***Note*: The manufacturer applying for approval shall provide handling procedures to ensure that the supply lines for additional TPRDs will not suffer damage or contamination during handling. The handling procedure shall require the removal from service of supply lines that have unacceptable damage.**"

Paragraph 5.3., amend to read:

"5.3. Verification test for expected on-road performance (Pneumatic sequential tests)

A CHSS shall undergo the following sequence of tests, which are illustrated in Figure 2. Specifics of applicable test procedures for the CHSS are provided in Annex 3. **At the discretion of the Technical Service and the Type Approval Authority, for supply lines for additional TPRDs, the worst-case approach may be applied, e.g., longest lines, largest diameter, smallest bend radius and highest number of fittings.**

…"

Paragraph 5.4., amend to read:

"5.4. Verification test for service terminating performance in fire

…

If the container pressure has not fallen below 1 MPa when the time limit defined above is reached, then fire testing is terminated and the CHSS fails the fire test (even if rupture did not occur).

During the entire fire test, additional TPRDs shall remain connected to the container by at least one attachment point."

Paragraphs 9.2. to 9.2.1., amend to read:

"9.2. The production control of the compressed hydrogen storage system container **(and supply lines for additional TPRDs (if any); the same shall apply for paragraphs 9.2.1. to 9.2.3.2.)** shall satisfy the following additional requirements;

9.2.1. Every container of CHSS shall be pressurized smoothly and continually with a hydraulic fluid or gas to the target pressure of ≥ 125 per cent NWP until the target test pressure level is reached and then held for ≥ 30 seconds. Temperature variation during the test shall be taken into account. The quality variability of the products shall be assessed with a method defined by the manufacturer e.g., variability of elastic expansion, etc. If applicable, upon agreement of the Type Approval Authority and Technical Service, as an alternative, every pressure bearing chamber and every high-pressure fuel line of multiple permanently interconnected chambers **and supply lines for additional TPRDs** may also be subjected to the same test described above individually. When applying this separate testing option, the test article shall be connected to a hydraulic pressure source at one of its openings by use of appropriate hydraulic mating connections and the remaining openings, if any, shall be closed by use of appropriate means."

Paragraph 9.2.3.2., amend to read:

"9.2.3.2. Ambient temperature pressure cycling test in batch testing

The test shall be performed according to paragraph 2.2. (a) to (c) (hydrostatic pressure cycling test) of Annex 3, except that the temperature requirements for the fuelling fluid and the container skin, and the relative humidity requirement, do not apply. The container**, as well as supply lines for additional TPRDs (if**

any) through appropriate adaptors, of the CHSS shall be pressure cycled using hydrostatic pressures ≥ 125 per cent of NWP, to 22,000 cycles in case of no leakage or until leakage occurs. The container of the CHSS shall not leak or burst within the first 11,000 cycles."

Paragraphs 13. and 13.1., amend to read:

"13. Transitional provisions

13.1. General

13.1.1. Contracting Parties applying this Regulation may grant type approvals according to any of the preceding series of amendments to this Regulation.

13.1.2. Contracting Parties applying this Regulation shall continue to grant extensions of existing approvals to any of the preceding series of amendments to this Regulation.

13.2. Transitional provisions applicable to the 01 series of amendments."

13.2.1. As from the official date of entry into force of the 01 series of amendments, no Contracting Party applying this UN Regulation shall refuse to grant or refuse to accept UN type approvals under this UN Regulation as amended by the 01 series of amendments."

Paragraphs 13.2. to 13.4. (former), renumber as paragraphs 13.2.2. to 13.2.4.

Paragraph 13.5. (former), renumber as paragraphs 13.2.5. and amend to read:

"13.**2.**5. Notwithstanding paragraphs 13.**2.**2 and 13.**2.4**., Contracting Parties applying this Regulation shall continue to accept type approvals issued according to this Regulation in its original form, for the vehicles/vehicle systems which are not affected by the changes introduced by the 01 series of amendments."

Insert new paragraph 13.3., to read:

"13.3. Transitional provisions applicable to the 02 series of amendments."

Paragraph 13.1. (former), renumber as paragraph 13.3.1.

Paragraphs 13.6. to 13.7. (former), renumber as paragraphs 13.3.2. to 13.3.3.

Delete paragraphs 13.8. to 13.9.

Insert new paragraphs 13.4. to 13,4.4., to read:

"13.4. Transitional provisions applicable to the 03 series of amendments.

13.4.1. As from the official date of entry into force of the 03 series of amendments, no Contracting Party applying this UN Regulation shall refuse to grant or refuse to accept UN type approvals under this UN Regulation as amended by the 03 series of amendments.

13.4.2. As from 1 September 2028, Contracting Parties applying this Regulation shall not be obliged to accept type approvals to any of the preceding series of amendments, first issued after 1 September 2028.

13.4.3. Until 1 September 2029, Contracting Parties applying this Regulation shall accept type approvals to any of the preceding series of amendments, first issued before 1 September Date 2028, provided the transitional provisions in these respective preceding series of amendments foresee this possibility.

13.4.4. As from 1 September 2029, Contracting Parties applying this Regulation shall not be obliged to accept type approvals issued to any of the preceding series of amendments to this Regulation.

13.4.5. Notwithstanding paragraph 13.4.4., Contracting Parties applying this Regulation shall also continue to accept type approvals issued according

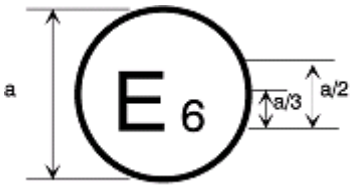
to any of the preceding series of amendments to this Regulation, for the vehicles or vehicle systems which are not affected by the changes introduced by the 03 series of amendments, provided the transitional provisions in these respective preceding series of amendments foresee this possibility."

Annex 2, amend to read:

"Annex 2

Arrangements of the approval marks

Model A
(See paragraphs 4.4. to 4.4.2. of this Regulation)

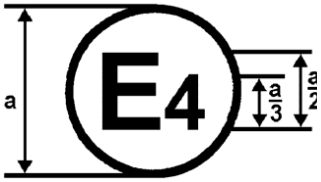


134R - 02**3**185 a/3

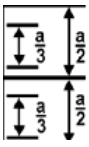
a = 8 mm min

The above approval mark affixed to a vehicle/ storage system/specific component shows that the vehicle/storage system/specific component type concerned has been approved in Belgium (E 6) for its the safety-related performance of hydrogen-fuelled vehicles pursuant to Regulation No. 134. The first two digits of the approval number indicate that the approval already contained the 02**3** series of amendments at the time of approval.

Model B
(See paragraph 4.5. of this Regulation)



100	02 2492
134	02**3** 1628



a = 8 mm min.

The above approval mark affixed to a vehicle shows that the road vehicle concerned has been approved in the Netherlands (E 4) pursuant to Regulations Nos. 134 and 100.* The approval number indicates that, at the dates when the respective approvals were granted, Regulation No. 100 was amended by the 02 series of amendments and Regulation No. 134 was amended by the 02**3** series of amendments."

Annex 3, paragraph 2.1., amend to read:

"2.1. Burst test (hydraulic)

The burst test is conducted at the ambient temperature using a hydraulic fluid. The rate of pressurization is less than or equal to 1.4 MPa/sec for pressures higher than 150 per cent of the nominal working pressure. If the rate exceeds 0.35 MPa/sec at pressures higher than 150 per cent NWP, then either the container **(as well as supply lines for additional TPRDs (if any) through appropriate adaptors; the same shall apply under this paragraph, paragraphs 2.2., 3.1., 3.4 to 3.6. and 5.1.)** is placed in series between the pressure source and the pressure measurement device, or the time at the pressure above a target burst pressure exceeds 5 seconds. The burst pressure of the container shall be recorded."

Annex 3, paragraph 3.2., amend to read:

"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 for additional TPRDs**. 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.

…"

Annex 3, paragraph 3.3., amend to read:

"3.3. Surface damage test (unpressurized):

(a) Surface flaw generation: A saw cut at least 0.75mm deep and 200mm long is made on the surface specified above. If the container is to be affixed to the vehicle by compressing its composite surface **or container attachments for additional TPRDs or supply lines are attached to composite surface of the container**, then a second cut at least 1.25 mm deep and 25 mm long is applied at the end of the container which is opposite to the location of the first cut;"

Annex 7, Table 1 and Notes, amend to read:

"Table 1
Change of Design

Changed Item		*Required Tests*
Metallic container or liner material		- Initial burst, Initial pressure cycle life - Sequential hydraulic tests - Fire test
Plastic liner material		- Initial pressure cycle life - Sequential hydraulic tests - Sequential pneumatic tests - Fire test
Fiber material [1]		- Initial burst, Initial pressure cycle life - Sequential hydraulic tests - Fire test
Resin material		- Initial burst, Initial pressure cycle life - Sequential hydraulic tests - Fire test
Diameter [2]	≤20%	- Initial burst, Initial pressure cycle life
	>20%	- Initial burst, Initial pressure cycle life - Sequential hydraulic tests - Fire test
Length	≤50%	- Initial burst, Initial pressure cycle life - Fire test [3]
	>50%	- Initial burst, Initial pressure cycle life - Sequential hydraulic tests - Fire test [3]
Coating		- Sequential hydraulic tests

Changed Item		*Required Tests*
		- Fire test [4]
Boss [5]	Material, geometry, opening size	- Initial burst, Initial pressure cycle life
	Sealing (liner and/or valve interface)	- Sequential pneumatic tests
Fire protection system		- Fire test
Valve change [6]		- Sequential pneumatic tests - Fire test [7]
Container attachment	Material, geometry	- Sequential hydraulic tests - Fire test [7]
Supply lines for additional TPRDs	**Changed location of additional TPRD**	- **Fire test[8]**
	Diameter^2 ≤ 20%	- **Initial burst and Initial pressure cycle life[8]**
	Diameter^2 > 20%	- **Initial burst, Initial pressure cycle life[8]** - **Sequential hydraulic test[8]** - **Fire test[8]**
	Bend radius	- **Initial burst, Initial pressure cycle life[8]** - **Sequential hydraulic test[8]** - **Fire test[8]**
	Length	- **Initial burst, Initial pressure cycle life[8]** - **Fire test[8]** - **Sequential hydraulic test[8]**
	Line routing	- **Initial burst, Initial pressure cycle life[8]** - **Fire test[8]**
	Number of fittings	- **Pneumatic sequential test[8]** - **Initial burst, Initial pressure cycle life[8]** - **Fire test[8]**

Notes:

…

8. Fire test, initial burst, initial pressure cycle life, hydraulic and pneumatic sequential tests are not required if the parameters of the supply lines are covered by the tested worst-case configuration.”

Insert new Annex 9:

"Annex 9

Overview of applicability of component and system tests for supply lines for additional TPRDs

Test no.	Test title	CHSS	Container with attachments (if any)	Primary closure devices	Supply lines	Notes
5.1.	Verifications test for baseline metrics					
5.1.1.	Baseline initial burst pressure		x		x[1]	
5.1.2.	Baseline initial pressure cycle life		x		x[1]	
5.2.	Verification tests for performance durability (Hydraulic sequential tests)					At the discretion of the Technical Service and the Type Approval Authority, for supply lines the worst-case approach may be applied, e.g., longest lines, largest diameter, smallest bend radius and highest number of fittings.
5.2.1.	Proof pressure test		x		x[1]	
5.2.2.	Drop (impact) test		x			The manufacturer applying for approval shall provide handling procedures to ensure that the supply lines for additional TPRDs will not suffer damage or contamination during handling. It shall require the removal from service of supply lines that have unacceptable damage.
5.2.3.	Surface damage test		x			Not applicable to metallic supply lines for additional TPRDs
5.2.4.	Chemical exposure and ambient-temperature pressure cycling test		x		x[1]	
5.2.5.	High temperature static pressure test		x		x[1]	
5.2.6.	Extreme temperature pressure cycling test		x		x[1]	
5.2.7.	Residual proof pressure test		x		x[1]	
5.2.8.	Residual strength burst test		x		x[1]	
5.3.	Verification test for expected on-road performance (Pneumatic sequential tests)					At the discretion of the Technical Service and the Type Approval Authority, for such supply lines the worst-case approach may be applied, e.g., longest lines, largest diameter, smallest bend radius and highest number of fittings.
5.3.1.	Proof pressure test		x		x	
5.3.2.	Ambient and extreme temperature gas pressure cycling test (pneumatic)	x	x	x	x	
5.3.3.	Extreme temperature static gas pressure permeation, leak test (pneumatic)	x	x	x	x	
5.3.4.	Residual proof pressure test (hydraulic)		x		x[1]	
5.3.5.	Residual strength burst test (hydraulic)		x		x[1]	
5.4.	Verification test for service terminating performance in fire	x	x	x	x	

Notes:

1. **Supply lines for additional TPRDs (if any) shall be tested with the container through appropriate adaptors**"

II. Justification

A. Additional thermally activated pressure relief devices and supply lines, test procedures

1. Additional thermally activated pressure relief devices (TPRDs) and their supply lines are not excluded from the 02 series of amendments to UN Regulation No. 134. No clear requirements were defined though, leading to differing interpretations among Technical Services and Type Approval Authorities. This proposal clarifies the requirements in alignment with UN GTR No. 13, amendment 1.

2. The limitation to metallic material for supply lines is based on the lack of appropriate test procedures for other materials such as composites.

3. To better understand the applicability of test procedures, an annex was introduced with an overview of parts and systems to be subjected to specific tests.

4. To address changes to supply lines to additional TPRDs after initial type certification of the compressed hydrogen storage system (CHSS) an item including differentiation of changes of different characteristics of the lines was added to the change of design table. However, as clarified in footnote 8, the repetition of these tests is only needed if the changes are not already covered by the worst-case approach applied during the CHSS certification tests.

5. For changes to supply lines to additional TPRDs affecting the characteristics length, diameter ≤ 20 % and line routing that are not covered by the worst-case approach, the required test was limited to the baseline initial burst and cycle life test instead of the sequential hydraulic test. This is justified by the fact that the drop, surface damage and chemical exposure tests included in the sequential hydraulic test only impact the container but not the supply lines to additional TPRDs. And as the supply lines for additional TPRDs are also limited to metallic lines, performing the cycle life at ambient temperatures is equivalent to the extreme temperature cycles in the sequential hydraulic test. Furthermore, the high temperature static test does not have an adverse effect on the metallic lines.

Table commenting on the impact of the hydraulic sequential test to changes to supply lines to additional TPRD affecting the characteristics length, diameter ≤ 20 % and line routing

Clause	*Test*	*Impact on length*	*Impact on diameter[2] change ≤ 20 %*	*Impact on line routing*	*Comment*
5.2.1.	Proof pressure test	no	no	no	For diameter change the wall thickness is scaled proportional; covering changes of diameter ≤ 20 % by baseline tests is even permitted for chambers
5.2.2.	Drop (impact) test	not applicable	not applicable	not applicable	-
5.2.3.	Surface damage test	no	no	no	-
5.2.4.	Chemical exposure and ambient-temperature cycling test	no	no for chemical exposure & 125 % NWP cycles -	no	Cycles up to 125 % NWP are part of baseline tests; covering changes of diameter ≤ 20 % by baseline tests is even permitted for chambers

Clause	*Test*	*Impact on length*	*Impact on diameter[2] change ≤ 20 %*	*Impact on line routing*	*Comment*
			yes for 150 % NWP cycles, however, see comment		
5.2.5.	High temperature static pressure test	no	no	no	Extreme temperatures of -40°C to +85°C do not change durability of metallic lines significantly
5.2.6.	Extreme temperature cycling test	no	no	no	
5.2.7.	Residual proof pressure test	no	May be, however, see comment	no	For diameter change the wall thickness is scaled proportional; covering changes of diameter ≤ 20 % by baseline tests is even permitted for chambers
5.2.8.	Residual strength test	no	May be, however, see comment	no	

6. For changes to supply lines to additional TPRDs affecting the characteristics diameter > 20% and bend radius that are not covered by the worst-case approach, the full hydraulic sequential test is required as the mechanical properties may be so reduced that the final residual burst pressure test of the hydraulic sequential test may fail. Therefore, the hydraulic sequential test needs to be repeated in such change cases.

B. Annex 3, paragraph 3.2.

7. Part I of UN Regulation No. 134 requests a drop test on the storage container.

8. In the 01 series of amendment to UN Regulation No.134, the requirement was to drop one or more additional containers in each of the four orientations. The drop test procedure was then modified in amendment 1 to UN GTR No. 13: it was streamlined so that only one container will be dropped once ("The container shall withstand the one drop out of any impact orientations specified in the test procedure").

9. This updated procedure was then transposed into the 02 series of amendments to UN Regulation No. 134. However, the test description does not specify who should choose this orientation. This is clarified in our proposal.

C. Conformity of production – rationale for allowance of different proof pressure test options for interconnecting fuel lines and supply lines of additional TPRDs

10. As already introduced in the 02 series of amendments to UN Regulation No. 134 individual chambers of a container can be separately tested as an alternative to testing the assembled container. This was introduced to practically allow hydraulic pressure testing and in particular considering the subsequently necessary drying process for containers consisting of more than one chamber and their interconnecting lines. As in such case interconnecting lines of containers consisting of more than one chamber and supply lines to additional TPRDs (if any) are not tested, one contracting party requested to also mandate a proof pressure test for these lines. However, applying this in practice is highly dependent on the CHSS design, line size and connection type, and how best to apply such pressure test significantly depends on the manufacturer's assembly process. Hence, it is essential to allow manufacturers a high level of flexibility on how to apply this requirement and to focus the regulative requirements essentially on ensuring that the pressure test is conducted before the product is placed on the market. Therefore, it is left open for the CHSS manufacturer to define:

(a) if the test should be conducted separately on each pressure bearing chamber and interconnecting line, separately on container or line sub-assemblies prior to final assembly of the container, the container assembly, or the vehicle fuel system assembly; and

(b) if the tests are performed in-house by the CHSS manufacturer, by suppliers of sub-components or by the vehicle manufacturer by use of appropriate contractual agreements.

11. Comparing this to industry applications, the quality control of pressure lines is well known and has been safely applied over decades. In standards that include a 100 % proof pressure (at least as one option of quality control), practical considerations are recognized and flexibility is introduced so that different ways of conducting the proof test can be applied. As one example to be mentioned in Europe, the Pressure Equipment Directive (PED; EU 2014/68) can be fulfilled by the harmonized standards EN 13480 for pressure lines (see EU 2019/1616):

(a) It requires proof pressure testing on the finished piping system after final installation and inspection where practicable.

(b) However, in practice testing after final installation and inspection of the finished piping system is not practicable either:

(i) due to issues getting the hydraulic test fluid out of the system; or

(ii) safety considerations when performing the test with gas.

(c) In such cases the standard is open to apply the proof pressure test on sub-systems or components.

12. As industry standards also allow such flexibility, it is reasonable and essential for the automotive industry to also allow this for automotive applications.

D. Other considerations

13. The amendment to the general guidelines for the transitional provision (ECE/TRANS/WP.29/2024/76) was adopted at the 193rd session of the World Forum for Harmonization of Vehicle Regulations (WP.29) in June 2024. Transitional provisions for the 03 series of amendments to UN Regulation No. 134 should also respect this updated guideline.

14. The previous series of amendments to UN Regulation No. 134 has the following aspects:

(a) 01 series of amendments, entered into force on 7 January 2022. The technical changes only apply to vehicles of categories M_2, M_3, N_2 and N_3 and therefore the approvals of components and vehicles of categories M_1 and N_1 to the original version remain accepted.

(b) 02 series of amendments, entered into force on 15 June 2024. In these transitional provisions, it was agreed not to apply the 02 series to existing vehicles.

(c) 03 series of amendments. The technical changes are basically specific to the supply lines for remote TPRDs. Therefore, most of the existing approvals will not be affected by the changes.

15. Taking account of the situation above, it will be necessary to maintain the transitional provisions of previous series of amendments, but it is also important to clarify which provisions apply to which series. In particular some of the provisions are the same across several series of amendments, except for their application dates.