

DRAFT

11th Meeting of the Informal Working Group on Hydrogen and Fuel Cell Vehicles

Global Technical Regulation No. 13 (Phase 2)

Oct 12-13, 15, 2021 – Online

	Agenda Item	Presenters	Documents
1	Opening Remarks	M. Koubek	--
	<ul style="list-style-type: none"> The Chair welcomed the participants and thanked the meeting organizers Experts from Canada, China, European Union, France, Japan, Korea, UK, and US were present as well as experts from the industry on behalf of OICA/vehicle manufacturers and container manufacturers, laboratories, and research institutes. The Chair noted that all the materials to be posted at the UN website should be accompanied a copyright disclaimer. 		
2	Change of Co-Chair	K. Sato	
	<ul style="list-style-type: none"> Chair introduced the new Co-chair from Japan, Mr. Koichi Sato (METI) who replaces Ms. Yuko Sakamoto. Mr. Sato (METI) introduced himself and noted the importance of the IWG discussion for a carbon neutral future. 		
3	Approval of agenda	M. Koubek	GTR13-11-01
	<ul style="list-style-type: none"> GTR13-11-01.pdf was approved. 		
4	Approval of the meeting minutes of the 10th meeting	Secretary	GTR13-10-15
	<ul style="list-style-type: none"> Meeting minutes from the 10th IWG (GTR13-10-15) were approved. 		
5	Update of Discussion Items	Secretary	GTR13-11-02
	<ol style="list-style-type: none"> The secretary reviewed the status of each discussion topic with GTR13-11-02. Green colored items have been included into the TF0 draft and 3 items remain for further discussion (HDV sled/acceleration test, TPRD direction, extension of useful life). Material compatibility tests are included Part 1 to ensure that CP do not add new/separate requirements but is not included in the regulatory Part 2 of the GTR13. 		
6	Taskforce 1 – Heavy Duty Vehicles	A. Schüßling	GTR13-11-12a, 12b GTR13-11-10
	<ol style="list-style-type: none"> TF leader presented progress of the group (GTR13-11-12a) TF1-1 Sled test: Further discussion on the pulses needed after GRSP as several UNRs are using the sled test and would be affected by any EC changes. TF1-2 TPRD direction: Will be discussed at next TF1 meeting. TF1-3 Extension of container life discussion continues (see GTR13-11-12b). TF1-4 Other items: Impact test of HDV/T <ol style="list-style-type: none"> Secretary suggested that another IWG to be planned in January next year to decide these open items if those can be included into the final document for the GTR13 Phase 2 proposal. Korea presented GTR13-11-10. Moveable deformable barrier (MDB, UN R95) crash to the container area of large bus was simulated. China commented that their experience in physical test of BEV bus, no contact was observed to the batteries. Chair asked if this crash test procedure should be included in to Phase 2 or not. KOR stated it depends on the progress of the work before the submission of the formal document in Feb. Chair felt this topic will not be completed in the near future and Korea agreed it will not be possible but suggested to keep this as a remaining item of the Phase 2 project. 		

7	Taskforce 0 – Drafting	I. MacIntire	GTR13-11-06 GTR13-11-07 GTR13-11-08 GTR13-11-09
	f. TF leader gave an update on the progress of the Phase 2 draft (GTR13-11-06). Two drafts have been made, one that tracks changes from current GTR13 (GTR13-11-07), one that is a “clean” copy (GTR13-11-08). CP encouraged to review and provide comments by 1 Nov using the commenting template (GTR13-11-09).		
9	Taskforce 3 – Recommendations for Test Procedures	L. Gambone	GTR13-11-11
	<p>a. TF leader reported the progress of the TF3 discussion.</p> <p>b. Test parameter tolerances (temperature, pressure, etc.) are being proposed to help clarify the requirements. The Secretary commented that the tolerance table should be placed in Part 1 rather than Part 2 as it should not be considered as mandatory. NHTSA agreed that Part 1 will be fine.</p> <p>c. TF3 is also considering the restructuring Sections 5 and 6. Currently the requirements and test procedures are combined in some tests, separate in others. The goal is to clearly separate the two (Section 5 for requirements, Section 6 for procedures).</p> <p>d. Additional TPRD installation with extended pipe is suggested for CP discussion. Currently requirement is for all primary closures to be directly attached to the tank.</p> <p>i. Japan (METI) commented that additional TPRD with high pressure piping is problematic for Japanese regulation. The damage of the high-pressure piping must be taken carefully considered, otherwise the option should be deleted or applied as CP option. Relevant technical requirements for such piping should be established and the single failure requirement should also be considered.</p> <p>ii. NHTSA understands METI’s concerns but stated they don’t have to restrict designs that are safe because manufacturers are addressing the concerns themselves. NHTSA that noted that currently remote TPRD is used on several CNG buses and no problem has been reported. NHTSA asked when pneumatic cycling, the piping for remote TPRD is included or not (TF3 agreed it would). The remote TPRD would also be part of the crash test in which case the valves would have to be closed if the line is damaged.</p> <p>iii. It was noted that remote TPRD is currently adopted for fuel systems installed on the roof but not for the system installed on the chassis level.</p> <p>iv. TF3 leader suggested this additional TPRD can be treated as a CP option and add text about its protection in event of a crash.</p> <p>e. The need of TPRD high pressure activation and flow test (6.2.6.1.12.) should also be considered by CPs.</p> <p>f. Other open items remain but are not critical. The latest comment sheet will be posted on the UN website.</p>		
10	Taskforce 4 – Fire Test Reproducibility	G. Scheffler / SAE	GTR13-11-05
	<p>a. TF leader presented the progress of TF4 which has been meeting regularly.</p> <p>b. Round-robin tests using the TF4 proposal are still on-going with 5-6 laboratories worldwide.</p> <p>c. The Chair asked why the use of compressed air was included in GTR13 Phase 1 as option due to the request of China. For assessment of jet flame requirement and the risk of oxygen in the compressed air, it was agreed to delete the use of air. This point should be reconfirmed with China.</p> <p>d. The fire test time-out option remains an open issue.</p> <p>i. The US prefers to have more research to accept withstand for certain duration as there are many things to be addressed for such a design such as the first/second responders, cool down and depressurize procedure, residual strength, etc. TF4 leader also agreed that these issues will not be treated within short period of time.</p> <p>ii. NHTSA responded that more research and on-road experience is needed before this type of technology (intumescent paint) can be considered.</p> <p>iii. Cellcentric noted that HDV manufacturers with large tanks, the current engulfing fire test (1.65m) will not reach the TPRDs. The intumescent paint itself is being used to address longer tanks when the fixed 1.65 m fire length won’t reach the TPRD.</p> <p>iv. The time-out provision will be further modified so that failure of TPRD operation within the given time will result of failure of the test.</p> <p>e. Conformable tank designs are also considered in the proposal.</p> <p>i. JRC commented that some tests should be performed with conformable containers. TF4 leader mentioned that some tests with mock-up tanks have been conducted and the feedback has been included in the draft.</p>		

	<p>ii. NHTSA noted that TF4 spent significant time treating conformable tank requirements and its inclusion should be allowed.</p> <p>f. Vertically mounted containers will also be considered.</p>																																																										
10	Project Schedule	Y. Fujimoto	GTR13-11-03																																																								
	<p>a. Secretary suggested to extend as Phase 2b to cover the crash related topics (roll-over, side impact) and liquid hydrogen as they are more complex topics.</p> <p>b. The group agreed to conclude the items those have been worked out so far should not be delayed while remaining items maybe continued for further development.</p> <p>c. The Chair will report at GRSP the items concluded so far and a list of remaining items and expected time to complete. The Chair will also ask for the guidance as to any delay to the completion of the Phase 2 project. The EC commented that IWG should have consensus before asking guidance by GRSP.</p> <p>d. The EC understands that inclusion of conformable containers is urgent and needs to be resolved.</p> <p>e. The Chair asked if the current status of work is sufficient to submit informal document as December GRSP. CPs need the time to confirm the national position.</p> <p>f. The Secretary commented that the most of items have been concluded and three remaining items of TF1 will be concluded by February. Therefore, there is no need to delay for 6 months. Crash tests and roll-over will take more than 6 months.</p> <p>g. Japan commented that current schedule can be kept while remaining details could be solved by the submission of formal document.</p>																																																										
9	Meeting Summary	M. Koubek	GTR13-11-02																																																								
	<p>a. The Chair summarized that green items should be proposed in December GRSP, while and yellow items in square brackets would continue to be discussed and concluded by February.</p> <p>b. TFs are requested to conclude the remaining issues as early as possible.</p> <p>c. Comments on TF0 draft should be submitted by 1 November.</p> <p>d. The participants are requested to review the issue list where the results of this IWG session have been noted.</p>																																																										
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	<p>a. Korea prefers to have the change of design table included in Part 1. As this should not be treated under the 98 Agreement, this will be discussed between Korea and the Chair.</p>																																																										
11	Next IWG Meeting	Secretary	--																																																								
	<p>a. The next IWG meeting will be held in the second half of January 2022. The exact date will be identified by the Chair and Secretary. The image is to have 2 days of meetings (2 hours each day).</p>																																																										
14	APPENDIX: Attendees List																																																										
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