Transmitted by the expert from Japan

Informal document **GRSP-54-22**
(54th GRSP, 17-20 December 2013,
agenda item 20)

Proposal for revision of ECE/TRANS/WP.29/GRSP/2013/22

Note: The comments below were prepared by the expert from JAPAN.

Comments

1. Categories in the Scope of Part III (paragraph 1.3)

The categories subject to Part III should be consistent with those under GTR No. 13 (i.e., passenger vehicles with a GVM of 4,536 kg or less).

Categories M and N are mentioned in the Scope of this draft regulation. However, in large vehicles and commercial vehicles, the hydrogen system is used differently from small passenger vehicles. The test procedures of GTR No. 13 were developed based on its use in passenger vehicles, and when they were developed, its use in large vehicles and commercial vehicles was not taken into consideration.

Originally, it was agreed that addition of categories to the Scope would be discussed in Phase II, as specified in the following section of GTR No. 13.

Excerpt from GTR No. 13:

"I. Statement of technical rationale and justification

I. Topics for the next phase in developing the gtr for hydrogen-fuelled vehicles

(a) Potential scope revision to address additional vehicle classes;"

If we were to discuss this item of Phase II of GTR at this time of developing a new UN Regulation based on Phase I (current GTR No. 13), it would delay the process of establishing such UN Regulation.

2. LHSS

The LHSS, if necessary, should be addressed in a separate UN Regulation.

Japan has determined that the LHSS and the compressed hydrogen storage system should not be addressed side by side in the same UN Regulation, because the LHSS should be discussed more at length than the compressed hydrogen storage system. In GTR No. 13, based on which this draft regulation was developed, the LHSS requirements are at the option of each Contracting Party. As it was agreed in this way that the status of the LHSS requirements should be distinguished from that of the compressed hydrogen storage system requirements, they should be addressed in separate UN Regulations.

3. Crash test specifications

Requirements of both frontal impact and rear impact tests should be specified.

To ensure the safety of FCVs, both frontal impact and rear impact tests are necessary, and the current Japanese Regulation requires both tests as part of the FCV requirements. The frontal impact test is necessary in order to verify the effect of the vehicle deformation and deceleration. In addition, as the high-pressure tank is installed at a relatively rear part of the vehicle in a majority of FCVs, the rear impact test is necessary in order to verify the effect of the vehicle deformation and deceleration caused by an impact from the rear.

It should also be noted that, in GTR No. 13, the discussion regarding the potential harmonization of crash test specifications is categorized under Phase II (below). For this reason, if it is proposed that the UN Regulation allow each Contracting Party to continue to apply any impact test that it has already used until the conclusion of the Phase II discussion is achieved, Japan can accept such proposal as well.

Excerpt from GTR No. 13:

"I. Statement of technical rationale and justification

I. Topics for the next phase in developing the gtr for hydrogen-fuelled vehicles

(b) Potential harmonization of crash test specifications;"

4. Batch tests and production tests

Batch test and production test requirements should be added.

As specified in UN Regulations Nos. 67 (LPG vehicles) and 110 (CNG vehicles) as well as the COMMISSION REGULATION (EU) No 406/2010 (implementing Regulation (EC) No 79/2009 of the European Parliament and of the Council on type-approval of hydrogen-powered motor vehicles), since the high-pressure compressed hydrogen container has potential dangers such as burst and explosion, its safety should be ensured not only through type approval tests but also through batch tests and production tests.

5. Correction of editorial errors in GTR No. 13

(1) In the part shown in bold and strikethrough in a term of the equation below, the denominator and the numerator should be replaced with each other.

Proposal: 6.1.1.2. Post-crash leak test - Compressed hydrogen storage system filled with compressed helium ......

The average helium flow rate over the time interval is therefore

VHe = (Mf-Mo) / Δt x 22.41 / 4.003 x (**~~Po/~~** Ptarget / Po)

where VHe is the average volumetric flow rate (NL/min) over the time interval and the term **~~Po/~~** Ptarget /Po is used to compensate for differences between the measured initial pressure (Po) and the targeted fill pressure (Ptarget).

(2) In the following provision, there is an inconsistency with the test procedures, and correction should be made as shown in bold and strikethrough.

Proposal: 5.2.2.1. Fuel Leakage Limit

The volumetric flow of hydrogen gas leakage shall not exceed an average of 118 NL per minute for the time interval, Δt, as determined in accordance with paragraph 6.1.1.1. or 6.1.1.2. **~~60 minutes after the crash~~** (para. 6.1.1. test procedures).

(3) In the part shown in bold and strikethrough in a term of the equation below, the exponent should be indicated as a superscript.

Proposal: 6.2.6.1.2. Accelerated Life Test.

Eight TPRD units undergo testing; three at the manufacturer's specified activation temperature, Tact, and five at an accelerated life temperature, Tlife = 9.1 x Tact$^{0.503}$~~**0.503**~~. The TPRD is ......