

13th Meeting of the GTR 7 (Phase II) Informal Group - 23/24 April 2013

Venue: OICA, 4, rue de Berri, F-75008, Paris

DRAFT Minutes

Attendees

Present: Alexandra Scholz, Ansgar Pott, Bernd Lorenz, Bernie Frost (Chair), Eva Walkhed, Gerald Locke, Hans Ammerlaan, Ines Levallois, Irina Dausse, James Abraham, James Diwell, Klaus Bortenschlager, Markus Hartleib, Myriam Constant, Paul Depinet, Peter Broertjes, Peter Davis, Philippe Petit, Tomoaki Takamiya, Yoshi Kadotani

Via WebEx: Agnes Kim, Jack Jensen, Kevin Moorhouse, Koshiro Ono, Mary Versailles, Mike Fedorchak, Randy Edwards.

1. TEG status report.

Document – GTR7-13-03.

Bernd Lorenz updated the group on the output of a workshop held at BAST at the end of March. The details of this work, which included consideration of an alternative to the use of the 3DH machine method for backset measurement, were dealt with under specific agenda items during the meeting.

The TEG documents from the TEG group are available from:

- <https://www2.unece.org/wiki/display/trans/BioRID+TEG>

Paul Depinet– Presentation covering further work on certification testing.

Document – GTR7-13-04.

Spine Bumper compression.

A test rig that will permit bumpers to be inspected individually but without a requirement to disassemble the spine was in design and expected to be built “within the next month” (May 2013). The test procedure will require the cables to be fully slackened to isolate the bumpers and the process is expected to take around 2 hours to perform. The chair asked whether bumper testing might be required as part of each certification, at least in the immediate future, to help establish an appropriate bumper servicing schedule. Paul suggested that in the short term a lot of tests could be needed but that as experience was gained the frequency of testing could be reduced.

Full back support mini sled.

Work has been done using a full back support mini sled with the purpose of improving repeatability. These tests are detecting bumper and jacket variation.

An FE study suggests the full back support test improves ramping and also indicates that changes in lumbar bumper stiffness have a noticeable effect (the same indication as testing in the car seat).

It was noted that there is a lack of consistency in the field with regard to the head contact switch. Humanetics had noted that variations of friction between the head and the head restraint affected some measurements – particularly M_y . It was noted that the range of μ values used (0.15 to 0.7) to arrive at this conclusion was quite wide, certainly greater than seen in Euro NCAP tests, and could be exaggerating the point.

It was noted that the interest was in respect of calibration/certification and that the frictional value used should be representative of that seen in seat certification tests. It was suggested the seat suppliers could help with finding suitable friction coefficient.

Timeline – Preliminary results available at the end of May, finalised work plan by August 2013. Take into TEG in August.

2. Consideration of new method for backset measurement.

Mr Ammerlaan reported the main “take out” and output from the BAST workshop which is now incorporated into the “dual pane document”.

The suggested amendments to Annex 5 (emanating from a workshop held at BAST), consistent with the procedures for head restraint height measurement defined in Annex 1, were described.

It was noted that there is a lack of clarity on the reference in existing paragraph 2.2.1. “torso angle within 5 degrees of the design angle” – is this +/- 5 degrees or +/- 2.5 degrees? It was noted that this lack of clarity is repeated in other regulatory text. Opinion differed with some believing that a tolerance of +/- 5 degrees was too large while others considered that +/- 2.5 degrees was not sufficient. This point will be considered further but may have to be referred to GRSP.

Report from meeting on TEG official website – document in UN Website – TEGID-14.02
- <https://www2.unece.org/wiki/download/attachments/4064167/TEGID-14-02e.pdf>

The issue of build and tolerance differences with the 3DH machine was raised with the effect on the identification of the H-point being significant. It was suggested that the GTR should refer to the latest version of 3DH specification with +/-2mm tolerances for the seat pan. The chair agreed to raise this with GRSP given the wider implications of specifying a unique tolerance for the GTR when the tool is used more widely in other regulations.

The group considered whether there were opportunities to establish a new procedure for backset measurement that would reduce or eliminate the dependency on the 3DH machine and also whether such a procedure could also help with BioRID positioning. It was recalled that an earlier decision of the group had been to set aside consideration of assessing the very upright seats seen in vehicles such as micro vans but some felt that the development of a new procedure may help this discussion.

Clarification was sought regarding the use of manufacturer’s design angle or a specific angle. The chair recalled that the objective was to use the design angle if possible but that the option to use a fixed angle remained available.

It was agreed that BAST would host a workshop to explore opportunities for a new procedure and, to ensure all participants could contribute, and to avoid excessive travel, the USA offered to run a parallel workshop, possibly at VRTC. These workshops would work with same, or similar, ideas and to a similar timescale.

All the participants were encouraged to provide ideas for the workshop(s) to Mr Lorenz and Ms Versailles in advance to ensure maximum value could be gained.

Task –

- 1) OCIA to raise the question within industry and bring “finding” possible solutions back to this group. For June TEG meeting
- 2) Possible/Probable Workshop at BAST to develop a BioRid Dynamic procedure. USA could possibly hold a further workshop, maybe at the VRTC workshop. The proposed timing for the workshop is during July 2013.

3. Injury Criteria – Progress report.

Dr Kevin Moorhouse. (verbal update only)

Since the Brussels meeting NHTSA has carried out one more PMHS test.

Previously tests had raised a question over rebound as it could not be certain whether injuries were due to the impact or rebound phase. In response, a Toyota Camry seat was used with seat belt retractors to alleviate rebound motion. In the subsequent test the injuries were consistent with those observed without rebound control.

NHTSA expected PMHS #6 to be tested on 26 April 2012 and hoped that this will yield sufficient data for injury criteria to be developed. It was noted however that it may be necessary to conduct the full series of 8 PMHS tests before full conclusions can be drawn.

Based on the 6 tests, Dr Moorhouse anticipated completion of the data analysis by the end of May/June and to have proposals for injury by July/September. Dr Ono, will also try and work towards this September date, but emphasised the amount of work that needs to be done. Philippe Petit (LAB) offered to help with injury criteria.

Concern was raised that, with injury criteria becoming available in September, very little time was available to gain experience with the recommendations. Philippe Petit suggested that Dr Moorhouse take this injury criteria question/list into the ISO group - agreed.

The chair confirmed that he did not intend to seek confirmation from the GTR7 group on specific injury criteria values at the September informal group meeting but that it was important that there be a full discussion there as the suggested criteria will be provided to the GRSP group in December. He acknowledged the interest in sharing the recommendations with ISO but cautioned that the UN ECE group was not referring the discussion to ISO.

NHTSA showed a comprehensive list of injury criteria. Presented at the London meeting GTR7-09-06:-

- <http://www.unece.org/fileadmin/DAM/trans/doc/2012/wp29grsp/GTR7-09-06e.pdf>

4. Repeatability and Reproducibility

- a. Series II BioRID tests (BAST)

Presentation from Humanetics covering H-III 50th Male Rear Impact repeatability.

This had been presented at an earlier TEG meeting and is available from –

- <https://www2.unece.org/wiki/download/attachments/4064167/TEGID-14-05-1e.pdf>
- <https://www2.unece.org/wiki/download/attachments/4064167/TEGID-14-04-2e.pdf>

- <https://www2.unece.org/wiki/download/attachments/4064167/TEGID-14-04-1e.pdf>

The chair thanked Mr Lorenz for the work done at BAST, and Mr Depinet for his analysis, which allowed an improved understanding of the current test tool (HIII) allowing BioRID's performance to be put into context. He questioned what would be the outcome if existing tools were scrutinised in the way that BioRID had been and whether current ambitions are realistic. Mr Jensen observed that all new tools are subject to similar scrutiny, including WorldSID and Q.

b. Hybrid III Baseline

Presentation from Zine Ben Aoun (Chrysler) all available from the TEG website - <https://www2.unece.org/wiki/display/trans/BioRID+TEG>

Analysing the test data from the repeatability dummy work and specially highlighting where repeatability was good and poor.

To summarise –

- 1) Still feel that the dummy needs further improvement, unless these channels not given good results are not used.
- 2) Can the correct level of “materials” bumpers, Jackets etc. be maintained?
- 3) Need to ensure the pulse used does not cause an issue with other tests the manufacturers need to carry out for NCAP/Regulatory.

In response the chair observed that the GTR7 group has specified, and will need to specify in the new regulation, the build level of BioRID. It has also set out clear controls primarily on the Pelvis, Jacket and Bumpers that can be maintained through dummy certification or other requirements in the Regulation.

He did not consider that the GTR7 group has to be constrained in any way by the need to ensure the BioRID's use in other programmes such as NCAP or when using other pulses. However, he agreed that it would be appropriate to make clear in the preamble to the revised GTR that recommendations for BioRID's use were set in the context of the defined regulatory use and should not be interpreted as countenancing its application under other conditions.

Responding to questions on certification of Pelvis, bumpers etc. Mr Depinet advised that that dynamic pelvis and jacket tests were already in process, including further testing their R&R. In addition, backup tests (quasi static) are being written to double check these components.

He reconfirmed that static bumper tests (performed while the bumpers are in situ) are under development and that results will be posted to the group when possible and that further tests are ongoing to test the effects of a change in bumper stiffness – hoping for results by June TEG meeting.

He was asked if it is possible for them to test how fast the bumpers age – answer is that it will take time, but evidence is that over a couple of years there is little change in terms of ageing. Over-exercising (leading to plastic deformation) the materials tends to be a greater problem, but if a test is in place to measure this it can be mitigated.

5. Working Document

Documentation: GTR7-13-02 - Dual Pane document (Basis for revision to GTR7-06-10).

Development of the dual pane document continued with the principal discussion revolving around new text in Annex 9.

General points made during this discussion:

Annex 1.

It was agreed to consider that the title of Annex 1 should be changed to read:

“Height Measurement Test Procedure” and that similar alterations should be made to the title and wording in Section 5.1.1. with “Minimum height” being changed to “head restraint height”.

This will be re-discussed at the next session.

Annex 9.

NHTSA – noted that Annex 9 of the dual pane document was drafted to retain HIII and add in BioRID rather than to immediately delete HIII. They considered this approach may be helpful.

It had been noted that despite their similarities regarding their specification, the mass of the shoes used on HIII is different to that of BioRID. Humanetics explained that they actually market multiple shoes (at least 3 variants) between Hybrid III and BioRID dummies – they will weigh and measure these and report back, to understand if there are significant differences.

Ms Versailles noted that the current GTR7 reflects the detail in FMVSS but didn't know whether this variance had been identified. She agreed to get NHTSA's opinion a standard specification.

Para 3.2.1. It was noted that the text provides only for an acceleration sled and it was agreed that the general (but not unanimous) understanding is that this is a sled that is fired from a stationary state rather than being brought to an abrupt stop (deceleration sled).

There was a request to amend the text to allow the use of either type of sled but opinion was split on whether it was acceptable to assume that all of the validation work that had been achieved on acceleration sleds was valid on deceleration devices.

Mr Ammerlaan asked what procedures may have to be defined to ensure that the dummy head did not move before T_0 if a deceleration sled were to be used. He felt that this would need some investigation.

Summing up the chair advised that there needed to be a proposal and justification if deceleration sleds were to be adopted by the group. He cautioned that there could be no delay in the programme while deceleration sled validation was undertaken.

Para 3.2.2 It was confirmed that the current drafting provides for BioRID to be used only with sled tests and that this is indicated in section 4.

Para 3.2.2.4 – It was confirmed that this paragraph aims to ensure no movement in dummy head before T_0 .

Para 3.2.4.3 & 3.2.4.4 – There was discussion and clarification given on “central position of adjustment”. It was noted that for seats where there are shoulder position adjustment separate to backset angle, there should be a definition of the position this should be set to.

This is sometimes integrated with head restraint adjustment (i.e. pivot/articulation in seat just below shoulder height, with the head restraint located on the upper part of the seat) and sometimes separate (similar to lumbar support devices). It was noted that this point is also relevant to static testing, as backset is measured for this test too.

An amendment was made to Annex 9 Para 3.2.4.6, to define the position to which it should be set (i.e. as prescribed by the vehicle manufacturer assuming torso angle is maintained). In addition, the positional requirements of side bolsters were moved to 3.2.4.6 to allow it to refer to those fitted to seat base and/or backrest.

Concerns were raised about the principle of Annex 9 Para 3.2.4.5 – where the head restraint is positioned fully rearward, what happens when the pivot allows a tilt which would change the effective contact point. The wording was changed to reflect the objective of setting the restraint to its most rearward position.

It was agreed that there was a lack of clarity in Annex 9 Para 3.2.8.2 regarding how to measure the “200mm distance and 230-270mm” distances relating to knee and ankle spacing. It was noted that this comes from the Euro NCAP procedure and delegates were asked to consider both the intended meaning and improved text.

Annex 9 Figure 9.2. It was suggested that the curves of the “entry gate” could be simplified by straightening the curve (the currently reflect the profile of a pulse). It was also considered that the figure may benefit from being redrawn with better quality.

Actions:

Mr Depinet will weigh different types of shoes and report this back to the group.

Chair will prepare an informal document for presentation to the May session of GRSP for information only. This will include elements of the pre-amble and the Chair invited the group to provide contributions.

In keeping with the decision of the informal group that the discussion on the absolute height of head restraints should be had once and at GRSP, NL agreed to prepare a paper on the issue for presentation at the May session of GRSP.

6. Mutual Resolution

PDB presented the status of their drawing review which had identified some minor requirements for change but no significant issues. It was not clear whether the check had included issues such as proprietary references and Mr Bortenschlager agreed to check this point.

UK advised that they had completed a review of the drawings set for completeness and also for proprietary references and it was agreed that they would merge their findings with those of PDB and then hold a tripartite discussion with PDB and Humanetics.

Humanetics indicated their readiness to help with the review but noted that until the scale of the drawing revisions were understood they could not offer guarantees that they could complete this task.

The chair also advised that he was working with the chairs of the Flex-PLI and Q-Dummy group to develop a guidance document, reflecting the combined experience of developing the Mutual Resolution, to help future groups with their work.

Task –

UK and PDB to conclude a list of drawing updates required before these can be finalised for the mutual resolution.

UK will share the PADI documents with the group shortly.

A question was raised regarding Para 2.6 of the mutual resolution with regards to any change that may be made in future. It was questioned who would be responsible for testing this and what evidence must be provided to demonstrate the changes do not alter behaviour?

2.6. With the exception of paragraph 2.5, where the manufacturer makes changes to a part that is shared with one or more tools, and it is not demonstrated that all these tools are unaffected; a new drawing is listed for the tool affected by the change. Where this change affects a master drawing, the original drawing is reallocated to a new and alternative parent Addendum and references revised. Revised drawings follow the numbering convention, i.e. "TRANS/WP.29/1101/Add.1/Dwg 001/Rev.1".

Chair - Any change would need to go through the normal UN procedures. The official path, in this case for an amendment to the Mutual Resolution would first be through the appropriate GR and then finally through WP.29. The difference from a change to a regulation or GTR being that as soon as WP.29 agrees to a change it would then be effective. The intention is to set "one" specific dummy level.

He expected that Experts may need to look at cases in detail, to determine effects of changes and, in some cases, back to back testing may be required.

7. A.O.B.

Next meeting –

It was noted that a face to face meeting was necessary no later than by 2nd week of September to ensure a formal paper could be submitted for GRSP in December. OICA was identified as a provisional location – subject to confirmation.

It was agreed to try and hold 2 WebEx meetings in the interim.