

5th Informal meeting: GTR motorcycle braking – 05/10/17-19**Participants:**

Canada : Mr Brault
 USA : Mr Soodoo
 UK : Mr Tsatcher
 Japan, JASIC : Messrs, Honda, Hoshi, Kiuchi
 IMMA : Messrs Cart, Chesnel, Dutrieux, Rogers
 FEMA-AMA : Mr Perlot

1. Minutes**1.1 Minutes of 4/GTRBR**

Agreed : The minutes of 4/MCGTR with minor corrections (11-GTRBR-05-rev1)

1.2 Documents issued since the last agenda

Noted : The documents 08-GTRBR-05 to 26-GTRBR-05

2. Current Timeline

Noted : The reminder that the document deadline for 59/GRRF was the 05/11/15
 : Lawyers from Transport Canada and from NHTSA had already reviewed the first version of the draft GTR text.
 : The Preamble and the Technical Report (TR) would be merged into 1 single document
 : The TR circulated at 58/GRRF as informal document 16 would be revised and would include all the necessary changes.
 : In classification for GTR, the reminder that quadricycles did not appear.
 : All definitions came from the document TRANS-WP29-1045e-SR1.

Agreed : The Preamble/TR blended document would be delivered to the Secretariat of the Group by Transport Canada by 05/10/30.

3. Discussion of the technical changes to complete the GTR

Documents: 04-GTRBR-05, the list of 45 issues

: 07-GTRBR-05-ann3, the IMMA response to 04-GTRBR-05
 : 08-GTRBR-05, the Transport-Canada response to 04-GTRBR-05
 : 09-GTRBR-05, the NHTSA response to 04-GTRBR-05
 : 12-GTRBR-05, the 1st official version
 : TRANS/WP29/GRRF-2005-18&18e, the official first versions of the TR
 : 22-24-GTRBR-05, comments from UK,NL,DK,

Noted : **The question of testing ABS**

: The tests were to confirm the performance of brake systems equipped with ABS and their performance in the event of ABS electrical failure.
 : The proposed GTR did not require that a motorcycle be equipped with ABS, but established minimum performance requirements for motorcycles so equipped.
 : The individual test that presented problems to solve for the group included the measurement of the maximum vehicle available deceleration rate.
 : The reminder that this test requirement was currently covered in ECE Reg78 by a specific section termed “adhesion utilization test” on high-friction and low-friction surfaces.
 : This adhesion utilisation test was not required by the Japanese legislation.

: USA thought that this adhesion utilization test was too subjective in the context of self

certification for proper repeatability due to:

- A. Rider skill variability
- B. surface friction's influence
- C. variability

: IMMA considered that this opposition was mainly motivated by an administrative issue to solve.

: Annex 4 of Reg78 (Amendment 1 dated 22/11/1990) was studied. It consisted of 2 steps:

- A. Measurement of a coefficient of adhesion K on two road surfaces, a high-friction surface and a low-friction surface.
- B. Calculation of the adhesion utilisation on two road surfaces, a high-friction surface and a low-friction surface.

- : It was aimed at comparing the separate performance of each wheel (the front and rear) with the ABS connected to the separate maximum braking performance of the front and rear brakes with the ABS disconnected (Paragraph 5.4 of Annex 4 of Reg78).
- : The determination of the coefficient of adhesion K would require the ABS to be disconnected.
- : The comment that disconnecting ABS would run into problems with some very modern ABS designs. This was not desirable.
- : Zmax would give the deceleration value with ABS in operation for each wheel or brake system.
- : Z max was the simple average of the braking rate (Z) for 3 tests.
- : Once the wheel lock pressure was established, the rider would normally back off the pressure slightly to find the maximum deceleration capability.
- : One proposal would be to measure 1 maximum stop on the high friction surface such as the laden dry stop test – single brake control activated but without ABS working and then apply a percentage value of 70-100% to achieve a measure target of ABS fitted brake performance.
- : An alternative would be developing an additional baseline test, unladen, which would be a more valid comparison with the ABS one.
- : Current such baseline test unladen with individual brake test in the GTR draft text did not exist.
- : NHTSA argument that ABS would automatically modulate the brake pressure as for the speed decreased whereas the rider was asked to get the maximum braking rate (efficiency) with a constant control force, thus the rider could not compensate for the increasing PFC as the speed decreased.
- : A changing PFC on the test surface would increase the results variability.
- : The influence of the tyre type should not be neglected.
- : The reminder that surface friction requirements for the ABS tests from the ECE R78 and JSS 12-61 were the only tests which specified the coefficient of friction for the test surface.
- : As opposed to Reg78 which prescribed a constant control force for the entire stop, it would not be practical to try to fix the control position at the initial force in order to achieve the maximum deceleration.
- : It would then be not possible to maintain the specified control force since this force might be increased to assure that the ABS was fully cycling.
- : Japan and UK wanted this ECE adhesion utilisation test until the group came up with something better whereas USA and Canada opposed that option.
- : USA and Canada and UK opposed having only the stability check with any ABS performance assessment since it would bring no road safety value.
- : This option would be perceived as a set back in safety by Countries where Reg78 was enforced.
- : IMMA recognized the current deficiencies of the adhesion utilisation test.

Agreed : The confirmation that the ABS test would precede the fade test.

- : The limitation of the existing adhesion utilisation test as it was defined in Reg78.
- : This test was not the adequate and repeatable stopping performance requirement the group wanted for the GTR.
- : Developing an adequate ABS stopping performance requirement test would require that data on the low friction and high friction surfaces be collected.
- : The group recognized that elaborating this new test could delay the GTR process by 2 years.
- : The group recognized the necessity to define precisely what to generate before going to research in order to elaborate a cost-time effective project
- : The definitive proposal might be a measurement of a minimum vehicle deceleration value for each single brake control under dry/high friction surfaces and unladen conditions plus a measurement of equivalent data for low friction surfaces.
- : These new test values obtained should be perceived as absolute values instead of relative values.
- : The positive outcome would be a safer test without outriggers and without causing interference with the braking systems.
- : Aim in the long run might go for the new test for both low and high friction surfaces
- : The current final GTR text would only include 3 wheel lock checks for low to high friction surface transition and high to low friction surface transition and for low and high friction surfaces.
- : The low to high-friction surface transition stop would require further discussion.
The performance requirement that the "...deceleration of the vehicle must rise to the appropriate high value within reasonable time..." could be made more objective.
- : The test rider should be able to maintain the specified force to the brake control within a 20 percent margin for the entire stop.
- : The modifications of the other paragraphs of the GTR text (Annex1.doc)

4. Discussion of the substantive questions from Germany, India, Denmark, UK, USA made at 58/GRRF

- Agreed : The IMMA consultant would prepare the official Group's replies to the GTRBR Secretariat for circulation to the above Administrations.

5. Discussion of the Cost Effectiveness Analysis

- Noted : This item would be subject to resolving the ABS new test.
: The Group considered that the cost and benefit were neutral

6. Recommendations

- Agreed : The GTR text and the merged Preamble-TR would be presented at 59/GRRF.
: The informal group would meet again depending on the outcome of 59/GRRF .

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