

**2nd IWG GTR-ESC MEETING
(Electronic Stability Control for Light Vehicles)**

Geneva, 24-25 September, 2007

DRAFT REPORT

Venue: Palais des Nations, Geneva

Chairman: Mr. Ezana Wondimneh (USA/NHTSA)

Secretariat: Mr. Olivier Fontaine (OICA)

1.- WELCOME AND INTRODUCTION

The chairman opened the meeting by setting the objectives of the meeting and reviewing the working timeline:

- Meeting objectives included:
 - Discussion and resolution of the pending items as listed in the meeting agenda.
 - Production of a supplemental document to the existing formal draft GTR that contains all agreed items from this meeting and for discussion at 62 GRRF.
 - Production of a second document containing unresolved and/or pending items for further discussion at 62 GRRF.
- Working timeline:
 - Second meeting of the IWG in September 2007 – produce a supplemental documents to the existing Formal draft GTR.
 - 62 GRRF – review and offer input for the third IWG meeting.
 - Progress report to the November session of WP.29/AC.3.
 - Third meeting of the IWG in December 2007 or January 2008 – attempt to resolve all outstanding issues using input from WP.29/AC.3 and GRRF.
 - 63 GRRF- second review and possible recommendation for adoption by WP.29/AC.3. Some items may remain unresolved at the GR level.

- Second progress report (with any remaining issues) to the March 2008 session of WP.29/AC.3
- Final adoption of the GTR by WP29/AC.3 at its June 2008 session.

Report of 1st meeting (GTR-ESC-2007-08) was adopted without modification.

2.- DISCUSSION ON THE REGULATORY TEXT

2.1 DELETION OF REFERENCE TO ASTM PBC DETERMINATION METHOD (Para. 2.2)

Adopted.

2.2 DEFINITION OF ESC SYSTEM (Para. 3.2(a))

Background:

- Proposal tabled from the USA to amend the description of the ESC function..
- Reference to wheel torque instead of wheel speed.
- Deletion of the reference to “selective braking”.
- Introduction of wording: “correcting yaw moment”.

Discussions:

- OICA/CLEPA keen to keep a reference to “selective braking” as the definition exists in current UNECE R13H.
- China reluctant to base ESC on brakes only; design restrictive.
- However:
 - There is a need for technology/equipment requirements as performance based requirements alone cannot adequately test ESC systems.
 - Would take too long to develop a completely new set of tests, which would delay the expected safety benefits for consumers.

Conclusion:

- Agreed that there is a need for equipment requirements.
- US proposals adopted. Refer to document GTR-ESC-2007-15 (Version 4 Suppl 1).

2.3 FUNCTIONAL REQUIREMENTS – EXCEPTIONS TO WHEN ESC MUST WORK (Para. 4.1(b))

Background:

- OICA proposal to raise the required ESC functioning speed threshold from 15 km/h to 20 km/h. Agreement from all delegations present.

Discussions:

- Agreement to exempt ESC operation during initialization..

Conclusion:

- Raised speed threshold to 20 km/h.
- Exemption during initialization adopted.

2.4 TELLTALE REQUIREMENTS – ESC MALFUNCTION AND ESC OFF
(Paras. 5.4 and 5.6)

2.4.1 Location of ESC malfunction tell-tale (para. 5.4.)

Conclusion:

- Agreed to refer to a driver seated and fastened in his designated driving position.
- Editorial improvements.
- ESC malfunction tell-tale must illuminate only when a malfunction(s) exists (USA concerned with deletion of the word “only” as their position is to use the telltale only for malfunctions).

2.4.2 ESC OFF tell-tale (I - para. 5.6)

Background:

- The GTR allows deactivation of ESC.
- In that situation, current draft text requires additional tell-tale to warn the driver of the new degraded status of the ESC system in the vehicle.
- OICA proposal to use the regular ESC malfunction tell-tale, defined in para. 5.4., as a warning to the driver (document GRRF/2007/23).

Discussions:

- Issue discussed in both the informal group and plenary GRRF (see para. 5.1.3. below).
- CDN: reluctant.
- USA: reluctant:
 - Potential safety concern: driver may not be aware of an ESC malfunction if there is a combined malfunction/off telltale; single telltale could encourage drivers to press the ESC OFF button more often, which could cause ESC to be off more frequently and thereby limit safety benefits..
 - Suggested to delete the possibility of ESC OFF.
- OICA:
 - Not realistic to delete the possibility of ESC OFF as this could lead to an unknown situation. OICA stated that this feature is necessary in certain circumstances and on certain vehicles.

- Additional tell-tale is contradictory to HMI principles.
- Feels that there is no safety relevance for an additional tell-tale.
- Document GRRF/2007/23 supported by NL, UK, EC, IND, RUS, ROK, RC, D, Italy, J.

Conclusion: Issue to be further addressed by the informal group.

2.4.3 ESC OFF tell-tale (II - para. 5.6)

Background:

- Current draft text does not consider the case when the tell-tale is located on the control.
- OICA proposal to permit the ESC OFF tell-tale to be located on the control if this control is located in accordance with the para. 5.6. (Location of tell-tale).

Discussions:

- Issue discussed in both the informal group and plenary GRRF (see para. 5.1.4. below)
- CDN: found proposal reasonable.
- UK: would support in addition to document GRRF/2007/23.

Conclusion: Issue to be further addressed by the informal group.

2.4.4 ESC malfunction detection (para. 5.4)

Background:

- Current draft text requires the malfunction tell-tale to illuminate in case of “one or more malfunctions”.
- Proposal from OICA that the GTR be written to consider one malfunction at a time.
- Consensus in UNECE R13 and R13H regulations that only one malfunction could occur at a time during testing.
- USA did not want to preclude the testing of multiple malfunctions at once; comfortable with language saying “any malfunction” instead of “one or more.”

Discussions:

- UK: supported; keen to have requirements similar to annex 8 of UNECE R13H (CEL annex).
- NL: supported; suggested one additional brake application in case of ESC malfunction.
- OICA proposal supported by all parties except USA and CDN (study reservation).

Conclusion: Issue to be further addressed by the informal group.

2.5 REFERENCE TO UNECE R13H FOR DEFINITION OF K-METHOD (Para. 6.2.2 (b))

Background:

- Current draft permits choice between two methods for evaluating the test surface adhesion coefficient: ASTM and K-method (UNECE R13 and R13H).
- ASTM uses a trailer and standard reference tire to measure surface adhesion coefficients.
- K-method uses the tested vehicle as a tool and provides an evaluation of the tyre/surface adhesion utilisation.
- Japan challenges the K-method in documents GTR-ESC-2007-10 and annex 1.
- GTR-ESC-2007-10 suggests three choices:
 - Replace K-method by ISO 8349 (equivalent to ASTM).
 - Permit the K-method with standard “Tiger” tires only.
 - Replace the choices between the two methods by a general requirement of “good adhesion”.

Discussions:

- OICA:
 - ISO 8349 is equivalent to ASTM, hence 1st proposal in GTR-ESC-2007-10 would in effect disallow the choice between two methods for measuring surface friction in the GTR.
 - Document GTR-ESC-2007-10-Annex 1 slide #5 : the choice of tire influences the final results by maximum 0,22 m - negligible.
 - If 1st proposal were to be adopted, all European Technical Services would have to change their equipment.
 - Hence favoured 3rd proposal.
- UK and NL: second proposal acceptable. Reluctant to 3rd proposal as it is not precise enough to conduct compliance testing.
- IND: committed to use 2nd proposal.
- CDN: committed to use 1st choice (ASTM) but accepted presence of 2nd proposal in the text.
- F and D: supported 3rd proposal.
- RC: preferred to keep current text. However study reservation.
- USA: rejected 3rd proposal, but accepted 2nd proposal in the text.
- RUS: no position.
- ROK: supported 1st proposal.
- EC: supported 2nd proposal.

Conclusion:

- Issue to be further addressed by the informal group.
 - Decision may be made to accept current reference to K-test method as in UNECE R13H and/or K-method using a standard tire.

2.6 INTRODUCTION OF NEW VEHICLE DEFINITIONS FOR OUTRIGGERS (Para. 6.3.4)

Background:

- Need to define and to require the use of outriggers in self-certification regimes. No need for either definition or requirement in type approval regimes.
- Proposal for precise outrigger description in document GRRF/2007/15 (HUN).
- Proposal to make outriggers optional in document GTR-ESC-2007-12 (OICA).

Discussions:

- IND: keen to delete the paragraph.
- EC and NL: supported OICA to make outriggers optional.

Conclusion: No text agreed. However consensus was reached to allow each Contracting Party to determine use during compliance testing.

2.7 ESC DIAGNOSTIC/INITIALIZATION PERIOD APPLICATION (para. 7.10.2 and para. 7.10.4)

Background:

Description of a test needed to be clarified with regard to procedure and total time allowed.

Discussions:

- Difficulty in determining the proper wording that does not jeopardize the test intention.
- Agreement that the clock starts when the ignition is ON (start of the 2 minutes period).
- Need to limit the delay to achieve the test speed.

Conclusion:

- Proposed text submitted to experts for decision at next meeting.
- USA volunteered to provide revised text.

2.8 EDITS TO FIGURES 1 AND 2

Conclusion:

- USA to provide “pass” electronic graphs.

Delay between steering and yaw rate is actual data. IND wants to add explanatory remarks to the figure.

2.9 OTHER ITEMS

2.9.1 Formula of lateral displacement (Para. 5.3.1.)

Agreed to add a reference to a_y in the text of the paragraph.

2.9.2 Lateral displacement by GPS (document GTR-ESC-2007-06)

Background:

- Proposal from Japan to obtain the value of the lateral displacement by using GPS data.

Discussions:

- OICA:
 - Keen that equivalence compared to double integration calculation is demonstrated.
 - Alliance research did not provide data showing that the accuracy is acceptable.
- NHTSA: such procedure has been used for FMVSS 126 application.

Conclusion: Japan to provide to the group data showing equivalence of accuracy before a decision to allow it is accepted by the Contracting parties.

3.- **DISCUSSION ON THE STATEMENT OF TECHNICAL RATIONALE AND JUSTIFICATION**

3.1 DEFINITION OF ESC SYSTEM (Para. 44 of preamble will be aligned with para. 3.2 by the IWG secretary)

3.2 ROAD TEST SURFACE – PBC SPECIFICATION (Paras. 187-188 of preamble)

See para. 2.5. above. The group recognized that only one of the two paragraphs was necessary in the preamble. However the issue of whether to keep the K-method or chose another method as an alternative to ASTM is not finalized (in para. 6.2.2.(b) of the draft text). Hence, the group agreed to make a decision on paras. 187-188 of the preamble in accordance with the final decision on para. 6.2.2.(b).

3.3 OUTRIGGERS (Para. 192 of preamble, to align with para. 6.3.4)

Discussions (see para. 2.6. above).

- EC: fitment of outriggers should be left to the choice of the contracting party, or even the choice of the manufacturer. As a consequence the prescriptions in the GTR should be kept to a minimum.
- USA: outriggers must be defined in the gtr as it could be an issue under the selfcertification regime.
- IND: suggested to introduce a reference to the preamble in the regulatory text.
- D: outriggers should not be mandatory in the text of the regulation.

- CDN: supported USA that if outriggers are optional they must be defined in the text.

Conclusion: USA committed to provide a wording for the preamble.

3.4 EDITORIAL CORRECTIONS

3.4.1 “Steering wheel” versus “steering control”

Background:

- The whole GTR is based on assumption that vehicles to be tested are equipped with steering wheels.
- Current technology and some regulations however permit the use other types of controls (e.g. “joy sticks”).
- Some parties keen to open the GTR to any type of steering control.

Discussions:

- USA reluctant to introduce other steer controls in this phase of the GTR as much more work would be required that will delay implementation of the rule, which in turn would lead to loss of expected safety benefits.:
 - Would require the development of a new robot capable of controlling a steering wheel as well as any steering control some of which may not even exist today.
 - Would require extensive revisions to the test procedures.
 - Would delay the whole GTR for a system that does not exist on the market today.
- Contracting Party opinions:
 - IND, D, J, UK: Want to allow other steering control types.
 - USA, ROK: Do not want to open the scope to all types of steering control as it would greatly delay the GTR.
 - CDN, NL, RUS, EC: no strong position.
 - F, RC: some reservation.
- Suggestions from the group:
 - When relevant, add the phrase: ‘in the case of steering wheel...’
 - Narrowing the scope to vehicles equipped with a steering wheel. Situation would be similar to current one in self certification regime (exemption of vehicles w/o steering wheel); EU would permit new technologies via “procedure 8.2.c.”.
 - Replace “wheel” by “control” when relevant.

Conclusion:

- Agreed to amend para. 2.1. or preamble in order to narrow the scope to vehicles equipped with a steering wheel, but avoid creating a loophole by which commonly used vehicles would be exempted from the scope of the regulation
- OICA committed to study the issue in depth.

3.4.2 US Proposed changes to the gtr preamble

Document GTR-ESC-2007-13: amendments proposed by USA. In para. 87, EC reluctant to add “sport mode” to the list of the examples as this could be considered as an encouragement for sportive driving. The group agreed to delete the reference to the “sport mode” and to add other examples that would avoid similar interpretations.

4.- PROPOSALS FOR SUBSTANTIVE CHANGES TO THE DRAFT GTR

4.1 TECHNICAL DOCUMENTATION SUBMISSIONS FOR TYPE APPROVAL AND SELF-CERTIFICATION SYSTEMS, INCLUDING INTELLECTUAL PROPERTY RIGHTS (IPR)

Document GRRF/2007/27 (CLEPA/OICA)

Background:

- Para. 5.7. requires that the manufacturer makes available some technical documentation.
- The intent is to ensure that the vehicle is equipped with an ESC fitting the definition.
- Concerns from industry that intellectual property confidentiality may be compromised.

Discussions:

- Proposal GRRF/2007/27 permits the technical service to witness and consult any documentation at the manufacturer/supplier’s facilities.

Conclusion:

- General agreement about intellectual properties concerns
- IWG to consider new proposal that would strike the right balance between what documents are to be submitted to contracting Parties upon request and what documents would not be required to protect intellectual property rights of manufacturers.
- GRRF/2007/27 to be introduced in the draft text.

4.2 SIMULATION FOR TYPE APPROVAL CERTIFICATION SYSTEMS

Document GRRF/2007/22 (OICA)

Background: Some Contracting parties need to allow simulation under type approval regime.

Discussion:

- Proposal does not function in self-certification regime.
- Suggestion to introduce the proposal in national legislation.

Conclusion:

- Proposal rejected.
- Will be introduced at the time of transfer into national regulations.

4.3 PROPOSALS FOR AMENDING/CHANGING DRAFT PRESCRIPTIONS

Documents GRRF/2007/25 and GRRF-62-33 (OICA)

Background: Current draft text is based on the assumption that the yaw rate signal is provided by yaw sensors. Some other sources can however be used to evaluate the yaw rate. The above documents intend to make sure that the safety and the quality are preserved in this case.

Discussion:

- USA found the proposal premature as it would require further development before it is ready for inclusion in the GTR. Open to consider new data if it is developed within the timeframe mandated by WP.29/AC.3.
- CDN questioned the quality of the current sensors themselves.

Conclusion:

- OICA to improve the proposal to define:
 - Proper correlation criteria.
 - Procedure of verification by the technical services and suitability for other certification regimes such as self-certification.

5.- OTHER BUSINESS

The Chairman reminded the meeting that issues that are specific to individual Contracting Parties national regulations would be discussed separately so as not to delay progress on the development of the GTR in IWG meetings, which received its mandate under the 1998 agreement. Some issues summarized below fall outside the scope of the GTR development, but are included here for reference purposes. Many of these issues were also the subject of discussion at the GRRF meeting that immediately followed the IWG meeting (since that body accommodates both the 19958 and 1998 Agreements).

5.1 OUTCOMES OF GRRF-62 PLENARY SESSION

5.1.1 Preliminary report and draft gtr

- GRRF mandated the ESC informal group to produce a report to WP29/AC3 of November as per document TRANS/WP.29/882, para. 5.
- All delegates of GRRF were requested to send their comments about GRRF-62-36 to the Chairman and/or the Secretary of the informal group on ESC by end of October 2007.

5.1.2 Vehicle mass distribution and tire unbeading GRRF/2007/15 (HUN)

- Unbeading issue: to be dealt with in informal group.
- Mass distribution:
 - Issue for type approval certification regime.
 - HUN to propose solution at informal group.

5.1.3 Simulation for type approval certification systems GRRF/2007/22 (OICA)

- D: supports principle. Suggested to inspire solution from EVSC (Appendixes 1 & 2 from Annex 21 to UNECE R13).

Conclusion:

- OICA to produce complete proposal for next informal group meeting.
- Simulation to be included in UNECE R13H alignment.

5.1.4 ESC OFF tell-tale GRRF/2007/23 and GRRF-62-24 (OICA)

- Supported by D, Italy, UK, J.
- Rejected by USA: how to define the minimum quality level of the sensors?
- Conclusion: Issue to be further addressed by the informal group.

5.1.5 Yaw rate signal GRRF/2007/25 and GRRF-62-33 (OICA)

- D: supported OICA for prescriptions not design restrictive.
- RC: concerns about appropriate “correlation” and “all driving conditions”.
- Conclusion: Industry to present an improved proposal at next informal group meeting (see para. 4.3. above).

5.1.6 Intellectual property rights (IPR) GRRF/2007/27 (CLEPA/OICA)

- GRRF generally supported using a similar approach as in UNECE R13 and R13H (i.e. “CEL annex”).

Conclusion: informal group to consider proposals that would satisfy the Contracting Parties concerns (of receiving supporting documentation from manufacturers vs. IPR concerns of the manufacturers)

5.1.7 ESC optional in GTR GRRF-62-14 (J)

- GRRF-62-14:
 - Proposal to remove wording in the draft GTR that would make ESC mandatory for all vehicles covered under its scope.
 - Conclusion: possible solutions to be considered by informal group.

5.2 UNECE R13H ALIGNMENT

- Procedure:
 - EC commitment to vote on ESC gtr only if existing parallel agreement to implement ESC gtr prescriptions into UNECE R13H.
 - Italy, supported by OICA: suggested to proceed by steps i.e. GTR first then UNECE R13H.
- Inclusion of N1 category:
 - GRRF-62-32 (EC): proposal to cross reference UNECE R13H in UNECE R13 for N1 category of vehicles < 1760 kg fitted with mandatory ESC conforming to UNECE R13H. Document corrected in the meeting to delete reference to M1 category.
 - Document not discussed in details.
- Mandatory/optional:
 - Would ESC be mandatory or optional in UNECE R13H?
 - J: keen for optional. UNECE R13H is a rather global regulation. Need for transitional provisions as well.
 - D, NL, S, ROK, F, FIN, E, OICA: supported J, obligation in EU territory should come from EU themselves.
 - IND: supported J as well. Will implement UNECE R13H in the future.
- Additional approval GRRF-62-34 (OICA):
 - Proposal to avoid additional mandatory approval for vehicles already fitted with ESC.
 - Concern from GRRF Chairman that ESC would be excluded from the CEL annex if text reads “if mandated”.
 - RUS: reminded some mitigated ESC performances as explained at GRRF-58 (document GRRF-58-15). Supported “if fitted”.

- Concern from UK about decreased braking performances when ESC failure.
- D: supported “if mandated”.
- J: CEL annex can prevent any electronic failure.
- OICA: CEL annex was developed for those cases. ESC provokes additional costs to the vehicle.
- Conclusion:
 - Implementing issue to be led by EC. All GRRF delegates to brief their WP.29 correspondent about “mandatory/optional” and “if fitted/if mandated”.
 - Conclusion: to be considered by EU when ESC is implemented into UNECE R13H.

6.- CONCLUSION AND WRAP-UP

- Secretariat to amend draft text with all agreed and non-agreed changes.
- Decision made to hold a third informal group meeting in December or January.
- Third meeting to take into account input from GRRF-62 and WP.29-143.
- Secretariat to produce a version 5 of the draft text for consideration by GRRF-63 following the conclusion of the third meeting.