

DRAFT REPORT

3nd meeting of GRRF/IG on Modular Vehicle combinations MVC

Venue: OICA offices
4 rue de Berri
F – 75008 Paris
France

Chairman: Anders Gunneriusson (SE)
Secretariat: Pierre Teyssier/Olivier Fontaine (OICA)
Dates of the session: 27-28 January 2015

1. Welcome and Introduction

2. Approval of the agenda

The agenda was approved with no change.

3. Approval of the minutes of last meeting

- Debate on EBS: during pervious MVC meeting EBS meant “electric control line” in the context of this group. However, it is clearer to use to right words to designate “electric control line”
- Whether the tractor must have electric control line is still under question, because the performances could be at same level if only the towing trailer is equipped with electric control line.
- Latest version of the EU PTI Directive addresses EBS as “electronic braking system”. However, EBS remains a technical solution, which is not defined in the UN R13 regulation.

Conclusion: D document about regulatory items on field tests in Germany, to be added in the informal group web page (AECS-03-05)

4. Review of situation in different countries

Documents: MVC-03-02 (Secretary) Table of MVC situation in different countries
MVC-03-03 (FIN) Memo on Dolly questions
MVC-03-04 (N) Modular Vehicle combinations in Norway
MVC-03-05 (CLEPA) D field test document

- S: the Chair informed that the situation in S is currently a bit confusing. Some political changes at the head of the country make the situation currently idling. Industry still has

high interest in making the regulations evolve towards 74t / 32m. For the moment: 60 tons and 25,25m

- NL: Need to add provisions for NL (mail of 24 November)
- E: The group was informed that Spain is developing rules for these kinds of vehicles. Agreed that Mr. Lafuente be approached on this.
- FIN informed about the document MVC-03-03.
- Some countries even have no rotation permitted, some mandate a locking system.

The group reviewed document MVC-03-03:

- Debate on the necessary limitation of the angle of the 5th wheel of a dolly
- Debate on the parking brake and the current text of UN R13. Semi-trailer must take over its total weight on a slope of 18%. All vehicles must be able to take over their full load on a 18% slope. In case of a combination, the slope is 12% performed by the motor vehicle alone.
- Stability system: the vehicle is not able to measure its COG (which is varying with load and type of goods), hence automatic adjustment is not possible. Some manufacturers provide manual adjustment within a certain limited margin.

Mr. Adam introduced the D field test document (AECS-03-05). The experts held discussions on the following topics:

- The rules do not specify which kind of retarder is mandatory. N informed that some tunnels in Norway have slopes of about 10%, i.e. some high performance retarders are necessary.
- Paragraph 3 indicates which kinds of combinations are allowed in D
- Test to last until 2016.
- Some schemes could be added to the table.
- Political discussions in Germany are ongoing: infrastructure, technical requirements.

USA: not of concern to the informal group as they are not signatory to the 58 Agreement.

AUS: The AUS representative (M. Geoffrey Pitt) is available for providing information on situation in Australia.

5. Definition of a dolly

Feedback from Mr. Svensson (VBG Group) as pilot for dolly definition:

- Existing definitions
 - o Mr. Svensson presented the results of his survey (document AECS-03-06 - Converter Dolly in Multi Vehicle Combinations) as a kind of “road book” of the issues that must be addressed by the group. Some additional issues should be discussed, such as national specific requirements, emergency valves on long vehicles, conventional vs. hinged drawbars dollies with regard to the braking capabilities.
 - o It was pointed out that some existing definitions are based on the definition of a trailer (centre-axle trailer), transforming a semi-trailer into a full trailer.
- Definition of classes of dollies
 - o The Chair questioned the necessity to keep two different types of dolly, i.e. hinged drawbar dollies and rigid drawbar dollies.
 - o Hinged drawbar dollies are actually not anymore built in most European countries, yet AUS for example still use and build them. Yet rigid drawbar dollies are now state of the art, in particular in the frame of MVC. The Chair feared that the experts present in the group may lack experience in hinged drawbar dollies, while all have 30 years’ experience with rigid drawbar dollies. NL informed about bad experience with hinged

drawbar (the dolly was spinning around its axles when braking). Most experts favoured focusing on rigid drawbar dollies, taking into account other possibilities in case they are of interest.

- Definition of a trailer per RE.3:
 - “1.5. *"Trailer" means any non-self propelled vehicle, which is designed and constructed to be towed by a power driven vehicle and includes semi-trailers*”.
 - Should the definition of a dolly be added into RE.3, then the definition of a trailer should be amended.
 - Definition of a trailer per the European Directive 2007/46, paragraph 12 in Chapter I, Article 3:
 - “12. *'Trailer' means any non-self-propelled vehicle on wheels which is designed and constructed to be towed by a motor vehicle*”.
 - There was a proposal to take over the definition existing in the European Directive 2007/46, paragraph 5.9. of Annex 2, Part A.:
 - “5.9. *Converter dolly: a vehicle of Category O equipped with a fifth-wheel coupling to support a semi-trailer with a view to converting the latter into a trailer.*”
 - If such definition was adopted, then the dolly converts a semi-trailer into a trailer, i.e. with a hinged drawbar, which is contradictory to the decision of the informal group to focus on rigid drawbar dollies. Furthermore, it should not be understood that such a definition mean that the requirements for full-trailers in UN R13 would apply to dolly+semi-trailer. This would indeed not be applicable, since the approval applies to single vehicles. Thus the definition of a dolly should remain “neutral”, i.e. independent from other definitions like “centre-axle trailers” or “full-trailers”.
 - From this respect, another option takes a dolly as especially designed to tow a semi-trailer, i.e. *“a towing trailer specially designed to tow a semi-trailer”*.
- Proposal for requirements for coupling

All experts agreed that the provisions of UN R55 should apply. Yet the group must still investigate the details of the necessary requirements applicable to the MVCs and dollies.
 - Proposal for requirements for braking

Some debate took place on the distribution of braking forces.

Conclusions:

- Group to limit the scope of discussions to rigid drawbar dollies because this could be a 1st step toward dolly approval. Principle agreement to be confirmed at next meeting.
- In parallel, group to get information from AUS on their experience with hinged drawbar dollies.
- Chair to request guidance from GRRF about the place where adding the definition of a “dolly” (in RE3 or in the regulations or both)
- The group decided to temporarily accept the following definition: “dolly means a towing trailer especially designed to tow a semi-trailer”, and to check it along the work to be performed with the definition of the performance requirements.

6. Electronic stability control

Feedback from Mr. Adam (Wabco) as pilot for Annex 21 amendments:

- Collection of data about existing systems

Mr. Adam did not receive any report or information about ESC in MVCs.

- Possible draft amendments to Annex 21
 - o Need to add provision that a towing trailer shall be able to activate the brakes of the succeeding trailer (provision inspired from the tractor provisions).
 - o There was a description of the ESC functioning.
 - o The experts agreed that adding a dolly makes no particular technical challenge with regard to ESC functioning and development. Yet the concern stays with the non-EBS trailers when they are part of a MVC.
 - o The idea of using the pneumatic characteristics of the suspension was discussed (this system does exist on hydro/pneumatic systems for agriculture vehicles), but rejected because
 - The dynamic reactions of the suspensions are not fast enough
 - The air suspension is designed as a levelling system (one sensor for six wheels).
 - o ISO11992 does contain EBS dedicated messages (e.g. EBS21) for data transmission about behaviour of the different vehicles.
 - o In view of the above, and in view of the adopted definition of a dolly, the group wondered the necessity of mandating ESC on dollies: risk of creating jack-knifing situations vs. increase of EVSC capabilities
 - As a towing trailer, the dolly must have EVSC
 - The added cost is of low level (if the base system is an electronic braking system)
 - Prevention of jack-knifing relies then on the proper EVSC adjustment.
 - EVSC cannot go beyond the limits of the physics: still need that the vehicles are stable by design.
 - May happen that the vehicle tows an empty dolly: need for communication between the dolly and the tractor.

- Assessment of driver's acceptability to low lateral acceleration thresholds
 - o Activating the stability system earlier than current practice would not be accepted by the drivers. The concern also is related to the driver's education; the drivers should be aware that they cannot feel when the trailer starts rolling.
 - o The Chair informed about discussions in S to increase the height of the vehicles to about 4,50 m. Industry in S voices that this can be done since the vehicles are equipped with EVSC.
 - o Mr. Adam proposed that a requirement be added such that a towing trailer should be capable of braking the succeeding trailer. Also changing the settings parameters such that the centre of gravity is higher. On trucks, the axle load sensors (when existing) can evaluate the load, hence make an rough assessment of the possible centre of gravity height, as the load is always added above the unladen centre of gravity.
 - o A debate took place on the necessity that the signals are transferred along the whole combination, yet with no mandatory technical solutions. UN R13 currently does not mention "routers", yet they are permitted at national level. However the point is that the signals are transmitted with no delay. The ISO standard does implicitly foresee the transmission of messages via the input/output requirements.

- Conclusion:
 - o Group to define the necessary messages/information that need to be transferred back and forward
 - o Addition of a requirement that a towing trailer must have the capability of transmitting the message/information defined above.

7. Items for discussion: Review of document MVC-02-03

The group revised the document MVC-02-03; see the results of discussions in the revised document MVC-02-03-Rev.1

8. Review of document ‘MVC-01-06e (GRRF-66-08 – Amended)

The group agreed that the document will be revised in depth at later sessions, taking into account the progress made with the working document MVC-02-03 and its revisions.

9. Other business

10. Date and place of next meetings.

MVC-04	21-22 April 2015	Brussels (CLEPA)
MVC-05	30 June – 1 July 2015	Oslo