

DRAFT REPORT

1st meeting of the task Force on “Behaviour of M2 & M3 general construction in case of Fire Event (BMFE)”

Dates: 29 January 2018
Venue: Ministry of Ecological and Solidarity Transition - Paris
Chairman: Mr. Fabrice Herveleu (UTAC – CERAM)
Secretariat: Mr. Olivier Fontaine (OICA)

0. Executive summary

Action items:

- **RISE** to provide the outcomes of their research on the time necessary for untrained people to break windows.
- **RISE and E** to provide data on how long it takes to escape from the vehicle.
- Secretary to provide a summary of the debates that took place at the SDWEE informal group.
- General call to **all parties** to provide data about accidents similar to that of Puisseguin that took place in the last 2 years.
- **D** to provide data about a study comparing the behaviour of interior material with regard to fire propagation in horizontal/vertical/oblique position
- **All** to comment on slides 19 and 20 of document BFME-01-03

2nd meeting to take place on **14 March 2018** at the European Commission in **Brussels**

1. Welcome and Roll call

Mrs. Force (Head of Office at the General Direction of Energy and Climate, in charge of heavy vehicles and motorbikes), as host and initiator of the task-force, welcomed the experts to the offices of the French Ministry of Solidary and Ecologic Transition.

Mr. Herveleu recalled that the group is a task-force mandated by GRSG, having as a target to evaluate and implement regulatory updates, for improving the evacuation of passengers, and for limiting the propagation of fires in busses and coaches. He informed that the task-force will probably become an informal group of GRSG.

Mr. Herveleu also thanked all participants for their involvement in the task.

3. Adoption of the agenda (BMFE-01-01e)

The agenda was adopted with no change.

4. Final technical report on accident investigations (reference : GRSG-113-05e)

Mr. Arth (BEA TT) presented the English version of the official report of the Puisseguin accident. The experts had the opportunity to interrupt the presentation in order to get detailed information:

- Height of the lowest part of the passenger side windows: about 2,2m, which makes it challenging to use as an emergency exit, in particular for elderly persons.
- Interior materials in the vehicle in stake: conform to the original version of the regulation UN R118.
- The errors in the maintenance of the trailer led to a loss of more than the half of the braking capabilities of the right wheels of the trailer
- Some experts questioned the quality of the PTI for the braking capabilities of the trailer. Yet, this is not the target of this group. Proposal that this is raised at GRSG then GRRF.
- The group agreed that it is important to give time to the passengers to escape the vehicle. In the case of the Puisseguin accident, the staircase guarding (cfr. paragraph 7.12 of Annex 3 of UN R107) could not withstand the impact of one passenger, and then blocked the passage to the emergency exit. However, this is linked to the fact that this passenger did not fasten her safety belt.
- Some experts raised that there is currently no test in any regulation on how to break the windows. RISE committed to send their research outcomes on windows to break with untrained people. UN R107 allows 2 ways for escaping through the side windows: hinged windows and tampered glass. In the second case the problem of the hammer is to be fixed as well. Mr. Fontaine, as former secretary of the SDWEE informal group, committed to provide a summary of the debates that took place at this group.
- Both the fire and the smoke killed the passengers.
- Lots of passenger bodies were subsequently found in the corridor. This fact seems very much linked to access to emergency exits and the possibility to open them; as well as the fact that most probably the passengers were not attached by safety belt. It seems also that a balance has to be done between an evaluated average time to escape and the performance levels required for materials. There is evidence that the time to escape is a key factor to solve. The experts discussed the possibility of

labelling the windows dedicated to emergency exit with regard to the means to break the windows.

- Question about the location of the vehicle tank: seems that most of the current production has the fuel tank and the electric dispatching feature located in a way similar to that of the Puisseguin vehicle.
- Some experts raised the problem of the age of the passengers: about 50 elderly persons had to escape the vehicle by two emergency exits.
- The group noticed that no emergency hatch was used for escaping the vehicle.
- The experts informed having experienced recent similar accidents:
 - o D informed about a similar crash in D. There are safety instructions rules in D but it is under the responsibility of the passengers to take care of them. The experts also informed that an accident could have been mitigated if the vehicle had been equipped with some active safety system
 - o An accident occurred in France in week 4, 2018, with students as passengers, where the vehicle laid on the emergency exits side: all passengers used the rear window as emergency exit, ignoring the roof hatches.
- The experts agreed that safety improvements could be reached by acting on each element of the chain.

5. Concerned regulations (BMFE-01-03e)

The chair presented his recollection of the state of play in UN R107 and UN R118 with regard to the amendments linked to the scope of the task-force.

The chair stressed the discrepancy in the categories of vehicles in the scopes of UN R107 and R118: All M2/M3, vs. M2/M3 Classes II, III. He then clarified that the aim of the exercise is to see where the regulations are currently, what was added to the regulation since the vehicle was approved, and see what should still be added for really improving road safety. S raised the question of the emergency lighting provisions.

Some expert drew the attention of the group that the requirements for fuel and lubricants were present in UN R107 (all M2/M3 vehicles) before they entered R118 (Class II & III). There is hence currently a gap in the scopes. Also this is an update of the requirements in UN R107.

RISE stressed that the switch to the vertical positioning of the material in the propagation test in UN R118.02 was already a big improvement, but this ignition is still that of a cigarette. He expected a further improvement by increasing the ignition force (more representative of real world road accidents). However, the final aim is still to avoid the flame propagation.

Mrs. Farizon recalled the history of UN R118: this regulation comes from the experience of the Beaune accident, leading the experts to start regulating from scratch at that time. The current UN R118 requirements are coming from there and could perhaps be found obsolete now but they were the state of the art at the time the regulation was produced. Some experts found then legitimate now to make UN R118 evolve according to the progress of technology.

OICA raised the concern that some equipment suppliers cannot supply features compliant with the requirements; as an example a fridge or coffee machine manufacturer could not invest resources for making their production R118 compliant. However, the chair stressed that UN R118 addresses the material, rather than the equipment itself. Some expert also raised the concern that the glue (e.g. used for the floor covering) becomes a new material when correctly applied, needing a new approval protocol. Slides 19 and 20 are an attempt to set up 2 tables according to the recommendations of the study, and the amendments that took place since the approval of the coach.

Slide 19: items 1 and 4 are mutually interdependent and directly antagonist: the Beaune decisions focused on combustion speed, which as a side effect increased the smoke toxicity. The group was informed that there was a comparison conducted in D among air/naval/rail: the conclusion is that such comparison is not possible. For example, in an airplane, the occupants have 30 minutes to land. In a boat, the personal is trained and the equipment is present. In rail, there is an immediate danger in stepping out due to the high voltage, the other trains etc. But the task-force's aim is among others when the fire comes from the exterior. Yet RISE and the chair insisted that it could be a good idea to inspire from air/naval/rail, keeping the test methods, changing the pass/fail values. D committed to provide data about a study comparing the behaviour of the material when tested in horizontal/vertical/oblique position.

The experts questioned the reasoning of proposing improvements in luggage compartment since the manufacturer has no control on the nature of the luggage that will be present there. It was clarified that this proposal aims to evaluate whether there is space for improvement by extending the requirements for the other compartments to that of the passengers (extinguishing systems or insulation walls).

Conclusion: all to comment on the table of slide 19

Slide 20: Table on R107 the chair questioned whether there is space for improvement for laminated glass. The experts informed that there is currently no experience with UN R107.07 since no manufacturer tried yet to approve according to that series

All experts were of the opinion that there is a need to add requirements on the barrier since it obstructed the emergency exit in the case of the Puisseguin accident. However, the group acknowledged that the virtually infinite quantity of different scenarii makes it impossible difficult to address them in general.

The expert from the European Commission found important to have a clear view of how long it takes to escape from the vehicle. RISE and E committed to provide data on this.

RUS/European Commission committed to work on the barrier resistance and necessary requirements on this device in UN R107

The group also committed to address the location of the fuel tank (UN R34)

The experts listed the topics that should be addressed but are out of the scope of the task-force:

- active safety (AEBS, VSF, EBS, SLD, etc.)
- after market surveillance (additional tank in the truck)
- PTI (verification of the good maintenance of the trailer)
- Training of the crew (for transmitting the safety instructions to the passengers)

6. Research on fire safety of interior materials and fire detection/suppression (RISE)

RISE presented document BMFE-01-XXX

The expert suggested to act on the toxicity of the smokes produced by the engine compartment and wheel arch. He also anticipated an increase in the number of the fire cases by a mechanical statistic effect due to an increase in collision survivability.

Some experts pointed out that, in the Puisseguin case, the toxicity of the smokes did not entirely come from the interior material, rather from the fuel burning at the exterior of the vehicles. The group acknowledged this point, yet committed to address the fire cases in a larger scope.

7. First reflexions on IWG terms of reference

Not discussed, shifted to the next meeting.

8. Next steps

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10. Next meetings

2nd meeting to take place on 14 March 2018 at the European Commission in Brussels, i.e. sufficiently in advance of the GRSG 114th session (9-13 April).

The chair explained that, between the two 1st meetings, the work requested to the delegates will mainly focus on the data collection, and that the objective of the set of the two first meetings is to determine the orientation and targets of the group. He informed that the agenda of the next meetings will be produced accordingly

11. A.O.B.

Not discussed