

**GRSG – Ad-hoc working group
Safety of Wheelchair Passengers in Road Vehicles
Wednesday 2 & Thursday 3 June 2004, Madrid**

Minutes

Attending

Donald Macdonald (DM)(Chair)	DfT (United Kingdom)
Adolfo Diaz-Carrasco Fernández (AF)	INSIA (Spain)
Antonio Rodriguez (AR)	INSIA (Spain)
Josep Borrós (JB)	IDIADA (Spain)
Miquel Armengol (MA)	IDIADA (Spain)
Emilio Ugarte Martínez (EUM)	Ascabus (Spain)
Agustín Gómez Pereira (AGP)	Castrosua/Ascabus (Spain)
Javier Beramendi JBe)	Sunsundegui/Ascabus (Spain)
Jan Petzäll (JP)	SNRA (Sweden)
Jerzy Kownacki (JK)	ITS (Poland)
Thomas Gold (TG)	Evobus GmbH (Germany)
Harry Jongenelen (HJ)	RDW (Netherlands)
Allan McKenzie (AM)	SMMT (United Kingdom)
Asbjørn Hagerupsen (AH)	Public Roads Administration (Norway)
Jim Hand (JH)	DfT (United Kingdom)

Apologies

Michael Becker	Evobus GmbH (Germany)
Alan Lynch	MHRA (UK)
Marianne LeClaire	TRL (UK)

1. Welcome and Introductions

- 1.1 Mr F Aparicio, Director of INSIA, welcomed the group to Madrid.
- 1.2 This was followed by brief introductions from each of the group members.
- 1.3 The Chairman welcomed the group and thanked INSIA for offering to host the third ad-hoc group meeting on the safety of wheelchair passengers in road vehicles.
- 1.4 The Chairman invited comments on the previous minutes. The expert from the Netherlands raised a concern regarding para 3.2 in which the UK

explained that their research on wheelchair occupant safety had used a more rigorous crash pulse for M2 vehicles than that specified in regulation. The UK responded that the Reg 44 pulse had been used for this research as earlier analysis of UK accident data indicated that this was more representative of the real world situation. The UK offered to provide an electronic copy of the report on which this decision was made⁽¹⁾

1.5 There being no further comments, the minutes were agreed.

2. **Background**

2.1 The representative from the SMMT advised that Reg 107 currently covers double deck large passenger vehicles only. A proposal for draft 01 series of amendments was produced by OICA to transpose the requirements of European Community Directive 2001/85/EC and the relevant provisions of 97/27/EC into an ECE Regulation. The proposal was adopted by WP.29 in November 2003 and was given the reference TRANS/WP.29/988. OICA had then produced a draft 02 series of amendments to align the requirements in the new 107.01 series with those in Regs 36, 52 and 107.00. This proposal was agreed by GRSG in October 2003. At the same time OICA had produced a package of suggested improvements that could form Supplement 1 to 107.02. The latest version of this document was TRANS/WP29/GRSG/2003/22/rev1 tabled in April 2004 at the 86th session of GRSG. OICA are currently processing revisions to this and an amended document will be presented at the 87th session.

2.2 GRSG documents can be found at www.unece.org.

3. **Proposal submitted by The Netherlands** ⁽²⁾

3.1 The expert from the Netherlands introduced their paper and explained that it was based on document TRANS/WP.29/988 and addressed issues/interpretations on priority seats, handrails and kneeling systems.

3.2 The Chairman acknowledged that there were many issues coming to light as the Bus Directive was implemented.

4. **Proposal submitted by Norway** ⁽³⁾

4.1 The expert from Norway introduced the paper and the first item sought clarification as to why the regulation limited the number of wheelchairs in a Class II or III vehicle.

4.2 The group discussed the issue, which appeared to centre on whether or not a vacant wheelchair space could be used for standing passengers for the purposes of the vehicle weight calculations. Practices varied, some manufacturers providing physical barriers to prevent standing passengers occupying a vacant wheelchair space, whilst others made no such attempts and left it to the operators of the vehicles.

4.3 The group discussed the impact of 97/27/EC and of Reg 107.01 Annex 11 and concluded that it would be possible to restrict numbers of passengers to control the vehicle mass. The Chairman asked that the expert from Norway prepare an amendment which would both clarify the situation and provide the flexibility to have more than one wheelchair space within a Class II vehicle. This should be available for the next ad-hoc group meeting. In addition, if it was considered that to address this issue an amendment was required to the definitions of the vehicle categories, Norway should raise this separately at GRSG.

Action: AH - Norway

4.4 The final point raised by the expert from Norway related to the application of Annex 8 to vehicles that were not required to be fitted with devices specified within Annex 8. The Chairman advised that this was an issue previously raised by the UK and posed the question as to whether the requirements for some of these items should be included with Annex 3 instead of Annex 8.

4.5 The expert from Germany advised that their interpretation was that if a vehicle which was not an Annex 8 vehicle, but was voluntarily fitted with some equipment covered by Annex 8, then that specific equipment should meet the requirements of Annex 8. However, it should not be necessary for the vehicle to meet all of the requirements of Annex 8.

4.6 The group agreed with this interpretation and the expert from the SMMT suggested that replacing 'they' with 'those devices' in the draft R107-01, Para 5.3 would clarify this point.

5. Presentation by INSIA - Spain ⁽⁴⁾

5.1 The expert from Spain presented a paper that contained proposals to apply anchorage test loads via a predefined surrogate wheelchair. This wheelchair was similar to that detailed in ISO 10542 dimensionally, but varied in mass. This was not important for these tests as it was simply being used as a static loading device.

5.2 The Chairman advised that restraint manufacturers in the UK were testing to ISO 10542 and that vehicle manufacturers wanted to test to the requirements of the Directive but did not know how to apply the required loads. It was generally accepted within the group that if a suitable standard existed then it should be used wherever possible. The Chairman asked the group members to establish the views of the appropriate test houses and Type Approval Authorities on the use of the ISO 10542 surrogate as a suitable test device.

Action: All

5.3 The Chairman asked if the expert from Spain could prepare wording for an amendment to the draft Reg 107.02, which would reflect the requirements of the Spanish paper, and the use of a surrogate wheelchair.

Action: AR (Spain)

6. Presentation by DfT - UK ⁽⁵⁾

- 6.1** The Chairman introduced the UK paper and advised the group that this paper also picked up on the points raised within the papers tabled by experts from the Netherlands and Norway.
- 6.2** The group was advised that the Medicines & Healthcare products Regulatory Agency in the UK had carried out some research on the stability of wheelchairs, and the publication⁽⁶⁾ could be found on the MHRA website (www.mhra.gov.uk).
- 6.3** The UK proposal was extensive and it was agreed that it would provide a suitable base document on which to work towards a small package of proposals to GRSG.

7. Development of working document based on the UK proposal ⁽⁷⁾

7.1 Para 1.4

- 7.1.1** The inclusion of the amended paragraph was agreed subject to several minor drafting amendments that the UK agreed to undertake. The UK agreed to circulate the legal advice they had received from The Commission on this issue⁽⁸⁾.

Action: JH (UK)

- 7.1.2** The expert from Sweden believed that there was an EU project called *Tell-Tale* looking at these issues and agreed to find out more.

Action: JP (Sweden)

7.2 Annex 3 Para 2.33

The UK advised that this paragraph did not introduce new requirements but simply clarified the definition of a ramp. The group agreed to the requirements with some amendments.

7.3 Annex 3 Para 7.2.3.4

- 7.3.1** The paragraph was agreed with a minor amendment.

- 7.3.2** The expert from Germany advised that Directive 92/58/EC contains requirements for marking and requires a round sign and some variation in colour. Germany is to put forward a proposal to GRSG with the intention of bringing 2001/85/EC into line with 92/58/EC.

7.4 Annex 3 Para 7.7.6.3

- 7.4.1** The majority of the group agreed with the principle of the UK proposal but the expert from The Netherlands reserved his position. Those members that agreed with the principle, preferred that the technical requirements be contained within Annex 8. Para 7.7.8.5.3. should therefore be amended to

call up the requirements of Para 3.5 for floor gradients leading to all priority seats and the issue will be reviewed at the next meeting.

7.5 Annex 3 Para 7.7.8.5.3.

It was agreed that both Annex 3 and Annex 8 should adopt a common definition of priority seat. The expert from Germany proposed the following amendment after the meeting ; 'The minimum number of priority seats shall be four in Class I and two in Class II. If priority seats are to be fitted in vehicles of Class III, there shall be two. If priority seats are to be fitted in vehicles of Class A and B, there shall be one.' It is proposed that this be reviewed at the next meeting.

7.6 Annex 3 para 7.8.1.3

7.6.1 The new paragraph detailed within the UK proposal was not considered necessary, however, a small amendment to para 7.8.1.3 was thought to clarify the text.

7.6.2 JP advised that in Sweden, lights are also used to assist the driver to see if a passenger has fallen whilst boarding or alighting. JP offered to put a proposal to GRSG directly on this issue.

Action: JP (Sweden)

7.7 Annex 3 para 7.8.3

The Chairman advised that this amendment was proposed to satisfy an industry concern and asked if AM could confirm this, and liaise with JP to ensure that the position was consistent with the action specified in para 7.6.2 above.

Action: AM (SMMT)

7.8 Annex 8 para 3.2.1

The group agreed that contrary to the UK proposal, the technical requirements for priority seats should remain in Annex 8. Accordingly, the paragraph is amended as the vehicle types and minimum number of priority seats are now detailed in Annex 3.

7.9 Annex 8 para 3.4.1

Paragraph number removed as there is only one paragraph under para 3.4. Minor amendment to reflect priority seat pictogram requirement now included within Annex 3.

7.10 Annex 8 para 3.6.1

The expert from Sweden advised that he would like to see a requirement here for a horizontal and slip resistant surface in the wheelchair space. The Chairman was not aware of this being a problem and asked that the expert from Sweden submit to the group for the next meeting examples of

unsatisfactory designs and an estimate of the number of vehicles affected.

Action: JP (Sweden)

7.11 Annex 8 para 3.6.2

The group discussed whether a kneeling system should be considered a boarding aid in conjunction with the infrastructure. The group agreed a lift or ramp was required, but that a kneeling system would not be necessary if other requirements were met. It would not therefore be defined as a boarding aid and the paragraph was re-worded accordingly.

7.12 Annex 8 para 3.6.4

The expert from Spain asked if, for vehicles with more than one wheelchair space, this requirement should be met with all wheelchair spaces occupied. The Chairman advised that the PSV Accessibility Regulations in the UK require that all wheelchair spaces be occupied with the reference wheelchair. The Chairman agreed that clarification was required as this situation might be preferable for a Class 1 vehicle, but 'first-on-last-off' might be acceptable for other vehicle types. The expert from Germany was asked to obtain the views of the vehicle designers and the expert from Spain was asked to develop a proposal for discussion at the next meeting.

Action: AR (Spain)

TG (Germany)

7.13 Annex 8 para 3.7.3

7.13.1 The expert from the SMMT advised that a vehicle with a flexible layout would require lots of signs to meet this requirement.

7.13.2 The group agreed that this requirement could apply to vehicles of Class 1 and A only and the text was amended accordingly.

7.13.3 The expert from Poland suggested that the text should further be amended to allow for multiple signs and the text was amended further.

7.14 Annex paras 3.8.1, 3.8.1.1, 3.8.3 & 3.8.4 (excluding 3.8.4.1)

7.14.1 The Chairman advised that these amendments had been proposed as the current philosophy was that a wheelchair could be forward facing with an occupant restraint, but never forward facing without an occupant restraint. The current text however allows for a forward facing wheelchair position without occupant restraints.

7.14.2 The group believed that the proposed text was satisfactory but the expert from Germany offered to seek the views of their design engineers.

Action: TG (Germany)

7.15 Annex 8 paras 3.8.3.8.2.1 & 3.8.3.8.2.2

The experts from Spain and Sweden both questioned the deceleration pulses used and the group agreed that this is something that needs to be reviewed.

7.16 Annex 8 para 3.8.4.1

7.16.1 The expert from Germany introduced the new concept from Evobus to prevent a wheelchair tipping backwards⁽⁹⁾. They further believed that the amended text proposed by the UK was too restrictive and suggested that the proposed text would be acceptable for a padded backrest but that there must also remain the freedom to introduce innovative new ways of controlling wheelchair movement.

7.16.2 The UK offered to re-word to enable other designs and a new paragraph 3.8.4.2 is proposed.

7.16.3 AGP from Ascabus presented some slides⁽¹⁰⁾ and explained their reasoning for wanting to allow the wheels of a wheelchair to extend beyond the wheelchair space to obtain a better fit with the backrest .

7.16.4 The Chairman thanked the experts from Germany and Spain for their ideas and advised that The International Organisation for Standardisation was looking at these issues and that they may wish to contact the Chairperson of that group should they wish to participate in the discussions (Aleid Hekstra, edpc@handicom.nl).

7.17 Annex 8 para 3.11

7.17.1 The expert from Spain believed that a requirement should exist that prevented a vehicle driving away when a ramp or lift was deployed.

7.17.2 The Chairman recognised this as an issue and agreed that this should be considered in the future.

7.18 Annex 8 para 3.11.2.4.2

7.18.1 An expert from IDIADA believed that this paragraph required clarification. The expert from Germany agreed that this was a difficult issue and would require further discussion.

7.18.2 The Chairman asked the expert from IDIADA to draft a proposal for the next meeting.

Action : JB (IDIADA)

7.19 Annex 8 para 3.11.4

7.19.1 The Chairman introduced this section of the UK proposal which was a significant re-work of the technical requirements appertaining to ramp design. Its purpose is to resolve many of the difficulties that wheelchair users face whilst attempting to use the current design of ramps. It was based on a

voluntary code agreed with industry as a supplement to the accessibility regulations in the UK.

7.19.2 Whilst there were some views expressed, the Chairman asked the experts to consider its requirements for the next meeting.

Action: All

8. Conclusions

The Chairman thanked everybody for their participation but did not believe that the group had made sufficient progress to submit a further proposal to GRSG. Instead it was proposed that the items agreed at this meeting would be incorporated into a working document⁽⁷⁾ for review at the next meeting.

9. Date of next meeting

The UK Department for Transport offered to host the next meeting on 14 and 15 December 2004 in London.

References:

- (1) TRL Report TRL520 - Bus and Coach Secondary Safety: Final report -GRSGadhocSWPRV/04/09
 - (2) Proposals for amending UN/ECE Reg 107/1 (Netherlands) - GRSGadhocSWPRV/04/05
 - (3) Proposals for amending Reg 107 (Norway) - GRSGadhocSWPRV/04/06
 - (4) Proposal for Static Strength Tests (Spain) - GRSGadhocSWPRV/04/07
 - (5) Proposed amendments to Reg 107 (UK) - GRSGadhocSWPRV/04/08
 - (6) MHRA Bulletin DB2004(02)(UK)- Guidance on the Stability of Wheelchairs - GRSGadhocSWPRV/04/13
 - (7) Ad-hoc Group Working Document - GRSGadhocSWPRV/04/12
 - (8) E-mail from DG Enterprise (EC) to Department for Transport (UK) - GRSGadhocSWPRV/04/14
 - (9) Concept Idea for the Prevention of Wheelchair Tipping (Germany) - GRSGadhocSWPRV/04/10
 - (10) Ascabus presentation (Spain) - GRSGadhocSWPRV/04/11
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