

29 August 2012

Global Registry

Created on 18 November 2004, pursuant to Article 6 of the Agreement concerning the establishing of global technical regulations for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles (ECE/TRANS/132 and Corr.1) done at Geneva on 25 June 1998

Addendum 1: Global technical regulation No. 1

Door locks and door retention components

Amendment 1 – Appendix 1

Proposal and report pursuant to Article 6, paragraph 6.3.7. of the Agreement

- Proposal to amend global technical regulation No. 1 (Door locks and door retention components) (ECE/TRANS/WP.29/AC.3/18).
- Report on draft Amendment 1 to global technical regulation No. 1 (Door locks and door retention components) (ECE/TRANS/WP.29/2012/57).



UNITED NATIONS

Proposal to amend global technical regulation No. 1 (Door locks and door retention components)

I. Statement of technical rational and justification

A. Introduction

1. The objective of this proposal is to amend the current global technical regulation (gtr) regarding door locks and door retention components intended to reduce door latch system failures. At the 18 November 2004 session of the Executive Committee, the United States of America (U.S.A.), as a Contracting Party of the 1998 Global Agreement, under the World Forum for Harmonization of Vehicle Regulations (WP.29), voted in favour of establishing the first global technical regulation (gtr) on Door locks and door retention components (gtr No. 1). Per this Agreement, on 15 December 2004, the U.S.A. issued a notice of proposed rulemaking (NPRM) closely based on gtr No. 1. Subsequently, the U.S.A. published the Final Rule on 6 February 2007 (72 FR 5385; Docket No. NHTSA-2006-23882) incorporating the requirements of the gtr into our national regulations. Through this rulemaking process, minor changes were made to clarify the regulatory text. The purpose of this proposal is to incorporate these minor changes to clarify the requirements and test procedures of the gtr, and align it with the U.S.A. regulation.

2. In the United States of America rulemaking process, the Notice of Proposed Rulemaking is open to public comment; during this time, the U.S.A. received several comments from motor vehicle manufacturers, motor vehicle manufacturer trade associations, vehicle component manufacturers, an advocacy organization, and an individual citizen. Comments were submitted by Nissan North America (Nissan); Porsche Cars North America (Porsche); America Honda Motor Company Limited (Honda); Blue Bird Body Company, a bus manufacturer (Blue Bird); Alliance of Automobile Manufacturers (Alliance); Association of International Automobile Manufacturers, Inc. (AIAM); Truck Manufacturers Association (TMA); TriMark Corporation, a door latch manufacturer (TriMark); Delphi, a vehicle component manufacturer; Advocates for Highway Safety, an advocacy organization (Advocates); and Barb Sachau, a private citizen.

3. Vehicle component manufacturers, motor vehicle manufacturers, and their representative associations were generally supportive of the proposed rulemaking as well as the gtr process. These commenters did raise issues regarding some of the proposed test requirements and test procedure specifications. Some of these commenters also requested additional clarification of the proposed rule.

4. In light of the recent incorporation of the gtr into the U.S.A. regulation, we believe that this would be an excellent opportunity for the international community to amend the gtr concurrently with the U.S.A. Everyone could benefit from the clarification of the testing procedures and the wording updates that were found during the drafting and comment period of the door locks and door retention components regulation.

B. Justification of changes

1. Definitions, paragraph 3.1 and paragraph 3.18:

5. According to paragraph 2. of informal document No. GRSP-36-5, the vehicle manufacturers are concerned that the definition of the "Auxiliary door latch", as stipulated in paragraph 3.1. of gtr No. 1, as well as the hinged door performance requirements, as

specified in paragraph 5.1. of gtr No. 1, are not clear. As written, a manufacturer must have all auxiliary door latches meet the same requirements as primary door latches, because there is no way to determine which is primary and which is auxiliary if they all have a secondary latching system. This was not the intent of the global technical regulation.

2. Hinge requirements for back doors, paragraph 5.1.5.1. (d)

6. According to the comments received on the NPRM for Federal Motor Vehicle Safety Standard (FMVSS) 206, the Alliance and TMA requested clarification that the vertical load hinge in paragraph 5.1.5.1. (d) applies to back doors only. Upon analysis of this comment, it was found that the below revisions must be made in order to clarify the exact definition of the vertical load hinge.

3. Door latch closure warning system, paragraphs 4.2.2. (b) and 5.1.5.4. (b)

7. U.S.A. recommends that language be added specifying that the visual warning must be able to be seen by the driver of the vehicle. This language is consistent with the seat belt warning systems regulated in FMVSS 208.

4. Separation Requirement for Sliding Door Test, paragraph 5.2.4.2.1.

8. In paragraph 5.2.4.2.1., the gtr specified that a test failure can be indicated by a 100 mm separation of the interior of the door from the exterior of the vehicle's doorframe. At any point, there must not be more than 100 mm of separation, even if the latch holds, to protect against partial ejections. The 100 mm limit is based on a commonly used measurement for maximum allowable open space in the U.S.A. and Canada for school bus opening requirements.

9. Nissan requested clarification as to whether a non-compliance would occur in a case in which a gap separation occurred where the gap measured greater than 100 mm at the exterior opening, but less than 100 mm at the interior of the opening. The intent of the gtr was that, for failure of the requirement, the separation throughout the gap must exceed 100 mm. The example provided by Nissan would not be a failure. This is consistent with the intent to limit ejections through a separation. The U.S.A. recommends amending the text in paragraph 5.2.4.2.1., to clarify that a spherical volume with a 100 mm diameter cannot pass through the opening. This change does not require a physical sphere be passed through the opening to validate the requirement.

5. Clarifications of the text for Annex 1

10. In the NPRM and consistent with the gtr, the U.S.A. proposed regulatory text that removed any implication that the latch load is applied relative to the vehicle orientation. The Alliance generally agreed with the proposed rule as applied to the hinged doors but requested additional clarification and corrections to the test procedure. The proposed clarifications to the regulatory text clarify the process of the testing procedure.

6. Annex 4

(a) Test device and set-up

11. With regard to the force application device as specified in paragraph 3.3. of Annex 4, Nissan and the Alliance favoured mounting the device external to the vehicle, instead of on the vehicle floor. These commenters expressed concern that mounting the force application device inside the vehicle could deform the vehicle floor and allow the device to move from its original position when applying a load. This, they stated, would introduce a significant amount of test variability.

12. The National Highway Traffic Safety Administration (NHTSA) experienced similar concerns with the mounting of the test device, but resolved the issue through use of reinforced plated. The reinforcement plates provided a level surface for the support of the loading device. The plates also distribute loading on the floor of the test vehicle to reduce the movement of the device that could otherwise occur due to localized deformation at the attachment points.

13. On 11 May 2005, during a meeting between the U.S.A. and the Alliance, the Ford Motor Company presented the results of evaluation testing, which demonstrated that use of the reinforcement plates on the vehicle floor avoids problematic displacement while under loading.

14. Both NHTSA and commenters have demonstrated the ability to apply the requisite load to a vehicle door without causing displacement of the force application device. In order to minimize potential test variability, the U.S.A. recommends the gtr specify that a loading device is to be rigidly mounted when applying a load.

15. In paragraphs 3.6. and 3.7., the test procedure specifies that the force application plates are to maintain the displacement of the force application device in the transverse direction. This ensures that as force is applied, a door system continues to experience a transverse load. Although NHTSA did not experience penetration of door sheet metal from the loading plates, we recognized that without rounded edges on the plates, this might be a problem. Therefore, we are recommending that the loading plates have edges rounded to a radius of $6 \text{ mm} \pm 1 \text{ mm}$.

16. The test procedure specified that the loading plates be placed at the "door edge" as in paragraph 3.6.3. and paragraph 3.7.3. of Annex 4. The test procedure also specifies that all the door trim and decorative components are to be removed during test set-up as in paragraph 3.2. of Annex 4. In its comments, Nissan stated that the term "door edge" could be prone to misinterpretation and asked that the term be further defined. Nissan also stated that trim components on a door pillar that overlap a sliding door could interfere with the test set-up. To address these concerns, the U.S.A. recommends that the force application plates are placed within 12.5 mm from the interior edge of sliding door as is noted in paragraphs 3.6.3. and 3.7.3. of Annex 4. This specification will ensure that force is applied directly to the portion of the door in which the latch mechanism is installed. Typically, a latch mechanism is within 12.5 mm of the interior edge of a vehicle door. Further, we recommend that pillar trim and non-structural components that overlap a door be removed to permit proper placement of the loading plates as is reflected in the recommended changes to paragraph 3.2. of Annex 4.

(b) Application of force

17. The Alliance raised several concerns with the procedure for operating the force application devices. The Alliance recommended that the test procedure control the load force application rather than displacement. As stated above, the gtr requires that the displacement is controlled (20-90 mm per minute) until a load of 9,000 N is reached, and then holding the resulting load for 10 seconds. The commenter stated that controllers currently in use do not allow for simultaneous control of both displacement and load, and that the procedure as specified would raise practicability concerns.

18. In response to the Alliance's concern, the U.S.A. recommends that the procedure specify that the load be controlled at a rate not to exceed 2,000 N per minute, as reflected in the recommended changes to paragraph 4.1. in Annex 4. In the vehicle testing conducted by the U.S.A., a load rate of 2,000 N per minute resulted in a displacement rate comparable to the proposed 20-90 mm displacement rate. However, we recognize that given the controllers currently in use, controlling for the load is a more practicable procedure.

19. Additionally, the U.S.A. would like to recommend revising paragraph 4.4. of Annex 4 to specify holding the maximum load for 30 seconds. This duration was recommended by the Alliance and is sufficient time to measure any gap separations between the door and doorframe as specified by the procedure.

(c) Performance requirement

20. In Annex 4, paragraph 4.3., both Nissan and the Alliance expressed concern that the specified period of 10 seconds for maintaining the load was not adequate to permit measurement of separations between a vehicle body and the sliding door. Nissan stated that based on its experience it could take up to a minute to make the necessary measurements. The Alliance recommended a period of 30 seconds. The Alliance stated that this would be adequate to limit deformation of the door sheet metal and still provide enough time for the necessary measurements. The U.S.A. is proposing a revision to the test procedure to specify that the load be maintained for 30 seconds. As suggested by the Alliance, we believe that it is practical to make the specified measurements in this time.

C. Countries that have incorporated gtr No. 1 into their regulations

Australia
 Canada
 Finland
 France
 Germany
 Hungary
 Italy
 Japan
 Netherlands
 Russian Federation
 Spain
 Sweden
 United Kingdom
 United States of America

II. Proposed amendments

Paragraph 3.1., amend to read:

"3.1. "Auxiliary door latch" is a latch equipped with a fully latched position, with or without a secondary latch position, and fitted to a door or door system equipped with a primary door latch system."

Paragraph 3.18., amend to read:

"3.18. "Primary door latch" is a latch equipped with both a fully latched position and a secondary latched position and is designated as a "primary door latch" by the manufacturer. The manufacturer may not thereafter change such designation. Each manufacturer shall, upon request, provide information regarding which latches are "primary door latches" for a particular vehicle or make/model."

Paragraph 4.2.2. (b), amend to read:

- "(b) A door latch system with a fully latch position and a door closure warning system. The door latch closure warning system shall be located where it can be clearly seen by the driver."

Paragraph 5.1.5.1. (d), amend to read:

- "(d) On back doors:
 - (i) Not separate when a load of 11,000 N is applied perpendicular to the hinge face plate (longitudinal test) such that the hinge plates are not compressed against each other (Load test one).
 - (ii) Not separate when a load of 9,000 N is applied perpendicular to the axis of the hinge pin and parallel to the hinge face plate (transverse load test) such that the hinge plates are not compressed against each other (Load test two).
 - (iii) Not separate when a load of 9,000 N is applied in the direction of the axis of the hinge pin (Load test three – only for back doors that open in a vertical direction)."

Paragraph 5.1.5.4. (b), amend to read:

- "(b) A door closure warning system shall be provided for those doors. The door closure warning system shall be located where it can be clearly seen by the driver."

Paragraph 5.2.4.2.1., amend to read:

- "5.2.4.2.1. A separation which permits a sphere with a diameter of 100 mm to pass unobstructed between the exterior of the vehicle and the interior of the vehicle, while the required force is maintained."

Annex 1,

Paragraph 2.1.2.1.1., amend to read:

- "2.1.2.1.1. Attach the test fixture to the mounting provisions of the latch and striker. Align in the direction of engagement parallel to the linkage of the fixture. Mount the fixture with the latch and striker in the fully latched position in the test machine so as to apply a load perpendicular to the face of the latch."

Paragraph 2.1.2.2.1., amend to read:

- "2.1.2.2.1. Attach the test fixture to the mounting provisions of the latch and striker. Align in the direction of engagement parallel to the linkage of the fixture. Mount the fixture with the latch and striker in the secondary latched position in the test machine so as to apply a load perpendicular to the face of the latch."

Paragraph 2.2.2.1.1., amend to read:

- "2.2.2.1.1. Adapt the test fixture to the mounting provisions of the latch and striker. Mount the latch and striker in the fully latched position in the test machine so as to apply a load in the direction of the latch opening."

Paragraph 2.2.2.2.1., amend to read:

- "2.2.2.2.1. Attach the test fixture to the mounting provision of the latch and striker. Align the direction of the engagement parallel to the linkage of the fixture."

Mount the fixture with the latch and striker in the secondary latched position in the test machine so to apply a load perpendicular to the face of the latch."

Paragraph 2.3.2.1., amend to read:

- "2.3.2.1. Adapt the test fixture to the mounting provisions of the latch and striker. Mount the latch and striker in the fully latched position in the test machine so as to apply a load in the direction of the latch opening."

Annex 4,

Paragraph 3.2., amend to read:

- "3.2. Remove seats and any interior components that may interfere with the mounting and operation of the test equipment and all pillar trim and any non-structural components that overlap the door and cause improper placement of the force application plates."

Paragraph 3.3., amend to read:

- "3.3. Mount the force application devices and associated support structure to the floor of the test vehicle. Each force application device and associated support structure is rigidly fixed on a horizontal surface on the vehicle floor, while applying the loads."

Paragraph 3.6.1., amend to read:

- "3.6.1. The force application plate is 150 mm in length, and 50 mm in width, and at 15 mm in thickness. The plate edges are rounded to a radius of $6\text{ mm} \pm 1\text{ mm}$."

Paragraph 3.6.3., amend to read:

- "3.6.3. The force application plate is positioned as close to the edge of the door as possible, but not such that the forward edge of the plate is more than 12.5 mm from the interior edge ..."

Paragraph 3.7.1., amend to read:

- "3.7.1. The force application plate is 300 mm in length, and 50 mm in width, and at 15 mm in thickness. The plate edges are rounded to a radius of $6\text{ mm} \pm 1\text{ mm}$."

Paragraph 3.7.3., amend to read:

- "3.7.3. The force application plate is positioned as close to the edge of the door as possible, but not such that the forward edge of the plate is more than 12.5 mm from the interior edge ..."

Paragraph 4.1., amend to read:

- "4.1. Move each force application device at a rate up to 2,000 N per minute, ..."

Paragraph 4.4., amend to read:

- "4.4. Maintain the force application device position of paragraph 4.3., and within 30 seconds, measure the separation between the exterior edge of the doorframe and the interior of the door along the perimeter of the door."

Report on draft Amendment 1 to global technical regulation No. 1 (Door locks and door retention components)

I. Introduction

1. The objective of Amendment 1 to global technical Regulation (gtr) No. 1 on door locks and door retention components intended to reduce door latch system failures is to incorporate changes that were developed during the rulemaking process of the United States of America (U.S.A) and Regulation No. 11, then further discussed by Working Party on Passive Safety (GRSP) delegates. This report describes the rationale used to justify the changes.

II. History

2. On 18 November, 2004, the Executive Committee of the 1998 Agreement (AC.3) established the global technical regulation on door locks and door retention components (gtr No. 1) of the 1998 Global Agreement, under the World Forum for Harmonization of Vehicle Regulations (WP.29). According to this Agreement, on 15 December 2004 the U.S.A. issued a notice of proposed rulemaking (NPRM) closely based on gtr No. 1. Subsequently, the U.S.A. published two Final Rules on 6 February 2007 (72 FR 5385; Docket No. NHTSA-2006-23882) and 19 February 2010 (75 FR 7370; Docket No. NHTSA-2010-0015) incorporating the requirements of the gtr into their national regulations. Through this rulemaking process, minor changes were made clarifying the regulatory text. Furthermore, as the gtr was incorporated into Regulation No. 11 under the 1958 Agreement, additional clarifications were recommended.

3. In the U.S.A. rulemaking process, the Notice of Proposed Rulemaking is open to public comment; during this time, the U.S.A. received several comments from motor vehicle manufacturers, motor vehicle manufacturer trade associations, vehicle component manufacturers, an advocacy organization, and an individual citizen. Comments were submitted by Nissan North America (Nissan); Porsche Cars North America (Porsche); America Honda Motor Company Limited (Honda); Ford Motor Company (Ford); Thomas Built Buses Inc. (Thomas Built Buses); Blue Bird Body Company, a bus manufacturer (Blue Bird); Alliance of Automobile Manufacturers (Alliance); Association of International Automobile Manufacturers, Inc. (AIAM); Truck Manufacturers Association (TMA); TriMark Corporation, a door latch manufacturer (TriMark); Delphi, a vehicle component manufacturer; Advocates for Highway Safety, an advocacy organization (Advocates); and Barb Sachau, a private citizen.

4. Vehicle component manufacturers, motor vehicle manufacturers and their representative associations were generally supportive of the proposed rulemaking as well as the gtr process. These comments did raise issues regarding some of the proposed test requirements and test procedure specifications. Some of these comments also requested additional clarification of the proposed rule.

III. Justification of Changes

A. Part A, Technical rational, Section IV

5. The gtr excluded some door types that are not commonly used and which would have required new requirements and test procedures. Subsequent to the adoption of the gtr, the issue of side doors that open vertically arose. Consideration was given to applying the requirements and test procedures for rear doors that open vertically, however data was not available to determine whether or not this would be appropriate. Therefore this proposal amends Part A to clarify that the gtr was intended to address common door types and that Contracting Parties may address doors not regulated by the gtr at the national level.

B. Definitions, paragraph 3.1. and paragraph 3.18.

6. According to paragraph 2. of Informal document No. GRSP-36-5, the vehicle manufacturers are concerned that the definition of the "Auxiliary door latch", as stipulated in paragraph 3.1. of gtr No. 1, as well as the hinged door performance requirements, as specified in paragraph 5.1. of gtr No. 1, are not clear. As written, a manufacturer must have all auxiliary door latches meet the same requirements as primary door latches, because there is no way to determine which is primary and which is auxiliary if they all have a secondary latching system. This was not the intent of the global technical regulation. Therefore, paragraphs 3.1. and 3.18. were revised to clarify the definitions.

C. Hinge requirements for back doors, paragraph 5.1.5.1. (d)

7. According to the comments received on the NPRM for Federal Motor Vehicle Safety Standard (FMVSS) 206, Alliance and TMA requested clarification that the vertical load hinge in paragraph 5.1.5.1. (d) applies to back doors only. Upon analysis of this comment, it was found that the proposed revisions must be made in order to clarify the exact definition of vertical load hinge.

D. Door latch closure warning system, paragraphs 4.2.2. (b) and 5.1.5.4. (b)

8. It was recommended that text be added specifying that the visual warning must be visible by the driver of the vehicle. This text is consistent with the seat belt warning systems regulated in FMVSS 208.

E. Separation requirement for sliding door test, paragraph 5.2.4.2.1.

9. In paragraph 5.2.4.2.1., the gtr specified that a test failure can be indicated by a 100 mm separation of the interior of the door from the exterior of the vehicle's doorframe. At any point, there must not be more than 100 mm of separation, even if the latch holds, to protect against partial ejections. The 100 mm limit is based on a commonly used measurement for maximum allowable open space in the U.S.A. and Canada for school bus opening requirements.

10. Nissan requested clarification as to whether a non-compliance would occur when a gap separation occurred where the gap measured greater than 100 mm at the exterior opening, but less than 100 mm at the interior of the opening. The intent of the gtr was that, for failure of the requirement, the separation throughout the gap must exceed 100 mm. The

example provided by Nissan would not be a failure. This is consistent with the intent to limit ejections through a separation.

11. It was recommended to amend the text in paragraph 5.2.4.2.1, to clarify that a spherical volume with a 100 mm diameter cannot pass through the opening. This change does not require a physical sphere be passed through the opening to validate the requirement. The words "interior" and "exterior" were switched from the original proposal to better describe the direction in which the sphere would be passed while taking the measurement, but this change does not alter the meaning of the sentence.

F. Clarifications of the text for Annex 1 paragraph 5.1.3., Annex 2 paragraph 2.3.3.5., Annex 2 paragraph 2.3.3.6. and Annex 3 paragraph 2.1.3.

12. In the NPRM and consistent with the gtr, the U.S.A. proposed regulatory text that removed any implication that the latch load is applied relative to the vehicle orientation. Alliance generally agreed with the proposed rule as applied to the hinged doors but requested additional clarification and corrections to the test procedure. The proposed clarifications to the regulatory text clarify the process of the testing procedure.

G. Clarifications of the text for Annex 2, paragraph 2.3.2.4.

13. This change clarifies the test set-up to allow for optional tethering of the door if there are concerns that during the test the door may damage the recording equipment.

H. Annex 4

1. Test device and set-up

14. With regard to the force application device as specified in paragraph 3.3. of Annex 4, Nissan and Alliance favoured mounting the device external to the vehicle, instead of on the vehicle floor. Comments here expressed concern that mounting the force application device inside the vehicle could deform the vehicle floor and allow the device to move from its original position when applying a load. This, they stated, would introduce a significant amount of test variability.

15. The U.S.A. experienced similar concerns with the mounting of the test device, but resolved the issue through use of reinforced plates. The reinforcement plates provided a level surface for the support of the loading device. The plates also distribute loading on the floor of the test vehicle to reduce the movement of the device that could otherwise occur due to localized deformation at the attachment points.

16. During the 11 May 2005 meeting between the U.S.A., Alliance and the Ford Motor Company, an evaluation test presented results which demonstrated that use of the reinforcement plates on the vehicle floor avoids problematic displacement while under loading.

17. Both U.S.A. and other comments have demonstrated the ability to apply the requisite load to a vehicle door without causing displacement of the force application device. In order to minimize potential test variability, it is recommended that the gtr specify that a loading device is to be rigidly mounted when applying a load.

18. In paragraphs 3.6.1. and 3.7.1., the test procedure specifies that the force application plates are to maintain the displacement of the force application device in the transverse direction. This ensures that as force is applied, a door system continues to experience a transverse load. Although NHTSA did not experience penetration of door sheet metal from the loading plates, we recognized that without rounded edges on the plates, this might be a problem. Therefore, it is recommended that the loading plates have edges rounded to a radius of $6 \text{ mm} \pm 1 \text{ mm}$.

19. The procedure specifies that the plates are permitted to rotate in the longitudinal direction relative to the loading ram. The loading plates are fixed perpendicularly to the hydraulic loading arms in a manner that does not allow for rotation in a transverse direction. Additionally, the loading plates are connected directly to the hydraulic ram shafts by a threaded stud attached to the back of the plate that allows for longitudinal rotation. This longitudinal rotation allows for better adjustment of the plate to the contour of a vehicle door and provides acceptable results in testing performed by the U.S.A. Paragraphs 3.6.1.1. and 3.7.1.1. of Annex 4 clarify the rotation of the force application plate.

20. The test procedure specified that the loading plates be placed at the "door edge" as in paragraph 3.6.3. and paragraph 3.7.3. of Annex 4. The test procedure also specifies that all the door trim and decorative components are to be removed during test set-up as in paragraph 3.2. of Annex 4. Nissan's comments is stated that the term "door edge" could be prone to misinterpretation and asked that the term be further defined. Nissan also stated that trim components on a door pillar that overlap a sliding door could interfere with the test set-up. To address these concerns, it is recommended that the force application plates are placed within 12.5 mm from the interior edges of the sliding door as is noted in paragraphs 3.6.3. and 3.7.3. of Annex 4. This specification will ensure that force is applied directly to the portion of the door in which the latch mechanism is installed. Typically, a latch mechanism is within 12.5 mm of the interior edge of a vehicle door. Further, it is recommended that pillar trim and non-structural components that overlap a door be removed to permit proper placement of the loading plates as is reflected in the recommended changes to paragraph 3.2. of Annex 4.

2. Application of force

21. Alliance raised several concerns with the specified procedure for operating the force application devices. First, Alliance requested that a 500 N preload be applied prior to determining the initial position of the ram arms for the purpose of measuring the transverse displacement of the ram arms. Alliance stated that a preload of 500 N would ensure that the loading plates are correctly positioned and would improve repeatability of the test by eliminating the effect of free play in the system. Specifying the pre-load is consistent with the force application test procedures specified in gtr No. 7 on Head restraint systems. Paragraph 3.12. of Annex 4 incorporates a pre-load requirement for the sliding door test procedure specifying that the test loading device achieve a pre-load of 500 N; once the pre-load is achieved the displacement measuring devices are then zeroed out.

22. Alliance recommended that the test procedure control the load force application rather than the displacement. As stated above, the gtr requires that the displacement is controlled (20–90 mm per minute) until a load of 9,000 N is reached, and then holding the resulting load for 10 seconds. Comments stated that controllers currently in use do not allow for simultaneous control of both displacement and load, and that the procedure as specified would raise practicability concerns.

23. In response to Alliance's concern, it is recommended that the procedure specify that 9,000 N force is achieved in not less than 90 seconds and not more than 120 seconds. The 90–120 second duration corresponds to loading rates of 4,500 N/min to 6,000 N/min, which according to data from tests conducted by the U.S.A. is comparable to the loading rates of 20 to 90 mm/min as specified originally¹. Therefore it is recommended to amend paragraph 4.1. of the Annex to address the concerns of the manufacturers.

3. Performance requirement

24. In Annex 4, paragraph 4.3., both Nissan and Alliance expressed concern that the specified period of 10 seconds for maintaining the load was not adequate to permit measurement of separations between a vehicle body and the sliding door. Nissan stated that based on its experience it could take up to a minute to make the necessary measurements. Alliance recommended a period of 30 seconds. Alliance stated that this would be adequate to limit deformation of the door sheet metal and still provide enough time for the necessary measurements. For paragraph 4.4. of Annex 4, it is recommended to specify that the load be maintained for 30 seconds. As suggested by Alliance, it is believed that it is practical to make the specified measurements in this time.

¹ Federal Register; Vol.75, No. 33; 19 February 2010, pgs. 7370-7383.