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World Forum for Harmonization of Vehicle Regulations

Working Party on Passive Safety

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Geneva, 8-11 December 2009
Item 8 of the provisional agenda

REGULATION No. 11
(Door latches and hinges)

Proposal for the 04 series of amendments to Regulation No. 11

Submitted by the expert from the European Commission */

The text reproduced below was prepared by the expert from the European Commission in order to extend the scope to vehicles in categories N₂ and N₃ and add requirements on steps, handholds and running boards. It is based on a document without symbol (informal document No. GRSP-45-04) distributed during the forty-fifth session of the Working Party on Passive Safety (GRSP). The modifications to the existing text of Regulation No. 11 are marked in bold or strikethrough characters.

*/ In accordance with the programme of work of the Inland Transport Committee for 2006-2010 (ECE/TRANS/166/Add.1, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance performance of vehicles with respect to passive safety. The present document is submitted in conformity with that mandate.

A. PROPOSAL

Paragraph 1., amend to read:

"1. Scope

This Regulation applies to vehicles of categories M₁ and N 1/ with respect to ~~latches and door retention components such as hinges and other supporting means on~~ **their** doors, which can be used for the entry or exit of the occupants."

Paragraph 2.1., amend to read:

"2.1. "Approval of a vehicle" means the approval of a vehicle type with regard to **its doors.**"

Insert new paragraphs 2.2.6.to 2.2.7., to read:

"2.2.6. construction and fitting requirements of the running boards and steps as regards vehicles not covered by Annex 7;

2.2.7. position and geometrical characteristics of the access steps and the handholds as regards vehicles mentioned in Annex 7."

Paragraph 3.1., amend to read:

"3.1. The application for approval of a vehicle type with regard to **its doors** shall be submitted by the vehicle manufacturer or by his duly accredited representative."

Paragraph 3.2.2., amend to read:

"3.2.2. ...door retention components **and, if applicable, of the running boards, steps and handholds.**"

Paragraph 4.2., amend to read:

"4.2. ... first two digits (**04**) shall indicate the..."

Insert new paragraphs 5.3. to 5.3.5., to read:

"5.3. Running boards and steps (construction and fitting requirements)

5.3.1. The design characteristics of the vehicle must permit entry to and exit from it in perfect safety. Doors, entries and exits must be such that they can be used easily and without danger.

- 5.3.2. Vehicles of category N₂ with a maximum mass exceeding 7,5 tonnes and N₃ are deemed to satisfy the requirements as mentioned in paragraph 5.3.1. above if they comply with the prescriptions of Annex 7.
- 5.3.3. The wheel hub, rims and other parts of the wheel shall not be deemed to be running boards or steps for the purpose of this Regulation, except where reasons relating to construction or use preclude the fitting of running boards or steps elsewhere on the vehicle.
- 5.3.4. In vehicles of categories M₁, N₁ and N₂ with a maximum mass not exceeding 7,5 tonnes if the floor entrance to the passenger compartment of such vehicles is more than 600 mm [400 mm] above the ground, the vehicle must have one or more running boards or steps.
- 5.3.4.1. However, for off-road vehicles, in conformity with the definitions given in the Consolidated Resolution on the Construction of Vehicles (R.E.3) (TRANS/WP.29/78/Rev.1/Amend.2, Annex 7/Rev.2), such a distance from the ground may be increased up to 700 mm.
- 5.3.5. The running boards or steps must be constructed in such a way as to preclude the risk of slipping."

Paragraph 6., amend to read:

"6. Performance requirements **applicable to vehicles in categories M₁ and N₁**"

Paragraph 7., amend to read:

"7. Test procedures **applicable to vehicles in categories M₁ and N₁ only**"

Paragraph 13.1., amend to read:

"13.1. ...force of the **04** series of amendments.....amended by the **04** series of amendments."

Paragraph 13.2. to 13.7., amend to read:

"13.2. **No Contracting Party applying this Regulation shall refuse national or regional type approval of a vehicle type approved to the 04 series of amendments to this Regulation.**

13.3. **Until 1 November 2012, Contracting Parties applying this Regulation shall continue to grant approvals to those types of vehicles which comply with the requirements of this Regulation as amended by the preceding series of amendments.**

- 13.4.** As from 1 November 2012, Contracting Parties applying this Regulation shall grant approvals only if the vehicle type to be approved meets the requirements of this Regulation as amended by the 04 series of amendments.
- 13.5.** Until 12 August 2014, no Contracting Party applying this Regulation shall refuse national or regional type approval of a vehicle type approved to the 02 series of amendments to this Regulation.
- 13.6.** As from 12 August 2014, approvals to this Regulation shall cease to be valid, except in the case of vehicle types which comply with the requirements of this Regulation as amended by the 03 or 04 series of amendments.
- 13.7.** As from 12 August 2014, Contracting Parties applying this Regulation may refuse first national or regional registration (first entry into service) of a vehicle which does not meet the requirements of the 03 or 04 series of amendments to this Regulation.
- 13.8.** Until 1 November 2014, no Contracting Party applying this Regulation shall refuse national or regional type approval of a vehicle type approved to the preceding series of amendments to this Regulation.
- 13.9.** As from 1 November 2014, approvals to this Regulation shall cease to be valid, except in the case of vehicle types which comply with the requirements of this Regulation as amended by the 04 series of amendments.
- 13.10.** As from 1 November 2014, Contracting Parties applying this Regulation may refuse first national or regional registration (first entry into service) of a vehicle which does not meet the requirements of the 04 series of amendments to this Regulation."

Annex 1, amend to read:

"...with regard to **the doors** pursuant to Regulation..."

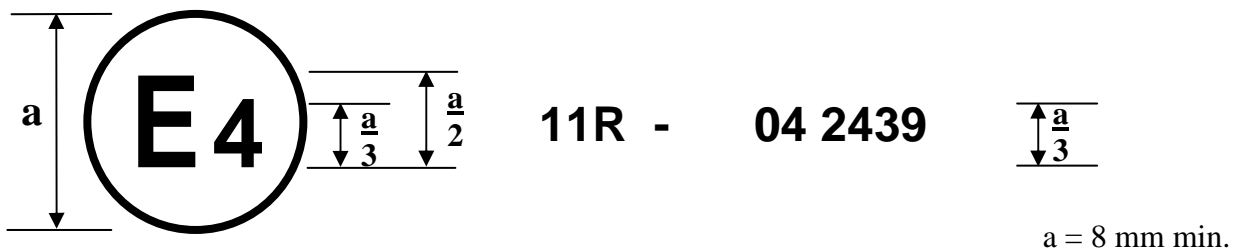
Annex 2, amend to read:

"Annex 2

ARRANGEMENTS OF APPROVAL MARKS

Model A

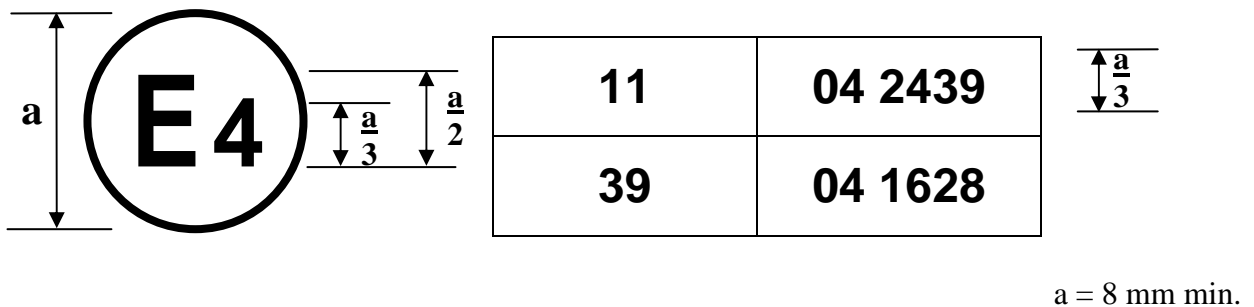
(See paragraph 4.4. of this Regulation)



The above approval mark affixed to a vehicle shows that the vehicle type concerned has, with regard to door latches and door retention components, been approved in the Netherlands (E 4) pursuant to Regulation No. 11, under approval number 042439. The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No. 11 as amended by the 04 series of amendments.

Model B

(See paragraph 4.5. of this Regulation)



The above approval mark affixed to a vehicle shows that the vehicle type concerned has been approved in the Netherlands (E 4) pursuant to Regulation No. 11 as amended by the 04 series of amendments and Regulation No. 39, as amended by the 04 series of amendments 1/."

Insert a new Annex 7, to read:

"Annex 7

REQUIREMENTS CONCERNING THE ACCESS TO AND EXIT FROM THE DOORS OF THE DRIVER'S COMPARTMENT OF VEHICLES OF CATEGORY N₂ HAVING A MAXIMUM MASS EXCEEDING 7,5 TONNES AND OF CATEGORY N₃

- 1. Access steps to the driver's compartment (see figure 7-1)**
 - 1.1. The distance (A) from the ground to the upper surface of the lowest step, measured with the vehicle in running order on a horizontal and flat surface, shall not be more than 600 mm [400 mm].**
 - 1.1.1. However, for off-road vehicles, in conformity with the definitions given in the Consolidated Resolution on the Construction of Vehicles (R.E.3) (TRANS/WP.29/78/Rev.1/Amend.2, Annex 7/Rev.2), that distance (A) may be increased up to 700 mm.**
 - 1.2. The distance (B) between the upper surfaces of the steps shall be not more than 400 mm [350 mm]. The vertical distance between two subsequent steps shall not vary by more than 50 mm. The last requirement shall not apply to the distance between the uppermost step and the cab floor.**
 - 1.2.1. However, for off-road vehicles, in conformity with the definitions as mentioned above (see 1.1.1.), this latter figure may be increased up to 100 mm.**
 - 1.3. In addition, the following minimum geometrical specifications shall be fulfilled:**
 - (a) step depth (D): 80 mm**
 - (b) step clearance (E) (include step depth): 150 mm**
 - (c) step width (F): 300 mm [230 mm]**
 - (d) width of the lowest step (G): 200 mm [230 mm]**
 - (e) step height (S): 120 mm**
 - (f) transversal offset between steps (H): 0 mm**
 - (g) longitudinal overlap (J) between two subsequent steps in the same flight, or between the uppermost step and the cab floor: 200 mm.**
 - 1.3.1. However, for off-road vehicles (see paragraph 1.1.1.) the value (F) may be reduced to 200 mm.**

- 1.4. The lowest step may be designed as a rung, if this is necessary for reasons relating to construction or use, and in the case of off-road vehicles, in conformity with the definitions as mentioned above. In such case the rung depth (R) shall be at least 20 mm.
- 1.4.1. Rungs of round cross section are not permitted.
- 1.5. While getting down from the driver's compartment the position of the uppermost step shall be easily found out.
- 1.6. The upper surface of the steps shall be non-slip. In addition, steps exposed to the weather and the dirt during driving shall have adequate run-off (draining surface).
2. Access to handholds to the driver's compartment (see figure 7-1)
 - 2.1. One or more suitable handrails and handholds or other equivalent holding devices shall be provided for the access to the driver's compartment.
 - 2.1.1. The handrail(s) or handholds or equivalent holding devices must be positioned in such a way that they can be easily grasped and do not obstruct access.
 - 2.1.2. A maximum discontinuity of 100 mm in the holding area of the handrails or handholds or equivalent holding devices may be allowed (for instance intermediate fixation).
 - 2.1.3. In the case of access with more than two steps the handrails, handholds or equivalent holding devices shall be located so that a person may support himself at the same time at three points (with two hands and one foot or with two feet and one hand).
 - 2.1.4. Except in the case of a stairway, the design and positioning of the handrails, handholds and equivalent holding devices must be such that operators are encouraged to descend facing the cab.
 - 2.1.5. The steering wheel may be considered as a handhold.
 - 2.2. The height (N) of the lower edge of at least one handrail or handhold or equivalent holding device, measured from the ground with the vehicle in running order on a horizontal and flat surface, shall not be more than 1 850 mm [1 600 mm].
 - 2.2.1. However, for off-road vehicles (see 1.1.1), such distance (N) may be increased up to 1 950 mm [1 700 mm].

- 2.2.2. If the floor of the driver's compartment has a height from the ground greater than "N", this height shall be assumed as "N".
- 2.2.3. In addition, the minimum distance (P) of the upper edge of the handrail(s) or handholds or equivalent holding devices from the floor of the driver's compartment shall be:
- (a) handrail(s) or handholds or equivalent holding devices (U) 650 mm,
 - (b) handrail(s) or handholds or equivalent holding devices (V) 550 mm.
- 2.3. The following geometrical specifications shall be fulfilled:
- (a) gripping dimension (K): 16 mm minimum 38 mm maximum [25 mm minimum 30 mm maximum],
 - (b) length (M): 150 mm minimum,
 - (c) clearance to vehicle components (L): 40 mm [70 mm] minimum with open door.

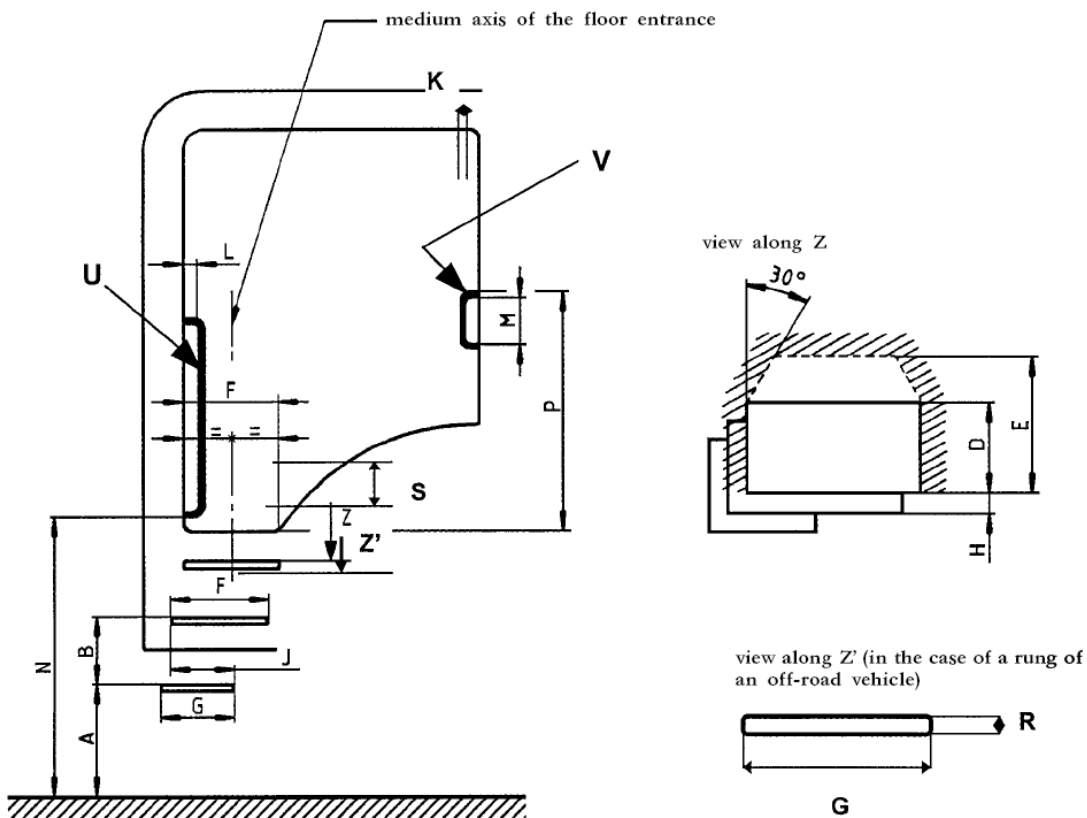


Figure 7-1

3. In the case of a sloped floor of the driver's compartment the required measurements shall be made from a horizontal plane passing through a point

which is given by the intersection of the front edge of the floor with a vertical plane through the centre of the step immediately below and which is perpendicular to the longitudinal medium plane of the vehicle."

B. JUSTIFICATION

This proposal incorporates provisions including vehicles in categories N₂ and N₃ in order to ensure that they comply with general requirements on the safety of doors, without however submitting them to the test procedures for assessing strength of door locks and hinges as foreseen for vehicles in categories M₁ and N₁. The text is based on that of EC Directives 98/90/EC and 2001/31/EC.

The proposal introduces requirements for steps and handholds to aid the access to the driver's compartment in those cases where the floor height exceeds a certain limit.

As a result of national health and safety laws in Member States of the European Union access step and handhold heights of vehicles are regulated in some member States. For instance the Dutch organization "Gezond Transport" (Healthy Transport) issues rules and recommendations that employers and employees must follow to combat workplace related risks. Its rules, in the case of commercial vehicles, are developed by application of Anthropometric Design Assessment Program System (DINED) anthropometry data (by Delft University of Technology) as well as Netherlands Standardization Institute (NEN) 5518 (by the Netherlands Standardization Institute on Ergonomic criteria for cabs of trucks) and EN 14386 (by the European Committee for Standardization on Ergonomic design principles for the operation of mobile machinery). In short, it is ensured that people, explicitly including females of small posture, can access the vehicle in a manner that avoids lifting the knee joint above that of the hip as well as not to overextend the reach, effectively reducing load and strain issues.

The legislation on access to passenger compartments of vehicles has already been in force in the European Union for more than 10 years. It has become apparent that at this point in time the EC Directive is not fully up-to-date regarding certain specifications. It is therefore recommended to align the values in paragraph 5.3.4. and Annex 7 with those as specified between the square brackets. These values are based on the aforementioned standards and data.

Application of rules on step height and handholds is not only for the benefit of drivers and other vehicle users, but also for vehicle manufacturers that will be able to offer an appropriate answer to national health and safety laws and thereby gain acceptance for certain vehicles to be put in service appropriately.

Lastly, paragraph 13 has been restructured with the aim of improving the legibility of dates of entry into force. Specifically, paragraphs 13.5. to 13.7. solve the issue with the transitional provisions as introduced with the 03 series of amendments which did not allow for a reasonable phase-out of vehicles approved to the preceding series of amendments (as has been indicated in informal document No. GRSP-45-14 tabled by the expert from the Czech Republic).

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