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Item 10 of the provisional agenda

**Regulation No. 16 (Safety-belts)****Proposal for the 07 series of amendments to Regulation No. 16 (Safety-belts)****Submitted by the experts from the European Commission, Japan and Republic of Korea \***

The text reproduced below was prepared by the experts from the European Commission, Japan and Republic of Korea, aimed at introducing provisions on safety-belt reminders (SBRs) in all vehicle seats. It is based on a document without symbol (GRSP-57-17-Rev.2) distributed at the fifty-seventh session of the Working Party on Passive Safety (GRSP). The modifications to the current text of UN Regulation No. 16 are marked in bold for new or strikethrough for deleted characters.

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\* In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



## I. Proposal

Paragraph 1.4., amend to read and delete its footnote <sup>2</sup>:

"1.4. Vehicles of categories ~~M<sub>1</sub>~~ **M and N** with regard to safety belt reminder.<sup>2</sup>"

Paragraph 2.41., amend to read:

"2.41. "Safety-belt reminder", means a system dedicated to alert the driver when ~~he/she~~ **any of the occupants** does not use the safety-belt. The system is constituted by a detection of an unfastened safety-belt and by two levels of driver's alert: a first level warning and a second level warning."

Paragraphs 2.44. to 2.46., amend to read:

"2.44. "First level warning" means a visual warning activated when the ignition switch ~~or master control switch~~ is ~~engaged~~ **activated** ~~(engine running or not)~~ and ~~the driver's~~ **none of the occupants'** safety-belt are fastened. An audible warning can be added as an option.

2.45. "Second level warning" means a visual and audible warning activated when ~~a driver operates a~~ **the vehicle is operated** without ~~fastening~~ **fastened for any of the occupants being**.

2.46. "Safety-belt is not fastened" means, at the option of the manufacturer, either the ~~driver~~ safety-belt buckle **of any occupant** is not engaged or the webbing length pulled out of the retractor is 100 mm or less."

Paragraph 5.2.2., amend to read:

"5.2.2. An approval number shall be assigned to each type approved. Its first two digits (at present **07** corresponding to the **07** series of amendments) shall indicate the series of amendments ..."

Paragraphs 8.4.1. and 8.4.1.1., shall be deleted

Insert new paragraphs 8.4.1. to 8.4.1.4., to read:

**8.4.1. Requirements per specific seating position and exemptions**

**8.4.1.1. The seating position of the driver of M and N categories of vehicles<sup>10</sup> as well as the seating positions of the occupants of seats in the same row as the driver seat of M and N categories of vehicles shall be equipped with a safety-belt reminder satisfying the requirements of paragraph 8.4.2.**

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<sup>2</sup> ~~Japan shall not be prevented, by the obligations of the Agreement to which this Regulation is annexed, from requiring vehicles of category N<sub>1</sub>, which are granted type approvals under this regulation to meet its existing national requirements for safety belt reminders.~~

<sup>10</sup> As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.3, para. 2 - [www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html](http://www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html)

[Where the vehicle manufacturer provides a safety-belt reminder system on a front passenger seat in another category of vehicle, the safety-belt reminder system may be approved according to this Regulation. <sup>11</sup>]

- 8.4.1.2. All seating positions of the rear seat row(s) of M<sub>1</sub> and N<sub>1</sub> category vehicles<sup>10</sup> shall be equipped with a safety-belt reminder satisfying the requirements of paragraph 8.4.2.

Where the vehicle manufacturer provides a safety-belt reminder system on a rear seating position in another category of vehicle, the safety-belt reminder system may be approved according to this Regulation.

- [8.4.1.3. A safety-belt reminder is not compulsory on folding seats (i.e. normally folded and designed for occasional use) as well as seating positions fitted with an S-type belt or Harness belt. Vehicle types that are not fitted with a safety-belt reminder on removable rear seats (e.g. to increase the luggage loading area) may continue to be approved until 48 months after the date set out in paragraph 15.4.2.]

- 8.4.1.4. Contracting Parties may allow deactivation of the safety-belt reminder provided that such deactivation satisfies the requirements of paragraphs 8.4.2.6. to 8.4.2.6.2."

Paragraph 8.4.2.1.1., amend to read:

- "8.4.2.1.1. Visual warning shall be so located as to be readily visible and recognisable in the daylight by the driver and distinguishable from other alerts. [Where the visual signal warning **of the driver's seat** employs the colour red, it shall use a symbol in accordance with item 21 in Table 1 of ECE Regulation No. 121].

- [8.4.2.1.1. Visual warning shall be so located as to be readily visible and recognisable in the daylight by the driver and distinguishable from other alerts. **In derogation of Regulation No. 121, the colour of the visual signal warning indicating the condition of safety-belts not covered by paragraph 8.4.1.1. may be other than red.**]



Paragraph 8.4.2.1.2., amend to read:

- "8.4.2.1.2. Visual warning shall be by continuous (e.g. steady or flashing tell-tale) ~~or intermittent signal.~~"

Paragraphs 8.4.2.1.3. and 8.4.2.1.4., shall be deleted:

Insert new paragraphs 8.4.2.1.3. and 8.4.2.1.4., to read:

- "8.4.2.1.3. A common tell-tale may be used for safety-belts covered by paragraph 8.4.1.1. However, for safety-belts covered by paragraph 8.4.1.2., the visual warning shall allow the driver to identify, while facing forward as

<sup>11</sup> While the current requirements for a safety-belt reminder is limited to ~~the driver's~~ **certain seats of vehicles category M<sub>1</sub>**, it is understood that the scope of this Regulation will be extended to vehicles of other categories and to other seating positions. In recognition of the importance of human factors, the delivery of driver stimuli, future safety-belt reminder requirements demanded by this Regulation will seek a harmonized convergence of the alert systems.

seated on the driver seat, any seating position in which the safety-belt is not fastened.

- 8.4.2.1.4. Audible warning shall be by a continuous or an intermittent, though frequent, sound signal or by continuous vocal information. Where vocal information is employed, the vehicle manufacturer shall ensure that the alert is able to employ the languages of the market into which the vehicle is intended to be used. [The audible warning may employ progressive steps, provided that they are ascending in nature and the sound level as measured at the driver's ears is at least [80] dB(A) within [15] seconds of activation].

The maximum sound level shall be measured in accordance with paragraphs 4. to 4.3., 5. to 5.4., 5.6., 9. (measuring point at the driver's position only), 9.1., 10.4. and 10.5. as described in ISO 5128-1980."

Paragraph 8.4.2.2., amend to read:

- "8.4.2.2. The ~~F~~first level warning shall be at least a visual warning activated for [4 or 30] seconds or longer for safety-belts covered by paragraph 8.4.1.1. and for [60] seconds or longer for safety-belts covered by paragraph 8.4.1.2. when the ~~driver~~ safety-belt of any of the seats is not fastened and the ignition switch or master control switch is ~~engaged~~activated."

Paragraph 8.4.2.4., amend to read:

- "8.4.2.4. Second level warning shall be a visual and audible signal activated for at least [30] seconds ~~eases not counting periods~~ in which the warning may stop for up to [3] seconds when ~~the safety belt is not fastened, when the vehicle is in normal operation and when at least one of the following conditions (or any combination of these conditions),~~ while one or all of the conditions set out in paragraphs 8.4.2.4.1. and 8.4.2.4.2. is/are fulfilled:"

Paragraph 8.4.2.4.1., shall be deleted

Insert a new paragraph 8.4.2.4.1., to read:

- "8.4.2.4.1. When a safety-belt covered by paragraph 8.4.1.1. is or becomes unfastened, for both scenarios, when the vehicle is in normal operation and under one or any combination of the conditions set out in paragraphs 8.4.2.4.2.1. to 8.4.2.4.2.3."

Paragraphs 8.4.2.4.2. and 8.4.2.4.3., shall be deleted

Insert new paragraphs 8.4.2.4.2. to 8.4.2.4.2.3., to read:

- "8.4.2.4.2. When a safety-belt covered by paragraph 8.4.1.2. becomes unfastened, when the vehicle is in normal operation and under one or any combination of the conditions set out in paragraphs 8.4.2.4.2.1. to 8.4.2.4.2.3.
- 8.4.2.4.2.1. The distance driven is greater than the distance threshold. The threshold shall not exceed 500 m. The distance driven when the vehicle is not in normal operation shall be excluded.
- 8.4.2.4.2.2. The vehicle speed is greater than the speed threshold. The threshold shall not exceed 25 km/h."
- 8.4.2.4.2.3. The duration time (engine running, propulsion system activated, etc.) is greater than the duration time threshold. The threshold shall not exceed

**60 seconds. The first level warning duration time and the duration time when the vehicle is not in normal operation shall be excluded."**

*Paragraphs 8.4.2.6. to 8.4.2.6.2., amend to read:*

- "8.4.2.6. The **audible warning of a** safety-belt reminder may be designed to allow deactivation.
- 8.4.2.6.1. In the case that a short term deactivation is provided, it shall be **significantly** more difficult to deactivate the safety-belt reminder than buckling the safety-belt on and off (**i.e. it shall consist of an operation of specific controls that are not integrated in the safety-belt buckle) and this operation shall only be possible when the vehicle is stationary.** When the ignition **or master control switch** is ~~switched off~~ **deactivated** for more than 30 minutes and ~~switched on~~ **activated** again, a short-term deactivated safety-belt reminder shall reactivate. **It shall not be possible to provide short term deactivation of the relevant visual warning(s).**
- 8.4.2.6.2. In the case that a facility for a long term deactivation is provided, it shall require a sequence of operations to deactivate, that are detailed only in the manufacturer's technical manual and/or which requires the use of tools (mechanical, electrical, digital, etc.) that are not provided with the vehicle. **It shall not be possible to provide long term deactivation of the relevant visual warning(s)."**

*Insert new paragraphs 15.4. to 15.4.3., to read:*

- "15.4. **As from the official date of entry into force of the 07 series of amendments, no Contracting Party applying this Regulation shall refuse to grant approvals under this Regulation as amended by the 07 series of amendments.**
- 15.4.1. **As from 1 September [20XX], Contracting Parties applying this Regulation shall grant type approvals only if the vehicle type to be approved meets the requirements of this Regulation as amended by the 07 series of amendments.**
- 15.4.2. **As from 1 September [20XX], after the date of entry into force of the 07 series of amendments, Contracting Parties applying this Regulation may refuse to recognize approvals which were not granted in accordance with the 07 series of amendments to this Regulation.**
- 15.4.3. **Even after the date of entry into force of the 07 series of amendments, approvals of components and separate technical units in accordance with the preceding series of amendments to the Regulation shall remain valid and Contracting Parties applying the Regulation shall continue to accept them, and Contracting Parties may continue to grant extensions to the relevant component or separate technical unit approvals to the 06 series of amendments."**

Annex 2, amend to read:

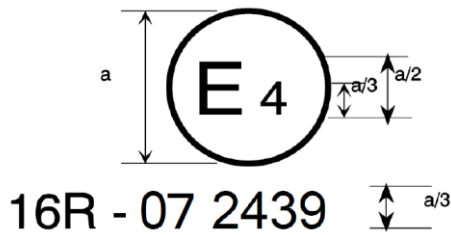
## "Annex 2

### Arrangements of approval marks

1. Arrangements of the vehicle approval marks concerning the installation of safety-belts

Model A

(See paragraph 5.2.4. of this Regulation)

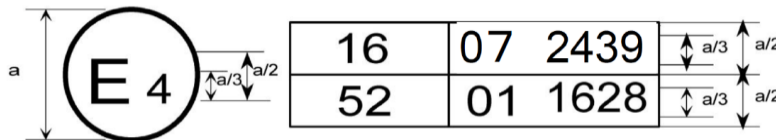


$a = 8 \text{ mm min.}$

The above approval mark affixed to a vehicle shows that the vehicle type concerned has, with regard to safety-belts, been approved in the Netherlands (E 4) pursuant to Regulation No. 16. The approval number indicates that the approval was granted according to the requirements of Regulation No. 16 as amended by the **07** series of amendments.

Model B

(See paragraph 5.2.5. 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 Regulations Nos. 16 and 52.<sup>1</sup> The approval numbers indicate that, at the dates when the respective approvals were given, Regulation No. 16 included the **07** series of amendments and Regulation No. 52 the 01 series of amendments.

Annex 18,

Paragraph 1, amend to read:

- "1. The first level warning shall be tested according to the following conditions:
  - (a) Safety-belt is not fastened;
  - (b) Engine **or propulsion system** is stopped or idling, and the vehicle is not in forward or reverse motion;
  - (c) Transmission is in neutral position;

<sup>1</sup> The second number is given merely as an example.

- (d) Ignition switch or master control switch is ~~engaged~~activated.
- (e) A load of [40] kg is placed on each seat in the same row as the driver's seat, or the simulated state in which occupants are on-board the vehicle by an alternative method specified by the vehicle manufacturer, provided an occupant's load does not exceed [40] kg. This may also be done for the rear seats at the request of the vehicle manufacturer."

Paragraph 2., amend to read:

"2. The second level warning shall be tested according to the following conditions **set out in paragraphs 2.1. to 2.3. of this Annex, respectively.**

- ~~(a) Safety belt is not fastened;~~
- ~~(b) Test vehicle driven with one or any combination of the conditions of paragraphs 2.1. to 2.3. of this annex at the manufacturer's choice."~~

Paragraphs 2.1. to 2.3., shall be deleted:

Insert new paragraphs 2.1. to 2.3., to read:

- 2.1. Testing the driver's seating position**
- 2.1.1. Testing the driver's seat when the safety-belt is unfastened before the journey**
  - (a) The safety-belt of the driver's seat is not fastened;
  - (b) The safety-belts of seats other than the driver's seat are fastened;
  - (c) Test vehicle driven with one or any combination of the conditions of paragraphs 2.1.1.1. to 2.1.1.3. of this annex at the manufacturer's choice.
- 2.1.1.1. Accelerate the test vehicle to 25 -0/+10 km/h from a halt and continue on the same speed.**
- 2.1.1.2. The test vehicle is driven forward at least 500 m from a halt position.**
- 2.1.1.3. The vehicle is tested when the vehicle is in normal operation for at least 60 seconds.**
- 2.1.2. Testing the driver's seat when the safety-belt becomes unbuckled during the journey.**
  - (a) The safety-belts of the driver's seat and seats other than the driver's seat are fastened.
  - (b) The test vehicle is driven, at the choice of the manufacturer, under one of the conditions in paragraphs 2.1.1.1. to 2.1.1.3. of this annex or a combination thereof;
  - (c) The safety-belt of the driver's seat is unbuckled.
- 2.2. Testing the seating position(s) in the same row as the driver's seat**
- 2.2.1. Testing the seat(s) in the same row as the driver's seat when the safety-belt is unfastened before the journey**
  - (a) The safety-belt(s) of the seat(s) in the same row as the driver's seat is/are not fastened;

- (b) The safety-belts of the seats other than the seat(s) in the same row as the driver's seat are fastened;
- (c) A load of [40] kg is applied to the seat(s) in the same row as the driver's seat, or the state in which occupants are on-board the vehicle is simulated by a method specified by the manufacturer;
- (d) The test vehicle is driven, at the choice of the manufacturer, under one of the conditions in paragraphs 2.1.1.1. to 2.1.1.3. of this annex or combination thereof;
- (e) The state of the safety-belt reminder is checked for all of the seat(s) in the same row as the driver's seat, in conditions (a) to (d).

**2.2.2. Testing the seating position in the same row as the driver's seat when the safety-belt becomes unbuckled during the journey.**

- (a) The safety-belts of the driver's seat and seats other than the driver's seat are fastened;
- (b) A load of [40] kg is applied to the seat(s) in the same row as the driver's seat, or the state in which occupants are on-board the vehicle is simulated by a method specified by the manufacturer;
- (c) The test vehicle is driven, at the choice of the manufacturer, under one of the conditions in paragraphs 2.1.1.1. to 2.1.1.3. of this annex or combination thereof;
- (d) The safety-belt of the seats other than the seat(s) in the same row as the driver's seat is unbuckled.
- (e) The state of the safety-belt reminder is checked for all of the seat(s) in the same row as the driver's seat, for each condition (a) to (d).

**2.3. Testing the rear seats**

- (a) With the test vehicle stationary, the safety-belts of all seats are fastened;
- (b) The test vehicle is put in normal operation and kept running;
- (c) The safety-belt of one of the rear seats is unfastened;
- (d) The functioning of the safety-belt reminder is checked for all of the seating positions in all seating rows;
- (e) Alternatively, at the request of the vehicle manufacturer, the test procedures specified in paragraphs 2.2. to 2.2.2. for the seating position(s) in the same row as the driver's seat may be used for any rear seating position instead."

*Paragraph 3, amend to read:*

- "3. **In case of a** system ~~that for which~~ the first level warning stops after a certain period of time, the second level warning shall be tested ~~according to~~ **in accordance with** paragraph 2 of this Annex after the first level warning has ~~been deactivated~~ **stopped**. **In case of a** system ~~that for which~~ the first level warning does not stop after a certain period of time, the second level warning shall be tested ~~according to~~ **in accordance with** paragraph 2 of this Annex while the first level warning is activated."



## I. Justification

1. It is widely recognised that the safety-belt is one of the most important and effective vehicle safety features.
  2. Nevertheless, actual safety-belt wearing rates vary greatly between countries and also differ between front and rear seating positions, as is explained in a presentation provided at the fifty-seventh session of GRSP.
  3. In Japan, rear seat safety-belt use can be as low as 35.1 per cent.
  4. When the effective SBR is mandatory for all passenger car seats, an expected 150 lives can be saved annually in Japan.
  5. In the Republic of Korea, seat safety-belt use is generally between 80 per cent and 90 per cent on front seats, but even as low as 16.2 per cent on rear seats.
  6. In 2013, three hundred people not wearing a safety-belt died in cars in the Republic of Korea, and over 18,000 persons not wearing safety-belts were injured. **When the fitment of SBR will be mandatory for all passenger car seats in Korea, one hundred three lives are expected to be saved in target year 2024 with a 70 per cent observance rate of the SBR. In the same condition, the cost-benefit ratio will be 1.43.**
  7. The European Commission published a study that quantifies the casualty benefit of legislative action on SBRs for all M and N categories of vehicles by comparing a baseline, i.e. "do nothing" scenario, with an action scenario which involved mandating SBRs. The relevant findings, including Benefit-to-Cost ratios, can be found in the report available at:  
<http://ec.europa.eu/DocsRoom/documents/6662/attachments/1/translations/en/renditions/pdf>
  8. The use of the measuring procedure of noise inside motor vehicles as laid down in ISO 5128-1980 is recommended to quantify the requirements for the audible signal in an objective and reproducible manner.
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