

Proposal for amendments to Regulation No. [xxx] (devices for reversing motion and motor vehicles with regard to the driver's awareness of vulnerable road users behind vehicles)

The text reproduced below was prepared by the experts from the VRU-Proxi Informal Working Group (VRU-Proxi) to amend the new UN Regulation on uniform provisions concerning the approval of devices for reversing motion and motor vehicles with regard to the driver's awareness of vulnerable road users behind vehicles. The modifications to the existing text are marked in bold for new or strikethrough for deleted characters.

OPEN POINTS: Wording harmonization:

- Devices for reversing drivers awareness
- Devices for reversing manoeuvre (FR)
- Devices for driver's awareness
- Reversing information system => the regulation does not cover only information systems. Direct vision is possible
- Reversing awareness for drivers
- Proposal for a new UN Regulation on uniform provisions concerning the approval of devices for improving the driver awareness of VRU during the motor vehicles reversing motion though the use of indirect vision
- Rear visibility and detection.

Is it Possible to change the wording in the GSR2 (reversing gear instead of reversing motion)?

I. Proposal

Paragraph 2.1., amend to read:

“2.1. “*Devices for reversing ~~motion~~ safety*” means devices intended to give a clear view of the rear of the vehicle within the fields of vision defined in paragraph 15.2. **or intended to detect objects in the field of detection defined in paragraph 15.3.**

These can be conventional mirrors, Rear-View Camera System, **detection systems** or other devices ~~able to present information about the field of vision to the driver.~~”

c

“3.4. ~~_____ The RVCS shall be provided by the applicant with the following documents:~~

~~_____ (a) Technical specification of the RVCS; and~~

~~_____ (b) Operator's manual.“~~

Paragraph 4.2., amend to read:

“4.2. Every device for indirect vision shall possess, on at least one of the main components, a space large enough to accommodate the approval mark, which shall be legible; this space shall be shown on the drawings referred to in Annex 1. The approval mark shall also be legible when the device is mounted on the vehicle ~~with the exception of Rear-View Camera System as defined in paragraph 2.1.2. or a detection system as defined in paragraph 2.1.5.~~ Other components of the device shall bear a means of identification. In the case of limited space for the approval mark(s), other means of identification that link it to the approval mark shall be provided.”

Remove *Paragraphs 6.2, 6.2.1., 6.2.1.1.:*

~~“6.2. Close proximity rear view devices for indirect vision other than mirrors~~

~~6.2.1. General requirements~~

~~6.2.1.1. The effectiveness of the RVCS and other vision supporting devices of Close proximity rear view shall not be adversely affected by magnetic or electrical fields. This shall be demonstrated by compliance with the technical requirements and transitional provisions of UN Regulation No. 10, 05 series of amendments or any later series of amendments.“~~

Paragraph 15.4.1.2., amend to read:

“15.4.1.2. In the case of any vehicle, which is in chassis/cab form when the field of vision **or detection** is measured, the minimum and maximum body widths, **heights and lengths** shall be stated by the manufacturer and, if necessary, simulated by dummy headboards. All vehicles and devices for indirect vision configurations taken into consideration during the tests shall be shown on the type-approval certificate for a vehicle with regard to the installation of devices for indirect vision (see Annex 4). **This includes information related to a range of device installation positions (in length, width and height).**“

Paragraphs 15.4.1.3. and 15.4.1.4., amend to read:

15.4.1.3. Devices for indirect vision shall not project beyond the external bodywork of the vehicle substantially more than is necessary to comply with the requirements concerning fields of vision **or fields of detection.**

15.4.1.4. Devices for indirect vision shall be fitted in such a way that the devices do not move so as significantly to change the field of vision **or detection** as measured or vibrate to an extent which would cause the driver to misinterpret the nature of the image perceived.”

Paragraph 16.1.1.3., amend to read:

“16.1.1.3. Deactivation

The rear-view image shall remain visible during the backing event until either, the driver modifies the view, or the vehicle direction selector is no longer in the reverse position **or the backing event is finished.**

Modifying the view means to switch to any other camera views.

The view can be manually switched off when the vehicle is not moving rearward.

The system may be switched off when the vehicle detects a coupling by means of a coupling device.”

Paragraph 16.1.2.1., amend to read:

“16.1.2.1. Response time

The rear-view image meeting the requirements described in 15.2. shall be provided ~~after~~ **within** a maximum of 2.0 seconds after start of the backing event, when tested according to paragraphs 2. of Annex 9.”

Paragraph 16.4. to be added:

“16.4 The effectiveness of the RVCS shall not be adversely affected by magnetic or electrical fields. This shall be demonstrated by compliance with the technical requirements and transitional provisions of UN Regulation No. 10, 05 series of amendments or any later series of amendments.”

Paragraph 17.1., amend to read:

“17.1. System activation

The system shall be activated when the backing event starts. If proper functioning cannot be effected, either the system shall automatically shut off or the driver shall be able to deactivate the system manually.

The detection system shall remain active as long as **either** the vehicle direction selector is in the reverse position **or the backing event is not ended**.

In case the vehicle can detect coupling with a coupling device, the system may be switched off.”

Paragraph 17.2.2., amend to read:

“17.2.2. Audible information

When an object is detected in the rear horizontal area as described in paragraph 1.3. of Annex 10. while the reverse gear is selected/engaged, audible information in accordance with ISO 15006:2011 shall be given.

In presenting audible information, the distance **to the target** may be identified by ~~at~~ two or more **acoustic levels signals**. These **acoustic signals zones**, differentiated by ~~levels (distances)~~ and detection widths, may be indicated by changing the frequency of **the** intermittent sound, ~~and a~~ **A** faster intermittent sound or continuous sound shall be used as the distance becomes closer.”

Paragraph 17.2.3., amend to read:

“17.2.3. Duration of signalling

Signalling for an object shall last as long as the object is detected and shall end when the object is no longer detected or when the system is deactivated.

To reduce the driver's discomfort, the audible signal can be automatically suspended temporarily after a certain time set by the manufacturer has elapsed, provided that the system remains activated. If, while the audible signal is automatically suspended temporarily, the distance to the object becomes shorter, the audible signal shall be automatically resumed. If the distance to the object becomes longer, the audible signal may remain suspended.”

Paragraph 17.4. to be added:

“17.4 The effectiveness of the detection system shall not be adversely affected by magnetic or electrical fields. This shall be demonstrated by compliance with the technical requirements and transitional provisions of UN Regulation No. 10, 05 series of amendments or any later series of amendments.”

Annex 1, amend to read:

“Annex I Information document for type approval of a device for reversing motion

The following information, if applicable, shall be supplied in triplicate and shall include a list of contents.

Any drawings shall be supplied in appropriate scale and in sufficient detail on size A4 paper or on a folder of A4 format.

Photographs, if any, shall show sufficient details.

1. Make (trade name of manufacturer):
2. Type and general commercial description(s):
3. Means of identification of the type, if indicated on the device:
4. Category of vehicle for which the device is intended:
5. Name and address of manufacturer:
6. Location and method of affixing of the approval mark **for mirrors**:
- 6.1. Other mean of identification link to the approval mark **for mirrors**:
7. Address(es) of assembly plant(s):
8. Mirrors (state for each mirror):
- 8.1. Variant
- 8.2. Drawing(s) for the identification of the mirror:
- 8.3. Details of the method of attachment:
- ~~9. Devices for indirect vision other than mirrors:~~
- ~~9.1. Type and characteristics (such as a complete description of the device):~~
- ~~9.2. Sufficiently detailed drawings to identify the complete device including installation instructions; the position for the type approval mark has to be indicated on the drawings:~~

Annex 2, amend to read:

“Annex II Information document for type approval of vehicle with respect to the installation of devices for reversing motion

The following information, if applicable, shall be supplied in triplicate and include a list of contents.

Any drawings shall be supplied in appropriate scale and in sufficient detail on size A4 paper or on a folder of A4 format.

Photographs, if any, shall show sufficient details.

General

1. Make (trade name of manufacturer):
2. Type and general commercial description(s):
3. Means of identification of type, if marked on the vehicle:
4. Location of that marking:
5. Category of vehicle:
6. Name and address of manufacturer:
7. Address(es) of assembly plant(s):

General construction characteristics of the vehicle

8. Photograph(s) and/or drawing(s) of a representative vehicle:

- 9. Driving position: left/right¹
- 9.1. The vehicle is equipped to be driven in right-hand/left hand traffic¹
- 10. Range of vehicle dimensions (overall):
- 10.1 For chassis without bodywork
- 10.1.1. Width²:
- 10.1.1.1. Maximum permissible width:
- 10.1.1.2. Minimum permissible width:
- 10.1.2. Length:**
- 10.1.2.1. Maximum permissible length:**
- 10.1.2.2. Minimum permissible length:**
- 10.1.3. Height:**
- 10.1.3.1. Maximum permissible height:**
- 10.1.3.2. Minimum permissible height:**
- 10.2. For chassis with bodywork:
- 10.2.1. Width²
- 10.2.2. Length**
- 10.2.3. Height**
- 11. Bodywork
- 11.1. Devices for indirect vision: **Direct vision, Devices approved to UN Regulation No. 46, Close Proximity Rear-view Mirror complying with this Regulation, Rear-View Camera System complying with this Regulation, Detection System complying with this Regulation³.**
- 11.1.1 Direct vision,**
- 11.1.1.1 Drawing(s)/photograph(s) showing the direct vision relative to the vehicle structure:**
- 11.1.2 Devices approved to UN Regulation No. 46,**

¹ Strike out what does not apply.

² "Overall width" of a vehicle means a dimension which is measured according to ISO standard 612-1978, term No. 6.2. In the case of vehicles of category other than M₁, in addition to the provisions of that standard, when measuring the vehicle width the following devices shall not be taken into account:

- (a) Customs sealing devices and their protection;
- (b) Devices for securing the tarpaulin and their protection;
- (c) Tyre failure tell-tale devices;
- (d) Protruding flexible parts of a spray-suppression system;
- (e) Lighting equipment;
- (f) For buses, access ramps in running order, lifting platforms and similar equipment in running order provided that they do not exceed 10 mm from the side of the vehicle and the corners of the ramps facing forwards or rearwards are rounded to a radius of not less than 5 mm; the edges shall be rounded to a radius of not less than 2.5 mm;
- (g) Devices for indirect vision;
- (h) Tyre-pressure indicators;
- (i) Retractable steps;
- (j) The deflected part of the tyre walls immediately above the point of contact with the ground.

³ Strike out what does not apply.

- 11.1.2.1 **Type approval number(s) of the device(s) approved according UN Regulation No. 46**
- 11.1.2.2 **Class(es) of mirrors and devices for indirect vision (I, II, III, IV, V, VI)²**
- 11.1.2.3 **Drawing(s) showing the position(s) of the device(s) relative to the vehicle structure:**
- 11.1.3 **Close Proximity Rear-view Mirror complying with this Regulation,**
 - 11.1.3.1 **Drawing(s) showing the position(s) of the mirror relative to the vehicle structure:**
 - 11.1.3.2 **Details of the method(s) of attachment including that part of the vehicle structure to which it is attached:**
 - 11.1.3.3 **Optional equipment which may affect the rearward field of vision:**
 - 11.1.3.4 **A brief description of the electronic components (if any) of the adjustment device:**
- 11.1.4 **Rear-View Camera System complying with this Regulation.**
 - 11.1.4.1 **Drawing(s)/photograph(s) showing the position(s) of the camera(s) relative to the vehicle structure:**
 - 11.1.4.2 **Drawing(s)/photograph(s) showing the arrangement of the monitor(s) including surrounding interior parts:**
 - 11.1.4.3 **Drawing(s)/photograph(s) showing the drivers view onto the monitor(s):**
 - 11.1.4.4 **Drawing(s)/photograph(s) showing the setup and monitor image of the required field of view:**
 - 11.1.4.5 **Details of the method(s) of attachment of the Rear-View Camera System including that part of the vehicle structure to which it is attached:**
 - 11.1.4.6 **Optional equipment which may affect the rearward field of vision:**
 - 11.1.4.7 **A brief description of the electronic components (if any) of the adjustment device:**
 - 11.1.4.8 **A technical specification and operator's manual of the Rear-View Camera System:**
- 11.1.5 **Detection System complying with this Regulation.**
 - 11.1.5.1 **Drawing(s)/photograph(s) showing the position(s) of the sensor(s) relative to the vehicle structure:**
 - 11.1.5.2 **Information signal: audible, optical, haptics⁴.**
 - 11.1.5.3 **A technical specification and operator's manual of the detection System:**
- ~~11.1.1. Mirrors~~
- ~~11.1.1.1. Drawing(s) showing the position(s) of the mirror relative to the vehicle structure:~~
- ~~11.1.1.2. Details of the method(s) of attachment including that part
of the vehicle structure to which it is attached:~~
- ~~11.1.1.3. Optional equipment which may affect the rearward field of vision:~~
- ~~11.1.1.4. A brief description of the electronic components (if any) of the adjustment device:~~
- ~~11.1.2. Devices for indirect vision other than mirrors:~~
- ~~11.1.2.1. Sufficiently detailed drawings with the installation instructions:~~
- ~~11.1.2.2. In the case of Rear View Camera System:~~

⁴ Strike out what does not apply.

- 11.1.2.2.1. ~~Drawing(s)/photograph(s) showing the position(s) of the camera(s) relative to the vehicle structure:~~
- 11.1.2.2.2. ~~Drawing(s)/photograph(s) showing the arrangement of the monitor(s) including surrounding interior parts:~~
- 11.1.2.2.3. ~~Drawing(s)/photograph(s) showing the drivers view onto the monitor(s):~~
- 11.1.2.2.4. ~~Drawing(s)/photograph(s) showing the setup and monitor image of the required field of view:~~
- 11.1.2.2.5. ~~Details of the method(s) of attachment of the Rear View Camera System including that part of the vehicle structure to which it is attached:~~
- 11.1.2.2.6. ~~Optional equipment which may affect the rearward field of vision:~~
- 11.1.2.2.7. ~~A brief description of the electronic components (if any) of the adjustment device:~~
- 11.1.2.2.8. ~~A technical specification and operator's manual of the Rear View Camera System:]”~~

Annex 4 – Appendix, amend to read:

“Annex IV - Appendix

Appendix to type approval communication form No. concerning the type approval of a vehicle with regard to the mounting of devices for reversing motion under UN Regulation No. [XXX].

1. Trade name or mark of mirrors and supplementary devices for indirect vision and component type-approval number (if applicable):
2. **Devices for vision reversing motion: Direct vision, Devices approved to UN Regulation No. 46, Close Proximity Rear-view Mirror complying with this Regulation, Rear-View Camera System complying with this Regulation, Detection System complying with this Regulation** ⁵ ~~Close proximity rear view mirrors and devices for reversing motion.~~
3. Extension of type approval of the vehicle to cover the following device for indirect vision.....
4. Data for identification of the R point of the driver's seating position:
5. Maximum and minimum bodywork width, **length and height** in respect of which mirror and the devices for indirect vision have been granted type-approval.....
6. The following documents, bearing the type approval number shown above, are annexed to this certificate:.....
 - (a) Drawings showing the mounting(s) of the devices for indirect vision
 - (b) Drawings and plans showing the mounting position(s) and characteristics of the part of the structure where the devices for indirect vision are mounted.
7. Remarks: (e.g. valid for right hand/left hand traffic¹)

”

Annex 4, amend to read:

“Annex IV Communication concerning the approval or refusal or extension or withdrawal of approval or production definitively discontinued of a type of vehicle with regard to the mounting of devices for reversing ~~motion~~ **safety**, pursuant to Regulation No. [XXX]

⁵ Strike out what does not apply.

Annex 4, Paragraph 2, amend to read:

“2.Close-proximity rear-view mirrors and devices for reversing ~~motion~~ **safety**”

II. Justification

1.[“Reversing motion” was replaced by “reversing safety”. Both wordings are used in the regulation. We propose to harmonize the wording and to use "devices for reversing safety", as the devices in question do not provide motion but safety.]

2.Justification for paragraph 2.1: This regulation requires to provide means of vision or means of detection. It should be reflected in the definition regarding “devices for reversing safety”

3.Justification for paragraphs 3.4 and 4.2: The part I of the regulation only deals with mirror component approval.

4.Justification for paragraphs 6.2, 6.2.1. and 6.2.1.1.: As the part I of the regulation only deals with mirror component approval, it is not relevant to keep the electromagnetic requirements in this regulation section.

5.Justification for paragraph 15.4.1.2.: The amendment aims at allowing the approval of devices at different installation locations. It is also clarified that the requirement applies for the field of detection too.

6.Justification for paragraphs 15.4.1.3. and 15.4.1.4.: It is clarified that the requirement applies for the field of detection too.

7.Justification for paragraph 16.1.1.3.: clarifications with no additional requirement. It is clarified that the rear view image shall be visible until the backing event is finished.

8.Justification for paragraph 16.1.2.1.: It is a correction that clarifies the requirement.

9. Justification for paragraph 16.4.: the electromagnetic requirements that have been removed from section I of the regulation have been added to the list of requirements for the rear-view camera system

10.Justification for paragraph 17.1.: clarifications with no additional requirement. It is clarified that the detection shall be active until the backing event is finished.

11.Justification for paragraph 17.2.2.: it is clarified that the audible information type may differ according to the vehicle distance to the target.

12.Justification for paragraph 17.2.3.: grammatical corrections

13.Justification for paragraph 17.4.: the electromagnetic requirements that have been removed from section I of the regulation have been added to the list of requirements for the detection system

14.Justification for Annex 1: The information document describes the device approved according to the part I of the regulation (component section). And the part I of the regulation only deals with mirror component approval. So the annex I has been modified accordingly.

15.Justification for Annex 2: The information document describes the devices installed to comply with this regulation. As different type of devices or combinations of devices are

allowed, the annex 2 has been updated to identify which devices have been used to comply with the regulation.

16. Justification for Annex 4 - Appendix: The appendix to the type approval communication form describes the devices installed to comply with this regulation. As different type of devices or combinations of devices are allowed, the appendix of the annex 4 has been updated to identify which devices have been used to comply with the regulation.