

8 November 2019

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## **Agreement**

### **Concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations\***

(Revision 3, including the amendments which entered into force on 14 September 2017)

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#### **Addendum 47 – UN Regulation No. 48**

#### **Revision 11 - Amendment 7**

Supplement 13 to 05 series of amendments – Date of entry into force: 15 October 2019

#### **Installation of lighting and light-signalling devices**

This document is meant purely as documentation tool. The authentic and legal binding text is: ECE/TRANS/WP.29/2018/100/Rev.1.



**UNITED NATIONS**

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\* Former titles of the Agreement:

Agreement concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958 (original version); Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, done at Geneva on 5 October 1995 (Revision 2).

## **Supplement 13 to the 05 series of amendments to UN Regulation No. 48 (Installation of lighting and light-signalling devices)**

*Paragraph 2.7.16.4.*, amend to read:

"2.7.16.4. Retro-reflecting materials approved as Class D or E according to UN Regulation No. 104 or [RRD] and used for other purposes in compliance with national requirements."

*Paragraph 2.7.28.*, amend to read:

"2.7.28. "Adaptive front lighting system" (or "AFS") means a lighting device type-approved according to UN Regulation No. 123 or [RID], providing beams with differing characteristics for automatic adaptation to varying conditions of use of the dipped-beam (passing-beam) and, if it applies, the main-beam (driving-beam)."

*Paragraph 3.2.6.2.*, amend to read:

"3.2.6.2. The related AFS control signals and their technical characteristics as defined according to Annex 10 of UN Regulation No. 123 or Annex 14 to UN Regulation No. [RID];"

*Paragraph 5.9.3.*, amend to read:

"5.9.3. The photometric characteristics of a direction indicator lamp of categories 1, 1a, 1b, 2a or 2b may be varied during a flash by sequential activation of light sources as specified in paragraph 5.6. of UN Regulation No. 6 or paragraph 5.6.11. of UN Regulation No. [LSD]."

*Paragraph 6.1.*, amend to read:

"6.1. Main-beam headlamp (UN Regulations Nos. 98, 112 and [RID])"

*Paragraph 6.1.2.*, amend to read:

"6.1.2. Number

Two or four, type approved according to

(a) UN Regulation No. 98 or 112, excluding Class A headlamp

or

(b) UN Regulation [RID], Classes B and D headlamps only

For vehicles of the category N<sub>3</sub>: Two extra main-beam headlamps may be installed.

Where a vehicle is fitted with four concealable headlamps the installation of two additional headlamps shall only be authorized for the purpose of light-signalling, consisting of intermittent illumination, at short intervals (see paragraph 5.12. above) in daylight."

*Paragraph 6.2.*, amend to read:

"6.2. Dipped-beam headlamp (UN Regulations Nos. 98, 112 and [RID])"

*Paragraph 6.2.2.*, amend to read:

- "6.2.2.       Number  
                  Two, type approved according to  
(a)    UN Regulation No. 98 or 112, excluding Class A headlamp,  
          or  
(b)    UN Regulation [RID], Classes B and D headlamps only."

*Paragraph 6.2.7.3.*, amend to read:

- "6.2.7.3       In the case of dipped-beam headlamps according to UN Regulation No. 98  
                  or [RID], the gas-discharge light sources shall remain switched on during  
                  the main-beam operation."

*Paragraph 6.2.9.*, amend to read:

- "6.2.9.        Other requirements  
                  ....  
                  Only dipped-beam headlamps according to UN Regulation No. 98 or 112  
                  or [RID] may be used to produce bend lighting.  
                  ...."

*Paragraph 6.3.*, amend to read:

- "6.3.         Front fog lamp (UN Regulation No. 19 or [RID])"

*Paragraph 6.3.2.*, amend to read:

- "6.3.2.       Number  
                  Two; complying with either the requirements of the 03 and subsequent  
                  series of amendments to UN Regulation No. 19 or the requirements of UN  
                  Regulation No. [RID]."

*Paragraph 6.3.9.*, amend to read:

- "6.3.9.       Other requirements  
                  In the case where there is a positive indication in the communication form in  
                  Annex 1 of UN Regulation No. 19 or in Annex 1 of UN Regulation No. [RID]  
                  the alignment and the luminous intensities of the Class "F3" front fog beam  
                  may be automatically adapted ..."

*Paragraph 6.4.*, amend to read:

- "6.4.         Reversing lamp (UN Regulation No. 23 or [LSD])"

*Paragraph 6.5.*, amend to read:

- "6.5.         Direction-indicator lamp (UN Regulation No. 6 or [LSD])"

*Paragraph 6.5.8.*, amend to read:

- "6.5.8.       Tell-tale  
                  .....  
                  It shall be activated by the signal according to paragraph 6.2.2. of UN  
                  Regulation No. 6 or according to paragraph 5.6.3. of UN Regulation No.  
                  [LSD] or another suitable way. <sup>13</sup>

...."

*Paragraph 6.7.*, amend to read:

"6.7. Stop lamp (UN Regulation No. 7 or [LSD])"

*Paragraph 6.8.*, amend to read:

"6.8. Rear registration plate lamp (UN Regulation No. 4 or [LSD])"

*Paragraph 6.9.*, amend to read:

"6.9. Front position lamp (UN Regulation No. 7 or [LSD])"

*Paragraph 6.10.*, amend to read:

"6.10. Rear position lamp (UN Regulation No. 7 or [LSD])"

*Paragraph 6.11.*, amend to read:

"6.11. Rear fog lamp (UN Regulation No. 38 or [LSD])"

*Paragraph 6.12.*, amend to read:

"6.12. Parking lamp (UN Regulation No. 77 or 7 or [LSD])"

*Paragraph 6.13.*, amend to read:

"6.13. End-outline marker lamp (UN Regulation No. 7 or [LSD])"

*Paragraph 6.14.*, amend to read:

"6.14. Rear retro-reflector, non-triangular (UN Regulation No. 3 or [RRD])"

*Paragraph 6.14.2.*, amend to read:

"6.14.2. Number

Two, the performances of which shall conform to the requirements concerning Class IA or IB retro-reflectors in UN Regulation No. 3 or [RRD]. Additional retro-reflecting devices and materials (including two retro-reflectors not complying with paragraph 6.14.4. below), are permitted provided they do not impair the effectiveness of the mandatory lighting and light-signalling devices."

*Paragraph 6.15.*, amend to read:

"6.15. Rear retro-reflector, triangular (UN Regulation No. 3 or [RRD])"

*Paragraph 6.15.2.*, amend to read:

"6.15.2. Number

Two, the performances of which shall conform to the requirements concerning Class IIIA or Class IIIB retro-reflectors in UN Regulation No. 3 or [RRD]. Additional retro-reflecting devices and materials (including two retro-reflectors not complying with paragraph 6.15.4. below), are permitted provided they do not impair the effectiveness of the mandatory lighting and light-signalling devices."

*Paragraph 6.16.*, amend to read:

"6.16. Rear retro-reflector, triangular (UN Regulation No. 3 or [RRD])"

*Paragraph 6.16.2.*, amend to read:

"6.16.2. Number

Two, the performances of which shall conform to the requirements concerning Class IA or IB retro-reflectors in UN Regulation No. 3 or [RRD]. Additional retro-reflecting devices and materials (including two retro-reflectors not complying with paragraph 6.16.4. below), are permitted provided they do not impair the effectiveness of the mandatory lighting and light-signalling devices."

*Paragraph 6.17.*, amend to read:

"6.17. Side retro-reflector, non-triangular (UN Regulation No. 3 or [RRD])"

*Paragraph 6.17.2.*, amend to read:

"6.17.2. Number

Such that the requirements for longitudinal positioning are complied with. The performances of these devices shall conform to the requirements concerning Class IA or IB retro-reflectors in UN Regulation No. 3 or [RRD]. Additional retro-reflecting devices and materials (including two retro-reflectors not complying with paragraph 6.17.4. below), are permitted provided they do not impair the effectiveness of the mandatory lighting and light-signalling devices."

*Paragraph 6.18.*, amend to read:

"6.18. Side-marker lamps (UN Regulation No. 91 or [LSD])"

*Paragraph 6.19.*, amend to read:

"6.19. Daytime running lamp (UN Regulation No. 87 or [LSD])<sup>14</sup>"

*Paragraph 6.20.*, amend to read:

"6.20. Cornering lamp (UN Regulation No. 119 or [RID])"

*Paragraph 6.21.*, amend to read:

"6.21. Conspicuity markings (UN Regulation No. 104 or [RRD])"

*Paragraph 6.21.1.2.5.*, amend to read:

"6.21.1.2.5. In cases where the manufacturer, after verification by the Technical Service, can prove to the satisfaction of the Type Approval Authority that it is impossible, due to the operational requirements which may require special shape, structure or design of the vehicle, to comply with the requirements contained in paragraphs 6.21.2. to 6.21.7.5. below, then partial fulfilment of some of these requirements is acceptable. This is conditional upon a portion of the requirements being met where possible, and the application of conspicuity markings that partially meet requirements maximised on the vehicle structure. This may include fitting of additional brackets or plates containing material compliant with UN Regulation No. 104 or [RRD] where structure is available to ensure clear and uniform signalling compatible with the objective of conspicuity.

Where partial fulfilment is deemed acceptable, retro-reflective devices like retro-reflectors of class IVA of UN Regulation No. 3 or [RRD] or brackets containing retro-reflecting material compliant with photometric requirements of Class C of UN Regulation No. 104 or [RRD] may substitute part of the required conspicuity markings. In this case, at least one of these retro-reflective devices shall be installed per 1,500 mm.

The necessary information shall be indicated in the communication form."

*Paragraph 6.21.4.2.1.1.*, amend to read:

"6.21.4.2.1.1. For motor vehicles, each end of the vehicle, or in the case of tractors for semi-trailers each end of the cab;

However, an alternative marking mode within 2,400 mm from the front end of the motor vehicle is allowed where a series of retro-reflectors of Class IVA of UN Regulation No. 3 or [RRD] or Class C of UN Regulation No. 104 or [RRD] are mounted followed by the required conspicuity marking as follows:

- (a) Retro-reflector size minimum 25 cm<sup>2</sup>;
- (b) One retro-reflector mounted not more than 600 mm from the front end of the vehicle;
- (c) Additional retro-reflectors spaced not more than 600 mm apart;
- (d) The distance between the last retro-reflector and the start of the conspicuity marking shall not exceed 600 mm;"

*Paragraph 6.21.7.4.*, amend to read:

"6.21.7.4. Where rear marking plates conforming either to the 01 series of amendments to UN Regulation No. 70 or to UN Regulation No. [RRD] are installed these may be considered, at the discretion of the manufacturer, as part of the conspicuity marking to the rear, for the purposes of calculating the length of the conspicuity marking and its proximity to the side of the vehicle."

*Paragraph 6.22.*, amend to read:

"6.22. Adaptive front lighting system (AFS) (UN Regulation No. 123 or [RID])"

*Paragraph 6.22.6.1.2.1.*, amend to read:

"6.22.6.1.2.1. In case the passing-beam is generated by several beams from different lighting units, the provisions according to paragraph 6.22.6.1.2. above apply to each said beam's "cut-off" (if any), which is designed to project into the angular zone, as indicated under item 9.3. of the communication form conforming to the model in Annex 1 to UN Regulation No. 123 or item 9.3.3. in Annex 1 to UN Regulation No. [RID]."

*Paragraph 6.22.6.3.*, amend to read:

"6.22.6.3. Horizontal orientation:

For each lighting unit the kink of the elbow of the cut-off line, if any, when projected on the screen, shall coincide with the vertical line through the reference axis of said lighting unit. A tolerance of 0.5 degree to that side which is the side of the traffic direction shall be allowed. Other lighting units shall be adjusted according to the applicant's specification, as defined according to Annex 10 of UN Regulation No. 123 or Annex 14 of UN Regulation No. [RID]."

*Paragraph 6.22.7.4.3.*, amend to read:

"6.22.7.4.3. The Class E mode(s) of the passing-beam shall not operate unless the vehicle's speed exceeds 70 km/h and one or more of the following conditions is/are automatically detected.

- (a) The road characteristics correspond to motorway conditions<sup>17</sup> and/or the vehicle's speed exceeds 110 km/h (E-signal applies);

- (b) In case of a Class E mode of the passing-beam which, according to the system's approval documents /communication sheet, complies with a 'data set' of Table 6 of Annex 3 of UN Regulation No. 123 or of UN Regulation No. [RID], Table 14, only.

Data set E1: the vehicle's speed exceeds 100 km/h (E1-signal applies);

Data set E2: the vehicle's speed exceeds 90 km/h (E2-signal applies);

Data set E3: the vehicle's speed exceeds 80 km/h (E3-signal applies)."

*Paragraph 6.22.8.2., amend to read:*

- "6.22.8.2. A visual failure tell-tale for AFS is mandatory. It shall be non-flashing. It shall be activated whenever a failure is detected with respect to the AFS control signals or when a failure signal is received in accordance with paragraph 5.9. of UN Regulation No. 123 or paragraph 4.13. of UN Regulation No. [RID]. It shall remain activated while the failure is present. It may be cancelled temporarily, but shall be repeated whenever the device which starts and stops the engine is switched on and off."

*Paragraph 6.22.8.4., amend to read:*

- "6.22.8.4. A tell-tale to indicate that the driver has set the system into a state according to paragraph 5.8. of UN Regulation No. 123 or paragraph 4.12. of UN Regulation No. [RID] is optional."

*Paragraph 6.22.9.1., amend to read:*

- "6.22.9.1. An AFS shall be permitted only in conjunction with the installation of headlamp cleaning device(s) according to Regulation No. 45<sup>19</sup> for at least those lighting units, which are indicated under item 9.2.3. of the communication form conforming to the model in Annex 1 to Regulation No. 123 or under item 9.3.2.3. in Annex 1 to UN Regulation No. [RID], if the total objective luminous flux of the light sources of these units exceeds 2,000 lm per side, and which contribute to the Class C (basic) passing-beam."

*Paragraph 6.22.9.5., amend to read:*

- "6.22.9.5. The means according to the provisions of paragraph 5.8. of UN Regulation No. 123 or paragraph 4.12. of UN Regulation No. [RID], which allow the vehicle to be used temporarily in a territory with the opposite direction of driving than that for which approval is sought, shall be explained in detail in the owner's manual."

*Paragraph 6.26., amend to read:*

- "6.26. Manoeuvring lamps (UN Regulation No. 23 or [LSD])"

*Paragraph 6.26.9.2., amend to read:*

- "6.26.9.2. At the request of the applicant and with the consent of the Technical Service the requirement of 6.26.9.1. may be verified by a drawing or simulation or deemed be satisfied if the installation conditions comply with paragraph 6.2.2. of UN Regulation No. 23 or paragraph 5.10.2. of UN Regulation No. [LSD], as noticed in the communication document in Annex 1, paragraph 9."