

1 July 2020

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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 52 – UN Regulation No. 53

### Revision 4 – Amendment 3

03 series of amendments – Date of entry into force: 29 May 2020

**Uniform provisions concerning the approval of category L<sub>3</sub> vehicles  
with regard to the 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.29/2019/80.



**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).

*Paragraph 2. and its subparagraphs*, amend to read:

## "2. Definitions

For the purpose of this Regulation, the definitions given in the latest series of amendments to UN Regulation No. 48 in force at the time of application for type approval shall apply, unless otherwise specified in this Regulation.

- 2.1. "*Vehicle type*" means a category of vehicles which do not differ from each other in such essential respects as:
  - 2.1.1. The dimensions and external shape of the vehicle;
  - 2.1.2. The number and position of the devices;
  - 2.1.3. The following shall likewise not be deemed to be "vehicles of a different type":
    - 2.1.3.1. Vehicles which differ within the meaning of paragraphs 2.1.1. and 2.1.2. above but not in such a way as to entail a change in the kind, number, position and geometric visibility of the lamps prescribed for the vehicle type in question; and
    - 2.1.3.2. Vehicles on which lamps approved under one of the Regulations annexed to the 1958 Agreement, or lamps allowed in the country in which the vehicles are registered, are fitted, or are absent where their fitting is optional;
  - 2.2. "*Unladen vehicle*" means a vehicle without a driver, or passenger, and unladen, but with its fuel tank full and its normal complement of tools;
  - 2.3. "*Lamp*" means a device designed to illuminate the road or to emit a light signal to other road users. Rear registration plate lamp and retro-reflectors are likewise to be regarded as lamps;
    - 2.3.1. "*Equivalent lamps*" means lamps having the same function and authorised in the country in which the vehicle is registered; such lamps may have different characteristics from those of the lamps with which the vehicle is equipped at the time of approval, on condition that they satisfy the requirements of this Regulation;
    - 2.3.2. "*Independent lamp*" means devices having separate apparent surfaces, separate light sources and separate lamp bodies;
    - 2.3.3. "*Grouped lamps*" means devices having separate apparent surfaces and separate light sources, but a common lamp body;
    - 2.3.4. "*Combined*" means devices having separate apparent surfaces, but a common light source and a common lamp body;
    - 2.3.5. "*Reciprocally incorporated*" means devices having separate light sources or a single light source operating under different conditions (for example, optical, mechanical, electrical differences), totally or partially common apparent surfaces and a common lamp body;
    - 2.3.6. "*Direction indicator lamp*" means the lamp used to indicate to other road-users that the driver intends to change direction to the right or to the left;  
A direction indicator lamp or lamps may also be used according to provisions of UN Regulation No. 97.
    - 2.3.7. "*Front position lamp*" means the lamp used to indicate the presence of the vehicle when viewed from the front;
    - 2.3.8. "*Rear position lamp*" means the lamp used to indicate the presence of the vehicle when viewed from the rear;
    - 2.3.9. "*Retro-reflector*" means a device used to indicate the presence of a vehicle by the reflection of light emanating from a light source not connected to the vehicle, the observer being situated near the source;

- For the purpose of this Regulation, retro-reflecting number plates are not considered as retro-reflectors;
- 2.4. "*Light-emitting surface*" of a "lighting device", "light-signalling device" or a retro-reflector means all or part of the exterior surface of the transparent material as declared in the request for approval by the manufacturer of the device on the drawing, see Annex 3;
- 2.5. "*Illuminating surface*" (see Annex 3);
- 2.5.1. "*Illuminating surface of a lighting device*" (driving beam (main beam) headlamp, passing beam (dipped beam) headlamp, front fog lamp) means the orthogonal projection of the full aperture of the reflector, or in the case of headlamps with an ellipsoidal reflector of the "projection lens", on a transverse plane. If the lighting device has no reflector, the definition of paragraph 2.5.2. below shall be applied. If the light emitting surface of the lamp extends over part only of the full aperture of the reflector, then the projection of that part only is taken into account.  
In the case of a passing-beam headlamp, the illuminating surface is limited by the apparent trace of the cut-off on to the lens. If the reflector and lens are adjustable relative to one another, the mean adjustment should be used;  
In the case where any combination of a headlamp producing the principal passing-beam and additional lighting units or light sources designed to produce bend lighting are operated together, the individual illuminating surfaces, taken together, constitute the illuminating surface.
- 2.5.2. "*Illuminating surface of a light-signalling device other than a retro-reflector*" (direction indicator lamp, stop lamp, front position lamp, rear position lamp, hazard warning signal, rear fog lamp) means the orthogonal projection of the lamp in a plane perpendicular to its axis of reference and in contact with the exterior light-emitting surface of the lamp, this projection being bounded by the edges of screens situated in this plane, each allowing only 98 per cent of the total luminous intensity of the light to persist in the direction of the axis of reference. To determine the lower, upper and lateral limits of the illuminating surface, only screens with horizontal or vertical edges shall be used;
- 2.5.3. "*Illuminating surface of a retro-reflector*" (para. 2.3.9. above) means the orthogonal projection of a retro-reflector in a plane perpendicular to its axis of reference and delimited by planes continuous to the outermost parts of the retro-reflector's optical system and parallel to that axis. For the purposes of determining the lower, upper and lateral edges of the device, only horizontal and vertical planes shall be considered;
- 2.6. The "*apparent surface*" for a defined direction of observation means, at the request of the manufacturer or his duly accredited representative, the orthogonal projection of:  
Either the boundary of the illuminating surface projected on the exterior surface of the lens (a-b);  
Or the light-emitting surface (c-d);  
In a plane perpendicular to the direction of observation and tangential to the most exterior point of the lens (see Annex 3 to this Regulation);
- 2.7. "*Centre of reference*" means the intersection of the axis of reference with the exterior light-emitting surface; it is specified by the manufacturer of the lamp;
- 2.8. "*Extreme outer edge*", on either side of the vehicle means the plane parallel to the median longitudinal plane of the vehicle and touching the lateral extremity of the vehicle, disregarding the projection or projections:  
2.8.1. Of rear-view mirrors;  
2.8.2. Of direction indicator lamps;

- 2.8.3. Of front and rear position lamps and retro-reflectors;
- 2.9. "*Over-all width*" means the distance between the two vertical planes defined in paragraph 2.8. above;
- 2.10. "*Colour of the light emitted from the device*". The definitions of the colour of the light emitted given in UN Regulation No. 48 and its series of amendments in force at the time of application for type approval shall apply to this Regulation.
- 2.11. "*Gross vehicle mass*" or "maximum mass" means the technically permissible maximum laden mass as declared by the manufacturer.
- 2.12. "*Laden*" means so loaded as to attain the gross vehicle mass as defined in paragraph 2.11. above.
- 2.13. "*Horizontal inclination*" means the angle created between the beam pattern when the motorcycle is set as specified in paragraph 5.4. of this Regulation, and the beam pattern when the motorcycle is banked (see drawing in Annex 6);
- 2.14. "*Horizontal inclination adjustment system (HIAS)*" means a device that adjusts the horizontal inclination of the headlamp towards zero;
- 2.15. "*Bank angle*" means the angle made with the vertical by the vertical longitudinal median plane of the motorcycle, when the motorcycle is rotated about its longitudinal axis (see drawing in Annex 6);
- 2.16. "*HIAS signal*" means any control signal or, any additional control input to the system or, a control output from the system to the motorcycle;
- 2.17. "*HIAS signal generator*" means a device, reproducing one or more of the HIAS signals for system test;
- 2.18. "*HIAS test angle*" means the angle  $\delta$  created by the headlamp cut-off line and HH line (in case of an asymmetrical beam headlamp, the horizontal part of the cut-off shall be used), (see drawing in Annex 6).
- 2.19. "*Device*" means a component or combination of components used in order to perform one or several functions.
- 2.20. "*Exterior courtesy lamp*" means a lamp used to provide supplementary illumination to assist the mounting and dismounting of the vehicle driver and passenger or in loading operations."

*Paragraph 3.2.5.*, amend to read:

- "3.2.5. A statement of the method used for the definition of the apparent surface (see paragraph 2.6.);"

*Insert a new paragraph 3.2.6.*, to read:

- "3.2.6. At the discretion of the manufacturer, a statement indicating whether lamps approved for and equipped with LED substitute light sources are allowed to be installed on the vehicle or not and, if this is allowed, which lamps."

*Paragraph 4.2.*, amend to read:

- "4.2. An approval number shall be assigned to each type approved. Its first two digits (at present 03 for the Regulation in its 03 series of amendments) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval."

*Paragraph 5.11.1.*, amend to read:

- "5.11.1. If installed, the daytime running lamp shall automatically be ON when the engine is running. If the headlamp is switched ON, the daytime running lamp shall not come ON when the engine is running.
- 5.11.1.1. If each DRL whose maximum luminous intensity exceeds 700 cd as identified in Annex 1 of UN Regulation No. 148 is fitted on vehicle, the passing beam

shall be switched ON and OFF automatically relative to the ambient light conditions (e.g. switch ON during night-time driving conditions, tunnels, etc.) according to the requirements of Annex 8.

- 5.11.1.2. If each DRL whose maximum luminous intensity does not exceed 700 cd as identified in Annex 1 of UN Regulation No. 148 is fitted on vehicle, the switching ON or OFF of the passing beam may be either manual or automatic. If automatic, conditions of paragraph 5.11.1.1. must be complied with."

*Insert a new paragraph 5.11.2., to read:*

- "5.11.2. If no daytime running lamp is installed, the headlamp shall automatically be ON when the engine is running."

*Insert a new paragraph 5.22., to read:*

- "5.22. The use of lamps approved for and equipped with LED substitute light source(s), is allowed exclusively in the case where the statement indicated in paragraph 3.2.6. is present and positive.

To verify that this statement is respected, both at the type approval and in the conformity of production verification, the presence of the marking on the lamps related to the use of LED substitute light source(s) shall be checked."

*Paragraph 6.1.1.2., amend to read:*

- "6.1.1.2. For motorcycles having a cylinder capacity > 125 cm<sup>3</sup>

One or two of approved type according to:

- (a) Class D or E of UN Regulation No. 113;
- (b) UN Regulation No. 112;
- (c) UN Regulation No. 1;
- (d) UN Regulation No. 8;
- (e) UN Regulation No. 20;
- (f) UN Regulation No. 72;
- (g) UN Regulation No. 98;
- (h) Class A, B, D, DS or ES of UN Regulation No. 149.

Two of approved type according to:

- (i) Class C of UN Regulation No. 113;
- (j) Class CS of UN Regulation No. 149."

*Paragraph 6.4.6., amend to read:*

- "6.4.6. Electrical connections

- 6.4.6.1. All the stop lamps shall light up simultaneously when the braking system provides the braking signal defined in UN Regulation No. 78.

- 6.4.6.2. The stop lamps need not to function if the device, which starts and/or stops the engine (propulsion system), is in a position that makes it impossible for the engine (propulsion system) to operate."

*Paragraph 6.7.4., amend to read:*

- "6.7.4. Geometric Visibility

Horizontal angle: 80° to left and to right for a single lamp:

the horizontal angle may be 80° outwards and 20° inwards for each pair of lamps:

Vertical angle: 15° above and below the horizontal.

However, where a lamp is mounted below 750 mm (measured according to the provisions of paragraph 5.7.), the downward angle of 15° may be reduced to 5°."

*Insert new paragraphs 11.7. to 11.11., to read:*

- "11.7. As from the official date of entry into force of the 03 series of amendments, no Contracting Party applying this Regulation shall refuse to grant or refuse to accept UN type approvals under this Regulation as amended by the 03 series of amendments.
- 11.8. As from 1 September 2023, Contracting Parties applying this Regulation shall not be obliged to accept UN type approvals to the preceding series of amendments, first issued after 1 September 2023.
- 11.9. Notwithstanding the transitional provisions above, Contracting Parties who start to apply this Regulation after the date of entry into force of the most recent series of amendments are not obliged to accept UN type-approvals which were granted in accordance with any of the preceding series of amendments to this Regulation.
- 11.10. Notwithstanding paragraph 11.8., Contracting Parties applying this Regulation shall continue to accept UN type approvals to the preceding series of amendments to this Regulation, first issued after 1 September 2023 and extension thereof, for the vehicles which are not affected by the changes introduced by the 03 series of amendments.
- 11.11. Contracting Parties applying this Regulation shall not refuse to grant UN type approvals according to any preceding series of amendments to this Regulation or extensions thereof."

*Annex 1,*

*Insert a new item 9.23. and a new footnote 4, to read:*

- "9.23. Lamps approved for and equipped with LED substitute light source(s) are allowed to be installed on this vehicle type: yes/no<sup>2,4</sup>
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<sup>4</sup> If yes, list the applicable lamps."

*Annex 2, amend to read:*

## **"Annex 2**

### **Arrangement of approval marks**

#### **Model A**

(see paragraph 4.4. of this Regulation)



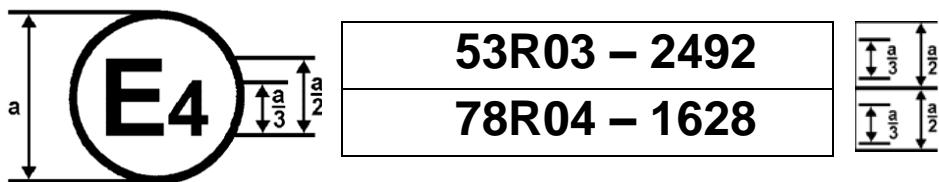
$a = 8 \text{ mm min}$

The above approval mark affixed to a motorcycle shows that the vehicle type concerned has, with regard to the installation of lighting and light-signalling devices, been

approved in the Netherlands (E 4), pursuant to UN Regulation No. 53, as amended by the 03 series of amendments. The approval number indicates that the approval was granted in accordance with the requirements of UN Regulation No. 53.

#### **Model B**

(see paragraph 4.5. of this Regulation)



$a = 8 \text{ mm min}$

The above approval mark affixed to a motorcycle shows that the vehicle type concerned has been approved in the Netherlands (E 4) pursuant to UN Regulations Nos. 53 and 78.<sup>1</sup> The approval numbers indicate that, at the dates when the respective approvals were granted, UN Regulation No. 53 included the 03 series of amendments and UN Regulation No. 78 already included the 04 series of amendments."

*Insert a new Annex 8, to read:*

#### **"Annex 8**

#### **Ambient light related automatic switching conditions for passing beam**

<i>Automatic switching conditions for passing beam<sup>1</sup></i>		
<i>Ambient light outside the vehicle<sup>2</sup></i>	<i>Headlamps requirement</i>	<i>Response time for switching</i>
less than 1,000 lux	ON	no more than 2 seconds
1,000 lux and more than 1,000 lux	at manufacturer's discretion	at manufacturer's discretion

<sup>1</sup> Compliance with these conditions shall be demonstrated by the applicant, by simulation or other means of verification accepted by the Type Approval Authority.

<sup>2</sup> The illuminance shall be measured on a horizontal surface, with a cosine corrected sensor on the same height as the mounting position of the sensor on the vehicle. This may be demonstrated by the manufacturer by sufficient documentation or by other means accepted by the Type Approval Authority."

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