

**Economic and Social Council**Distr.: General  
21 January 2016

Original: English

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**Economic Commission for Europe****Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on Lighting and Light-Signalling****Seventy-fifth session**

Geneva, 5 – 8 April 2016

Items 7 (b), (e), (f), (j), (m) and (q) of the provisional agenda

**Other Regulations:****Regulation No. 7 (Position, stop and end-outline lamps)****Regulation No. 23 (Reversing lamps)****Regulation No. 38 (Rear fog lamps)****Regulation No. 77 (Parking lamps)****Regulation No. 91 (Side-marker lamps)****Regulation No. 119 (Cornering lamps)****Proposal for collective amendments to Regulations No. 7, 23,  
38, 77, 91 and 119****Submitted by the expert from the International Automotive Lighting  
and Light Signalling Expert Group (GTB)\***

The text reproduced below was prepared by the expert from GTB to update the provisions on failure of light sources when a tell-tale indicating failure is installed. This topic was previously discussed by GRE at its seventy-third session. The modifications to the existing text of the Regulations 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 2014–2018 (ECE/TRANS/240, para. 105 and ECE/TRANS/2014/26, 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

### A. Supplement 25 to the 02 series of amendments to Regulation No. 7 (Position, stop and end-outline lamps)

Paragraph 6.1.7., amend to read:

"6.1.7. ~~In case of failure of a single lamp containing more than one light source the following provisions shall apply.~~ **Light source failure:**

6.1.7.1. A group of light sources, wired so that the failure of any one of them causes all of them to stop emitting light, shall be considered to be one light source.

6.1.7.2. ~~The lamp shall comply with the minimum intensity required in the table of standard light distribution in space as shown in Annex 4 when any one light source has failed. However, for lamps designed for only two light sources, 50 per cent of the minimum intensity in the axis of reference of the lamp shall be considered sufficient, provided that a note in the communication form states that the lamp is only for use on a vehicle fitted with an operating tell tale which indicates when any one of these two light sources has failed.~~

**In the case of failure of any one light source in a single lamp containing more than one light source, one of the following provisions shall apply:**

- (a) **The light intensity shall comply with the minimum intensity required in the table of standard light distribution in space as shown in Annex 4, or**
- (b) **The light intensity in the axis of reference shall be at least 50 per cent of the minimum intensity required, provided that a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale which indicates when any one of these light sources has failed."**

Annex 2, item 9.1., amend to read:

"9.1. By category of lamp:

For mounting either outside or inside or both<sup>2</sup>

Colour of light emitted: red/white<sup>2</sup>

Number, category and kind of light source(s): .....

Voltage and wattage: .....

Light source module specific identification code: .....

Only for limited mounting height of equal to or less than 750 mm above the ground: yes/no<sup>2</sup> .....

**Only for use in a vehicle fitted with an operating tell-tale to indicate light source failure: yes/no<sup>2</sup> .....**

Geometrical conditions of installation and relating variations, if any: .....

**[Application of an electronic light source control gear/variable intensity control:**

- (a) **Being part of the lamp: yes/no<sup>2</sup>**

(b) Not being part of the lamp: yes/no<sup>2</sup>

Input voltage(s) supplied by an electronic light source control gear/variable intensity control: .....

Electronic light source control gear/variable intensity control manufacturer and identification number (when the light source control gear is part of the lamp but is not included into the lamp body): .....

Variable luminous intensity: yes/no<sup>2(1)\*\*</sup>

**B. Supplement 21 to the 00 series of amendments to Regulation No. 23 (Reversing lamps)**

Paragraph 6.1.5., amend to read:

“6.1.5. **Light source failure:**  
~~In the case of a single lamp containing more than one light source, the lamp shall comply with the minimum intensity required when any one light source has failed and when all light sources are illuminated the maximum intensities shall not be exceeded.~~

**6.1.5.1.** A group of light sources, wired so that the failure of any one of them causes all of them to stop emitting light, shall be considered to be one light source.

**6.1.5.2.** **In case of failure of any one light source in a single lamp containing more than one light source, one of the following provisions shall apply:**

- (a) **The light intensity shall comply with the minimum intensity required in the table of standard light distribution in space as shown in Annex 3, or**
- (b) **The light intensity in the axis of reference shall be at least 50 per cent of the minimum intensity required, provided that a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale which indicates when any one of these light sources has failed.”**

Annex 1, item 9., amend to read:

“9. Concise description:

Number, category and kind of light source(s): .....

Voltage and wattage: .....

Application of an electronic light source control gear:

(a) Being part of the lamp: yes/no<sup>(1)</sup>

(b) Being not part of the lamp: yes/no<sup>(1)</sup>

Input voltage(s) supplied by an electronic light source control gear: .....

\*\* Note by the secretariat: the end of item 9.1. (in square brackets) seems to have been deleted by mistake by Supplement 22 to the 02 series of amendments to Regulation No. 7 (ECE/TRANS/WP.29/2013/15 ) and should be reinserted.

Electronic light source control gear manufacturer and identification number (when the light source control gear is part of the lamp but is not included into the lamp body):  
.....

Light source module: ..... yes/no <sup>(1)</sup>

Light source module specific identification code: .....

Geometrical conditions of installation and relating variations; if any: .....

For a type of manoeuvring lamp pursuant to Regulation No. 23, paragraph 6.2.2.

Maximum mounting height: .....

**The reversing lamp <sup>(1)</sup>, manoeuvring lamp <sup>(1)</sup> is only for use on a vehicle fitted with a tell-tale indicating failure: yes/no <sup>(1)</sup>**

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<sup>(1)</sup> Strike out what does not apply.

### C. Supplement 18 to the 00 series of amendments to Regulation No. 38 (Rear fog lamps)

Paragraph 6.4., amend to read:

“6.4. **Light source failure:**

~~In the case of a single lamp containing more than one light source, the lamp shall comply with the minimum intensity required when any one light source has failed and when all light sources are illuminated the maximum intensities shall not be exceeded.~~

**6.4.1. A group of light sources, wired so that the failure of any one of them causes all of them to stop emitting light, shall be considered to be one light source.**

**6.4.2. In case of failure of any one light source in a single lamp containing more than one light source, one of the following provisions shall apply:**

- (a) The light intensity shall comply with the minimum intensity required in the table of standard light distribution in space as shown in Annex 3, or**
- (b) The light intensity in the axis of reference shall be at least 50 per cent of the minimum intensity required, provided that a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale which indicates when any one of these light sources has failed.”**

Annex 1, item 9., amend to read:

“9. Concise description:

Number, category and kind of light source(s): .....

Voltage and wattage: .....

Light source module specific identification code: .....

Geometrical conditions of installation and relating variations; if any.....

Application of an electronic light source control gear/variable intensity control:

(a) Being part of the lamp: yes/no <sup>(1)</sup>

(b) Being not part of the lamp: yes/no <sup>(1)</sup>

Input voltage(s) supplied by an electronic light source control gear/variable intensity control: .....

Electronic light source control gear/variable intensity control manufacturer and identification number (when the light source control gear is part of the lamp but is not included into the lamp body): .....

Variable luminous intensity: yes/no <sup>(1)</sup>

**The lamp is only for use on a vehicle fitted with a tell-tale indicating failure: yes/no <sup>(1)</sup>**

<sup>(1)</sup> Strike out what does not apply.

**D. Supplement 17 to the 00 series of amendments to Regulation No. 77 (Parking lamps)**

*Paragraph 7.1.3.*, amend to read:

"7.1.3. **Light source failure:**

~~In the case of a single lamp containing more than one light source, the lamp shall comply with the minimum intensity required when any one light source has failed and when all light sources are illuminated the maximum intensities shall not be exceeded.~~

~~All light sources which are connected in series are considered to be one light source.~~

**7.1.3.1. A group of light sources, wired so that the failure of any one of them causes all of them to stop emitting light, shall be considered to be one light source.**

**7.1.3.2. In the case of failure of any one light source in a single lamp containing more than one light source, one of the following provisions shall apply:**

(a) **The light intensity shall comply with the minimum intensity required in the table of standard light distribution in space as shown in annex 4, or**

(b) **The light intensity in the axis of reference shall be at least 50 per cent of the minimum intensity required, provided that the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale which indicates the failure of any one of these light sources."**

*Annex 1, item 9.*, amend to read:

"9. Concise description:

Colour of light emitted: red/white/amber <sup>(1)</sup>

Number and category(ies) of light source(s): .....

Light source module: .....

Light source module specific identification code: .....

Geometrical conditions of installation and relating variations, if any:  
.....

Application of an electronic light source control gear/variable intensity control:

(a) Being part of the lamp: yes/no/not applicable <sup>(1)</sup>

(b) Being not part of the lamp: yes/no/not applicable <sup>(1)</sup>

Input voltage(s) supplied by an electronic light source control gear/variable intensity control: .....

Electronic light source control gear/variable intensity control manufacturer and identification number (when the light source control gear is part of the lamp but is not included into the lamp body): .....

**The lamp is only for use on a vehicle fitted with a tell-tale indicating failure: yes/no <sup>(1)</sup>**

<sup>(1)</sup> Strike out what does not apply.

**E. Supplement 16 to the 00 series of amendments to Regulation No. 91 (Side-marker lamps)**

*Paragraph 7.1.4.*, amend to read:

“7.1.4. **Light source failure:**

~~In the case of a lamp containing more than one light source:~~

~~The lamp shall comply with the minimum intensity required when any one light source has failed;~~

~~When all light sources are illuminated the maximum intensity specified may not be exceeded.~~

~~All light sources which are connected in series are considered to be one light source.~~

**7.1.4.1. A group of light sources, wired so that the failure of any one of them causes all of them to stop emitting light, shall be considered to be one light source.**

**7.1.4.2. In case of failure of any one light source in a single lamp containing more than one light source, one of the following provisions shall apply:**

**(a) The light intensity shall comply with the minimum intensity required in the table of standard light distribution in space as shown above, or**

**(b) The light intensity in the axis of reference shall be at least 50 per cent of the minimum intensity required, provided that a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale which indicates when any one of these light sources has failed.”**

*Annex 2, item 9.*, amend to read:

“9. Concise description:<sup>(1)</sup>

Colour of light emitted: amber/red <sup>(2)</sup>

Number and category(ies) of light source(s): .....

Light source module: ..... yes/no <sup>(1)</sup>

Light source module specific identification code: .....

Only for limited mounting height of equal to or less than 750 mm above the ground:  
yes/no<sup>2</sup>

Geometrical conditions of installation and relating variations, if any:  
.....

Application of an electronic light source control gear/variable intensity control:

(a) Being part of the lamp: yes/no/not applicable <sup>(2)</sup>

(b) Being not part of the lamp: yes/no/not applicable <sup>(2)</sup>

Input voltage(s) supplied by an electronic light source control gear/variable intensity control: .....

Electronic light source control gear/variable intensity control manufacturer and identification number (when the light source control gear is part of the lamp but is not included into the lamp body): .....

**The lamp is only for use on a vehicle fitted with a tell-tale indicating failure: yes/no <sup>(1)</sup>**

<sup>(1)</sup> For lamps with non-replaceable light sources indicate the number and the total wattage of the light sources.

<sup>(2)</sup> Strike out what does not apply.

## **F. Supplement 5 to the 01 series of amendments to Regulation No. 119 (Cornering lamps)**

*Paragraph 6.4.*, amend to read:

"6.4. **Light source failure:**

~~In the case of a single lamp containing more than one light source, the lamp shall comply with the minimum intensity required when any one light source has failed and when all light sources are illuminated the maximum intensities shall not be exceeded.~~

**6.4.1. A group of light sources, wired so that the failure of any one of them causes all of them to stop emitting light, shall be considered to be one light source.**

**6.4.2. In case of failure of any one light source in a single lamp containing more than one light source, one of the following provisions shall apply:**

(a) **The light intensity shall comply with the minimum intensity required in the table of standard light distribution in space as shown in Annex 3, figure 1, or**

(b) **The light intensity in 45° R - 2.5D (for right hand device) or 45°L - 2.5D (for left hand device) shall be at least 50 per cent of the minimum intensity required, provided that a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale which indicates when any one of these light sources has failed."**

*Annex 1, item 9.*, amend to read:

"9. Concise description:

By category of lamp:

Number, category and kind of light source(s): <sup>(1)</sup> .....

Voltage and wattage: .....

Light source module: yes/no <sup>(2)</sup>

Light source module specific identification code: .....

Application of an electronic light source control gear:

(a) Being part of the lamp: yes/no <sup>(2)</sup>

(b) Being not part of the lamp: yes/no <sup>(2)</sup>

Input voltage supplied by an electronic light source control gear: .....

Electronic light source control gear manufacturer and identification number (when the light source control gear is part of the lamp but is not included into the lamp body):  
.....

Geometrical conditions of installation and relating variations, if any,  
.....

**The lamp is only for use on a vehicle fitted with a tell-tale indicating failure: yes/no <sup>(2)</sup>**

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<sup>(1)</sup> For cornering lamps with non-replaceable light sources indicate the number and total wattage of the light sources used.

<sup>(2)</sup> Strike out what does not apply.

## II. Justification

1. This proposal concerns lamps equipped with several light sources and fitted with an operating tell-tale that indicates the failure of any one of these light sources. The current provisions for the failure of one light source (the "N-1" requirement) are difficult to apply as a complete photometric check for all possible combinations of light source failures is required.

2. An earlier proposal (ECE/TRANS/GRE/2015/8, ECE/TRANS/GRE/2015/10, ECE/TRANS/GRE/2015/11, ECE/TRANS/GRE/2015/12, ECE/TRANS/GRE/2015/14 and ECE/TRANS/GRE/2015/18) was considered by GRE at its seventy-third session. Following comments from the experts of Germany and the Netherlands, GRE requested GTB to revise the proposal in order to address concerns about the geometric visibility of the lamps in the case of light source failure. The concern of the experts of Germany and the Netherlands was that to only check compliance of the photometric grid requirements on the vehicle axis, in the case of failure of one light source, would not guarantee the sufficient geometric visibility. Consequently, the proposal has been amended to require the compliance at all points of the photometric grid.

3. The revised text takes account of the concerns of the experts of Germany and the Netherlands and is based upon the following approach:

- (a) In the case of failure of any one light source in a single lamp containing more than one light source, one of the following provisions shall apply:
  - The light intensity shall comply with the minimum intensity required in the table of standard light distribution in space, or

- The light intensity in the axis of reference shall be at least 50 per cent of the minimum intensity required, provided that a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale which indicates when any one of these light sources has failed.
- (b) It is considered safer to allow the situation where a single lamp equipped with several light-sources continues to operate at a reduced intensity in the case of a light source failure instead of adopting a strategy of switching off all light sources. The tell-tale indicates to the driver that a failure has occurred and the lamp shall be replaced while in the meantime the remaining operating light sources provide some signal of the vehicle's presence to other road users.
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