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Item 4 of the provisional agenda

Simplification of lighting and light-signalling Regulations

Proposal for a collective amendment to Regulations Nos. 7, 23, 38, 48, 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 requirements on light source failure in lamps equipped with multiple light sources. The modifications to the existing text of the Regulation are marked in bold for new or strikethrough for deleted characters.

* 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.

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I. Proposal

A. Supplement 26 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 f~~ Failure of a single lamp containing more than one light source ~~the following provisions shall apply:~~
- 6.1.7.1. ~~A~~ **In a single lamp containing more than one light source, 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 case of failure of any one light source in a single lamp containing more than one light source, at least one of the following provisions shall apply:

- (a) **The light intensity complies with the minimum intensity required in the table of standard light distribution in space as shown in Annex 4, or**
- (b) **A signal for activation of a tell-tale indicating failure, as indicated in paragraphs 6.7.8., 6.9.8, 6.10.8. and 6.13.8. of Regulation No. 48, is produced, provided that the luminous intensity in the axis of reference is at least 50 per cent of the minimum intensity required. In this case a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale indicating failure."**

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

Paragraph 6.1.5., amend to read:

- "6.1.5. ~~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 an~~ when all light sources are illuminated the maximum intensities shall not be exceeded. ~~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."~~

Insert a new paragraph 6.1.6., to read:

- "6.1.6. **Failure of a single lamp containing more than one light source:**

- 6.1.6.1.** In a single lamp containing more than one light source, 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.
- 6.1.6.2.** In case of failure of any one light source in a single lamp containing more than one light source, at least one of the following provisions shall apply:
- (a) The light intensity complies with the minimum intensity required in the table of standard light distribution in space as shown in Annex 3, or
 - (b) A signal for activation of a tell-tale indicating failure, as indicated in paragraph 6.4.8. of Regulation No. 48, is produced, provided that the luminous intensity in the axis of reference is at least 50 per cent of the minimum intensity required. In this case a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale indicating failure."

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/no²

(b) Being not part of the lamp: yes/no²

Input voltage(s) 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):

Light source module: yes/no²

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 lamp is only for use on a vehicle fitted with a tell-tale indicating failure:
yes/no²"**

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

Paragraph 6.4., amend to read:

"6.4. 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."

Insert a new paragraph 6.5. to read:

- "6.5. Failure of a single lamp containing more than one light source:
- 6.5.1. In a single lamp containing more than one light source, 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.
- 6.5.2. In case of failure of any one light source in a single lamp containing more than one light source, at least one of the following provisions shall apply:
 - (a) The light intensity complies with the minimum intensity required in the table of standard light distribution in space as shown in Annex 3, or
 - (b) A signal for activation of a tell-tale indicating failure, as indicated in paragraph 6.11.8. of Regulation No. 48, is produced, provided that the luminous intensity in the axis of reference is at least 50 per cent of the minimum intensity required. In this case, a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale indicating failure."

Paragraphs 6.5. (former), and its subparagraphs, to 6.7., renumber accordingly.

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/no²
 - (b) Being not part of the lamp: yes/no²
 - 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/no²
 - The lamp is only for use on a vehicle fitted with a tell-tale indicating failure: yes/no²"**

D. Supplement 11 to the 05 series of amendments and Supplement 9 to the 06 series of amendments to Regulation No. 48 (Installation of lighting and light-signalling devices)

Paragraph 6.4.8., amend to read:

- "6.4.8. Tell-tale
 - Tell-tale optional.

However, a tell-tale indicating failure is mandatory if required by the component regulation.

It shall be activated in the event of the reversing lamps failure, as indicated in the component regulation. 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 6.7.8., amend to read:

"6.7.8. Tell-tale

Tell-tale optional; however, a tell-tale indicating failure is mandatory if required by the component regulation.

Where the above tell-tale is fitted, ~~this tell-tale shall be an operating tell-tale consisting of a non-flashing warning light which comes on~~ **it shall be activated in the event of the malfunctioning of the stop lamps failure, as indicated in the component regulation. 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 6.9.8., amend to read:

"6.9.8. Tell-tale

Circuit-closed tell-tale mandatory.

This tell-tale shall be non-flashing and shall not be required if the instrument panel lighting can only be turned on simultaneously with the front position lamps.

This requirement does not apply when light signalling system operates according to Paragraph 6.2.7.6.2.

However, a tell-tale indicating failure is mandatory if required by the component regulation. **It shall be activated in the event of the front position lamps failure, as indicated in the component regulation. 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 6.10.8., amend to read:

"6.10.8. Tell-tale

Circuit-closed tell-tale mandatory. It shall be combined with that of the front position lamps.

This requirement does not apply when light signalling system operates according to paragraph 6.2.7.6.2.

However, a tell-tale indicating failure is mandatory if required by the component regulation. **It shall be activated in the event of the rear position lamps failure, as indicated in the component regulation. 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 6.11.8., amend to read:

"6.11.8. Tell-tale

Circuit-closed tell-tale mandatory. An independent non-flashing warning light.

However, a tell-tale indicating failure is mandatory if required by the component regulation. It shall be activated in the event of the rear fog lamps failure, as indicated in the component regulation. 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 6.12.8., amend to read:

"6.12.8. Tell-tale

Circuit-closed tell-tale optional. If there is one, it shall not be possible to confuse it with the tell-tale for the front and rear position lamps.

However, a tell-tale indicating failure is mandatory if required by the component regulation. It shall be activated in the event of the parking lamps failure, as indicated in the component regulation. 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 6.13.8., amend to read:

"6.13.8. Tell-tale

Tell-tale optional. If it exists, its function shall be carried out by the tell-tale required for the front and rear position lamps.

However, a tell-tale indicating failure is mandatory if required by the component regulation. It shall be activated in the event of the end outline marker lamps failure, as indicated in the component regulation. 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 6.18.8., amend to read:

"6.18.8. Tell-tale

Tell-tale optional. If it exists its function shall be carried out by the tell-tale required for the front and rear position lamps.

However, a tell-tale indicating failure is mandatory if required by the component regulation. It shall be activated in the event of the side marker lamps failure, as indicated in the component regulation. 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 6.19.8., amend to read:

"6.19.8. Tell-tale

Closed-circuit tell-tale optional.

However, a tell-tale indicating failure is mandatory if required by the component regulation. It shall be activated in the event of the daytime running lamps failure, as indicted in the component regulation. 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 6.20.8., amend to read:

"6.20.8. Tell-tale
None.

However, a tell-tale indicating failure is mandatory if required by the component regulation. It shall be activated in the event of the cornering lamps failure, as indicted in the component regulation. 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."

Annex 1, item 9., amend to read:

"...
9.4. Reversing lamps : yes/no²
9.4.1. Tell-tale indicating failure, as required by component regulation, fitted:
yes/no²
...
9.13. Rear fog-lamps: yes/no²
9.13.1. Tell-tale indicating failure, as required by component regulation, fitted:
yes/no²
9.14. Parking lamps: yes/ no²
9.14.1. Tell-tale indicating failure, as required by component regulation, fitted:
yes/no²
...
9.20. Side marker lamps: yes/no²
9.20.1. Tell-tale indicating failure, as required by component regulation, fitted:
yes/no²
...
9.23. Cornering lamps: yes/no²
9.23.1. Tell-tale indicating failure, as required by component regulation, fitted:
yes/no²
..."

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

Paragraph 7.1.3. amend to read:

"7.1.3. 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."

Insert a new paragraph 7.1.4. to read:

- "7.1.4. Failure of a single lamp containing more than one light source:**
- 7.1.4.1. In a single lamp containing more than one light source, 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, at least one of the following provisions shall apply:**
 - (a) The light intensity complies with the minimum intensity required in the table of standard light distribution in space as shown in Annex 4, or**
 - (b) A signal for activation of a tell-tale indicating failure, as indicated in paragraph 6.12.8. of Regulation No. 48, is produced, provided that the luminous intensity in the axis of reference is at least 50 per cent of the minimum intensity required. In this case a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale indicating failure."**

Annex 1, item 9, amend to read:

"9. Concise description:
 Colour of light emitted: red / white /amber²
 Number and category (ies) of light source(s):
 Light source module: Yes /No²
 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 applicable²
 (b) Being not part of the lamp: Yes/No/Not applicable²
 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/no² "

F. 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. 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."~~

Insert a new paragraph 7.1.5. to read:

- "7.1.5. Failure of a single lamp containing more than one light source:**
- 7.1.5.1. In a single lamp containing more than one light source, 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.**
- 7.1.5.2. In case of failure of any one light source in a single lamp containing more than one light source, at least one of the following provisions shall apply:**
- (a) **The light intensity complies with the minimum intensity required in the table of standard light distribution in space as shown in Annex 4, or**
 - (b) **A signal for activation of a tell-tale indicating failure, as indicated in paragraph 6.18.8. of Regulation No. 48, is produced, provided that the luminous intensity in the axis of reference is at least 50 per cent of the minimum intensity required. In this case a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale indicating failure."**

Annex 2, item 9, amend to read:

- "9. Concise description:¹
- Colour of light emitted: amber / red²
- Number and category(ies) of light source(s):
- Light source module: yes/no²
- Light source module specific identification code:
- Only for limited mounting height equal to or less than 750 mm above the ground: yes/no²
- 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 applicable²
 - (b) Being not part of the lamp: yes/no/not applicable²
- 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/no²**

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

Paragraph 6.4. amend to read:

"6.4. 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."

Insert a new paragraph 6.5. to read:

"6.5. Failure of a single lamp containing more than one light source:

6.5.1. In a single lamp containing more than one light source, 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.

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

- (a) **The light intensity complies with the minimum intensity required in the table of standard light distribution in space as shown in Annex 3, or**
- (b) **A signal for activation of a tell-tale indicating failure, as indicated in paragraph 6.20.8. of Regulation No. 48, is produced, provided that the luminous intensity in the axis of reference is at least 50 per cent of the minimum intensity required. In this case a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale indicating failure."**

Annex 1, item 9, amend to read:

"9. Concise description:

By category of lamp:

Number, category and kind of light source(s)²:

Voltage and wattage:

Light source module: yes/no³

Light source module specific identification code:

Application of an electronic light source control gear:

(a) Being part of the lamp: yes/no³

(b) Being not part of the lamp: yes/no³

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/no³

II. Justification

1. The current requirements on light source failure in lamps equipped with multiple light sources differ from one Regulation to another. To address this situation, GTB prepared a proposal to align these requirements and submitted it to the seventy-fifth session of GRE (ECE/TRANS/WP.29/GRE/2016/13). However, after additional consideration, GTB requested that the document be withdrawn for further development. This updated proposal aims to improve the text of the previous proposal without changing the fundamental principles already presented on this issue.

2. The intention is to align the requirements in all the involved Regulations in such a way that the conditions for type approval, to apply in case of multiple light sources, will guarantee the conformity of the lamp in case of any failure or the mandatory indication that a failure had occurred. The following table is an example from Regulation No. 7:

	<i>Failure condition</i>	<i>Approval requirement</i>
(a)	In the case of failure of one light source, the lamp still produces more than the minimum photometric values prescribed in the photometric field	The lamp may be approved either according to the requirement in paragraph 6.1.7.2. (a) or to the requirement in paragraph 6.1.7.2. (b)
(b)	In case of failure of one light source, the lamp produces less than the minimum photometric values prescribed but more than 50% of the value required in the reference-axis (H-V)	The lamp may only be approved according to the requirement in paragraph 6.1.7.2. (b).
(c)	In case of failure of one light source, the lamp produces less than 50% of the photometric value required in the reference-axis (H-V)	The lamp cannot be approved.

3. Clearly, when the lamp is installed on a vehicle, the same basic concept shown above applies. This means that, in the case where the failure indication signal is provided by the lamp, the vehicle shall be equipped with a failure tell-tale operating in line with the failure situation of the lamp. As a consequence, amendments are proposed to Regulation No. 48 to specify the modes of displaying the corresponding failure. This proposal is in line with the recent amendments prepared by the GRE Task Force on Tell-Tales (TF-TT) and adopted at the seventy-fifth session of GRE in April 2016 (ECE/TRANS/WP.29/GRE/2016/7). The proposed amendments to Regulation No. 48 apply to all lamps for which the related Regulations have been modified to include the failure indication requirement.