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## Economic Commission for Europe

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Working Party on Lighting and Light-Signalling

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Item 14 of the provisional agenda

**Regulation No. 87 (Daytime running lamps)**

### **Proposal for Supplement 17 to Regulation No. 87 (Daytime running lamps)**

**Submitted by the expert from the Working Party "Brussels 1952"\***

The text reproduced below was prepared by the expert from the Working Party "Brussels 1952" (GTB) introducing interdependent lamps ("Y" Lamps) into the Regulation. The modifications to the existing text of the Regulation 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 2010–2014 (ECE/TRANS/208, para. 106, ECE/TRANS/2010/8, 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

*Paragraph 2.1.*, amend to read:

"2.1. "Daytime running lamp" means a lamp **or an interdependent lamp system** facing in a forward direction used to make the vehicle more easily visible when driving during daytime;"

*Paragraph 2.3.*, amend to read:

"2.3. "Daytime running lamps of different types" means lamps **or interdependent lamp systems** which differ in such essential respects as:

- (a) the trade name or mark;
- (b) the characteristics of the optical system, (levels of intensity, light distribution angles, category of filament lamp, light source module, etc.);

A change of the colour of the filament lamp or the colour of any filter does not constitute a change of type."

*Paragraph 3.1.*, amend to read:

"3.1. ...

At the choice of the applicant, it will specify that **the daytime running lamp device** may be installed on the vehicle with different inclinations of the reference axis in respect to the vehicle reference planes and to the ground or rotate around its reference axis; these different conditions of installation shall be indicated in the communication form.

**All the interdependent lamps of an interdependent lamp system must be submitted for type approval by the same applicant."**

*Paragraph 3.2.2.*, amend to read:

"3.2.2. a brief technical description stating, in particular, with the exception of **daytime running** lamps with non-replaceable light sources:

- (a) the category or categories of filament (s) prescribed; this filament lamp category shall be one of those contained in Regulation No. 37 and its series of amendments in force at the time of application for type approval; and/or
- (b) the light source module specific identification code."

*Paragraph 3.2.3.*, amend to read:

"3.2.3. two **daytime running** lamps."

*Paragraph 4.2.*, amend to read:

"4.2. with the exception of **daytime running** lamps with non-replaceable light sources, bear a clearly legible and indelible marking indicating:

- (a) the category or categories of filament lamp(s) prescribed; and/or
- (b) the light source module specific identification code."

*Paragraph 4.3.*, amend to read:

"4.3. in the case of **daytime running** lamps with an electronic light source control gear and/or non-replaceable light sources and/or light source module(s), bear

the marking of the rated voltage or range of voltage and rated maximum wattage."

*Paragraph 4.5.*, amend to read:

"4.5. In the case of **daytime running** lamps with light source module(s), the light source module(s) shall bear:"

*Paragraph 5.1.1.*, amend to read:

"5.1.1. If the two **daytime running** lamps which are submitted in pursuance of paragraph 3.2.3. above satisfy the requirements to this Regulation, approval shall be granted."

*Paragraph 5.1.3.*, amend to read:

"5.1.3. An approval number shall be assigned to each type approved. Its first two digits (at present 00 for the Regulation in its original form) 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. The same Contracting Party shall not assign this number to another type of **daytime running** lamp covered by this Regulation."

*Paragraph 5.1.41.*, amend to read:

"5.1.4. Notice of approval or of extension or refusal or withdrawal of approval or production definitely discontinued of a type of **daytime running** lamp pursuant to this Regulation shall be communicated to the Parties to the Agreement which apply this Regulation, by means of a form conforming to the model in Annex 1 to this Regulation."

*Paragraph 5.1.5.*, amend to read:

"5.1.5. Every **daytime running lamp** conforming to a type approved under this Regulation shall bear, in the space referred to in paragraphs 4.4. above, an approval mark as described in paragraphs 5.2. and 5.3. below."

*Paragraph 5.1.6.*, amend to read:

"5.1.6. The mark and symbols mentioned in paragraph 5.2. shall be indelible and clearly legible even when the **daytime running** lamp is mounted on the vehicle."

*Paragraph 5.2.2.*, amend to read:

"5.2.2. the additional symbol "RL" **and**"

*Insert new paragraph 5.2.2.1.*, to read:

"**5.2.2.1 an additional letter "Y" to the right on each interdependent lamp which may be used as part of an interdependent lamp system**"

*Paragraph 5.3.2.4.*, amend to read:

"5.3.2.4. An approval number shall be assigned to each type approved. The same Contracting Party may not assign the same number to another type of grouped, combined or reciprocally incorporated **daytime running** lamps covered by this Regulation."

*Paragraph 5.3.3.*, amend to read:

"5.3.3. Lamps reciprocally incorporated with other lamps, of which the lens may also be used for other types of lamps ~~devices~~

The provisions laid down in paragraph 5.3.2. above are applicable."

*Paragraph 5.3.3.1.*, amend to read:

"5.3.3.1. In addition, where the same lens is used, the latter may bear the different approval marks relating to the different types of headlamps or units of lamps, provided that the main body of the **lamps device**, even if it cannot be separated from the lens, also comprises the space described in paragraph 4.4. above and bears the approval marks of the actual functions.

If different types of **lamps devices** comprise the same main body, the latter may bear the different approval marks."

*Insert new paragraph 5.3.4.*, to read:

**"5.3.4. Interdependent lamps as part of an interdependent lamps system**

**Annex 2, Figure 1a, to this Regulation gives an example of the arrangement of approval marks relating to the above case."**

*Paragraph 6.1.*, amend to read:

"6.1. Each **daytime running** lamp shall conform to the specifications set forth in the paragraphs below. **An interdependent lamp system shall meet the requirements when all its interdependent lamps are operated together."**

*Paragraph 6.5.2.*, amend to read:

"6.5.2. The design of the **daytime running lamp device** shall be such that the filament lamp can be fixed in no other position but the correct one."

*Paragraph 7.1.*, amend to read:

"7.1. The luminous intensity of the light emitted by each **daytime running** lamp shall not be less than 400 cd in the axis of reference."

*Paragraph 7.2.*, amend to read:

"7.2. Outside the reference axis and within the angular fields defined in the arrangement diagram in Annex ~~7~~ **6** to this Regulation, the intensity of the light emitted by each **daytime running** lamp must:"

*Paragraph 7.2.2.*, amend to read:

"7.2.2. not exceed 1,200 cd in any direction the **daytime running** lamp is visible."

*Paragraph 7.3.*, amend to read:

"7.3. Moreover, throughout the field defined in the diagram in Annex ~~7~~ **6**, the intensity of the light emitted must not be less than 1.0 cd."

*Paragraph 7.4.*, amend to read:

"7.4. In the case of a **daytime running** lamp containing more than one light source the **daytime running** lamp shall comply with the minimum intensity required when any one light source has failed and when all light sources are illuminated the maximum intensity shall not be exceeded.

..."

Paragraph 8., amend to read:

"8. APPARENT SURFACE

The area of the apparent surface in the direction of the axis of reference of the **daytime running** lamp shall be not less than 25 cm<sup>2</sup> and not more than 200 cm<sup>2</sup>."

Paragraph 10.1., amend to read:

"10.1. All measurements, photometric and colorimetric, shall be made with colourless standard filament lamps of the category prescribed for the **daytime running lamp device**, the supply voltage being so regulated as to produce the reference luminous flux required for that category of **daytime running** lamp, when not supplied by an electronic light source control gear."

Paragraph 10.2., amend to read:

"10.2. In the case of a system that uses an electronic light source control gear being part of the **daytime running** lamp<sup>3</sup>, all measurements, photometric and colorimetric, shall be made applying at the input terminals of the lamp a voltage of 6.75 V, 13.5 V or 28.0 V respectively."

Paragraph 10.3., amend to read:

"10.3. In the case of a system that uses an electronic light source control gear not being part of the **daytime running** lamp the voltage declared by the manufacturer shall be applied to the input terminals of the **daytime running** lamp. The test laboratory shall require from the manufacturer the light source control gear needed to supply the light source and the applicable functions.

The voltage to be applied to the **daytime running** lamp shall be noted in the communication form in Annex 1 of this Regulation."

Paragraph 10.4., amend to read:

"10.4. For any **daytime running** lamp except those equipped with filament lamps, the luminous intensities, measured after one minute and after 30 minutes of operation, shall comply with the minimum and maximum requirements. The luminous intensity distribution after one minute of operation can be calculated from the luminous intensity distribution after 30 minutes of operation by applying at each test point the ratio of luminous intensities measured at HV after one minute and after 30 minutes of operation."

Paragraph 11.1., amend to read:

"11.1. The **daytime running** lamp must be subjected to a one-hour test of continuous operation following a warm-up period of 20 minutes. The ambient temperature shall be 23°C  $\pm$  5°. The filament lamps used shall be a filament lamps of the category specified for the **daytime running** lamp, and shall be supplied with a current at a voltage such that it gives the specified average power at the corresponding test voltage. However, for **daytime running** lamps equipped with non-replaceable light sources (filament lamps and other), the test shall be made with the light sources present in the **daytime running** lamp, in accordance with paragraph 10.2. of this Regulation."

Paragraph 11.2., amend to read:

"11.2. Where only the maximum power is specified, the test shall be carried out by regulating the voltage to obtain a power equal to 90 per cent of the specified

power. The specified average or maximum power referred to above shall in all cases be chosen from the voltage range of 6, 12 or 24 V at which it reaches the highest value; for **daytime running** lamps equipped with non-replaceable light sources (filament lamps and other) the test conditions set in paragraph 10.2. of this Regulation shall be applied."

*Paragraph 5.3.3.1., amend to read:*

"11.3. After the **daytime running** lamp has been stabilized at the ambient temperature, no distortion, deformation, cracking or colour modification shall be perceptible. In case of doubt the intensity of light according to paragraph 7. above shall be measured. At that measurement the values shall reach at least 90 per cent of the values obtained before the heat resistance test on the same device."

*Paragraph 12.1., amend to read:*

"12.1. Every modification of the type of **daytime running** lamp shall be notified to the Administrative Departments which approved the type of **daytime running** lamp. The department may then either:"

*Paragraph 12.1.1., amend to read:*

"12.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the daytime running lamp still complies with the requirements; or"

*Paragraph 13.1., amend to read:*

"13.1. **Daytime running** lamps approved under this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set forth in paragraphs 6., 7., 8. and 9. above."

*Paragraph 1. of Annex 1., amend to read:*

"1. Trade name or mark of the daytime running lamp ~~device~~:"

*Paragraph 2. of Annex 1., amend to read:*

"2. Manufacturer's name for the type of daytime running lamp ~~device~~:"

*Annex 1*

*Insert new paragraph 10., to read:*

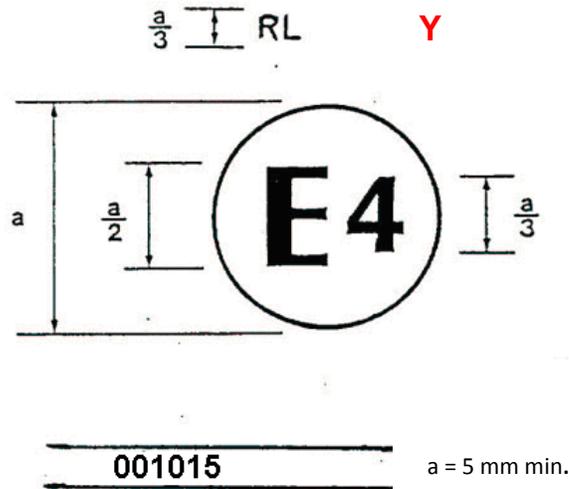
"10. **The daytime running lamp is designed as an interdependent lamp system**  
yes/no<sup>2</sup>

**The interdependent lamp system consists of 2/3<sup>2</sup> interdependent lamps."**

*Paragraphs 10. to 16., renumber as paragraphs 11. to 17.*

Annex 2, Insert new example of the approval mark, to read (the amendment is marked in RED):

"



**Figure 1a**

The lamp bearing the approval mark shown above has been approved in the Netherlands (E4) under number 001015 as a part of an interdependent lamp system composing a daytime running lamp. The approval number indicates that the approval was granted according to the requirements of this Regulation in its original (un-amended) form. "

Annex 3

Paragraph 4., amend to read:

- "4. Photometric measurement of **daytime running** lamps  
The photometric performance shall be checked:"

Paragraph 4.1., amend to read:

- "4.1. For non-replaceable light sources (filament lamps or other): with the light sources present in the **daytime running** lamp, in accordance with paragraph 10. of this Regulation."

Paragraph 4.2., amend to read:

- "4.2. For replaceable filament lamps:  
when equipped with filament lamps at 6.75 V, 13.5 V or 28.0 V the luminous intensity values produced shall be corrected. The correction factor is the ratio between the reference luminous flux and the mean value of the luminous flux found at the voltage applied (6.75 V, 13.5 V or 28.0 V). The actual luminous fluxes of each filament lamp used shall not deviate more than  $\pm 5$  per cent

from the mean value. Alternatively standard filament lamp(s) may be used in turn, in each of the individual positions, operated at its reference flux, the individual measurements in each position being added together."

*Paragraph 5.1.*, amend to read:

"5.1. The direction  $H = 0^\circ$  and  $V = 0^\circ$  corresponds to the reference axis. (On the vehicle, it is horizontal, parallel to the median longitudinal plane of the vehicle and oriented in the required direction of visibility). It passes through the centre of reference. The values shown in the table give, for the various directions of measurement, the minimum intensities as a percentage of the minimum required in the axis for each **daytime running** lamp (in the direction  $H = 0^\circ$  and  $V = 0^\circ$ )."

*Annex 4*

*Paragraph 1.2.*, amend to read:

"1.2. With respect to photometric performances, the conformity of mass-produced lamps shall not be contested if, when testing photometric performances of any lamp chosen at random and equipped with a standard filament lamp(s), or when the lamps are equipped with non-replaceable light sources (filament lamps or other), and when all measurements are made at 6.75 V, 13.5 V or 28.0 V respectively:"

*Paragraph 1.2.2.*, amend to read:

"1.2.2. If, in the case of a lamp equipped with a replaceable light sources and if results of the test described above do not meet the requirements, tests on lamps shall be repeated using another standard filament lamp."

*Paragraph 1.3.*, amend to read:

"1.3. The chromaticity coordinates shall be complied with when the lamp is equipped with a standard filament lamp(s), or for lamps equipped with non-replaceable light sources (filament lamps or other), when the colorimetric characteristics are verified with the light source present in the lamp."

*Annex 5*

*Paragraph 1.2.*, amend to read:

"1.2. With respect to photometric performance, the conformity of mass-produced lamps shall not be contested if, when testing photometric performances of any lamp chosen at random and equipped with a standard filament lamp(s), or when the lamps are equipped with non-replaceable light sources (filament lamps or other), and when all measurements are made at 6.75 V, 13.5 V or 28.0 V respectively:"

*Paragraph 1.2.2.*, amend to read:

"1.2.2. If, in the case of a lamp equipped with a replaceable light source(s) and if results of the test described above do not meet the requirements, tests on lamps shall be repeated using another standard filament lamp(s)."

*Paragraph 1.3.*, amend to read:

"1.3. The chromaticity coordinates shall be complied with when the lamp is equipped with a standard filament lamp(s), or for lamps equipped with non-replaceable light sources (filament lamps or other), when the colorimetric characteristics are verified with the light source present in the lamp."

*Annex 6*, amend to read:

" MINIMUM ANGLES REQUIRED FOR LIGHT DISTRIBUTION IN SPACE

In all cases, the minimum vertical angles of light distribution in space are 10° above and 5° below the horizontal for **the daytime running lamp DRL devices** included in the Regulation.

...."

## II. Justification

1. Modern front vehicle designs have to meet various legislative requirements. Pedestrian protection is one of them. To be in line with the legal requirements it is very difficult to install headlamps and front signalling lamps in a way fulfilling all requirements. Furthermore it has to be ensured that the appearance is commercially acceptable. This places particular demands upon the design of signalling lamps that have to comply with positional, geometric visibility and photometric requirements. These demands can be satisfied by a divided lamp specifically designed and produced by one manufacturer.
2. This proposal, introducing interdependent lamps forming parts of an interdependent lamp system, is therefore intended to improve vehicle functionality and expand the scope for front lamp combination design without compromising road user safety.
3. To avoid the situation where one lamp, with multiple light sources, that is split into several parts been granted type approvals based upon interpretation of the "single lamp" definition of Regulation No. 48 the need to introduce interdependent lamp systems for dedicated daytime running lamps becomes evident. It then becomes necessary to introduce specific provisions into the regulation for "interdependent lamp systems" to enable approval authorities to avoid the need to grant approvals based on interpretation.