

The text reproduced below was prepared by the expert from OICA, as requested by GRE at its 59th session, taking into account informal documents GRE-59-35 and GRE-59-06. It has been based on the text of Regulation No. 48 including all amendments agreed by GRE, up to and including those to be presented to the 146th session of WP.29 as document number ECE/TRANS/WP.29/2008/86.

Amendments to Regulation No 48 as amended by ECE/TRANS/WP.29/2008/86 are shown in **bold** and ~~strikethrough~~ type.

A. PROPOSAL

Paragraphs 5.11. and 5.11.1., amend to read:

- "5.11. The electrical connections must be such that the front and rear position lamps, the end-outline marker lamps, if they exist, the side-marker lamps, if they exist, and the rear registration plate lamp can only be switched ON and OFF simultaneously.
- 5.11.1. This condition does not apply:
- (a) When front and rear position lamps are switched ON, as well as side-marker lamps when combined or reciprocally incorporated with said lamps, as parking lamps; or
 - (b) When side-marker lamps are permitted to flash.
 - (c) **When at least the rear position lamps are operating in conjunction with the daytime running lamps."**

Paragraph 6.2.7., amend to read:

"6.2.7. The control for changing
..... authority responsible for type approval.

Dipped-beam headlamps may be switched ON or OFF automatically. However, it shall be always possible to ~~switch these dipped-beam headlamps ON and OFF~~ manually **override the automatic switching of the dipped beam headlamps."**

Add new paragraphs 6.2.7.1. and 6.2.7.2., to read:

- "6.2.7.1. **If daytime running lamps are present and operate according to paragraph 6.19., the dipped-beam headlamps shall be switched ON and OFF automatically relative to the ambient lighting conditions (e.g. on during nighttime driving conditions, tunnels, etc.), unless one of the following conditions are satisfied:**
- a) **a tell-tale is present and operates according to either paragraph 6.2.8 or paragraph 6.19.8, or**
 - b) **the instrument panel is not illuminated, when DRLs are operating or**
 - c) **daytime running lamps operate in conjunction with at least the rear position lamps.**

However if the device that selects the main-beam headlamps is switched on, the dipped beam headlamps need not be switched ON automatically.

- 6.2.7.2. If the dipped beam headlamps are switched ON and OFF automatically relative to the ambient lighting conditions, this function shall operate according to the requirements of Annex [12] and:
 - 6.2.7.2.1. It shall always be possible to manually override the automatic switching of the dipped beam headlamps until the device that activates the propulsion system of the vehicle is switched OFF, at which time:
 - 6.2.7.2.1.1. the automatic switching shall be restored,

OR
 - 6.2.7.2.1.2. an audible and/or visual warning shall be given, at the latest when the driver's door is opened, if the device that activates the propulsion system of the vehicle is switched OFF, while the dipped beam headlamps switch is in the manual ON position or while all lamps are manually switched OFF.
 - 6.2.7.2.1.3. paragraphs 6.2.7.2.1.1. and 6.2.7.2.1.2 do not apply when a telltale according to paragraph 6.2.8 is permanently activated together with the dipped beam headlamps."

Paragraphs 6.19.7. to 6.19.7.2., amend to read:

"6.19.7. Electrical connections

6.19.7.1. The daytime running lamps shall be switched ON automatically when the device ~~which starts and/or stops the engine is in a position which makes it possible for the engine to operate~~ **that activates the propulsion system of the vehicle is switched ON**. However, daytime running lamps may ~~remain~~ **be switched OFF** while the ~~automatic~~ transmission control is in the park or neutral position, while the parking brake is applied or after the propulsion system is activated but the vehicle was not set in motion for the first time.

The daytime running lamps shall switch OFF automatically when the front fog lamps or headlamps are switched ON, except when the latter are used to give intermittent luminous warnings at short intervals. 14/

Furthermore, the lamps referred to in paragraph 5.11. **shall be are-not** switched on when **operating in conjunction with** the daytime running lamps **operating as described in 6.2.7.1/c) are-switched-on**.

6.19.7.2. If the distance....."

Insert a new paragraph [12.17.], to read:

"[12.17.] As from 48 months from the official date of entry into force of Supplement [x] to the 04 series of amendments, Contracting Parties applying this Regulation shall grant approvals only if the vehicle type to be approved meets the requirements of this Regulation as amended by Supplement [x] to the 04 series of amendments."

Add new Annex [12], to read:

AUTOMATIC SWITCHING CONDITIONS DIPPED-BEAM HEADLAMPS <u>1/</u>		
Ambient light (outside the vehicle) on a horizontal surface	Dipped-beam headlamps	Response time
less than 500 lux	ON	fast <u>2/</u>
between 500 lux and 7,000 lux	at manufacturer's discretion	as applicable <u>2/</u> <u>3/</u>
more than 7,000 lux	OFF	slow <u>3/</u>

Insert new footnotes, to read:

- 1/ Compliance with these conditions shall be demonstrated by the applicant, by simulation or other means of verification accepted by the Technical Service responsible for type approval."**
- 2/ This requirement shall be deemed to have been met when the dipped-beam headlamps are switched ON in no more than 2 seconds. In case of dipped-beam headlamps equipped with gas-discharge light sources, the time until the starting of the light source (ignitor starts) shall not be more than 2 seconds.**
- 3/ This requirement shall be deemed to have been met when the dipped-beam headlamps are switched OFF in no more than 300 seconds."**

JUSTIFICATION

OICA continues to believe that a mandatory requirement for automatic switching on of Headlamps is not justified.

Nevertheless, OICA recognises that certain contracting parties perceive a possibility that the introduction of mandatory daytime running lamps (DRLs) could lead some drivers, in certain circumstances, to drive in dark conditions (e.g. at night or in a tunnel) with DRLs ON, and therefore with rear lamps OFF.

OICA members believe that they have demonstrated that this is unlikely, but the perception remains. OICA is therefore willing to consider alternative solutions to this concern, which would avoid forcing expensive equipment onto the lowest cost vehicles while, at the same time, ensuring that the lighting controls of those vehicles which do have automatic switching of headlamps can function correctly and as the user would expect.

At the 59th session of GRE, informal documents GRE-59-06 and GRE-59-35 introduced a possible alternative approach to address the above issues, as well as a first proposal for uniform operating parameters for a light-sensor-based system. OICA believed that, while these proposals had merit, open issues still remained in the complex area of the inter-relationship of the different lighting devices and their switching needs. GRE therefore invited OICA to propose an alternative, for which task CLEPA offered its advice and assistance.

The main objectives of the proposal are listed below, followed by the origins and reasons for each detailed update:-

1. To provide an alternative to automatic switching of headlamps, for vehicles for which a sensor-based system is not cost-effective, while preventing unintentional driving without rear lamps in dark conditions.
2. To ensure that rotary master lighting switches of the type used by most vehicle manufacturers and familiar to most drivers, could still be used.
3. To ensure that all the necessary combinations of position lamps, headlamps (dipped and main beam) fog lamps (front and rear) and parking lamps can still operate as required by regulations and as expected by the driver, without unexpected effects and without giving misleading signals to other road users.
4. To ensure that the parameters specified for the operation of automatic switching of headlamps applies equally to all systems (including optional systems on vehicles which are not fitted with DRLs, for instance in Japan) and would not prevent or discourage the introduction of more advanced (and more effective) devices and systems.

Mandatory requirement for vehicles with DRLs.

Informal document GRE-59-35 introduced a number of alternatives to automatic switching and these have been preserved and added to in this proposal. Paragraph 6.2.7.1 requires that vehicles with DRLs shall have automatic switching of dipped beam headlamps OR at least one of the following :

- (a) a daytime running lamp telltale, or a dipped beam headlamp telltale – to indicate to the driver whether or not he or she has switched on the headlamps.
- (b) non-illumination of the instrument panel¹ with DRLs – for the same purpose as (a).
- (c) operation of at least the rear position lamps with DRLs, so that, even if the driver does not switch on headlamps (for instance when entering a tunnel) following drivers will be able to see the vehicle.

In addition, paragraph 6.2.7.1 provides for the condition where a driver may have already selected Main Beam headlamps, and excludes this condition from the requirement to switch on Dipped Beam headlamps.

Requirements for the automatic switching of headlamps (mandatory or optional).

Informal document GRE-59-35 proposed that, if the driver overrides the automatic switching of headlamps, the automatic condition should be reinstated when the engine is switched off, unless a warning is given to indicate that the override is still operating. This has been preserved in this proposal, but in a modified form. Paragraph 6.2.7.2.1 would allow for manual switching OFF of headlamps (for instance to allow fog lamps to operate without headlamps) as well as ON. It would also allow the additional alternative of a dipped beam headlamp telltale to indicate that headlamps have been left on, and it would allow some flexibility in the type of warning given - audible and/or visual, and operating either immediately at "ENGINE OFF" or when the driver's door is opened.

Operational parameters of the sensor.

GRE-59-06 proposed certain parameters for operation of the sensor for automatic switching of headlamps, based on ambient light intensity on a horizontal surface. While this approach is appropriate for most current systems, which are relatively simple, more complex new technology can produce more effective operation, using, for instance, a combination of vertical and horizontal (forward) sensing and even predictive operation using camera-based systems. Such systems, although more effective for real-world operation, might not respond well in a simple test for vertical ambient light intensity. However OICA experts are unable to propose a better approach and to do so it might be necessary to design a separate test for each different technology. OICA experts believe that this matter could safely be left to individual system designers and that Annex [12] is not really necessary and could be deleted. However, if GRE considers that it is necessary, we propose to

¹ The term "the instrument panel is not illuminated" in paragraph 6.2.7.1(b), may need some clarification as some modern instrument panels are not visible unless some illumination is provided. However they have a different level, or a different type, of illumination for night time driving. It is this latter condition which should not be used with DRLs under the terms of 6.2.7.1(b).

retain the ambient light intensity approach, but to use a wider maximum-minimum range which, in the opinion of OICA experts, all known and foreseen advanced systems would be able to meet. The levels proposed would ensure that, in genuinely dark conditions (night-time, or in a tunnel) the headlamps would be switched ON and in full daylight they would be switched OFF. The range in between is left to individual system designers to specify a mode of operation to match the capability of the system and to meet customer expectations.

For the same reason, the response time to switch headlamps ON is also relaxed. This additional time would only be necessary for systems which are capable of deciding, from other information sources, that visibility is still adequate, even though the vertical ambient light intensity may have fallen. Systems which sense only vertical ambient light intensity typically respond almost instantaneously and there is no reason for a manufacturer to introduce an artificial delay to take advantage of this longer response time.

Regarding the response time to switch headlamps OFF, OICA experts can see no reason for including a MINIMUM response time. This would impose an artificial delay in switching off, which has no safety or other benefit. Component and vehicle manufacturers are perfectly capable of ensuring that their systems do not introduce "rapid successive ON and OFF switching", which would be unacceptable to customers, and this should be left to the design of each individual system.

Electrical Connections.

1. In order to allow the alternative of at least rear position lamps operating with DRLs, it is necessary to revise paragraphs 5.11 and 6.19.7, which currently prohibit this combination.
2. The current possibility (in paragraph 6.19.7.) for DRLs to be switched off when the vehicle is stationary (in Park or Neutral or handbrake applied) is preserved in this proposal, but not limited to the case when the engine has just been switched on. This would allow, for instance, trucks with special equipment requiring the engine to provide power, to be operated in the stationary working condition, without DRLs. This could be achieved with the current wording, but it would mean that the engine would have to be stopped and re-started to achieve this condition, which would waste both time and fuel.
3. GRE-59-35 used the term "***until the device that activates the propulsion system of the vehicle is switched OFF***". This is different from the language currently used for a similar (but opposite) statement in 6.19.7 – "***when the device which starts and/or stops the engine is in a position which makes it possible for the engine to operate***". OICA experts believe that the language used in GRE-59-35 is better. Its meaning is clearer and it works equally well for a vehicle which does not have an engine (for instance an electric vehicle). This proposal therefore aligns the language in paragraphs 6.7.2.1 and 6.19.7, following the example of GRE-59-35.

Transitional Provisions.

It is proposed to introduce these revisions as a Supplement to the 04 series of amendments to Regulation 48. As the revisions would entail some changes to vehicle design, it will be necessary to provide a suitable lead time from entry into force of the supplement before new vehicle types have to comply. A period of 48 months is proposed, so that new vehicle models whose electrical system has already been designed, would not have to be re-designed, with possible delays to new model production. This lead time is only realistic with the proposed alternative solutions. Any change or reduction of these alternatives would require a re-evaluation of lead time requirements.

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