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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-ninth session**

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Item 7 (b) of the provisional agenda

Other UN Regulations:**UN Regulation No. 53 (Installation of lighting and light-signalling devices for L₃ vehicles)****Proposal for a new supplement to the 01 series of amendments and to the 02 series of amendments to UN Regulation No. 53 (Installation of lighting and light-signalling devices for L₃ category vehicles)****Submitted by the expert from India ***

The text reproduced below was prepared by the experts from India with the aim to make optional the fitment of front position lamps, due to the introduction of auto headlamp switching, and alternatively daytime running lamps provisions in UN Regulation No. 53. This is a consolidated proposal of informal documents GRE-76-06 and GRE-77-08. The modifications are marked in strikethrough for deletion of existing text and in bold for addition of new text.

* In accordance with the programme of work of the Inland Transport Committee for 2018–2019 (ECE/TRANS/274, para. 123 and ECE/TRANS/2018/21/Add.1, cluster 3.1), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate



I. Proposal

Paragraph 5.10., amend to read:

- “5.10. The electrical connections shall be such that ~~the front position lamp or~~ the passing beam headlamp, ~~if there is no front position lamp~~, the rear position lamp and the rear-registration-plate illuminating device cannot be switched on or off otherwise than simultaneously unless otherwise specified. **This condition is not applicable during the time period between master control switch (Ignition Switch) on and the starting of the engine.**”

Paragraph 5.14., amend to read:

"5.14. Every vehicle submitted for approval pursuant to this Regulation shall be equipped with the following lighting and light-signalling devices:

- 5.14.1. Driving beam headlamp (paragraph 6.1.);
- 5.14.2. Passing beam headlamp (paragraph 6.2.);
- 5.14.3. Direction-indicator lamps (paragraph 6.3.);
- 5.14.4. Stop lamp, S1 category device specified in Regulation No. 7 or stop lamp specified in Regulation No. 50 (paragraph 6.4).
- 5.14.5. Rear-registration-plate illuminating device (paragraph 6.5.);
- 5.14.6. Front position lamp (paragraph 6.6.);
Front Position Lamp(s) fitment is optional in the case where failure of light source of one headlamp beam will not affect the functioning of all other headlamp beam(s).
- 5.14.7. Rear position lamp (paragraph 6.7.);
- 5.14.8. Rear retro reflector, non-triangular (paragraph 6.8.);
- 5.14.9. Side retro reflector, non-triangular (paragraph 6.12.);"

Paragraph 5.15., amend to read:

- “5.15. It may, in addition, be equipped with the following lighting and light-signalling devices;
- 5.15.1. Vehicle-hazard warning signal (paragraph 6.9.);
 - 5.15.2. Fog lamps;
 - 5.15.2.1. Front fog lamp (paragraph 6.10.);
 - 5.15.2.2. Rear fog lamp (paragraph 6.11.);
 - 5.15.3. Daytime running lamp (paragraph 6.13.).
 - 5.15.4. Front position lamp (paragraph 6.6.) subject to the condition of 5.14.6.”**

Paragraph 6.6.7., amend to read:

- “6.6.7. Other requirements
- 6.6.7.1. When the front position lamp is reciprocally incorporated in the front direction indicator lamp, the electrical connection shall be such that the

position lamp on the same side as the direction indicator lamp is switched off when the direction indicator lamp is flashing.

- 6.6.7.2. The electrical connection shall be such that:**
- (a) **Front position lamp(s), if fitted, may be switched ON together with headlamp(s) or independent of the head lamp(s) subject to conditions mentioned in 6.1.3.1. or 6.2.3.1.**
 - (b) **The rear position lamp shall be switched ON when Front position Lamp is ON.**
 - (c) **When the front position lamp(s), if fitted, is/are switched ON, the rear-registration-plate illuminating device may be switched ON.”**

Paragraph 6.13.7.1., amend to read:

“6.13.7.1. The daytime running lamp shall switch OFF automatically when the headlamps are switched ON, except when the latter are used to give intermittent luminous warnings at short intervals.

The rear position lamp shall be switched ON when the daytime running lamp(s) is/are switched ON. The front position lamp(s), **if fitted**, and the rear-registration-plate illuminating device may be switched ON individually or together, when the daytime running lamp(s) is/are switched ON.”

II. Justification

Proposal for making front position lamp optional

1. The intent of the front position lamp is to indicate the “presence of the motorcycle” when viewed from the front.
2. Mandatory presence of front position lamp on motorcycle could be useful when there is no provision of automatic headlamp "ON" (AHO) or daytime running lamps (DRL) in a vehicle.
3. If a vehicle is having provision of AHO or DRL, the presence of the motorcycle from the front is much more perceivable than with the front position lamp. Hence the need of the front position lamp has become redundant.
4. By keeping the front position lamp optional, the manufacturers shall also be allowed to fit this lamp on motorcycles, if they plan so.
5. This proposal will reduce power consumption by lamps and also the vehicle cost.
6. India understands that a similar proposal from the International Motorcycle Manufacturers Association (IMMA) was considered by GRE in the year 2001 and was subsequently dropped due to safety concerns of redundancy in case of failure of the headlamp. At the time of proposal, AHO was not mandatory in UN Regulation No. 53. Moreover, a change was proposed only for those 2 wheelers with AHO. Subsequently, there was no serious effort made in addressing the safety concerns raised.
7. India understands that without addressing the redundancy requirements, the front position lamps (FPL) may not be made optional. Indian comments on safety requirements are summarised below:
 - 7.1 Safety issues related to FPL in case of failure of headlamp:

7.1.1 Main purpose of FPL is to provide conspicuity of the vehicle from the front. It will not give anything other than a marginal visibility to the rider.

7.1.2 In India, the FPL has been optional so far. No adverse effects have been reported due to failures of headlamp in the absence of FPL.

7.2 Redundancy requirements:

A headlamp can have the following type of failures:

- (a) Failure of the light source.
- (b) Discontinuity in the circuit (breakage of electric wire, contact working loose etc).
- (c) A mechanical failure of the headlamp.

Circuit failures and Mechanical Failure of the headlamp will cause the FPL also to be non-functional.

The general practice for the purpose of providing redundancy for any safety requirement is “only one failure at a time”. This practice is well established for braking systems (for all categories of vehicles, steering system for 4 wheelers etc.).

7.2.1 Redundancy already built in without FPL

In the following cases, FPL is not needed for providing redundancy:

- (a) If DRL is used instead of AHO, in case of a failure of headlamp, DRL will provide conspicuity.
- (b) UN Regulation No. 53 prescribes different architectures for fitment of headlamp. If there are more than one headlamp (either main or passing beam), failure of one normally will not affect the operation of the other headlamp(s). Hence, FPL is not needed for redundancy.

7.2.2 Redundancy needed

Redundancy is needed only in case where the passing beam headlamp and main beam headlamps are reciprocally incorporated, using a double filament light source or single filament light source operating at different voltages (e.g. H9 or distributed lighting system etc.).

Failure on one filament will not be affecting the other filament. Hence if the passing beam filament fails, main beam can be put ON and vice versa. The discontinuity of electrical circuit causing both the passing beam and main beam OFF needs to be addressed.

However, when a single light source is used for both passing beam headlamp and main beam headlamp, FPL will be required to take care of the redundancy.

8. Summary of proposed changes in requirements of electric connections:

<i>Device</i>	<i>Condition of other lamps</i>		<i>Remarks</i>	<i>Changes covered by proposal</i>
	<i>Current</i>	<i>Proposed</i>		
Head lamp	When headlamp is ON, DRL is OFF	←	No change	--
Rear Position Lamp	ON Simultaneously with Headlamp	ON with Headlamp. But maybe ON when	Two wheelers use lighting systems working on DC system or AC system or both. It is also a practice to have some lamps on AC and some	Additional text for para 5.10

		Head Lamp is OFF during the period when master switch is ON and engine not started.	on DC. The lamps working on DC system can switch ON with ignition switch in ON position and the lamps on AC system will become ON, only when engine is started.	
	ON when DRL is ON	←	No change	--
Front position Lamp (FPL)	ON Simultaneously with Headlamp	Optionally ON when Headlamp is ON. Subject to conditions of 6.1.3.1 or 6.2.3.1	Consequential to make fitment of FPL optional. As per the current text of UN R 53, the activation of this lamp is optional when daytime running lamp is ON. The reason for such provision, in our understanding, could be that daytime running lamp also serves the purpose of identifying the vehicle presence when viewed from the front. This situation is also applicable when vehicle has a provision of automatic headlamp "ON" switching (AHO). One of options for mounting a headlamp unsymmetrical is to provide FPL with symmetry. In such cases FPL needs to come on automatically with headlamp.	Additional text for para 5.10 & para 6.6.7.2
	Optional ON when DRL is ON	←	No change	--
Rear Registration Lamp	Optional ON when DRL is ON	←	No change	--
	ON when FPL is ON.	Optionally ON when FPL is ON	Since the FPL is optional, it is not essential that Rear Registration space lamp be ON when FPL is ON.	Additional text for para 6.6.7.2