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THE TWO CATEGORIES OF MOTORCYCLES  
WITH RESPECT TO THE INSTALLATION OF PASSING BEAM HEADLAMPS

Transmitted by the Expert  
from the International Motorcycle Manufacturers Association (IMMA)

Note: The text reproduced below was prepared by the expert from IMMA and distributed without a symbol (informal document No. 1) during the forty-sixth session of GRE (TRANS/WP.29/GRE/46, para. 65).

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Note: This document is distributed to the Experts on lighting and light-signalling only.

## 1. BACKGROUND

At the forty-fourth GRE session IMMA presented its first proposals for a new symmetrical beam pattern, which would be used in two lamps of different strengths. The criterion proposed for deciding which motorcycles could be fitted with the lesser of the two lamps was engine capacity, specifically 125 cm<sup>3</sup>. In view of comments made at the meeting, IMMA reconsidered its proposal and at the forty-fifth GRE session suggested that the distinction should be made on the basis of a maximum design speed of 120 km/h. Points raised at GRE and from inside and outside the industry since the forty-fifth session have led IMMA to examine the issue in greater depth and this document summarises IMMA's conclusions.

## 2. ANALYSIS OF THE OPTIONS

### 2.1. General

The primary function of the headlamp is to see the road. It is therefore logical to consider the fitting of different strength headlamps in relation to the speed at which the vehicle is expected to travel. This is in fact how designers decide which headlamp would be most suitable for any given model.

For the Regulation the issue is slightly different; it is necessary to define an easy way of ensuring that lamps with different performances are fitted to the appropriate motorcycle. The discussions within IMMA have produced the following conclusions.

### 2.2. A distinction based on vehicle maximum speed (120 km/h):

Factors in favour:

- it is directly linked to the maximum performance of the vehicle
- it could help with the design of those motorcycle styles which are the same but with engines above and below the 125 cm<sup>3</sup> cut-off point

Factors against:

- no test work has been done on the adequacy of the lesser beam at 120 km/h, all the technical evaluations of the IMMA proposed beams were based on a 125 cm<sup>3</sup> criterion; motorcycles in this capacity range in general have a  $V_{\max}$  of about 95-105 km/h
- regulatory discussions of headlamps have not previously considered headlamps on the basis of vehicle top speed before and new regulatory or enforcement principles might be involved
- the true  $V_{\max}$  of a vehicle is not known until it has been built and tested and this means that there could be considerable design and cost uncertainty in this market segment, which is particularly competitive
- it would not be easy to verify the vehicle's equipment during roadside checks

2.3. A distinction based on engine capacity (125 cm<sup>3</sup>):

Factors in favour:

- the categorisation of vehicles based on engine capacity is a well established principle
- categories based on engine capacity are easy to define for design and policing purposes
- the technical evaluations were made on this basis, mainly because 125 cm<sup>3</sup> is a major dividing point in the motorcycle market.
- In Europe 125 cm<sup>3</sup> is the upper limit for a major driving licence category (the entry level vehicle) and elsewhere in the world it represents the maximum size of motorcycle produced, e.g. in Asia
- the market between 125 cm<sup>3</sup> and 400 cm<sup>3</sup> is likely to decrease as a result of the driving licence and demographic trends

Factors against:

- there are currently designs of motorcycle for which the styling is similar but with engines above and below the 125 cm<sup>3</sup> cut-off point, e.g. scooters.  
(Note: the future of the relatively few models above 125 cm<sup>3</sup> is not certain. Similarly, the practical design problems of fitting two different lamps into the same bodywork are not fully understood, as detailed design work on the new types of lamp has not started. It is expected that appropriate transitional provisions can cover these issues)
- there is, for the moment, a very specialised market in 125 cm<sup>3</sup> race replicas for which the less powerful lamp would not be suitable.  
(Note: It is the manufacturers' opinion that such vehicles would in any case be equipped with the stronger lamp.)

3. CONCLUSION

After considerable discussion of the above points, IMMA has finally concluded that the criterion that would best distinguish the motorcycles on which the lesser of the proposed symmetrical headlamps may be mounted, should be 125 cm<sup>3</sup>.

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