

OICA comments on GRE-2011-02 and GRE-2011-27 on Automatic Headlamp Levelling

Summary

At GRE- 65, to be held in March 2011, Contracting Parties will consider the proposal ECE-TRANS-WP29-GRE-2011-27, which removes the exemption for manual headlamp levelling in favour of an automatic system for all headlamps

OICA considers that fitment of automatic headlamp levelling to all applicable vehicle types will result in a major financial burden on the Vehicle Manufacturers against a background where no safety dis-benefit has been proven.

There will also be a negative effect on the environment due to a reduced opportunity for marketing new 25W HID (Xenon) headlamp light sources, which provides improved visibility and reduced vehicle weight.

Case Against Mandatory Fitment

Introduction of mandatory automatic headlamp levelling on all vehicles will only partially address the overall amount of glare on the road network because there are a number of causal factors related to headlamp glare from oncoming vehicles, which to a lesser extent affects preceding vehicles as well.

These are:

- Headlamp adjustment (loss of factory setting during service)
- Headlamp shock (mounting point misaligned due to impact)
- Road geometry/quality (curves, undulations in the road surface, speed bumps, damaged road surface, adverse camber)
- Vehicle acceleration and braking (suspension travel)
- Reflected light (seen on wet roads)
- Driving behaviour (inappropriate use of main beam headlamps in traffic)
- Oncoming/preceding drivers eye position (in relation to headlamp mounting height)

Glare from headlamps is described in terms of a driver's physiological reaction, causing "discomfort" or "disability". The main difference between these two terms is:

Disability Glare: An objective impairment of visual performance and a risk to road safety during night time

Discomfort Glare: A subjective impression of discomfort and a lesser risk to road safety during night time. With glare being a subjective phenomena academia has developed a number of rating methods. E.g. The DeBoers scale (1974) scale which uses the criteria:

- Noticeable
- Acceptable
- Just Admissible
- Disturbing
- Unbearable

A key factor which affects a driver's visibility during night time, when experiencing glare, is the duration of exposure to the light source. It is commonly understood that there is a direct correlation between the exposure

duration and the glare phenomena. ie. a shorter duration = less impairment of a drivers visibility, moving from “disability” to “discomfort” (noticeable)

There is no EU data to suggest that headlamp glare is the primary cause of accidents.

Mandatory fitment will place a financial burden on industry (between **20 € and € 40per M1/N1* vehicle**) which will largely be passed on to the end user.

Fitment of additional automatic headlamp levelling equipment will increase overall fleet weight (**≤ 400 g per vehicle**), with a resultant CO₂ penalty and increase the vehicle’s power consumption, which is especially detrimental to electric vehicles.

*For all other categories the technique is not yet developed and no price estimation is available.

Evidence

GIDAS (German In Depth Accident Study)

3655 accidents during 2003/2004 – **none caused by headlamp glare**

French Accident Data:

Vehicle Lifetime

- 80% of the time the trunk is empty
- 15% of the time it is used for shopping & holidays
- 5% of the time is used for exceptions to the above
- 30% of the vehicle usage is at night

SETRA 2009 Accident Data:

- 70% of accidents occur in daytime
- 25% of accidents occur in night time (16% with street lighting / 9% without)
- 5% of accidents occur during dawn/dusk (twilight)

Vehicle Occupation

- 70% of accidents occur with only the driver
- 20% “ “ “ “ a passenger in the front
- 10% “ “ “ “ a passenger in the back

Accident statistics

- 74% of vehicles involved in a accident have no load in the trunk
- 21% “ “ “ “ “ “ 0-40kg in the trunk
- 4% “ “ “ “ “ “ 40-100kg in the trunk
- 0.5% “ “ “ “ “ “ 100-190kg in the trunk

Conclusion:

The above statistics demonstrate that throughout a vehicle lifetime it is driven infrequently at night and even more infrequently with more than the driver and a significant load.

Request

OICA Request

- that GRE-65 does not proceed with the formal proposals ECE-TRANS-WP29-GRE-2011-02 and ECE-TRANS-WP29-GRE-2011-27, which removes manual headlamp levelling as long as there is no evidence that manual levelling instead of automatic levelling causes “Disability Glare”
- that GRE-65 considers the current GTB proposals for introduction of 25W HID light sources for safety (more light on the street) and environmental aspects (less weight because no levelling and washing).