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Advanced Emergency Braking Systems (AEBS) and Lane Departure Warning Systems (LDWS)

Proposal for an amendment to Regulation No. 131 (AEBS)

Submitted by the experts from the International Organization of Automobile Manufacturers*

The text reproduced below was prepared by the experts of the International Organization of Automobile Manufacturers (OICA), introducing a draft amendment to the Introduction of the regulation, drawing attention on the technical issues related to the installation of AEBS on some specific vehicles included in the scope of the regulation. The modifications to the existing text of the Regulation are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, 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

Introduction, amend to read (including the addition of new references to the existing Footnote 1):

"0. Introduction (for information)

The intention of this Regulation is to establish uniform provisions for advanced emergency braking systems (AEBS) fitted to motor vehicles of the categories M_2, M_3, N_2 and N_3[1] primarily used under **monotonous** highway **driving** conditions.

While, in general, those vehicle categories will benefit from the fitment of an advanced emergency braking system, there are sub-groups where the benefit is rather uncertain because they are primarily used in other conditions than highway conditions (e.g. buses with standing passengers i.e. Classes I, II and A[1], **category G vehicles[1], construction vehicles, etc.**). Regardless from the benefit, there are other sub-groups where the installation of AEBS would be technically difficult (e.g. position of the sensor on vehicles of category **G[1], construction vehicles mainly used in off-road areas and gravel tracks,** ~~and~~ special purpose vehicles **and vehicles with front mounted equipment,** etc.). **If there is a possibility of false emergency braking event because of vehicle design constraints, compliance with mandatory fitment of AEBS should be waived.**

In addition, systems intended for vehicles not equipped with a pneumatic rear-axle suspension require the integration of advanced sensor technology to take into account the variation of the pitch angle of the vehicle. Contracting Parties wishing to apply this Regulation to these vehicles should provide adequate time for this.

The system shall automatically detect a potential forward collision, provide the driver with a warning and activate the vehicle braking system to decelerate the vehicle with the purpose of avoiding or mitigating the severity of a collision in the event that the driver does not respond to the warning.

The system shall only operate in driving situations where braking will avoid or mitigate the severity of an accident, and shall take no action in normal driving situations.

In the case of a failure in the system, the safe operation of the vehicle shall not be endangered.

The system shall provide as a minimum an acoustic or haptic warning, which may also be a sharp deceleration, so that an inattentive driver is made aware of a critical situation.

During any action taken by the system (the warning and emergency braking phases), the driver can, at any time through a conscious action, e.g. by a steering action or an accelerator kick-down, take control and override the system.

The Regulation cannot include all the traffic conditions and infrastructure features in the type-approval process. Actual conditions and features in the real world should not result in false warnings or false braking to the extent that they encourage the driver to switch the system off."

II. Justification

1. Vehicle manufacturers are currently implementing AEBS on a large variety of models, e.g. to fulfil mandatory requirements in some Contracting Parties. This implementation work confirms the concerns which have been brought up for discussion during the AEBS informal group activities and sheds light on a number of technical issues that occur when installing obstacle detection devices on some specific vehicles, in particular, in case of huge technical diversity and where the vehicle environment can have negative impact on system reliability and on its ability to operate.

2. For example:

(a) Due to the technical environment specific to off-road vehicles (steel bumpers, electric truck winches, windshield thickness, split windshields, asymmetrical cabs, front hood vehicles, etc.) robust and reliable sensor integration is not always possible.

(b) Robust sensor installation on special purpose vehicles is often not possible (snow plows, external devices, front mounted equipment, etc.).

(c) The environment conditions for construction vehicles may also negatively affect the sensors, in a similar way as for off road vehicles (dust, mud, humidity in off-road areas or on gravelled tracks…).