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World Forum for Harmonization of Vehicle Regulations**Working Party on Brakes and Running Gear****Eighty-fourth session**

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Item 2 of the provisional agenda

Advanced Emergency Braking Systems**Proposal for amendments to Regulation No. 131 (Advanced
Emergency Braking Systems (AEBS))****Submitted by the expert from Germany***

The text reproduced below was prepared by the expert from Germany to adapt the requirements for the deactivation of the Advanced Emergency Braking Systems (AEBS) function. 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 2016–2017 (ECE/TRANS/254, para. 159 and ECE/TRANS/2016/28/Add.1, cluster 3.1), 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.

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I. Proposal

Paragraph 5.4., amend to read

- "5.4. When a vehicle is equipped with a means to deactivate the AEBS function, the following conditions shall apply ~~as appropriate~~:
- 5.4.1. The AEBS function shall be automatically **reactivated** ~~reinstated~~ at the initiation of each new ignition cycle.
- 5.4.2. The AEBS function shall be automatically and instantaneously reactivated if the vehicle speed exceeds 30 km/h.**
- 5.4.3. The deactivation of the AEBS function shall not be possible at vehicle speeds greater than 30 km/h.**
- 5.4.4. A constant optical warning signal shall inform the driver that the AEBS function has been deactivated. The yellow warning signal specified in paragraph 5.5.4. below may be used for this purpose."

Paragraph 6.7.1., amend to read

- "6.7.1. For vehicles equipped with means to deactivate the AEBS, turn the ignition (start) switch to the "on" (run) position and deactivate the AEBS. The warning signal mentioned in paragraph 5.4.2. above shall be activated. Turn the ignition (start) switch to the "off" position. Again, turn the ignition (start) switch to the "on" (run) position and verify that the previously activated warning signal is not reactivated, thereby indicating that the AEBS has been **reactivated** ~~reinstated~~ as specified in paragraph 5.4.1. above. If the ignition system is activated by means of a "key", the above requirement shall be fulfilled without removing the key."

Insert new paragraphs 6.7.2. to 6.7.3., to read:

- "6.7.2. For vehicles equipped with means to deactivate the AEBS, turn the ignition (start) switch to the "on" (run) position and deactivate the AEBS. The warning signal mentioned in paragraph 5.4.2. above shall be activated. Accelerate the vehicle to a vehicle speed of greater than 30 km/h. The test is passed if the AEBS function is automatically reactivated and the warning signal mentioned in paragraph 5.4.2. above is automatically deactivated when the vehicle speed of 30 km/h is exceeded.**
- 6.7.3. For vehicles equipped with means to deactivate the AEBS, turn the ignition (start) switch to the "on" (run) position. Drive the vehicle at a vehicle speed greater than 30 km/h and try to deactivate the AEBS function. The test is passed if the AEBS function is not deactivated after the deliberate action to deactivate the AEBS function has been carried out."**

II. Justification

1. Severe rear impact accidents involving and caused by heavy trucks on motorways did increase in recent times (e.g. in Germany: + 16 % from 2013-2015 while being constant 2010-2012). While AEBS is the preferred means to address this kind of accidents, the

AEBS function can only bring benefit if it is activated. However, research [ZVS]¹ suggest that several accidents did occur with the AEBS system being deactivated.

2. Currently the deactivation of the AEBS function is permissible without any restrictions with regard to the vehicle speed ranges. This optional possibility of manual deactivation was introduced due to concerns about technology readiness at the time of the development of Regulation No. 131. Meanwhile AEBS functions have reached a large market penetration (e.g. mandatory AEBS fitting for M₂, M₃, N₂, N₃ vehicles in EU, optional AEBS equipment on the majority of M₁ and N₁ vehicles, more than a few M₃ and N₃ vehicles with AEBS systems with a capability that exceed the requirements of Regulation No. 131 by far), and their functionality and reliability due to this development has reached a higher level.

3. As the deactivation of the function contradicts the purpose of the Regulation, it does not seem to be acceptable anymore to allow a deactivation. It is anticipated that false warnings and false activations would occur mainly in urban traffic situations with low speeds and that a correct situation interpretation of the AEBS function cannot be guaranteed, so it could still be required to temporarily deactivate the AEBS function. To account for this, a manual deactivation of the AEBS function may be permissible for speed ranges below 30 km/h, as long as an automatic reactivation of the AEBS function takes place when the vehicle leaves that speed range.

4. A higher automatic reactivation speed threshold than 30 km/h could lead to the AEBS function not being reactivated in slow-moving traffic if it had been temporarily deactivated e.g. in a congestion situation.

¹ [ZVS] Petersen, E., Simon, N., Krupitzer, U.: "Lkw-Unfälle mit schweren Personenschäden auf niedersächsischen Autobahnen und deren Relevanz sowie Vermeidbarkeit durch aktuelle Notbrems-Assistenzsysteme", p. 276. In: Zeitschrift für Verkehrssicherheit 5/2016.