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**ECONOMIC COMMISSION FOR EUROPE**

**INLAND TRANSPORT COMMITTEE**

World Forum for Harmonization of Vehicle Regulations

Working Party on Brakes and Running Gear

Sixty-fifth session

Geneva, 2-6 February 2009

Item 3(b) of the provisional agenda

REGULATIONS Nos. 13 AND 13-H  
(Braking)

Emergency Stop Signal

Proposal for amendments to Regulation No. 13-H

Submitted by the expert from the International Organization of Motor Vehicle Manufacturers\*

The text reproduced below was prepared by the expert from the International Organization of Motor Vehicle Manufacturers (OICA) in order to improve the wording of the prescriptions for regenerative braking. It supersedes ECE/TRANS/WP.29/GRRF/2008/22 as well as informal document No. GRRF-64-35, distributed at the sixty-fourth session of the Working Party on Brakes and Running Gear (GRRF). The modifications to the existing text of the Regulation are marked in **bold** characters.

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\* In accordance with the programme of work of the Inland Transport Committee for 2006-2010 (ECE/TRANS/166/Add.1, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance performance of vehicles. The present document is submitted in conformity with that mandate.

## A. PROPOSAL

Paragraph 5.2.22.4., amend to read (inserting also a reference to the existing footnote 6/):

"5.2.22.4. Electric regenerative braking systems **as defined in paragraph 2.17.**, which produce a retarding force upon release of the throttle pedal, **may generate the signal mentioned above at decelerations above 1.3 m/s<sup>2</sup>. However, when the retardation generated is less than 0.7 m/s<sup>2</sup> the signal shall be suppressed.** 6/

6/ At the time of type approval, compliance with this requirement shall be confirmed by the vehicle manufacturer."

## B. JUSTIFICATION

Electric regenerative braking systems on electric vehicles and hybrid/electric vehicles allow substantial improvement of fuel economy. There are hence some benefits in increasing the efficiency of the electric regenerative braking process.

However, the regenerative braking system may induce higher retardations than most conventional engine/gearbox associations on current vehicles can do. This is the reason why it appears opportune to allow the generation of the "signal that will be used to illuminate the stop lamps" at decelerations above 1.3 m/s<sup>2</sup> produced by the electric regenerative braking activated by the driver.

The value of 1.3 m/s<sup>2</sup> is considered as a reasonable trigger value sufficiently different to the extinguishing value of 0.7 m/s<sup>2</sup>, in order to avoid flickering of the stop lamps in case of slow decelerations.

The value of 0.7 m/s<sup>2</sup> is considered representative of the "natural" deceleration due to conventional engine/gearbox association (see paragraph 5.2.22.2. of Regulation No. 13-H and paragraph 5.2.1.30.3. of Regulation No. 13). It is consistent to propose the same value in the present proposal as it covers similar situations.

Finally, the promotion of electric regenerative braking systems facilitates the vehicle manufacturer's efforts to improve the fuel economy of the production.

A parallel document is proposed to improve the wording of the corresponding paragraph in Regulation No. 13 (ECE/TRANS/WP.29/GRRF/2009/14).

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