

## Proposal for draft amendments to Regulation No. 13-H (Brakes of M<sub>1</sub> and N<sub>1</sub> vehicles)

### Submitted by the expert from India

The text reproduced below was prepared by the expert from India in order to ignore, in vehicles fitted with Brake Assist Systems (BAS), the lower limit value of applied force required in service and secondary braking system tests. This document is based on **ECE/TRANS/WP.29/GRRF/2010/19** distributed at the sixty-eighth session of the Working Party on Brakes and Running Gear (GRRF) (see report ECE/TRANS/WP.29/GRRF/68, para. 14). Modifications to the current provisions of the Regulation are marked in bold for new characters.

## I. Proposal

### Annex 3

Paragraph 2.1.1., amend to read:

“2.1.1. The service brakes shall be tested under the conditions shown in the following table:

(A) Type-0 test with engine disconnected	v	100 km/h
	s ≤	0.1 V + 0.0060 V <sup>2</sup> (m)
	d <sub>m</sub> ≥	6.43 m/s <sup>2</sup>
(B) Type-0 test with engine connected	v	80% V <sub>max</sub> ≤ 160 km/h
	s ≤	0.1 V + 0.0067 V <sup>2</sup> (m)
	d <sub>m</sub> ≥	5.76 m/s <sup>2</sup>
	f <sup>1</sup>	6.5 - 50 daN

**1 The lower limit value of applied force ‘f’ less than 6.5 daN not applicable, if BAS is activated during the stop.**

where:

v	=	test speed, in km/h
s	=	stopping distance, in metres
d <sub>m</sub>	=	mean fully developed deceleration, in m/s <sup>2</sup>
f	=	force applied to foot control, in daN
v <sub>max</sub>	=	maximum speed of the vehicle, in km/h

Insert a new paragraph 2.2.1.1., to read:

“2.2.1.1. The performance of the secondary braking system having BAS shall be tested by the Type-0 test with the engine disconnected from an initial vehicle speed of 100 km/h and a force applied to the service brake control not exceeding 6.5daN -50 daN.” Lower limit of 6.5 daN is not applicable, if BAS is activated during the brake application.

**1. ” Lower limit of 6.5 daN is not applicable , if BAS is activated during the brake application**

## II. Justification

Main purpose of BAS is reduce the input force for brake actuation, most of the passenger cars can meet the  $6.43 \text{ m/s}^2$  deceleration requirement with 7 to 10 daN of pedal effort in the vehicle unladen condition without BAS . If BAS is activated there are chances to attain the specified deceleration below 6.5 daN. Our experience on passenger cars with BAS( MBA booster) is, the pedal force of 9 daN without BAS gets reduced to 4 daN during BAS activated applications during the vehicle unladen service brake test condition. Meeting lower limit with BAS activation is not possible or rather very difficult. Hence it is proposed to avoid the lower limit during BAS activated stops.

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