



**Economic and Social
Council**

Distr.
GENERAL

ECE/TRANS/WP.29/GRRF/2006/7
21 November 2005

Original: ENGLISH
ENGLISH AND FRENCH ONLY

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

World Forum for Harmonization of Vehicle Regulations (WP.29)

Working Party on Brakes and Running Gear (GRRF)
(Fifty-ninth session, 30 January – 3 February 2006,
agenda item 1.1.)

PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 13

(Braking)

Transmitted by the expert from the United Kingdom

Note: The text reproduced below has been prepared by the expert from the United Kingdom to formalize the proposal to remove category M₁ vehicles from the Regulation. The modifications to the existing text of the Regulation are marked in **bold** characters.

Note: This document is distributed to the Experts on Brakes and Running Gear only.

A. PROPOSAL

Paragraph 1.1., amend the scope to read:

"1.1. This Regulation applies to the braking of power-driven vehicles individually and of trailers individually of categories **M₂**, **M₃**, **N** and **O** as defined in **Annex 7** to the Consolidated Resolution on the Construction of Vehicles (R.E.3) (TRANS/WP.29/78/Rev.1/Amend 2). */ "

Footnote */, amend to read:

"*/ **M₁** category vehicles are now to be found in **Regulation No. 13-H.**"

Paragraph 5.2.1., amend to read:

"5.2.1. Vehicles of categories **M₂**, **M₃** and **N.**"

Paragraph 5.2.1.7.2., amend to read:

"In the case of **N₁** category vehicles ..."

Paragraph 5.2.1.11.1., amend to read:

"5.2.1.11.1. Wear adjustment shall be automatic for the service brakes. However, the fitting of automatic adjustment devices is optional for off-road vehicles of categories **N₂** and **N₃** and for rear brakes of vehicles of categories **N₁** .

Brakes equipped with automatic wear adjustment devices

Paragraph 5.2.1.23., should be deleted.

Paragraph 5.2.1.24. (former), renumber as paragraph 5.2.1.23. and amend to read:

"**5.2.1.23. With the exception of vehicles of categories **N₁** , power-driven vehicles authorized to tow a trailer ..."**

Paragraphs 5.2.1.25. to 5.2.1.25.1.2. (former), renumber as paragraphs 5.2.1.24. to 5.2.1.24.2. and amend to read:

"**5.2.1.24.** Additional requirements for vehicles of categories **M₂**, **N₁** and **N₂ < 5 tonnes** equipped with an electric regenerative braking system **of category A:**

5.2.1.24.1. The electric regenerative braking shall only be actuated by the accelerator control and/or the gear selector neutral position for vehicles of category **N₁**.

5.2.1.24.2. In addition, for vehicles of categories **M₂** and **N₂ (< 5 tonnes)**, the electric regenerative braking control can be a separate switch or lever."

Insert a new paragraph 5.2.1.24.3., to read:

"5.2.1.24.3. The requirements of paragraphs 5.2.1.25.6. and 5.2.1.25.7. also apply to Category A electric regenerative braking systems."

Paragraph 5.2.1.25.2. to 5.2.1.25.4. (former), renumber as paragraphs 5.2.1.25. to 5.2.1.25.7., and amend to read:

"5.2.1.25. Additional requirements for vehicles of categories M₂, N₁ and N₂ < 5tonnes equipped with an electric regenerative braking system of category B:

5.2.1.25.1. It shall not be possible to disconnect partially or totally one part of the service braking system other than by automatic means. This should not be construed as a departure from the requirements of paragraph 5.2.1.10.

5.2.1.25.2. The service braking system shall have only one control device.

5.2.1.25.3. For vehicles fitted with electric regenerative braking systems of both categories, all the relevant prescriptions shall apply except paragraph **5.2.1.24.1. above**.

In this case, the electric regenerative braking may be actuated by the accelerator control and/or the gear selector neutral position for vehicles of category N₁.

Additionally, the action on the service braking control shall not reduce the above braking effect generated by the release of accelerator control.

5.2.1.25.4. The service braking system shall not be adversely affected by the disengagement of the motor(s) or by the gear ratio used.

5.2.1.25.5. If the operation of the electric component of braking is ensured by a relation established between the information coming from the control of the service brake and the braking force at the respective wheels, a failure of this relation leading to the modification of the braking distribution among the axles (**Annex 10 or 13**, whichever is applicable) **shall** be signalled to the driver by an optical warning signal at the latest at the moment when the control is actuated and this signal shall remain lit as long as this defect exists and that the vehicle control switch (key) is in the "ON" position.

5.2.1.25.6. The operation of **any** electric regenerative braking system must not be adversely affected by magnetic or electric fields.

5.2.1.25.7. For vehicles equipped with an antilock device, the antilock device shall control the electric regenerative braking system **of either category."**

Paragraph 5.2.1.26.2., amend to read:

"5.2.1.26.2. In the case of a break in the wiring

..... starts to set the vehicle in motion again.

In the case of vehicles of category N_1 , the engine/manual transmission or ..."

Paragraph 5.2.1.29.2., amend to read:

"5.2.1.29.2. With the exception of vehicles of category N_1 power-driven vehicles ..."

Paragraph 12.1.3.3., amend to read:

"12.1.3.3. For vehicles of category N_1 , approvals granted to the 06 series of"

Annex 4.

Paragraph 1.3.2., amend to read:

"1.3.2. Behaviour of the vehicle during braking on a road on which adhesion is reduced.
The behaviour of vehicles of categories M_2 , M_3 , N_1 , N_2 , N_3 , O_3 and O_4 on a road on which ..."

Paragraph 1.5.1.1., the table, delete the row referring to category M_1 vehicles.

Paragraph 2., amend the heading to read:

"2. PERFORMANCE OF BRAKING SYSTEMS OF VEHICLES OF CATEGORIES M_2 , M_3 and N"

Paragraph 2.1.1., the table, delete the column referring to category M_1 vehicles.

Paragraph 2.1.2., amend to read (deleting the second sentence of the first subparagraph):

"2.1.2. In the case of a power-driven vehicle authorized to tow
..... mass declared by the power-driven vehicle manufacturer.

The combination performance shall be verified"

Paragraph 2.2.1., amend to read (deleting the requirements for "Category M_1 "):

"2.2.1. The secondary braking system, even
not less than the following values:

Category M_2 , M_3 $0.15 v + (2v^2/130)$ (the second term corresponds to a
....."

Paragraphs 2.2.2. and 2.2.3., amend to read:

"2.2.2. If the control is manual, the prescribed performance must be obtained by applying to the control a force not exceeding **60 daN** and the control must be so placed that it can be easily and quickly grasped by the driver.

2.2.3. If it is a foot control, the prescribed performance must be obtained by applying to the control a force not exceeding **70 daN** and the control must be so placed that it can be easily and quickly actuated by the driver."

Paragraph 2.2.4., delete the entry "M₁: 80 km/h".

Paragraphs 2.3.3. and 2.3.4., amend to read:

"2.3.3. If the control is manual, the force applied to it must not exceed **60 daN**.

2.3.4. If it is a foot control, the force exerted on the control must not exceed **70 daN**."

Paragraph 2.4.1., the table, delete the row referring to category M₁ vehicles.

Annex 10,

Paragraph 1.1., amend to read:

"1.1. Vehicles of categories **M₂, M₃, N , O₃ and O₄** which are not equipped with an anti-lock system as defined in Annex 13 to this Regulation shall meet all the requirements of this annex. If a special device is used, this must operate automatically */.

However, vehicles **in the above categories** which are equipped with an anti-lock system as defined in Annex 13, shall also meet the requirements of paragraphs 7. and 8. of this annex if they are in addition fitted with a special automatic device which controls the distribution of braking among the axles. In the event of failure of its control, it shall be possible to stop the vehicle as stipulated in paragraph 6. of this annex."

Paragraphs 3.1.2.1. and 3.1.2.2., amend to read:

"3.1.2.1. **As from 1 October 1990, at all braking rates between 0.15 and 0.8, for vehicles of category N₁. with a laden/unladen rear axle loading ratio not exceeding 1.5 or having a maximum mass of less than 2 tonnes**, in the range of z values between 0.30 and 0.45, an inversion of the adhesion utilization curves is permitted provided that the adhesion utilization curve of the rear axle does not exceed by more than 0.05 the line defined by the formula $k = z$ (line of ideal adhesion utilization - see diagram 1A of this Annex);

3.1.2.2. for all braking rates between 0.15 and 0.50 in the case of other vehicles of category **N₁**.

This condition is also considered satisfied"

Footnote 6/, should be deleted.

Paragraph 7.1., amend to read:

"7.1. **Vehicles** which meet the requirements of this Annex by"

Diagrams 1A and 1B, the titles, amend to read:

"DIAGRAM 1A

CERTAIN VEHICLES OF CATEGORY N₁ (after October 1, 1990)

(see paragraph 3.1.2.1. of this Annex)

....

DIAGRAM 1B

VEHICLES OTHER THAN THOSE OF CATEGORY N₁ AND FULL TRAILERS

(see paragraphs 3.1.2.3. **and 5.1.1.2.** of this Annex)

....."

Annex 13,

Paragraph 4.2., amend to read:

"4.2. Power-driven vehicles equipped with an anti-lock system and authorized to tow a trailer equipped with such a system, with the exception of vehicles of category **N₁** , shall be fitted with a separate optical warning signal for the anti-lock system of the trailer,"

Paragraph 5.3.1., in the table, remove category **M₁** from the row "Low Adhesion Surface".

Annex 15,

Paragraph 3.1., replace the words "categories **M** and **N**" by "categories **M₂**, **M₃** and **N**".

Paragraph 4.3.2., replace the words "categories **M** and **N**" by "categories **M₂**, **M₃** and **N**".

Paragraph 4.4.1.1., replace the words "categories **M** and **N**" by "categories **M₂**, **M₃** and **N**".

B. JUSTIFICATION

The duality of Regulation No. 13 and Regulation No. 13-H is regarded in some parts of the world as an anomaly which would be prevented by the removal of passenger car M₁ requirements from Regulation No. 13 leaving this category to be covered by Regulation No. 13-H alone.

The majority of the changes are the removal of M₁ from the text of the Regulation No. 13, leaving N₁ alone in the place of the commonly occurring M₁ and N₁.

The scope is changed to define categories covered as M₂, M₃, N and O and the footnote amended to refer the reader to Regulation No. 13-H for M₁ passenger cars.

Complication of the text changes occurs with the removal of paragraph 5.2.1.23.

The text of paragraph 5.2.1.23. relates to the use of M₁ vehicles with temporary-use spare wheels/tyres and no comparable paragraph appears in Regulation No. 13-H. Therefore, it should be noted that the requirement set out in Annex 3 to Regulation No. 64 might need to be transferred.

In order to limit the renumbering of subsequent paragraphs, the requirements for electric regenerative braking in paragraphs 5.2.1.24. to 5.1.2.25. are split into two sections – category A in paragraph 5.1.2.24. and category B in paragraph 5.1.2.25.

This prevents renumbering of paragraphs 5.2.1.26., to 5.2.1.28. and especially therefore, paragraph 5.2.1.29. which, covering fault warning, has very many references in all other parts of the Regulation and is well known to those readers who have some familiarity with the text.

Annex 4 performance tables have the M₁ rows or columns (as appropriate) removed.

In Annex 10, paragraph 3.1.2.1. is adjusted so that in diagram 1A of the Annex, whilst no longer applying to M₁ vehicles, it is made clear that it applies to the N₁ vehicles which were set out in the previous footnote 6. This footnote is deleted and the conditions are brought into the paragraph.

Whilst no distribution diagrams of Annex 10 are removed, two titles are changed to refer appropriately to N₁ vehicles only.

In Annex 15, there are 3 occurrences of "categories M and N" which need restriction to M₂ and M₃.
