

Proposal for amendments to ECE/TRANS/WP.29/GRVA/2024/7

Proposal for a ~~supplement~~ **new series of amendments to the 13 series of amendments to UN Regulation No. 13 (Heavy Vehicle Braking)**

I. Proposal

5.1.2.4. Endurance braking system

The endurance braking system shall make it possible to maintain a constant downhill speed over a long period of time without the use of the friction brakes.

The following requirements only apply to vehicles specified in Annex 4 paragraph 1.8.1. These requirements are deemed satisfied if the relevant test requirements specified in Annex 4 paragraph 1.8. are met.

5.1.2.4.1. As an equivalent of a long period of time, a time duration of at least 12 min is deemed to be adequate.

Amend 5.1.2.4.2, to read:

5.1.2.4.2. During the time duration specified in paragraph 5.1.2.4.1. the endurance braking system shall be able to maintain an average speed of 30 km/h on a seven per cent down-gradient, **at the maximum mass of the vehicle or, in the case of a motor vehicle authorized to tow an O4 trailer, at the maximum mass of the vehicle combination, but not exceeding 44 tonnes.**

However, for vehicles in which the energy is absorbed by the braking action of the engine alone, the tolerance on the average speed, as specified in Annex 4 paragraph 1.8.2.3., shall be applied.

5.1.2.4.3. Special requirements applicable endurance braking system incorporating electric regenerative braking systems

[...]

Insert new paragraphs 12.9., 12.9.1. to 12.9.7., to read:

“12.9. Transitional provisions applicable to the 14 series of amendments

12.9.1 As from the official date of entry into force of the 14 series of amendments, no Contracting Party applying this Regulation shall refuse to grant or refuse to accept type approvals under this Regulation as amended by the 14 series of amendments.

12.9.2. As from 1 September 2029, Contracting Parties applying this Regulation shall not be obliged to accept type approvals to the preceding series of amendments, first issued after 1 September 2029.

12.9.3. Until 1 September 2030, Contracting Parties applying this Regulation shall accept type approvals to the preceding series of amendments, first issued before 1 September 2029.

12.9.4. As from 1 September 2030, Contracting Parties applying this Regulation shall not be obliged to accept type approvals issued to the preceding series of amendments to this Regulation.

12.9.5. Notwithstanding paragraph 12.9.4., Contracting Parties applying this Regulation shall continue to accept type approvals issued according to the

preceding series of amendments to this Regulation, for the vehicles which are not affected by the changes introduced by the 14 series of amendments.

12.9.6. Contracting Parties applying this Regulation may grant type approvals according to any preceding series of amendments to this Regulation.

12.9.7. Contracting Parties applying this Regulation shall continue to grant extensions of existing approvals to any preceding series of amendments to this Regulation.”

Annex 4, paragraph 1.8.1.2., amend to read:

“1.8. Type-IIA test (endurance braking performance)

1.8.1. Vehicles of the following categories shall be subject to the Type-IIA test:

1.8.1.1. Vehicles of category M₃, belonging to Classes II, III or B as defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3).

1.8.1.2. Vehicles of category N₃ which are authorized to tow a trailer of category O₄. ~~If the maximum mass exceeds 26 tonnes, the test mass is limited to 26 tonnes or, in the case where the unladen mass exceeds 26 tonnes, this mass is to be taken into account by calculation.~~

1.8.1.3. Certain vehicles subject to ADR (see Annex 5).”

Annex 4, paragraph 1.8.2.1., amend to read:

“1.8.2.1. The performance of the endurance braking system shall be tested at the maximum mass of the vehicle or, ~~in the case of a motor vehicle authorized to tow an O₄ trailer at the maximum mass~~ of the vehicle combination ~~but not exceeding 44 tonnes, as relevant to demonstrate the performance specified in paragraph 5.1.2.4. of this Regulation.~~

~~If the maximum mass of a motor vehicle of category N₃ which is authorized to tow a trailer and which is not subject to ADR (see Annex 5) exceeds 26 tonnes, the test mass of this motor vehicle of category N₃ shall be 26 tonnes. In the case where the unladen mass of this motor vehicle of category N₃ exceeds 26 tonnes, this mass is to be taken into account by calculation.”~~

For vehicles specified in paragraph 1.8.1.2. of this Annex, if the maximum mass of the towing vehicle exceeds 26 tonnes, the test mass may be limited to 26 tonnes or, in the case where the unladen mass exceeds 26 tonnes, this mass may be taken into account by calculation.”

II. Justification / industry comments

1. Test provisions have been shifted from the scope, paragraph 1.8.1. and its subparagraphs, to the section describing the test conditions, paragraph 1.8.2. and its subparagraphs.
2. The original text of the regulation, with regard to the mass to be tested, could potentially be misinterpreted.
3. The endurance brake, braking only the towing vehicle, but not acting on the trailer, must withstand the mass of the full vehicle combination in order to ensure traffic safety. The test therefore needs to cover the mass of the combination, not just the mass of the towing vehicle.
4. To clarify that, the test mass of vehicles authorized to tow trailer(s) of Category O₄ shall be tested with the mass of the whole combination.

The proposal from Germany is not only a clarification of the text, but an increase of the required performance, which justifies the need for a new series of amendment, with sufficient transitional provisions to adapt the production to the new requirements.

III. Justification of the proposed changes by industry

1. General comments

- a. There indeed may be different interpretation when it comes to non-ADR N3 vehicle authorized to tow an O4 trailer. It may be understood that the required performance is limited to either 26t with the maximum mass of the towing vehicle, or 44t with the maximum mass of the combination.
- b. The first interpretation above (performance limited to 26t with the maximum mass of the towing vehicle) is broadly accepted by the TAAs. OICA is actually not aware of any TAA not accepting this interpretation.
- c. The Type-IIA requirements are in place in the regulation for more than 30 years in the Brake regulation, without changes. Industry is not aware of any safety issue in the field. The logic would be to keep the requirements as they are and improve the wording such that it reflects current interpretation.
- d. However, industry can understand if there would be a strong will from GRVA to increase performance to the level of the more stringent interpretation of current text. Only for that purpose, industry prepared the proposal above, which aims at improving the wording of the proposal from Germany.

2. Detailed justifications of the proposed changes

- a. Amendment to 5.1.2.4.2. in the body of the regulation: current proposal from Germany is specifying the performance requirements based on the test requirements, which may create similar confusion as today when it comes to whether the limitation of the test mass to 26 tonnes also limits the performance itself.

As an alternative, industry suggests to amend the paragraph 5.1.2.4. of the body of the regulation, which defines the performance requirements of the endurance braking system, without ambiguity on the fact that the required performance is not depending on the test mass specified in Annex 4, paragraph 1.8.2.1.

- b. No change is needed to German proposal in 1.8.1.2. The deletion of references to the test in the “scope” section 1.8.1.2. is a good way to prevent future unclarities.
- c. Paragraph 1.8.2.1. is modified in order to avoid duplicating other parts of the text (with a risk that a slightly different wording creates unclarities): the proposed modifications are now directly referencing the relevant paragraphs:
 - paragraph 5.1.2.4. for the required performance,
 - paragraph 1.8.1.2. for the scope.

3. Justification for a new series of amendment

- a. Industry does have a need for a new series of amendment, given the increase of the performance requirement of the endurance braking system.
- b. Proposed dates for the transitional provisions of this new series 14 are 2029 for New Type (NT) and 2030 for All types (AT).
- c. These dates are consistent with the on-going series 12 (NT 2024, AT 2026) and 13 (NT 2026, AT 2028), which sets an intense pace for the product modifications of the braking system for heavy commercial vehicles.
- d. The proposed dates are also consistent with the amount of work needed to adapt the production:
 - i. The performance requirement of the endurance braking system is a **major** technical parameter to dimension the **complete** power-train of the vehicle.

An increase of the performance requirement may require a re-design of vehicle powertrains, cooling concepts and/or battery concepts (BEV) depending on the chosen technical solution which the current regulation allows.

- ii. The design of drivelines, validations (in terms of retardation capacity, brio of the engine, fuel consumption etc.), calculation methods, product documentation, certification files, supply logistics, commercial offer and argumentation, after-market documentation are structured around the combination of those parameters, with thousands of possibilities.
- iii. Any amendment to the type IIA requirements needs careful consideration. The proposed changes to the requirements will have heavy consequences on certifications and product definition.

Important note

Industry is seeking for guidance from GRVA on how to coordinate this new series of amendment with the needed new series for Electrical Braking (e.g. EMB) (with its associated amendment to the CEL Annex). It should be avoided that the approval of a vehicle with electrical braking would automatically lead to a requirement to fulfil the new type-IIA requirements as specified above.
