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## Economic Commission for Europe

### Inland Transport Committee

### World Forum for Harmonization of Vehicle Regulations

#### 193rd session

Geneva, 25–28 June 2024

Item 4.9.8 of the provisional agenda

#### 1958 Agreement:

Consideration of draft amendments to existing

UN Regulations submitted by GRBP

## **Proposal for Supplement 10 to the 03 series of amendments to UN Regulation No. 51 (Noise of M and N categories of vehicles)**

### **Submitted by the Working Party on Noise and Tyres\***

The text reproduced below was adopted by the Working Party on Noise and Tyres (GRBP) at its seventy-ninth session (ECE/TRANS/WP.29/GRBP/77, para. 7). It is based on informal document GRBP-79-33-Rev.1. It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Administrative Committee (AC.1) for consideration at their June 2024 sessions.

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\* In accordance with the programme of work of the Inland Transport Committee for 2024 as outlined in proposed programme budget for 2024 (A/78/6 (Sect. 20), table 20.5), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.





In cases where  $a_{\text{wot test}}$  is less than  $a_{\text{urban}}$ :

$$k_p = 0 \dots$$

Annex 3, Appendix 2,

Paragraph 3.2.4., amend to read:

“3.2.4. For each gear, run and vehicle side under constant speed extract the power train component  $L_{PT,crs,j}$  from the test result  $L_{crs,j}$ , by calculation.

$$L_{PT,crs,j} = 10 \times \lg(10^{0.1 \times L_{crs,j}} - 10^{0.1 \times L_{TR,crs,j,\theta_{crs}}})$$

In case that  $L_{TR,crs,j,\theta_{crs}}$  is greater than  $L_{crs,j}$  the power train component  $L_{PT,crs,j}$  is determined by

$$L_{PT,crs,j} = 10 \times \lg(0.01 \times 10^{0.1 \times L_{crs,j}})$$

with  $L_{TR,crs,j,\theta_{crs}}$  redefined as

$$L_{TR,crs,j,\theta_{crs}} = 10 \times \lg(0.99 \times 10^{0.1 \times L_{crs,j}})$$

The redefined  $L_{TR,crs,j,\theta_{crs}}$  shall then be subjected to temperature correction in 3.2.3 to obtain the corresponding  $L_{TR,crs,j,\theta_{ref}}$ .”

Paragraph 3.3.4., amend to read:

“3.3.4. For each gear, run and vehicle side extract the power train component  $L_{PT,wot,j}$  from the reported acceleration test  $L_{wot,j}$ , by calculation.

$$L_{PT,wot,j} = 10 \times \lg(10^{0.1 \times L_{wot,j}} - 10^{0.1 \times L_{TR,wot,j,\theta_{wot}}})$$

In case that  ~~$L_{TR,wot,j,\theta_{wot}}$  is greater than  $L_{wot,j}$~~

$$10^{0.1 \times L_{TR,wot,j,\theta_{wot}}} \geq 0.99 \times 10^{0.1 \times L_{wot,j}}$$

the power train component  $L_{PT,wot,j}$  is determined by

$$L_{PT,wot,j} = 10 \times \lg(0.01 \times 10^{0.1 \times L_{wot,j}})$$

with  $L_{TR,wot,j,\theta_{wot}}$  redefined as

$$L_{TR,wot,j,\theta_{wot}} = 10 \times \lg(0.99 \times 10^{0.1 \times L_{wot,j}})$$

The redefined  $L_{TR,wot,j,\theta_{wot}}$  shall then be subjected to temperature correction in 3.2.3 to obtain the corresponding  $L_{TR,wot,j,\theta_{ref}}$ .”

Annex 7,

Paragraph 5.2., amend to read:

“5.2. The determination of gear  $\alpha$  is as follows:

- $\alpha = 3$  for manual transmission and for automatic transmission tested in locked position with up to 5 gears;
- $\alpha = 4$  for manual transmission and for automatic transmission tested in locked position with 6 or more gears. If the acceleration calculated from AA to BB + vehicle length in gear 4 exceeds  $1.9 \text{ m/s}^2$ , the first higher gear  $\alpha > 4$  with an acceleration lower than or equal to  $1.9 \text{ m/s}^2$  shall be chosen. If there is no gear with an acceleration less than or equal to  $1.9 \text{ m/s}^2$  available, the highest available gear shall be chosen.

For vehicles tested under locked condition, the gear ratio for further calculation shall be determined from the acceleration test result in Annex 3.

For vehicles tested under non-locked condition, the gear ratio for further calculation shall be determined from the acceleration test result in Annex 3 using the reported engine speed and vehicle speed at line BB'.”