United Nations ECE/TRANS/WP.29/2025/26

Economic and Social Council

Distr.: General
24 December 2024

Original: English

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

195th session
Geneva, 4–7 March 2025
Item 4.9.1 of the provisional agenda
1958 Agreement:
Consideration of draft amendments to existing UN Regulations submitted by GRPE

Proposal for Supplement 10 to the 06 series of amendments to UN Regulation No. 49 (Emissions of compression ignition and positive ignition (LPG and CNG) engines)

Submitted by the Working Party on Pollution and Energy*, **

The text reproduced below was adopted by the Working Party on Pollution and Energy (GRPE) at its ninety-first session (ECE/TRANS/WP.29/GRPE/91, para. 32.). It is based on ECE/TRANS/WP.29/GRPE/2024/21, GRPE-91-37 and amended during the session as reflected in Annex V of the session report. 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 March 2025 sessions.

* This document was scheduled for publication after the standard publication date owing to circumstances beyond the submitter's control.

** In accordance with the programme of work of the Inland Transport Committee for 2025 as outlined in proposed programme budget for 2025 (A/79/6 (Sect. 20), table 20.6), 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.

Addendum to Annex 2B, paragraph 1.1.5., delete.

Addendum to Annex 2B, paragraph 1.4.1., delete.

Addendum to Annex 2B, paragraph 1.4.2., delete.

Annex 8, paragraph 10.1.9.24a., delete.

Annex 8, paragraph 10.1.11.9bis., delete.

Annex 8, Appendix 1, paragraph A.1.1., amend to read:

"A.1.1. Introduction

This Appendix describes the procedure to determine pollutant emissions from on-vehicle on-road measurements using Portable Emissions Measurement Systems (hereinafter "PEMS"). The pollutant emissions to be measured from the exhaust of the engine include the following components: carbon monoxide, total hydrocarbons~~,~~ and nitrogen oxides for compression ignition engines and carbon monoxide, non- methane hydrocarbons, methane~~,~~ and nitrogen oxides for positive ignition engines. Additionally, carbon dioxide shall be measured to enable the calculation procedures described in paragraph A.1.4.

For engines fuelled with natural gas, the manufacturer, technical service or Type Approval Authority may choose to measure the total hydrocarbon (THC) emissions only instead of measuring the methane and non-methane hydrocarbon emissions. In that case, the emission limit for the total hydrocarbon emissions is the same as the one shown in paragraph 5.3. of this Regulation for methane emissions. For the purposes of the calculation of the conformity factors pursuant to paragraphs A.1.4.2.3. and A.1.4.3.2., the applicable limit shall in that case be the methane emission limit only.

For engines fuelled with gases other than natural gas, the manufacturer, technical service or Type Approval Authority may choose to measure the total hydrocarbon (THC) emissions instead of measuring the non-methane hydrocarbon emissions. In that case, the emission limit for the total hydrocarbon emissions is the same as shown in paragraph 5.3. of this Regulation for non-methane hydrocarbon emissions. For the purposes of the calculations of the conformity factors pursuant to paragraphs A.1.4.2.3. and A.1.4.3.2., the applicable limit shall in that case be the non-methane emission limit.

For engines where all the fuels used have a molar carbon to hydrogen ratio of 0 as defined in paragraph 8. of Annex 4, the manufacturer may choose to measure only the total hydrocarbon (THC), carbon monoxide (CO)~~,~~ and nitrogen oxides (NO_x). In this case lambda and optionally air mass flow shall be measured as well to enable the data consistency check as described in paragraph A.1.3.2."

Annex 8, Appendix 1, paragraph A.1.2.2., amend to read:

"Table 1
Test parameters

Parameter	Unit	Source
THC concentration[1]	ppm	Gas analyser
CO concentration[1]	ppm	Gas analyser
NO_x concentration[1]	ppm	Gas analyser
CO_2 concentration[1, 5]	ppm	Gas analyser
CH_4 concentration[1, 2, 5]	ppm	Gas analyser
Exhaust gas flow	kg/h	Exhaust Flow Meter (hereinafter EFM)

Parameter	Unit	Source
Exhaust temperature	K	EFM
Ambient temperature[3]	K	Sensor
Ambient pressure	kPa	Sensor
Engine torque[4]	Nm	ECU or Sensor
Engine speed	rpm	ECU or Sensor
Engine fuel flow	g/s	ECU or Sensor
Engine coolant temperature	K	ECU or Sensor
Engine intake air temperature[3]	K	Sensor
Vehicle ground speed	km/h	ECU and GPS
Vehicle latitude	degree	GPS
Vehicle longitude	degree	GPS
Lambda value [6]	-	ECU or Sensor
Air mass flow [7]	kg/h	ECU or Sensor

Notes:

[1] Measured or corrected to a wet basis

[2] Only for gas engines fuelled with natural gas

[3] Use the ambient temperature sensor or an intake air temperature sensor

[4] The recorded value shall be either (a) the net brake engine torque according to paragraph A.1.2.4.4. of this appendix or (b) the net brake engine torque calculated from the torque values according to paragraph A.1.2.4.4. of this appendix.

[5] Not applicable for engines where all the fuels used have a molar carbon to hydrogen ratio of 0 as defined in paragraph 8. of Annex 4.

[6] Only for engines where all the fuels used have a molar carbon to hydrogen ratio of 0 as defined in paragraph 8. of Annex 4

[7] Optional for engines where all the fuels used have a molar carbon to hydrogen ratio of 0 as defined in paragraph 8. of Annex 4"