


**Economic Commission for Europe**
**Inland Transport Committee**
**World Forum for Harmonization of Vehicle Regulations**
**Working Party on Pollution and Energy**
**Eighty-sixth session**

Geneva, 30 May – 2 June 2022

**Report of the Working Party on Pollution and Energy  
(GRPE) on its eighty-sixth session**
**Revision**
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## I. Attendance

1. The Working Party on Pollution and Energy (GRPE) held its eighty-sixth session from 30 May to 2 June 2022, with André Rijnders (Netherlands) as Chair and Duncan Kay (United Kingdom of Great Britain and Northern Ireland) as Vice-Chair. Experts from the following countries participated in the work following Rule 1(a) of the Rules of Procedure of the World Forum for Harmonization of Vehicle Regulations (WP.29) (TRANS/WP.29/690, as amended): Australia, Bahrain, Canada, China, France, Germany, Hungary, India, Italy, Japan, Netherlands, Norway, Republic of Korea, Romania, Russian Federation, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland (UK) and United States of America. Experts from the European Commission (EC) also participated. Experts from the following non-governmental organizations (NGOs) took part in the session: Association for Emissions Control by Catalyst (AECC), Clean Air Association, European Association of Automobile Suppliers (CLEPA/MEMA/JAPIA), European Association of Internal Combustion Engine Manufacturers (EUROMOT), European Garage Equipment Association (EGEA), Fédération Internationale de l'Automobile (FIA), International Association for Natural Gas Vehicles (NGV Global), International Council on Clean Transportation (ICCT), International Motorcycle Manufacturers Association (IMMA), International Motor Vehicle Inspection Committee (CITA), International Organization of Motor Vehicle Manufacturers (OICA), International Road Transport Union (IRU), and SAE International. The representative from Clean Air Association was invited by the Chair.

## II. Adoption of the agenda (agenda item 1)

*Documentation:* ECE/TRANS/WP.29/GRPE/2022/9  
Informal documents GRPE-86-01-Rev.2, GRPE-86-02 and GRPE-86-03

2. Mr. Rijnders, Chair of GRPE, opened the meeting, held as hybrid session, with approximately a third of participants being physically present, and welcomed the participants.
3. GRPE adopted the provisional agenda of the eighty-sixth session (ECE/TRANS/WP.29/GRPE/2022/9), as updated and consolidated in GRPE-86-01-Rev.2, and GRPE-86-02 as a tentative running order.
4. The informal documents distributed before and during the GRPE session are listed in Annex I. Annex II lists the informal meetings held in conjunction with this GRPE session. Annex III lists the Informal Working Groups (IWGs) of GRPE, task forces and subgroups, giving details on their Chairs, Secretaries and the end of their mandates.
5. The secretariat introduced GRPE-86-03, announcing details for the next GRPE session. He informed GRPE the corresponding deadline for the submission of official documents would therefore be Tuesday 18 October 2022.
6. The representatives from Australia, Japan and the European Commission requested to keep the possibility for remote connection to the GRPE sessions in 2023, to allow for potential uncertainties linked with the still unstable sanitary situation.

## III. Report on the last session of the World Forum for Harmonization of Vehicle Regulations (WP.29) (agenda item 2)

*Documentation:* ECE/TRANS/WP.29/1164  
Informal documents GRPE-86-04 and GRPE-86-47

7. The secretariat introduced GRPE-86-04 and reported on relevant items discussed during the 84th annual session of the Inland Transport Committee, in particular with respect to decision 34.(c) where ITC “invited its Working Parties to submit to the secretariat until 14 October 2022 their ongoing contributions, future plans and suggestions in support of climate

change mitigation”, and decision 48. where ITC “requested WP.5 to take into consideration the new trend towards electric charging infrastructure and, in coordination with the chairs of the relevant working parties, to prepare a first assessment of issues that need addressing in the realm of the ITC to be presented at the 85th session of the ITC”<sup>1</sup>.

8. GRPE agreed to let the GRPE leadership team coordinates inputs on its behalf on those two requests from ITC. The Chair and secretariat prepared a draft contribution to be submitted to ITC (GRPE-86-47). GRPE also invited the Informal Working Groups (IWGs) on Electric Vehicles and the Environment and on Life Cycle Analysis (LCA) to contribute to the relevant topic, if appropriate. The Chair also invited any interested party to approach him in case they would want to provide inputs to any of these documents.

9. The secretariat informed about relevant items discussed during the 186th sessions of the World Forum for Harmonization of Vehicle Regulations (WP.29). He referred to ECE/TRANS/WP.29/1164 for further details.

10. The representative from France asked further information on the request from WP.29 for each GR to perform a screening of UN Regulations, GTRs and Rules with regards to their fitness for Automated Driving Systems (ADS), incl. for driverless systems, and asked whether a dedicated task force would be needed, as done by other GRs. The representative from the US raised the questions about how ADS systems will impact typical driving behaviours, in terms of speed, acceleration. The representative from OICA shared a concrete example where regulation would need to be amended to give the permission for autonomous vehicle to drive emission test cycles. The representative from the European Commission (EC) stated she was hesitant to create a dedicated task force on this topic, given the workload of GRPE and invited GRPE to consider the best time to do it in the future.

11. The Chair invited all interested parties to provide a list of potential impacted regulations by ADS, to be shared as informal documents during the next session of GRPE in January 2023.

## **IV. Light vehicles (agenda item 3)**

### **A. UN Regulations Nos. 68 (Measurement of the maximum speed, including electric vehicles), 83 (Emissions of M<sub>1</sub> and N<sub>1</sub> vehicles), 101 (CO<sub>2</sub> emissions/fuel consumption), 103 (Replacement pollution control devices) and 154 (Worldwide Light duty Test Procedure (WLTP))**

*Documentation:* ECE/TRANS/WP.29/GRPE/2022/10,  
ECE/TRANS/WP.29/GRPE/2022/11,  
ECE/TRANS/WP.29/GRPE/2022/12,  
ECE/TRANS/WP.29/GRPE/2022/13,  
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ECE/TRANS/WP.29/GRPE/2022/19,  
Informal documents GRPE-86-07, GRPE-86-08, GRPE-86-09,  
GRPE-86-10, GRPE-86-11, GRPE-86-12, GRPE-86-14, GRPE-86-15, GRPE-86-16, GRPE-86-24-Rev.1, GRPE-86-28, GRPE-86-31, GRPE-86-32-Rev.1, GRPE-86-36, GRPE-86-44 and GRPE-86-48

12. The representative from OICA introduced ECE/TRANS/WP.29/GRPE/2022/10 (as amended by GRPE-86-12), ECE/TRANS/WP.29/GRPE/2022/13 and GRPE-86-24-Rev.1 proposing to amend the 05, 06 and 07 series of amendments to UN Regulation No. 83.

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<sup>1</sup> ITC decision can be found in : [https://unece.org/sites/default/files/2022-03/84th%20ITC%20decisions%20adopted\\_0.pdf](https://unece.org/sites/default/files/2022-03/84th%20ITC%20decisions%20adopted_0.pdf)

13. The representative from OICA introduced ECE/TRANS/WP.29/GRPE/2022/11 and ECE/TRANS/WP.29/GRPE/2022/12 to implement improvements done in the 02 and 03 series of amendments to UN Regulation No. 154 back into the original and 01 series of amendments to UN Regulation No. 154.
14. The representative from OICA introduced ECE/TRANS/WP.29/GRPE/2022/14, ECE/TRANS/WP.29/GRPE/2022/15, ECE/TRANS/WP.29/GRPE/2022/16, GRPE-86-08, GRPE-86-09, GRPE-86-10, GRPE-86-11 proposing to amend the 06 and 07 series of amendments to UN Regulation No. 83, the 01 series of amendments to UN Regulation No. 101 and the original, 01, 02 and 03 series of amendments to UN Regulation No. 154 to ensure consistent type-approval test conditions with the introduction of the 08 series of amendments to UN Regulation No. 48 on rear position lamps.
15. The representative from OICA introduced ECE/TRANS/WP.29/GRPE/2022/17 (as amended by GRPE-86-36) to harmonize the requirements for the determination of CO<sub>2</sub>, fuel and electric energy consumption of the discharge requirement for OVC-HEV with an operating mode switch with its stop criterion in the 01 series of amendments to UN Regulation No. 101.
16. The representative from OICA introduced ECE/TRANS/WP.29/GRPE/2022/18 and ECE/TRANS/WP.29/GRPE/2022/19 proposing to amend provision for special purpose vehicles in the 06 and 07 series of amendments to UN Regulation No. 83 and in resolution R.E.3.
17. The representative from OICA introduced the informal documents GRPE-86-14, GRPE-86-15, GRPE-86-16 and GRPE-86-28 proposing to revise the requirements of UN Regulation No. 154 with regards to the calculation of run-in factors.
18. The representative from the European Commission required proposals to be bundled so regulatory texts are not updated at every GRPE session, that increases the administrative burden and might be perceived as bad legislative development.
19. To streamline the adoption process, the Chair requested the secretariat to organize all proposals in a summary table, to have a concise view on the proposals for each series of amendments to any given UN Regulation (GRPE-86-32-Rev.1).
20. GRPE agreed to adopt and submit for consideration to the November 2022 session of WP.29 all proposals in dark green in GRPE-86-32-Rev.1. GRPE agreed with the content of all proposals in light green in GRPE-86-32-Rev.1 but to postpone submission to WP.29. GRPE requested more time to scrutinize or finalize proposals in light red in GRPE-86-32-Rev.1.
21. GRPE adopted ECE/TRANS/WP.29/GRPE/2022/10 (as amended by GRPE-86-12), and ECE/TRANS/WP.29/GRPE/2022/13, as combined in Annex IV, and requested the secretariat to submit it to WP.29 and AC.1 for consideration and vote at their November 2022 sessions as draft new supplement to the 05 series of amendments to UN Regulation No. 83 respectively.
22. GRPE adopted ECE/TRANS/WP.29/GRPE/2022/10 (as amended by GRPE-86-12), ECE/TRANS/WP.29/GRPE/2022/13 and GRPE-86-24-Rev.1, as combined in Annex V, and requested the secretariat to submit it to WP.29 and AC.1 for consideration and vote at their November 2022 sessions as draft new supplement to the 06 series of amendments to UN Regulation No. 83 respectively.
23. GRPE adopted ECE/TRANS/WP.29/GRPE/2022/10 (as amended by GRPE-86-12), ECE/TRANS/WP.29/GRPE/2022/13 and GRPE-86-24-Rev.1, as combined in Annex VI, and requested the secretariat to submit it to WP.29 and AC.1 for consideration and vote at their November 2022 sessions as draft new supplement to the 07 series of amendments to UN Regulation No. 83 respectively.
24. For seamless considerations of forthcoming proposals, GRPE agreed to set-up a coordination task force to pre-discuss proposals before GRPE sessions. The representatives from the EC and OICA volunteered to act as focal points to this coordination task force to meet prior to GRPE sessions, if need be.

25. The representative from the European Commission introduced GRPE-86-07 on the development of the 08 series of amendments to UN Regulation No. 83. GRPE agreed to consider a draft proposal for the 08 series of amendments to UN Regulation No. 83 as post session informal document GRPE-86-44 to be shared by the secretariat with all GRPE participants in September 2022, instead of the announced date during the GRPE session because of unexpected complexity. GRPE asked all interested parties to provide written comments to the secretariat, with the intention still being to prepare a working document for the January 2023 session of GRPE.

26. The representative from OICA introduced GRPE-86-31 seeking advice from GRPE on the Introductory Provision in the newly adopted 02 series of amendments to UN Regulation No. 154. The representative from OICA agreed to prepare an updated reference document (GRPE-86-48) amending GRPE-81-29-Rev.1. GRPE-81-29-Rev.1 can be found in the “Documents for reference only (GRPE)” section of the GRPE webpage. The representative from Japan also sought clarification about the entry into force of the 03 series of amendments to UN regulation No. 154, expected in October. The secretariat said he will collect relevant information to be communicated to the representative of Japan.

## **B. UN Global Technical Regulations Nos. 15 on Worldwide harmonized Light vehicles Test Procedures (WLTP) and 19 (Evaporative emission test procedure for the Worldwide harmonized Light vehicle Test Procedures (WLTP EVAP))**

*Documentation:* Informal document GRPE-86-20

27. The representative from Clean Air Association introduced GRPE-86-20 proposing to amend UN GTR No. 15 and its definition of defeat device. The representative from the EC informed that litigation cases were still on-going with respect to this definition, and suggested all legal cases are settled before looking at a potential amendment to this definition. The representative from the UK added that the Court of Justice of the European Union (CJEU) has clarified that the notion of damage should be interpreted as sudden, and wondered if the proposal was necessary given that the CJEU ruling clarified the subject matter.

28. The representative from Japan, former secretary to the IWG on WLTP, added that the definition had been simplified in the latest amendments to UN GTR No. 15. The representative from the Netherlands, former Chair of the IWG on WLTP, added indeed that the exemptions to the definition were moved to another part of UN GTR No. 15, but remained.

29. The Chair acknowledged this was an important issue, and that some regions have clarified the matter, and that in GRPE many on-going activities (such as the forthcoming UN Regulation on RDE or the finalization of the 08 series of amendments to UN Regulation No. 83) could potentially have an impact on this definition. He invited GRPE to potentially revisit the topic when discussing the 08 series of amendments to UN Regulation No. 83.

## **C. Worldwide harmonized Real Driving Emissions (RDE) test procedure**

*Documentation:* Informal documents GRPE-86-29 and GRPE-86-45

30. The representative from the European Commission, Chair of the IWG on RDE, introduced GRPE-86-29 providing an update about the latest intention with the finalization of the new UN Regulation on RDE. She informed that more changes beyond the remaining square brackets would be needed and that a final text was expected to be available in the first weeks of July 2022. She kindly requested GRPE to accept a post session submission, and the consideration of the informal document through a written procedure over the summer.

31. GRPE agreed to consider a draft proposal for a draft new UN Regulation on RDE as post session informal document GRPE-86-45 to be shared by the secretariat with all GRPE participants mid July 2022. GRPE asked all interested parties to provide written comments to the secretariat before 19 September 2022, to prepare a working document for the January 2023 session of GRPE.

## V. Heavy duty vehicles (agenda item 4)

*Documentation:* Informal document GRPE-86-33

32. GRPE agreed to consider a presentation from the representative from the US on the recent proposed rule for Heavy Duty tailpipe emissions (GRPE-86-33) released by US EPA. The representative from the European Commission asked about how the future share of zero-tailpipe emission vehicles (ZEVs) had been calculated, and which kind of ZEVs had been considered. The representative from the US clarified the mandates in certain parts of the US, such as in California had been used as a reference and that no fuel cell vehicles were assumed in the time frame studied. He also added that for example, school buses were assumed to be electrified first, as a vehicle category in which the payback time would be quick and the driving patterns would match the vehicle technical specifications.

33. The Chair asked whether during the development of the US proposed rule, existing UN legal instruments such as UN GTRs Nos. 4 or 10 were taken into consideration. The representative from the US confirmed that the World Heavy-Duty test Cycle (WHDC) was considered but abandoned during the consultation process, as well as off cycle emissions where alignment would still require additional changes in the procedure. He confirmed that the US (through the US EPA) remained committed to harmonize regulation through GRPE.

34. The representative from the European Commission offered to introduce the Euro7/VII proposal at the next session of GRPE, proposing to hold any further discussions about necessary changes in UN GTRs until then. The Chair highlighted the importance of harmonizing provisions, especially on the heavy duty sectors, and invited GRPE to reconsider this topic at the forthcoming sessions of GRPE.

### A. UN Regulations Nos. 49 (Emissions of compression ignition and positive ignition (LPG and CNG) engines) and 132 (Retrofit Emissions Control devices (REC))

*Documentation:* ECE/TRANS/WP.29/GRPE/2022/20  
Informal documents GRPE-86-13 and GRPE-86-25

35. The representative from OICA introduced GRPE-86-25 as an update about the inclusion of hydrogen as a fuel in UN Regulations No. 49 and 85 and informed GRPE that the consideration of ECE/TRANS/WP.29/GRPE/2022/20 as amended by GRPE-86-13 would be postponed until the next session of GRPE. The representative from the European Commission confirmed that no vehicles had been identified for validation tests and that the validation test campaign was expected to be finalized by the end of 2022. GRPE agreed to postpone the consideration of this issue to forthcoming sessions of GRPE.

36. The representative from the Netherlands sought advice on how to deal with liquified hydrogen safety issues, as the topic has not been included yet in UN Regulation No. 134 (but is present in UN GTR No. 13) which deal with safety issue for hydrogen vehicles. The Chair indicated he would raise the issue during the next session of WP.29 to get the latest information on this topic.

### B. UN Global Technical Regulations Nos. 4 (World-wide harmonized Heavy Duty Certification procedure (WHDC)), 5 (World-Wide harmonized Heavy duty On-Board Diagnostic systems (WWH-OBD)) and 10 (Off-Cycle Emissions (OCE))

37. GRPE had not received any new proposals for discussion under this agenda item.

### C. Worldwide provisions for Heavy Duty vehicles Fuel Economy

38. GRPE had not received any new proposals for discussion under this agenda item.

## **VI. UN Regulations Nos. 24 (Visible pollutants, measurement of power of C.I. engines (Diesel smoke)), 85 (Measurement of the net power), 115 (LPG and CNG retrofit systems), 133 (Recyclability of motor vehicles) and 143 (Heavy Duty Dual-Fuel Engine Retrofit Systems (HDDF-ERS)) (agenda item 5)**

*Documentation:* ECE/TRANS/WP.29/GRPE/2022/21,  
ECE/TRANS/WP.29/GRPE/2022/22,  
ECE/TRANS/WP.29/GRPE/2022/23,  
and Informal document GRPE-86-25

39. The representative from OICA introduced GRPE-86-25 as an update about the inclusion of hydrogen as a fuel in UN Regulations No. 49 and 85 and informed GRPE that the consideration of ECE/TRANS/WP.29/GRPE/2022/21 would be postponed until the next session of GRPE. GRPE agreed to postpone the consideration of this issue to forthcoming sessions of GRPE.

40. The representative from OICA introduced ECE/TRANS/WP.29/GRPE/2022/22 and ECE/TRANS/WP.29/GRPE/2022/23 on reference fuels allowed to be used when performing tests according to UN Regulations Nos. 24 and 85. The representative from the UK found the proposals acceptable and would be willing to adopt after removal of the square brackets. The representative from the European Commission required proposals to be bundled so regulatory texts are not updated at every GRPE session, that increases the administrative burden and might be perceived as bad legislative development. The representative from Italy stated he would be willing to adopt the proposals in this session to facilitate adoption and certification processes around the globe. The representative from the European Commission suggested to only adopt ECE/TRANS/WP.29/GRPE/2022/22 in this session and to bundle all proposals to amend UN Regulation No. 85 at forthcoming sessions of GRPE, including ECE/TRANS/WP.29/GRPE/2022/23. GRPE agreed with this approach.

41. GRPE adopted ECE/TRANS/WP.29/GRPE/2022/22 as amended during the session and reflected in Annex VII and requested the secretariat to submit it to WP.29 and AC.1 for consideration and vote at their November 2022 sessions as draft new supplement to the 03 series of amendments to UN Regulation No. 24 (Visible pollutants, measurement of power of C.I. engines (Diesel smoke)).

## **VII. Agricultural and forestry tractors, non-road mobile machinery (agenda item 6)**

### **A. UN Regulations Nos. 96 (Diesel emission (agricultural tractors)) and 120 (Net power of tractors and non-road mobile machinery)**

*Documentation:* Informal document GRPE-86-06

42. The representative from EUROMOT introduced GRPE-86-06 updating GRPE on the inclusion of hydrogen as a fuel in UN Regulation No. 96. The Chair asked about the scope difference in UN Regulation No. 96 versus the European legislation, and if GRPE should attempt to harmonize the scope in both regulatory frameworks. The representative from EUROMOT did not see it feasible to include inland waterways into the 58 Agreement given its title on “wheeled vehicles” and clarified its intention in GRPE-86-06 was to acknowledge the scope difference, not to attempt to harmonize it.

43. The representative from the Netherlands sought clarifications about a similar validation test campaign being planned for non-road mobile machinery as the one planned for on-road heavy duty vehicles for the use of hydrogen in internal combustion engines (see para. 0). The representative from EC stated their willingness to hold bilateral discussions with EUROMOT to find the best way forward to include non-road vehicles into the validation test campaign, if possible.



## **B. UN Global Technical Regulation No. 11 (Non-road mobile machinery engines)**

44. GRPE had not received any new proposals for discussion under this agenda item.

## **VIII. Particle Measurement Programme (PMP) (agenda item 7)**

*Documentation:* Informal documents GRPE-86-23, GRPE-86-34 and GRPE-86-46

45. The representative from the European Commission, Chair of the IWG on PMP, introduced GRPE-86-23 giving a status report of the activities of the IWG on PMP. He asked his colleague to provide an update on all matters related to non-exhaust particulates measurement and the latest development of the UN GTR on brake particulate emissions. The representative from OICA highlighted the high variability of brake emission results during the inter-laboratory study, and wondered if such variability would be accounted for in the mission limits, if set, and asked about potential measures to reduce variability. The representative from the European Commission clarified that no emissions limits are expected to be included in the UN GTR that will focus on a harmonized test method. He highlighted that during the inter-laboratory test, only one laboratory was fully compliant with the provision set out in the Task Force 3 protocol. He expected the variability would drastically improve when the final procedure is released and all laboratories are compliant with the provisions. He kindly requested GRPE to accept a post session submission, and the consideration of the informal document through a written procedure over the summer.

46. The representative from OICA said that it is the third informal document that is expected to be submitted via written consultation, highlighting the challenges that this might pose to keep track of the progress and requested for the possibility to hold additional meetings, if need be, before the submission of working documents. The Chair reminded GRPE that the practice to have informal document consideration then working documents at the forthcoming session was not mandatory, and GRPE might be willing to show some flexibility when needed. The representatives from Sweden and the UK supported the timeline proposed by the IWG on PMP.

47. GRPE agreed to consider a draft proposal for a draft new UN GTR on brake particulate emissions as post session informal document GRPE-86-46 to be shared by the secretariat with all GRPE participants mid July 2022. GRPE asked all interested parties to provide written comments to the secretariat before 19 September 2022, to prepare a working document for the January 2023 session of GRPE.

48. The representatives from France and the European Commission, Co-Chairs of the Task Force on Tyre Abrasion (TFTA), introduced GRPE-86-23 presenting the activities of the TFTA since its recent inception. The Chair thanked the update and asked for such regular updates to GRPE on this topic.

## **IX. Motorcycles and mopeds (agenda item 8)**

### **A. UN Regulations Nos. 40 (Emission of gaseous pollutants by motorcycles) and 47 (Emission of gaseous pollutants of mopeds)**

49. GRPE had not received any new proposals for discussion under this agenda item.

### **B. UN Global Technical Regulations Nos. 2 (World-wide Motorcycle emissions Test Cycle (WMTC)), 17 (Crankcase and evaporative emissions of L-category vehicles) and 18 (On-Board Diagnostic (OBD) systems for L-category vehicles) and [XX] (Durability)**

*Documentation:* ECE/TRANS/WP.29/2022/107,  
ECE/TRANS/WP.29/2022/109

50. The Co-Chair of the IWG on EPPR introduced ECE/TRANS/WP.29/2022/107 and ECE/TRANS/WP.29/2022/109, as technical reports to the draft Amendment 5 to UN GTR No. 2 and of the draft new UN GTR on durability of pollution-control devices for two- and three-wheelers, respectively. As agreed during the last session of GRPE (ECE/TRANS/WP.29/GRPE/85, para. 52), those technical reports were directly submitted to the June 2022 session of WP.29. GRPE confirmed the submission of ECE/TRANS/WP.29/2022/107 and ECE/TRANS/WP.29/2022/109 to the June 2022 session of WP.29.

### **C. Environmental and Propulsion Performance Requirements (EPPR) for L-category vehicles**

*Documentation:* Informal documents GRPE-86-26 and GRPE-86-27-Rev.3

51. The Co-Chairs of IWG on EPPR presented a status report (GRPE-86-26). They updated GRPE on the latest activities of the group and also introduced updated Terms of References for the IWG on EPPR (GRPE-86-27-Rev.3). GRPE adopted GRPE-86-27-Rev.2 to extend the interim leadership team by 6 months.

## **X. Electric Vehicles and the Environment (EVE) (agenda item 9)**

### **A. UN GTR No. 21 on the Determination of Electrified Vehicle Power (DEVP) and No. 22 on In-vehicle Battery Durability**

52. GRPE had not received any new proposals for discussion under this agenda item.

### **B. Other activities of IWG on EVE**

*Documentation:* Informal document GRPE-86-37

53. The Chair of IWG on EVE presented the status report introducing the latest activities of the group (GRPE-86-37). He explained the latest work starting on including heavy duty into UN GTR No. 22 and the growing challenges it would pose given the lack of reference value to base the durability on. He informed GRPE that the development activities might take longer than for light duty vehicles and asked GRPE for patience during this process. He confirmed the IWG on EVE was nevertheless committed to deliver a new amendment to UN GTR No. 22 in a timely manner. The Chair of GRPE thanked again the IWG on EVE for their work and dedication.

## **XI. Mutual Resolution No. 2 (M.R.2) (agenda item 10)**

54. GRPE had not received any new proposals for discussion under this agenda item.

## **XII. International Whole Vehicle Type Approval (IWVTA) (agenda item 11)**

*Documentation:* Informal documents GRPE-86-21-Rev.1 and GRPE-86-22

55. The GRPE ambassador to the IWG on IWVTA introduced GRPE-86-21-Rev.1 and GRPE-86-22 updating GRPE on the latest information from the IWG on DETA about the implementation of the Unique Identifier (UI) in UN Regulations pertinent to GRPE. He suggested to take a cautious approach to forbid UI in case of doubts and to also monitor the developments of DETA and UI closely. The representative from the UK agreed with this cautious approach and highlighted the importance of markings for after-market purposes.

56. The representative from the European Commission noted that in some markets the smoke coefficient in UN Regulation No. 24 was obsolete, and therefore dedicated marking information would no longer be needed in those markets. The representative from OICA added that despite the withdrawal of the obligation to perform smoke test for some engines, the need to display a default value on the label was still needed.

57. Once agreed by GRPE, The GRPE ambassador to the IWG on IWVTA said he would develop draft proposals to amend relevant UN Regulations to authorize or not the use of UI. The secretariat asked about the information contained in the summary document. The GRPE ambassador to the IWG on IWVTA replied this was still being discussed, but that the fundamental concept was very open.

58. The Chair asked if the UI is not forbidden in a specific UN regulation, who's decision it is to switch to UI instead of E marking. The GRPE ambassador to the IWG on IWVTA clarified that it would be up to the applicant (usually OEMs) to choose whether to use UI or E marking, with the support of Type Approval Authorities that would be the only ones to be able to create new UI.

59. The Chair invited all relevant experts for each GRPE-related UN Regulation to approach the ambassador to provide their views on the need to forbid UI in the respective UN Regulations, with an update from the ambassador expected at the next session of GRPE. The GRPE ambassador to the IWG on IWVTA also informed about some potential issue with the inclusion of the 03 series of amendments to UN Regulation No. 154 in UN Regulation No. 0 and said he would update the GRPE leadership team if there is any urgent issue to be looked at.

### **XIII. Vehicles Interior Air Quality (VIAQ) (agenda item 12)**

*Documentation:* Informal document GRPE-86-35

60. The Chair of IWG on Vehicles Interior Air Quality (VIAQ) presented a status report on the ongoing activities of the group (GRPE-86-35). He informed GRPE about the latest progress and the items agreed during the last IWG meetings.

61. The representative from OICA asked whether the driver's influence on CO<sub>2</sub> emissions was considered when measuring its concentration in the cabin. The Chair of the IWG on VIAQ confirmed this was the case.

62. GRPE acknowledged the good progress made by IWG on VIAQ and encouraged them to continue their activity and to report progress at the next session of GRPE.

### **XIV. Lifetime compliance (agenda item 13)**

*Documentation:* (ECE/TRANS/WP.29/2021/148), Informal documents GRPE-86-05, GRPE-86-30, GRPE-86-39 and GRPE-86-43

63. The Chair asked GRPE for their comments on the draft Framework Document on Vehicle Whole-Life Compliance (ECE/TRANS/WP.29/2021/148), as agreed during the last session of GRPE (ECE/TRANS/WP.29/GRPE/85, para. 71). Following bilateral consultations, the representatives from the European Commission and the Co-Chair of the IWG on PTI introduced GRPE-86-43 as proposed amendments to ECE/TRANS/WP.29/2021/148. GRPE supported the proposal and requested the secretariat to submit it as an informal document to the June 2022 session of WP.29.

64. The representative from Switzerland introduced GRPE-86-05 to inform GRPE on new requirements during PTI tests regarding particulates number measurement in the country. GRPE noted the presentation from the representative from Switzerland.

65. The representative from the European Commission introduced GRPE-86-30 providing an update to the European Commission PN-PTI guidance document. The representative from Germany highlighted that the procedure for diesel vehicles might not be

appropriate for gasoline engines, and that an on-going study in Europe could bring updated information on this potential issue.

66. The Chair encouraged global exchange on the issue to make sure this activity also benefits countries outside of the EU. The representative from the European Commission confirmed this guidance document was also aimed at being applied globally.

67. The representative from The Netherlands introduced GRPE-86-39 on the developments in the Netherlands with regard to checking vehicle emissions in PTI. The representative from EUROMOT sought further clarifications about the intention with non-road mobile machinery data. The representative from The Netherlands informed that the intention was to provide emission requirements for any construction/ renovation projects for public procurements, including NO<sub>x</sub> emissions quotas for the projects to be met by the service provider, where an amount of NO<sub>x</sub> emissions would be contractually agreed.

## **XV. Priority topics for GRPE activities (agenda item 14)**

*Documentation:* Informal documents GRPE-86-17, GRPE-86-19, GRPE-86-38, GRPE-86-40 and GRPE-86-41

68. The Vice-Chair introduced GRPE-86-41 as his main takeaways from the Life Cycle Assessment (LCA) workshop that took place earlier during the week. The representative from Japan introduced GRPE-86-17, the representative from the Russian Federation introduced GRPE-86-19, the representative from the US introduced GRPE-86-40 and the representative from CLEPA introduced GRPE-86-38 on their respective positions with respect to the inclusion of LCA in GRPE activities and the creation of a dedicated IWG to work on the topic.

69. The representative from the European Commission supported the creation of an IWG on LCA, highlighting that the conditions are not yet met to plan to deliver on a UN GTR. Finalization of ToRs, scope and timing of the activities would be considered during the first meeting of the IWG on LCA and introduced for adoption during the next session of GRPE.

70. The representative from the UK supported LCA to be considered by GRPE and to initiate an IWG on the topic. He highlighted the need to have a clear view on the aims, targets and objectives of the IWG. He also was not supportive of any regulatory deliverables at this stage, and that a mutual resolution, for example, could be drafted once a complete LCA picture has been finalized. He concluded that new expertise from outside of GRPE would be needed.

71. The representative from Sweden thanked Japan and the Republic of Korea for the initiative and supported the creation of a dedicated IWG. He also shared his view that regulatory provisions should not be aimed in a first step, and that the IWG should initially focus on information sharing and deliver a resolution.

72. The representative from Switzerland also supported the initiative as an essential activity for GRPE and showed his willingness to be involved. He also stressed on the importance of looking at air quality, water and soil LCA impacts on top of GHG which is the primary target of the IWG on LCA.

73. The Chair indicated that the draft ToRs, as shown in GRPE-86-18-Rev.1, would be discussed during the first meeting of the IWG on LCA and the next session of GRPE.

74. GRPE agreed to create a new IWG on LCA and to include LCA in the GRPE list of priorities.

75. The representative from Japan indicated that Japan would be happy to host the first IWG meeting expected in October 2022, thought a hybrid meeting configuration, with the support of the secretariat. He indicated the draft ToR would be discussed during the meeting. The secretariat offered its support to organize the first meeting of the IWG on LCA.

## **XVI. Election of officers (agenda item 15)**

76. In compliance with Rule 37 of the Rules of Procedures (TRANS/WP.29/690, as amended) GRPE unanimously elected Mr. André Rijnders (Netherlands) as Chair of GRPE, and Mr. Duncan Kay (United Kingdom of Great Britain and Northern Ireland) as Vice-Chair for the sessions of GRPE scheduled for the year 2023.

## **XVII. Any other business (agenda item 16)**

77. GRPE had not received any new proposals for discussion under this agenda item.

## **XVIII. Provisional agenda for the next session**

### **A. Next GRPE session**

78. The next GRPE session, including IWG meetings, is scheduled to be held from Tuesday 10 January 2023 2.30 p.m. to Friday 13 January 2023 12.00 p.m. Interpretation services would be provided.

### **B. Provisional agenda for the next proper GRPE session**

79. GRPE agreed on the following provisional agenda for its next session:

1. Adoption of the agenda.
2. Report on the last sessions of the World Forum for Harmonization of Vehicle Regulations (WP.29).
3. Light vehicles:
  - (a) UN Regulations Nos. 68 (Measurement of the maximum speed, including electric vehicles), 83 (Emissions of M<sub>1</sub> and N<sub>1</sub> vehicles), 101 (CO<sub>2</sub> emissions/fuel consumption), 103 (Replacement pollution control devices) and 154 (WLTP);
  - (b) UN Global Technical Regulations Nos. 15 (Worldwide harmonized Light vehicles Test Procedures (WLTP)) and 19 (Evaporative emission test procedure for the Worldwide harmonized Light vehicle Test Procedure (WLTP EVAP));
  - (c) Worldwide harmonized Real Driving Emissions test procedure.
4. Heavy duty vehicles:
  - (a) UN Regulations Nos. 49 (Emissions of compression ignition and positive ignition (LPG and CNG) engines) and 132 (Retrofit Emissions Control devices (REC));
  - (b) UN Global Technical Regulations Nos. 4 (World-wide harmonized Heavy Duty Certification procedure (WHDC)), 5 (World-Wide harmonized Heavy Duty On-Board Diagnostic systems (WWH-OBD)) and 10 (Off-Cycle Emissions (OCE));
  - (c) Worldwide provisions for Heavy Duty vehicles Fuel Economy.
5. UN Regulations Nos. 24 (Visible pollutants, measurement of power of C.I. engines (Diesel smoke)), 85 (Measurement of the net power), 115 (LPG and CNG retrofit systems), 133 (Recyclability of motor vehicles) and 143 (Heavy Duty Dual-Fuel Engine Retrofit Systems (HDDF-ERS)).
6. Agricultural and forestry tractors, non-road mobile machinery:

- (a) UN Regulations Nos. 96 (Diesel emission (agricultural tractors)) and 120 (Net power of tractors and non-road mobile machinery);
  - (b) UN Global Technical Regulation No. 11 (Non-road mobile machinery engines).
7. Particle Measurement Programme (PMP).
  8. Motorcycles and mopeds:
    - (a) UN Regulations Nos. 40 (Emission of gaseous pollutants by motor cycles) and 47 (Emission of gaseous pollutants of mopeds);
    - (b) UN Global Technical Regulations Nos. 2 (World-wide Motorcycle emissions Test Cycle (WMTC)), 17 (Crankcase and evaporative emissions of L-category vehicles), 18 (On-Board Diagnostic (OBD) systems for L-category vehicles) and 23 (Durability);
    - (c) Environmental and Propulsion Performance Requirements (EPPR) for L-category vehicles.
  9. Electric Vehicles and the Environment (EVE);
    - (a) UN GTR No. 21 (DEVPP) and 22 (In-vehicle Battery Durability);
    - (b) other activities of IWG on EVE.
  10. Mutual Resolution No. 2 (M.R.2).
  11. International Whole Vehicle Type Approval (IWVTA).
  12. Vehicles Interior Air Quality (VIAQ).
  13. Lifetime Compliance.
  14. Life Cycle Assessment (LCA).
  15. Priority topics for GRPE activities.
  16. Any other business.

**C. Informal meetings scheduled to be held in conjunction with the next GRPE session**

80. The following informal meetings were scheduled to be held, subject to confirmation:

| <i>Date</i>                 | <i>Group</i>   | <i>Acronym</i> | <i>Time</i>            |
|-----------------------------|--|----------------|------------------------|
| Monday, 9<br>January 2023   | Particle Measurement Programme   | PMP            | 2.30 p.m. – 5.30 p.m.  |
|                             | Electric Vehicles and the Environment  | EVE            | 9.30 a.m. – 12.30 p.m. |
| Tuesday, 10<br>January 2023 | Vehicles Interior Air Quality  | VIAQ           | 9.30 a.m. – 12.30 p.m. |
|                             | Global Real Driving Emissions  | RDE            | 2.30 p.m. – 5.30 p.m.  |
|                             | Environmental and Propulsion Performance Requirements of L-category vehicles | EPPR           | 2.30 p.m. – 5.30 p.m.  |

81. The agendas of these meetings will be prepared by the respective Technical Secretaries and distributed to the members of each group prior to each meeting.

## Annex I

### List of informal documents (GRPE-86- ) distributed without an official symbol before and during the session

| <i>No.</i> | <i>(Author) Title</i>  | <i>Follow-up</i> |
|------------|--|------------------|
| 1r1        | (Secretariat) Provisional annotated agenda   | B                |
| 2          | (Chair) Draft running order  | B                |
| 3          | (Secretariat) General Information, 86th session of GRPE  | A                |
| 4          | (Secretariat) Highlights of the recent ITC / WP.29 Sessions and other relevant activities                              | A                |
| 5          | (Switzerland) PN PTI in Switzerland  | A                |
| 6          | (EUROMOT) Observations on type-approval of engines operated on H2 for agricultural & forestry tractors and NRMM        | A                |
| 7          | (EC) Development of the 08 series of amendments to UN Regulation No. 83  | A                |
| 8          | (OICA) Supportive Document on 7000lux issue  | A                |
| 9          | (OICA) Proposal to amend ECE/TRANS/WP.29/GRPE/2022/14  | C                |
| 10         | (OICA) Proposal to amend ECE/TRANS/WP.29/GRPE/2022/15  | C                |
| 11         | (OICA) Proposal to amend ECE/TRANS/WP.29/GRPE/2022/16  | C                |
| 12         | (OICA) Proposal to amend ECE/TRANS/WP.29/GRPE/2022/10  | B                |
| 13         | (OICA) Proposal to supersede ECE/TRANS/WP.29/GRPE/2022/20  | C                |
| 14         | (OICA) Application of Run-In-Factor for electric consumption   | C                |
| 15         | (OICA) Calculation of run-in factor for UN Regulation No. 154_inclData   | C                |
| 16         | (OICA) Proposal for draft Amendments to UN Regulation No. 154 - calculation of Run-in-Factor                           | C                |
| 17         | (Japan) LCA Methodology for Automobile: towards Worldwide Carbon Neutrality  | A                |
| 18r1       | (Japan and Republic of Korea) Draft Terms of Reference of Informal Working Group on Life Cycle Assessment (IWG on LCA) | C                |
| 19         | (Russia) Proposals for Harmonized LCA Methodology Development  | A                |
| 20         | (Clean Air Association) Proposal for amendment to UN GTR No. 15  | A                |
| 21r1       | (IWVTA ambassador) Revised presentation on UI for GRs  | A                |
| 22         | (IWVTA ambassador) Unique Identifier (UI) follow up  | A                |
| 23         | (TFTA) Status report of the Task Force on Tyre Abrasion  | A                |
| 24r1       | (OICA) Proposal for clarification of ISC in the 06 and 07 series of amendments to UN Regulation No.83                  | B                |
| 25         | (OICA) Supportive presentation related to H2 integration in UN Regulations Nos. 49 and 85                              | A                |
| 26         | (EPPR) Status report of the IWG on EPPR  | A                |
| 27r2       | (EPPR) Updated Terms of References (ToRs) for the IWG on EPPR  | B                |
| 28         | (OICA) Statistics of run-in tests  | A                |
| 29         | (EC) Further development of UN Regulation on RDE   | A                |
| 30         | (EC) Update to the European Commission PN-PTI guidance   | A                |
| 31         | (OICA) Concern regarding the Introductory Provision in the newly adopted R154.02                                       | A                |
| 32         | (Secretariat) Summary of Agenda item 3(a) proposals  | A                |
| 33         | (US) US EPA proposed rule for Heavy Duty pollutant emissions   | A                |
| 34         | (PMP) Status report of the IWG on PMP  | A                |
| 35         | (VIAQ) Status report of the IWG on VIAQ  | A                |
| 36         | (OICA) Proposal to amend ECE/TRANS/WP.29/GRPE/2022/17  | C                |
| 37         | (EVE) Status report of the IWG on EVE  | A                |
| 38         | (US) US EPA Position on LCA  | A                |
| 39         | (Netherlands) Developments in NL with regard to checking emissions in PTI  | A                |

| <i>No.</i> | <i>(Author) Title</i>  | <i>Follow-up</i> |
|------------|--|------------------|
| 40         | (CLEPA) CLEPA Feedback to CO <sub>2</sub> -LCA Workshop at GRPE  | A                |
| 41         | (Vice-Chair) LCA workshop thoughts   | A                |
| 42         | (Chair) Updated list of priorities (post session)  | D                |
| 43         | (EC and IWG on PTI) GRPE Proposals to amend ECE/TRANS/WP.29/2021/148   | B                |
| 44         | (EC) draft proposal for the 08 series of amendments to UN Regulation No. 83 (postponed)  | C                |
| 45         | (EC) draft revised proposal for a new UN Regulation on RDE (post session)  | D                |
| 46         | (EC) draft UN GTR on brake particulate emissions (post session)  | D                |
| 47         | (Chair and secretariat) GRPE contributions, future plans, and suggestions in support of climate change mitigation for the 85th session of ITC (post-session) | D                |
| 48         | (OICA) Amendments to GRPE-81-29-Rev.1 : Clarification of points regarding UN Regulation No. 154  | D                |

*Notes:*

- A Consideration by GRPE completed or to be superseded;  
 B Adopted;  
 C Further consideration on the basis of a revised proposal;  
 D To be considered by GRPE via written procedure



## **Annex II**

### **Informal meetings held in conjunction with the GRPE session**

Virtual and hybrid meetings had been held in the weeks prior to GRPE in order to accommodate the different time zones. The planning can be shown on the IWG wiki calendar available in:

<https://wiki.unece.org/pages/viewpage.action?pageId=917779>

## Annex III

### List of GRPE informal working groups, task forces and subgroups

| <i>Name (Acronym) (Status)</i>  | <i>Chair or Co-Chairs</i>   | <i>Secretaries</i>   | <i>End of mandate</i> |
|---|---|--|-----------------------|
| Environmental and Propulsion Performance Requirements of L-category vehicles (EPPR) (group) | Niels den Ouden,<br>NdenOuden@rdw.nl<br><br>Joseph Mashele,<br>joseph.mashele@nrccs.org.za  | Daniela Leveratto,<br>d.leveratto@immamotorcycles.org  | January 2023          |
| Electric Vehicles and the Environment (EVE) (group)   | Michael Olechiw,<br>Olechiw.Michael@epamail.epa.gov<br><br>Pangiota Dilara,<br>Panagiota.DILARA@ec.europa.eu<br><br>Chen Chunmei (Vice-Chair),<br>chencm@miit.gov.cn<br><br>Hajime Ishii (Vice-Chair),<br>ishii@ntsel.go.jp         | Andrew Giallonardo,<br>Andrew.Giallonardo@canada.ca  | January 2024          |
| Particle Measurement Programme (PMP) (group)  | Barouch Giechaskiel,<br>barouch.giechaskiel@ec.europa.eu  | Rainer Vogt,<br>rvogt@ford.com   | June 2023             |
| Vehicle Interior Air Quality (VIAQ) (group)   | Andrey Kozlov,<br>a.kozlov@nami.ru<br><br>Inji Park (Co-Chair),<br>coolinji@kotsa.or.kr   | Andreas Wehrmeier,<br>Andreas.Wehrmeier@bmw.de   | November 2025         |
| Global Real Driving Emissions (RDE) (group)   | Panagiota Dilara,<br>Panagiota.DILARA@ec.europa.eu<br><br>Michael Olechiw,<br>Olechiw.Michael@epamail.epa.gov<br><br>Makoto Tanikura (Vice-Chair),<br>tanikura-m2ki@mlit.go.jp<br><br>Junhong Park (Vice-Chair),<br>pjhy98@korea.kr | Noriyuki Ichikawa (co-Technical Secretary),<br>ichikawa@ntsel.go.jp<br><br>Giustino Manzo (co-Technical Secretary),<br>giustino.manzo@cnhind.com | June 2023             |

## Annex IV

### Adopted amendments to ECE/TRANS/WP.29/GRPE/2022/10 and ECE/TRANS/WP.29/GRPE/2022/13

Adopted on the basis of GRPE-86-12, as combined during the session (see para. 21)

#### A new Supplement to the 05 series of amendments to UN Regulation No. 83

Appendix 2, paragraph 6., amend to read:

"6. Remarks

The following recursive formulae are useful for computing successive values of the test statistic:

$$\begin{aligned} \bar{d}_n &= \left(1 - \frac{1}{n}\right) \bar{d}_{n-1} + \frac{1}{n} d_n \\ V_n^2 &= \left(1 - \frac{1}{n}\right) V_{n-1}^2 + \frac{\left[\bar{d}_n - d_n\right]^2}{n-1} \\ V_n^2 &= \left(1 - \frac{1}{n}\right) V_{n-1}^2 + \frac{(\bar{d}_n - d_n)^2}{n-1} \\ &(n = 2, 3, \dots; \bar{d}_1 = d_1; V_1 = 0) \end{aligned}$$

..."

Annex 4a

Appendix 1, paragraph 1., amend to read:

"1. Specification

1.1. General requirements

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

1.1.1. The dynamometer shall be capable of simulating road load within one of the following classifications: ..."

Appendix 2, paragraph 1.2., amend to read:

"1.2. General requirements

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

..."

Appendix 3, paragraph 1., amend to read:

"1. Specification

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

..."

*Appendix 4, paragraph 1.*, amend to read:

"1. Specification

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

..."

*Appendix 5, paragraph 1.*, amend to read:

"1. Specification

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

..."

*Appendix 6, paragraph 1.*, amend to read:

"1. Object

The method described in this appendix makes it possible to check that the simulated total inertia of the dynamometer is carried out satisfactorily in the running phase of the operating cycle. The manufacturer of the dynamometer shall specify a method for verifying the specifications according to paragraph 3. of this appendix.

**In case of the equipment that meets UN Regulation No. 154 requirements, this application may not be required."**

*Annex 7*

*Paragraph 4.*, amend to read:

"4. Test equipment for evaporative test

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

4.1. Chassis dynamometer

The chassis dynamometer shall meet the requirements of Appendix 1 to Annex 4a to this Regulation.

..."

*Appendix 1, paragraph 1.*, amend to read:

"1. Calibration frequency and methods

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

..."

*Annex 11,*

*Paragraph 3.2.1.2., amend to read:*

"3.2.1.2. A manufacturer may disable ~~the OBD system at ambient engine starting temperatures~~ **any specific OBD monitor for a given driving cycle for ambient or engine temperatures** below 266 K (-7° C) or at elevations over 2,500 metres above sea level provided the manufacturer submits data and/or an engineering evaluation which adequately demonstrate that monitoring would be unreliable when such conditions exist. A manufacturer may also request disablement of ~~the OBD system at other ambient engine starting temperatures if he demonstrates~~ **any specific OBD monitor at other ambient temperatures or other elevations if they demonstrate** to the authority with data and/or an engineering evaluation that misdiagnosis would occur under such conditions. It is not necessary to illuminate the Malfunction Indicator (MI) if ~~the~~ OBD thresholds are exceeded during a regeneration provided no defect is present. "

## Annex V

**Adopted amendments to ECE/TRANS/WP.29/GRPE/2022/10 and  
ECE/TRANS/WP.29/GRPE/2022/13**

Adopted on the basis of GRPE-86-12 and GRPE-86-24-Rev.1, as combined during the session (see para. 22)

**A new Supplement to the 06 series of amendments to UN Regulation  
No. 83**

Paragraph 9.3.5.1., amend to read:

- "9.3.5.1. When applying the statistical procedure defined in Appendix 4 (i.e. for tailpipe emissions), the number of sample lots shall depend on the annual ~~sales~~ **production** volume of an in-service family **intended for sales in the contracting parties that apply this Regulation** ~~territories of a regional organization (e.g. European Union)~~, as defined in the following table.

| <i>Production Volume Registrations</i><br>- per calendar year (for tailpipe emission tests),<br>- of vehicles of an OBD family with IUPR in the<br>sampling period | <i>Number of sample lots</i> |
|--|------------------------------|
| Up to 100,000  | 1                            |
| 100,001 to 200,000   | 2                            |
| Above 200,000  | 3                            |

"

Add new paragraph 9.3.5.3., to read:

- "9.3.5.3. **In-service conformity checks for the Type I test (i.e. for tailpipe emissions) shall not be mandatory if the annual production volume of an in-service family intended for sales in the contracting parties that apply this Regulation was less than 5 000 vehicles for the previous year.**"

Appendix 2, paragraph 6., amend to read:

- "6. Remarks

The following recursive formulae are useful for computing successive values of the test statistic:

$$\begin{aligned}\bar{d}_n &= \left(1 - \frac{1}{n}\right) \bar{d}_{n-1} + \frac{1}{n} d_n \\ V_n^2 &= \left(1 - \frac{1}{n}\right) V_{n-1}^2 + \frac{[\bar{d}_n - d_n]^2}{n-1} \\ V_n^2 &= \left(1 - \frac{1}{n}\right) V_{n-1}^2 + \frac{(\bar{d}_n - d_n)^2}{n-1} \\ &(n = 2, 3, \dots; \bar{d}_1 = d_1; V_1 = 0)\end{aligned}$$

..."

Annex 2

Paragraph 2.4., amend to read:

- "2.4. Smoke opacity test results<sup>e,2</sup>

- 2.4.1. At steady speeds: See technical service test report number **(if any)**: .....

- 2.4.2. Free acceleration tests
- 2.4.2.1. Measured value of the absorption coefficient **(if any)**: ..... m<sup>-1</sup>
- 2.4.2.2. Corrected value of the absorption coefficient: ..... m<sup>-1</sup>
- 2.4.2.3. Location of the absorption coefficient symbol on the vehicle:.....

<sup>e</sup> Smoke opacity **values measurements to be carried out** according to provisions laid out in Regulation No. 24. "

*Annex 4a*

*Appendix 1, paragraph 1.*, amend to read:

"1. Specification

1.1. General requirements

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

1.1.1. The dynamometer shall be capable of simulating road load within one of the following classifications: ..."

*Appendix 2, paragraph 1.2.*, amend to read:

"1.2. General requirements

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

..."

*Appendix 3, paragraph 1.*, amend to read:

"1. Specification

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

..."

*Appendix 4, paragraph 1.*, amend to read:

"1. Specification

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

..."

*Appendix 5, paragraph 1.*, amend to read:

"1. Specification

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version,**

**the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

..."

*Appendix 6, paragraph 1., amend to read:*

"1. Object

The method described in this appendix makes it possible to check that the simulated total inertia of the dynamometer is carried out satisfactorily in the running phase of the operating cycle. The manufacturer of the dynamometer shall specify a method for verifying the specifications according to paragraph 3. of this appendix.

**In case of the equipment that meets UN Regulation No. 154 requirements, this application may not be required."**

*Annex 7*

*Paragraph 4., amend to read:*

"4. Test equipment for evaporative test

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

4.1. Chassis dynamometer

The chassis dynamometer shall meet the requirements of Appendix 1 to Annex 4a to this Regulation.

..."

*Appendix 1, paragraph 1., amend to read:*

"1. Calibration frequency and methods

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

..."

*Annex 11,*

*Paragraph 3.2.1.2., amend to read:*

"3.2.1.2. A manufacturer may disable ~~the OBD system at ambient engine starting temperatures~~ **any specific OBD monitor for a given driving cycle for ambient or engine temperatures** below 266 K (-7° C) or at elevations over 2,500 metres above sea level provided the manufacturer submits data and/or an engineering evaluation which adequately demonstrate that monitoring would be unreliable when such conditions exist. A manufacturer may also request disablement of ~~the OBD system at other ambient engine starting temperatures if he demonstrates~~ **any specific OBD monitor at other ambient temperatures or other elevations if they demonstrate** to the authority with data and/or an engineering evaluation that misdiagnosis would occur under such conditions. It is not necessary to illuminate the Malfunction Indicator (MI) if ~~the~~ OBD thresholds are exceeded during a regeneration provided no defect is present. "



## Annex VI

### Adopted amendments to ECE/TRANS/WP.29/GRPE/2022/10 and ECE/TRANS/WP.29/GRPE/2022/13

Adopted on the basis of GRPE-86-12 and GRPE-86-24-Rev.1, as combined during the session (see para. 23)

#### A new Supplement to the 07 series of amendments to UN Regulation No. 83

Paragraph 9.3.5.1., amend to read:

"9.3.5.1. When applying the statistical procedure defined in Appendix 4 to this Regulation (i.e. for tailpipe emissions), the number of sample lots shall depend on the annual ~~sales~~ **production** volume of an in-service family **intended for sales in the contracting parties that apply this Regulation** ~~territories of a regional organization (e.g. European Union)~~, as defined in Table 4.

Table 4  
Sample size

| <i>Production Volume Registrations</i><br>- per calendar year (for tailpipe emission tests),<br>- of vehicles of an OBD family with IUPR in the sampling period | Number of sample lots |
|---|-----------------------|
| Up to 100,000   | 1                     |
| 100,001 to 200,000  | 2                     |
| Above 200,000   | 3                     |

"

Add new paragraph 9.3.5.3., to read:

"9.3.5.3. **In-service conformity checks for the Type I test (i.e. for tailpipe emissions) shall not be mandatory if the annual production volume of an in-service family intended for sales in the contracting parties that apply this Regulation was less than 5 000 vehicles for the previous year.**"

Appendix 2, paragraph 6., amend to read:

"6. Remarks

The following recursive formulae are useful for computing successive values of the test statistic:

$$\begin{aligned} \bar{d}_n &= \left(1 - \frac{1}{n}\right) \bar{d}_{n-1} + \frac{1}{n} d_n \\ V_n^2 &= \left(1 - \frac{1}{n}\right) V_{n-1}^2 + \left[\frac{\bar{d}_n - d_n}{n-1}\right]^2 \\ V_n^2 &= \left(1 - \frac{1}{n}\right) V_{n-1}^2 + \frac{(\bar{d}_n - d_n)^2}{n-1} \\ &(n = 2, 3, \dots; \bar{d}_1 = d_1; V_1 = 0) \end{aligned}$$

..."

Annex 2

Paragraph 2.4., amend to read:

"2.4. Smoke opacity test results<sup>1,6</sup>

- 2.4.1. At steady speeds: See technical service test report number **(if any)**: .....
- 2.4.2. Free acceleration tests
- 2.4.2.1. Measured value of the absorption coefficient **(if any)**: ..... m<sup>-1</sup>
- 2.4.2.2. Corrected value of the absorption coefficient: ..... m<sup>-1</sup>
- 2.4.2.3. Location of the absorption coefficient symbol on the vehicle:.....

<sup>6</sup> Smoke opacity **values** ~~measurements to be carried out~~ according to provisions laid out in Regulation No. 24. "

*Annex 4a*

*Appendix 1, paragraph 1.,* amend to read:

- "1. Specification
- 1.1. General requirements
  - For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**
  - 1.1.1. The dynamometer shall be capable of simulating road load within one of the following classifications: ..."

*Appendix 2, paragraph 1.2.,* amend to read:

- "1.2. General requirements
  - For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**
  - ..."

*Appendix 3, paragraph 1.,* amend to read:

- "1. Specification
  - For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**
  - ..."

*Appendix 4, paragraph 1.,* amend to read:

- "1. Specification
  - For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**
  - ..."

*Appendix 5, paragraph 1.,* amend to read:

- "1. Specification

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

..."

*Appendix 6, paragraph 1., amend to read:*

"1. Object

The method described in this appendix makes it possible to check that the simulated total inertia of the dynamometer is carried out satisfactorily in the running phase of the operating cycle. The manufacturer of the dynamometer shall specify a method for verifying the specifications according to paragraph 3. of this appendix.

**In case of the equipment that meets UN Regulation No. 154 requirements, this application may not be required."**

*Annex 7*

*Paragraph 4., amend to read:*

"4. Test equipment for evaporative test

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

4.1. Chassis dynamometer

The chassis dynamometer shall meet the requirements of Appendix 1 to Annex 4a to this Regulation.

..."

*Appendix 1, paragraph 1., amend to read:*

"1. Calibration frequency and methods

**For test and measurement equipment that is compliant with the technical requirements of UN Regulation No. 154 original series or later version, the requirements on the technical equipment described in UN Regulation No. 154 may be followed, in all other cases the following requirements shall apply:**

..."

*Annex 11,*

*Paragraph 3.2.1.2., amend to read:*

"3.2.1.2. A manufacturer may disable ~~the OBD system at ambient engine starting temperatures~~ **any specific OBD monitor for a given driving cycle for ambient or engine temperatures** below 266 K (-7° C) or at elevations over 2,500 metres above sea level provided the manufacturer submits data and/or an engineering evaluation which adequately demonstrate that monitoring would be unreliable when such conditions exist. A manufacturer may also request disablement of ~~the OBD system at other ambient engine starting temperatures if he demonstrates~~ **any specific OBD monitor at other ambient temperatures or other elevations if they demonstrate** to the authority with data and/or an engineering evaluation that misdiagnosis would occur under such conditions. It is not necessary to illuminate the Malfunction Indicator (MI) if ~~the~~ OBD thresholds are exceeded during a regeneration provided no defect is present. "

Appendix 1, paragraph 6.5.3.2., amend to read:

- "6.5.3.2. Standards used for the transmission of OBD relevant information:
- (a) ISO 15031-5 "Road vehicles - communication between vehicles and external test equipment for emissions-related diagnostics – Part 5: Emissions-related diagnostic services", dated 1 April 2011 or SAE J1979 dated 23 February 2012;
  - (b) ISO 15031-4 "Road vehicles – Communication between vehicle and external test equipment for emissions related diagnostics – Part 4: External test equipment", dated 1 June 2005 or SAE J1978 dated 30 April 2002;
  - (c) ISO 15031-3 "Road vehicles – Communication between vehicle and external test equipment for emissions related diagnostics Part 3: Diagnostic connector and related electrical circuits: specification and use", dated 1 July 2004 or SAE J 1962 dated 26 July 2012;
  - (d) ISO 15031-6 "Road vehicles – Communication between vehicle and external test equipment for emissions related diagnostics – Part 6: Diagnostic trouble code definitions", dated 13 August 2010 or SAE J2012 dated 7 March 2013;
  - (e) ISO 27145 "Road vehicles – Implementation of World-Wide Harmonized On-Board Diagnostics (WWH-OBD)" dated 2012-08-15 with the restriction, that only 6.5.3.1.(a) may be used as a data link;
  - (f) ~~ISO 14229:2013 "Road vehicles — Unified diagnostic services (UDS) with the restriction, that only 6.5.3.1.(a) may be used as a data link"~~  
**SAE J 1979-2 "E/E Diagnostic Test Modes: OBDonUDS", April 2021.**

The standards (e) ~~and~~ or (f) may be used as an option instead of (a) ~~not earlier than 1 January 2019.~~"

## Annex VII

### Adopted amendments to ECE/TRANS/WP.29/GRPE/2022/22

Adopted on the changes made during the session (see para. 40.)

#### A new Supplement to the 03 series of amendments to UN Regulation No. 24

*Annex 4, paragraph 3.2., amend to read:*

"3.2. Fuel

The fuel shall be the reference fuel whose specifications are given in Annex 6 to this Regulation.

**In the case that testing for emission of gaseous and particulate pollutants ~~according to UN Regulations Nos. 85 and/or 49~~ is conducted at the same time as testing to this Regulation, at the request of the manufacturer the **reference** fuel for testing emission of gaseous and particulate pollutants may be used for testing to this Regulation."**

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